GROUND INVESTIGATION REPORT (FACTUAL)

Phase 1- Land North of Horsham, West Sussex

Moathouse Farm,

Rusper Road,

Horsham,

RH12 4QR,

Client: Legal & General (Strategic Land North of Horsham) Ltd

Consultant: Stantec UK Limited

March 2020

Report No: END20-007

Endeavour Drilling Ltd
Unit 7
Mapledean Industrial Estate
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GROUND INVESTIGATION REPORT (FACTUAL)

Phase 1 - Land North of Horsham, West Sussex

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Signed: [redacted]

Revision	Date	Description	Prepared	Checked
FINAL	19.03.20	Factual Report	JJW	OW

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1. INTRODUCTION

Endeavour Drilling Limited received instruction to carry out Phase 1 ground investigations to aid in the design and construction of a proposed residential development located on Land North of Horsham, West Sussex. The nearest postcode to the site is RH12 4QR.

The ground investigation was instructed by Stantec UK Limited, on behalf of the client; Legal and General (Strategic Land North of Horsham) Ltd and comprised of eight (8) rotary core boreholes, six (6) windowless sample boreholes, fifty-six (56) machine excavated trial pits, with associated sampling and insitu testing, one (1) infiltration test, fifty-five (55) TRL-DCP insitu tests, surface water sampling from four (4) selected locations from existing water courses and finally, variable head tests were carried out at the location of two (2) rotary core boreholes. Laboratory testing, comprising of geotechnical and chemical testing was also undertaken.

It should be noted that one (1) windowless sample borehole (WS203) and one (1) machine excavated trial pit (TP209) along with its associated infiltration test was not carried out due to restricted access. Two additional (2) infiltration tests were not carried out at TP247 and TP252 due to groundwater accumulating in the trial pit. One (1) TRL-DCP was abandoned at TP233 due to services in close proximity.

Semi-permanent groundwater standpipes were installed within all of the rotary core boreholes and all of the window sample boreholes for future gas and groundwater monitoring.

This report presents the factual findings of the ground investigation, together with the results of the geotechnical and chemical laboratory testing.

Where applicable, investigation techniques, sampling, logging of soils and insitu testing complied with the requirements of British Standard BS5930: 2015 – 'Code of Practice for Site Investigations'.

2. LIMITATIONS

This report is based upon the results of the ground investigation and on details of the scheme provided by the consultant; Stantec.

This report has been prepared for the benefit of Legal and General (Strategic Land North of Horsham) Ltd and its contents should not be relied upon by others without the written authority of Endeavour Drilling Limited (ED).

If any unauthorised third party makes use of this report they do so at their own risk and ED owes them no duty of care or skill.

All information provided by others is taken in good faith as being accurate, but ED cannot and does not accept any liability for the detailed accuracy, errors, or omissions within such information.

Subsoils are by their nature hidden from view and no investigation can be exhaustive to the extent that all ground conditions are revealed. Conditions may well be present beneath the site which were not evident from the investigations carried out.

3. FIELDWORK

The fieldwork was undertaken between the 28th November and 20th December 2019 and comprised the following:

- Eight (8) rotary core boreholes formed to final depths of between 8.0mbgl and 19.50mbgl.
- Six (6) windowless sample boreholes drilled to depths of between 1.75mbgl and 4.80mbgl.
- Fifty-six (56) machine excavated trial pits were formed to depths ranging from between 0.50m and 4.0mbgl.
- One (1) soakaway test carried out in accordance with BRE365, within one trial pit.
- Fifty-six (55) dynamic cone penetration tests (TRL-DCPs) were completed from surface.
- Six (6) falling head tests carried out at the location of two rotary core boreholes.
- Four (4) water samples selected locations from existing water courses.
- Groundwater and gas monitoring totalling six (6) visits.

The exploratory hole positions for the ground investigation were predetermined by a representative of Stantec prior to undertaking the fieldwork. An exploratory hole location plan is presented as Figure 1 in Appendix A.

All exploratory positions were service traced with Ground Penetrating Radar and subsequently scanned using a Cable Avoidance Tool (CAT), for the presence of underground buried services by suitably trained ED staff.

3.1. Rotary Cored Boreholes

In total, eight rotary boreholes utilising a Comacchio 205 track-mounted rotary drilling rig, employing a PWF triple tube core barrel utilising a water drilling flush method were completed. This rotary drilling method is designed to maximise core recovery and produces 93mm diameter core retrieved in rigid plastic liners. Dynamic sampling techniques commenced from between 1.20mbgl and 3.00mbgl in cohesive strata, whilst rotary rock coring commenced from between 2.0 and 3.0mbgl once mudstone was encountered and to target depth.

Disturbed and environmental samples were recovered from the cohesive strata for possible future geotechnical and chemical analysis.

Standard or Cone Penetration Tests (SPT / CPT) were undertaken using an automatic trip hammer at 1.00m intervals to 6.0mbgl and at 1.50m centres where possible to target depth. The number of blows required to advance a standard split spoon over the final 300mm of a 450mm total drive was recorded and is shown on the borehole records as the penetration resistance ('N' value).

The retrieved plastic core liners were split open to expose the core and to allow detailed logging and photography by an engineering geologist. In addition, selected sub samples were taken of appropriately sized intact core to allow for laboratory testing.

Upon completion a combination of 19mm and 50mm HDPE standpipes were installed and finished at surface with a raised cover. The design of the standpipes can be summarised in Table 1 below.

Table 1: Standpipe Design (Rotary Core)

BH No.	Standpipe Diameter (mm)	Slotted Section (mbgl)	Plain Section (mbgl)	Gravel Surround (mbgl)	Bentonite Seal (mbgl)
BH201	50	1.00 – 6.00	GL – 1.00	1.00 – 6.00	0.20 – 1.00
BH202	19	1.00 – 7.00	GL – 1.00	1.00 – 7.00	0.20 – 1.00
BH203	50	1.00 – 6.00	GL – 1.00	1.00 – 6.00	0.20 – 1.00
BH204	50	1.00 – 6.00	GL – 1.00	1.00 – 6.00	0.20 – 1.00
BH205	50	1.00 – 6.00	GL – 1.00	1.00 – 6.00	0.20 – 1.00
BH206	50	1.00 – 6.00	GL – 1.00	1.00 – 6.00	0.20 – 1.00
BH207	19	6.00 – 7.00	GL – 6.00	6.00 – 7.00	0.20 – 6.00
BH208	50	1.00 – 6.00	GL – 1.00	1.00 – 6.00	0.20 – 1.00

The rotary cored borehole logs are presented in Appendix B and give both descriptions and depths of strata encountered, together with details of samples taken, in-situ tests, photographs and any other relevant information.

3.2. Falling Head Test

In total, six falling head tests were carried out within rotary boreholes BH202 and BH207, during the drilling process at depths of 2mbgl, 4mbgl and 6mbgl and as specified by the consultant Stantec UK Ltd.

All permeability tests were carried out in accordance with BS 5930:1999. The results of the tests are given within Appendix C.

It should be noted that it was not possible to calculate the permeability due to a low rate of fall.

3.3. Windowless Sample boreholes

In total, six windowless sample boreholes were completed utilising a Dando Terrier rig operated by a two-man crew. These rigs use hydraulics to lift a percussive hammer to drive a series of small diameter tubes into the ground.

It should be noted that all window samples were terminated prior to reaching target depth, were further driving would have caused loss or damage of equipment. Further details are shown in the remarks section on the typed logs.

Three window samples (WS202, WS204, WS205) were terminated due to encountering services whilst hand pitting prior to drilling. These inspection pits were backfilled with arisings and reinstated.

Small disturbed and larger bulk samples were recovered from throughout the window samples for possible future chemical and geotechnical testing. Samples required for chemical analysis were recovered in plastic containers and then stored in refrigerated cool boxes for transport to the analytical laboratory.

Standard Penetration Tests (SPT / CPT), were undertaken at 1.20mbgl at the bottom of each inspection pit and 1.00m intervals to the base of the borehole.

Upon completion 50mm diameter HDPE groundwater standpipes were installed within all window samples and finished at surface with either a flush or raised cover. The design of the standpipes can be summarised in Table 2 overleaf.

Table 2: Standpipe Design (Windowless Samples)

BH No.	Diameter (mm)	Slotted Section (mbgl)	Plain Section (mbgl)	Gravel Surround (mbgl)	Bentonite Seal (mbgl)
WS201	50	1.00 – 2.00	GL – 1.00	1.00 – 2.00	0.20 – 1.00
WS202A	50	0.80 – 1.80	GL – 0.80	0.80 – 1.80	0.20 – 0.80
WS204A	50	1.00 – 2.00	GL – 1.00	1.00 – 2.00	0.20 – 1.00
WS205A	50	0.60 – 1.60	GL – 0.60	0.60 – 1.60	0.20 – 0.60
WS206	50	1.00 – 2.00	GL – 1.00	1.00 – 2.00	0.20 – 1.00
WS207A	50	1.00 – 4.50	GL – 1.00	1.00 – 4.50	0.20 – 1.00

The windowless sample borehole records are presented in Appendix D and give both descriptions and depths of strata encountered, together with details of samples taken.

3.4. Machine Excavated Trial Pits

In total, fifty-six trial pits were mechanically excavated utilising both an eight tonne and thirteen tonne tracked excavator. Each trial pit was formed to a depth ranging from 0.50mbgl (TP233) to 4.00mbgl (various).

It should be noted that TP233 was terminated at 0.50mbgl prior to reaching target depth due to encountering a suspected water pipe.

Small disturbed and larger bulk samples were recovered from throughout the window samples for possible future chemical and geotechnical testing. Samples required for chemical analysis were recovered in plastic containers and then stored in refrigerated cool boxes for transport to the analytical laboratory.

A note was made of any groundwater encountered, and of the stability of the trial pit sides during excavation.

The trial pit logs are presented in Appendix E and give both descriptions and depths of the strata encountered, together with details of samples taken, insitu tests, and any other relevant information.

3.5. TRL-DCP Insitu Tests

In total, fifty-five TRL-DCP tests were completed from surface.

The TRL-DCP uses an 8kg hammer dropping over a height of 575mm and a 60º cone that has a maximum diameter of 20mm. The instrument is held vertically. A hammer is lifted to the handle before the operator lets it fall freely to achieve penetration of the ground surface.

Penetration readings are taken in increments of 100mm and the number of blows between each reading is recorded and is proportional to the insitu density of the material encountered.

The results are presented in Appendix F.

3.6. Soakaway Testing

One soakaway test was carried out within one trial pit (TP202) utilising a thirteen tonne tracked excavator. This test was carried out at a targeted depth specified by the Consultant and were undertaken in general accordance with BRE Digest 365 “Soakaway Design” 2007.

The dimensions of the pit were measured and then filled with water, the fall in water level was measured at regular intervals in order that infiltration rates may be calculated.

The results are presented in Appendix G.

3.7. Hand Excavated Trial Pits

In total, three trial pits were hand excavated utilising insulated hand tools to gather additional environmental samples for possible future chemical analysis. Each hand pit was formed to a target depth of 1.20mbgl.

A note was made of any groundwater encountered, and of the stability of the trial pit sides during excavation.

The hand pits logs are presented in Appendix H and give both descriptions and depths of the strata encountered, together with details of samples taken, insitu tests, and any other relevant information.

3.8. Gas & Groundwater Monitoring

The standpipes as detailed in Table 1 and 2 above, have been monitored by a ED technician every two weeks for a period of twelve weeks, totalling six visits for methane, carbon dioxide and oxygen using a GA2000 Infra-Red Gas Analyser. Atmospheric pressure, gas flow rate and water levels were also recorded during each visit. The groundwater monitoring results are presented in appendix I.

3.9. Geology

The British Geological Survey 1:50,000 scale, Solid and Drift Edition, indicates that majority of the site is underlain by the Weald Clay Formation. At Moathouse Farm an ironstone band can be found that runs in an East-West trend and Alluvium is present to the South East of the site near Channels Brook.

4. LABORATORY TESTING

The laboratory testing programme comprised of both geotechnical and chemical testing for use in classifying and assessing the ground conditions encountered.

Laboratory testing was undertaken by UKAS / MCERTS accredited laboratories; the geotechnical testing by I2 Analytical and chemical analysis by ALS Environmental. The results are included in Appendices J and K respectively.

4.1. Geotechnical Testing

The geotechnical laboratory testing was undertaken to provide classification and strength data on selected samples.

Twenty-seven samples were tested for moisture content to enable the material to be classified and its engineering behaviour assessed in accordance with BS1377, Part 2:1990; clause 3.2, 4.4, 5.3 and 5.4.

Atterberg limits were determined for Twenty-seven samples of cohesive material to enable the material to be classified and its engineering behaviour assessed in accordance with BS1377, Part 2:1990; clause 3.2, 4.4, 5.3 and 5.4.

Twenty-five particle size distribution tests were carried out, using the wet sieve method. These tests were undertaken in accordance with BS1377, Part 2:1990; clause 9.

The quantitative determination of the particle size distribution for fine soils, from coarse silt to clay was undertaken on eighteen samples, assessed in accordance with BS1377, Part 2: 1990, clause 9.4, using the sedimentation by pipette method.

Fifty-six samples were tested for shear strength using a calibrated laboratory hand shear vane.

Twelve samples were tested for dry density and moisture content relationship in accordance with BS1377, Part 4:1990; clause 3.5 for heavy compaction using a 2.50kg rammer with a freefall height of 450mm.

Fourteen uniaxial compressive strength tests were performed on suitable samples of rock, with the deformation in uniaxial compression also being recorded together with seventeen point load tests. All tests were undertaken in general accordance with ISRM suggested methods 1981-1985.

4.2. Chemical Testing

Thirty-seven samples of soil were analysed for a comprehensive range of determinants summarised in Tables 3 to 5 presented below:

Table 3: Stantec basic soil suite

Arsenic	*Zinc*
Cadmium	*Water Soluble Sulphate*
Chromium	*TPH – CWG (C5 - 35)*
Copper	*Speciated PAH*
Lead	*Phenols*
Mercury	*Asbestos Screen*
Nickel	*Soil Organic Matter*
Selenium *Polychlorinated Biphenyls (PCB)*	*pH*

Table 4: Stantec herbicides soil suite

Organophosphorus	*Triazine Herbicides*
Organochlorine	*Acid Herbicides*

Table 5: Stantec geochemical test suite

Asbestos Quantification by Gravimetric Analysis	*Asbestos Quantification by Phase Contrast Optical Microscopy*

In order to evaluate any aggressive tendency of the sub soil to buried concrete, thirteen soil samples were analysed in accordance with the BRE SD1 Suite, comprising pH, total sulphate, total sulphide, water soluble sulphate, chloride, nitrate and magnesium.

A total of eleven water samples were recovered during the second round of monitoring and were analysed for a comprehensive range of determinants summarised in Table 6 and Table 7 below:

Table 6: Stantec basic water suite

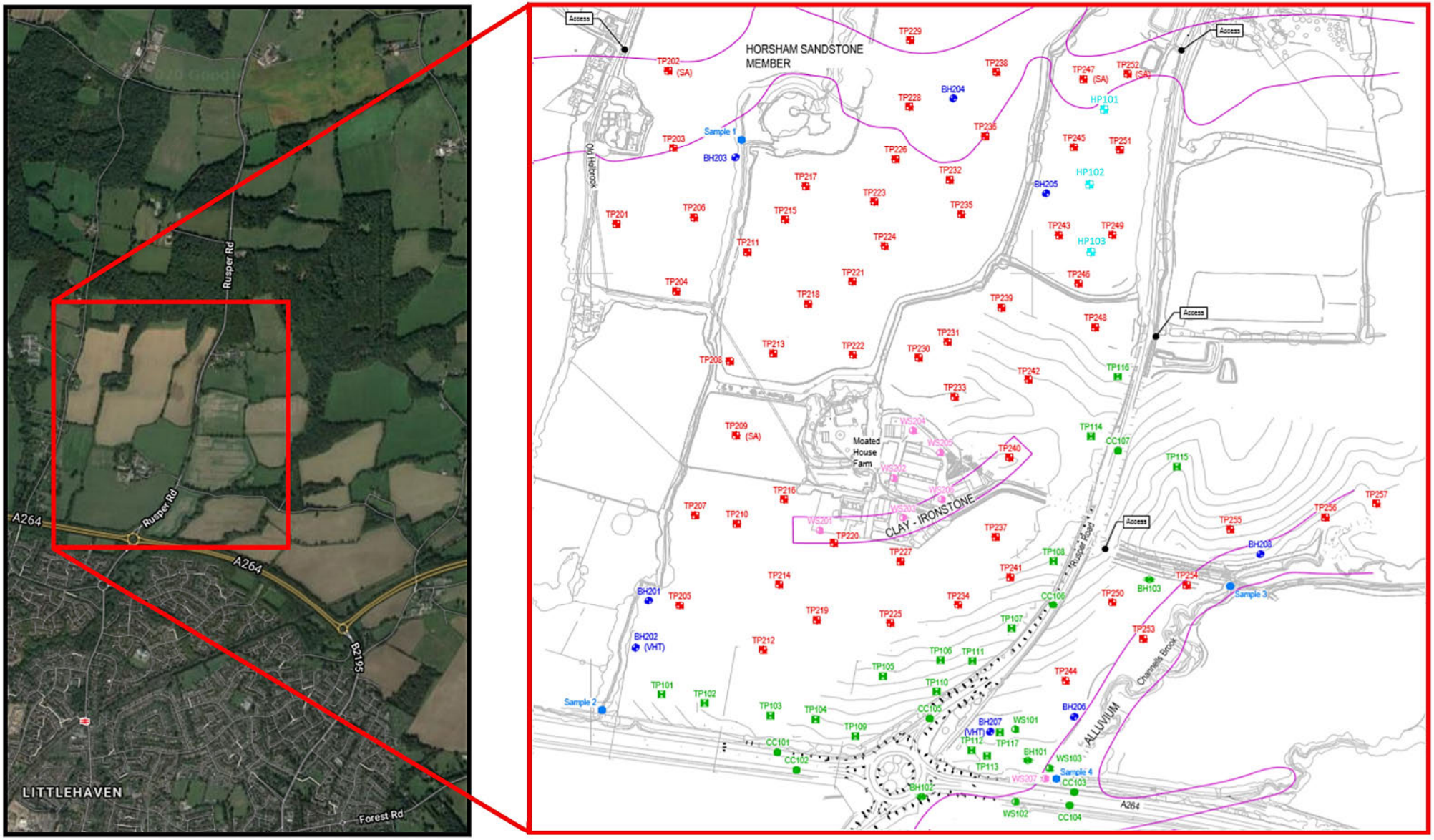
Arsenic	*Chloride*
Cadmium	*Water Soluble Sulphate*
Chromium	*TPH – CWG (C5 - 35)*
Copper	*Speciated PAH*
Lead	*Phenols*
Mercury	*pH*
Nickel	*Calcium*
Selenium *Polychlorinated Biphenyls (PCB)*	*Dissolved Organic Carbon*
Zinc	*Total Alkalinity*
Ammoniacal Nitrogen	*Electrical Conductivity*

Table 7: Stantec herbicides water suite

Pesticides Suite I	*Pesticides Suite III*
Pesticides Suite II	

APPENDIX A

Site Location Plan



PROJECT:
PHASE 1 LAND NORTH OF HORSHAM, WEST SUSSEX

TITLE:
EXPLORATORY HOLE LOCATION PLAN

CLIENT:
LEGAL AND GENERAL LTD

endeavour drilling
GEO-ENVIRONMENTAL DRILLING SPECIALISTS

SCALE:	JOB No.
NTS	J4175
DRAWN: JJW	DATE:
CHECKED: MJS	29/01/20

KEY:
- Deep Boreholes
- Trial Pit
- Windowless Sample Borehole
- Surface Water Sample Location
- Hand Pit
- (SA) Soakaway Location
- (VHT) Variable Head Test Location
- Existing Exploratory Hole Locations (Hydrock, 2019)

REV:	DATE:	DETAILS:	DRW:	CHK:

DWG No: FIGURE 1

REV:

APPENDIX B

Rotary Core Borehole Records

endeavour drilling

Contract Name:	Client:	Borehole ID:
P1, Land North of Horsham, West Sussex	Legal and General (Strategic Land North of Horsham) Ltd	BH201

Contract Number:	Date Started:	Loggged By:	Checked By:	Status:	Sheet 1 of 2
J4175	26/11/2019	OW	MJS	FINAL	

Geobore 'S' Rotary Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Print Date:	Scale:
	518567.1	133617.2	53.36mOD	Comacchio205	21/02/2020	1:50

Weather: Frequent showers | Termination: Reached target depth | SPT Hammer: SPT5 Energy Ratio: 65%

Depth	TCR	SCR	RQD	FI	Sample	SPT	Level (mAOD)	Depth (m) (Thickness)	Strata Description	Water Strike	Backfill/ Installation
					0.35 D1 0.50 ES1 HV 0.50m, 83kPa 0.80 0.80 - 1.20 B1 D2 HV 0.90m, 75kPa 1.00 ES2 1.50 D3 1.80 - 2.00 D4 2.00 - 2.45 UT1 2.84 - 2.94 C1 3.10 - 3.42 C2 4.00 - 4.18 C3 5.55 - 5.90 C4 6.40 - 6.75 C5 8.42 - 8.58 C6 9.86 - 10.14 C7	SPT(S) 1.20m, N=19 (4,3/4,5,5,5)	53.10	0.25 (0.45)	TOPSOIL - Light brown sandy CLAY with frequent rootlets <2mm (living).		
							52.66	0.70 (0.50)	Stiff light brown mottled orangish brown and light grey sandy CLAY. [RESIDUAL WEALD CLAY FORMATION]		
							52.16	1.20 (0.80)	Stiff light brown mottled orangish brown and light grey sandy CLAY with frequent extremely weak, gravel of fine to coarse angular to sub-angular sandstone, mudstone and limestone. (RESIDUAL WEALD CLAY FORMATION)		
							51.36	2.00 (0.60)	Stiff dark brown mottled orangish brown sandy CLAY with occasional gravel of extremely weak fine to coarse angular to sub-rounded mudstone and ironstone lithorelics and occasional lenses of light grey silty clay (<4mm in thickness). (RESIDUAL WEALD CLAY FORMATION)		
2.00 - 3.50	100	12	7	25		SPT(S) 2.50m, 45 (15,10/45 for 280mm)	50.76	2.60 (0.90)	Stiff dark brown mottled dark orangish brown sandy CLAY with occasional to rare extremely weak, fine to coarse angular to subangular, fine to coarse mudstone lithorelics and occasional lens of light grey silty clay. (DESTRUCTURED WEALD CLAY FORMATION) *...between 2.45m to 2.50mbgl becoming fissured. Fissures are extremely closely to very closely spaced, planar with rough and smooth surfaces. Apertures are tight to moderately wide and clean.*		
3.50 - 4.50	100	56	32	16		SPT(C) 3.50m, 100 (14,11/100,,,)	49.86	3.50 (2.50)	Very stiff to light grey slightly sandy CLAY with dark orange staining penetrating up to 12mm, thickly interbedded with very weak dark brownish grey thickly laminated mudstone. Fractures are horizontal, extremely closely to closely spaced (20-100-40) planar with rough surfaces. Apertures are moderately wide to wide and clean. Weathering is dark orangish brown and dark brown penetrating up to 20mm on fractured surfaces. (DISTINCTLY TO PARTIALLY WEATHERED CLAY)		
4.50 - 6.00	100	85	51	13		SPT(C) 4.50m, 100 (17,8/100,,,)			Extremely weak to very weak thinly laminated to thinly bedded MUDSTONE. With occasional bands recovered as very stiff clay. Fractures are horizontal, very closely to closely spaced (30-180-70) planar with rough surfaces. Apertures are partly open to moderately wide and clean. Weathering is dark orange and reddish brown penetrating up to 3mm along fractured surfaces. (PARTIALLY WEATHERED WEALD CLAY FORMATION) *...below 4.70mbgl weathering becoming rare. Between 4.50m to 6.00m fractures are horizontal to subhorizontal, very closely to widely spaced (20-350-123), planar with rough and smooth surfaces. Apertures are tight to wide with occasional clay infilling.*		
6.00 - 7.50	100	98	73	6		SPT(C) 6.00m, 100 (25,/100 for 262mm)	47.36	6.00 (3.00)			
7.50 - 9.00	100	89	26	20		SPT(C) 7.50m, 100 (25,/100 for 240mm)			Weak dark grey thinnly to thickly laminated MUDSTONE with rare localised bands recovered as very stiff silty clay (<262mm). Fractures are horizontal, closely to widely spaced, (40-356-132) planar with rough and smooth surfaces. Apertures are moderately wide to wide with occasional clay infilling. (UNWEATHERED WEALD CLAY FORMATION) *...Between 7.50-9.00m fractures are horizontal to subhorizontal very closely to closely spaced (8mm-140mm-49). planar with rough and smooth surfaces. Apertures are tight to moderately wide with occasional clay infilling.*		
9.00 - 10.50	100	93	49	8		SPT(C) 9.00m, 100 (10,15/100 for 262mm)	44.36	9.00	Moderately weak thickly laminated MUDSTONE. Fractures are horizontal to subhorizontal, closley to medium spaced (80-220-100) planar with rough and smooth surfaces. Apertures are moderately wide to wide with occasional mudstone recovered as angular to subangular, fine to coarse gravel. (UNWEATHERED WEALD CLAY FORMATION)		

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
25-11-2019	16:00	2.60	1.50	
26-11-2019	16:00	4.50	1.50	
27-11-2019	16:00	12.00	1.50	

Borehole Diameter

Depth (m)	Dia (mm)
1.20	300
2.00	130

Casing Diameter

Depth (m)	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Installation

Top (m)	Base (m)	Type	Dia (mm)
0.00	1.00	PLAIN	50
1.00	6.00	SLOTTED	50

Remarks:

1. Inspection pit hand excavated to 1.20mbgl. 2. Dynamic sampled to 2.0mbgl, then rotary cored with PWF and water flush to 12.0mbgl. 3. No ground water encountered before water flush. 4. 50mm monitoring well installed to 6.0mbgl on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.20			20	0.96	

Fracture spacing reported as Index average over 1m. TCR, SCR and RQD reported in %

endeavour drilling

Contract Name:	Client:	Borehole ID:
P1, Land North of Horsham, West Sussex	Legal and General (Strategic Land North of Horsham) Ltd	BH201

Contract Number:	Date Started:	Loggged By:	Checked By:	Status:	Sheet 2 of 2
J4175	26/11/2019	OW	MJS	FINAL	

Geobore 'S' Rotary Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Print Date:	Scale:
	518567.1	133617.2	53.36mOD	Comacchio205	21/02/2020	1:50

Weather: Frequent showers | Termination: Reached target depth | SPT Hammer: SPT5 Energy Ratio: 65%

Samples & In Situ Testing							Strata Details				Groundwater	
Depth	TCR	SCR	RQD	FI	Sample	SPT	Level (mAOD)	Legend	Depth (m) (Thickness)	Strata Description	Water Strike	Backfill/ Installation
						SPT(C) 10.50m, 100 (25 for 20mm/100 for 50mm)			(3.00)	**please note run 10.50m to 12.00mbgl still stuck in barrel within borehole.		
							41.36		12.00	End of Borehole at 12.00m		

11 12 13 14 15 16 17 18 19 20

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)
25-11-2019	16:00	2.60	1.50	
26-11-2019	16:00	4.50	1.50	
27-11-2019	16:00	12.00	1.50	

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
1.20	300		
2.00	130		

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Installation			
Top (m)	Base (m)	Type	Dia (mm)
0.00	1.00	PLAIN	50
1.00	6.00	SLOTTED	50

Remarks:

1. Inspection pit hand excavated to 1.20mbgl. 2. Dynamic sampled to 2.0mbgl, then rotary cored with PWF and water flush to 12.0mbgl. 3. No ground water encountered before water flush. 4. 50mm monitoring well installed to 6.0mbgl on completion.

Water Strikes

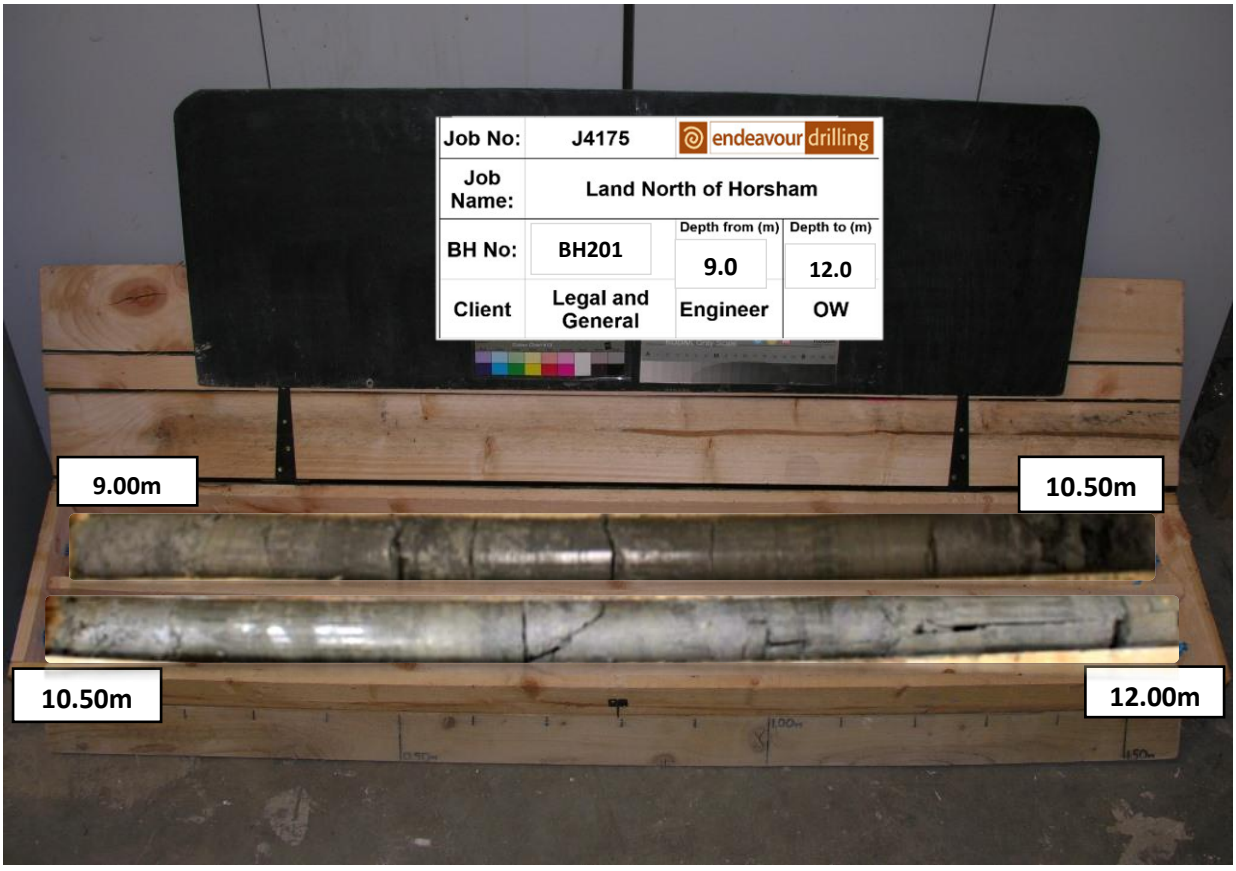
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.20			20	0.96	

Fracture spacing reported as Index average over 1m. TCR, SCR and RQD reported in %


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH201
Depth from (m): 1.2
Depth to (m): 3.5
Client: Legal and General
Engineer: OW
1.20m
2.00m
2.00m
3.50m


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH201
Depth from (m): 3.5
Depth to (m): 6.0
Client: Legal and General
Engineer: OW
3.50m
4.50m
4.50m
6.00m


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH201
Depth from (m) 6.0
Depth to (m) 9.0
Client Legal and General
Engineer OW
6.00m
7.50m
7.50m
9.00m


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH201
Depth from (m) 9.0
Depth to (m) 12.0
Client Legal and General
Engineer OW
9.00m
10.50m
10.50m
12.00m

endeavour drilling

Contract Name:	Client:	Borehole ID:
P1, Land North of Horsham, West Sussex	Legal and General (Strategic Land North of Horsham) Ltd	BH202

Contract Number:	Date Started:	Loggged By:	Checked By:	Status:	Sheet 1 of 3
J4175	03/12/2019	OW	MJS	FINAL	

Geobore 'S' Rotary Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Print Date:	Scale:
	518551.6	133562.9	52.35mOD	Commacchio 205	21/02/2020	1:50

Weather: | Termination: Reached target depth | SPT Hammer: SPT5 Energy Ratio: 65%

Depth	TCR	SCR	RQD	FI	Sample	SPT	Level (mAOD)	Depth (m) (Thickness)	Strata Description	Water Strike	Backfill/ Installation
					0.20 ES1 0.35 ES2 0.40 D1 HV 0.40m, 79kPa		52.10	0.25	TOPSOIL - Light brown sandy CLAY, with frequent rootlets.		
								(0.65)	Stiff light greyish brown mottled orangish brown and bluish grey sandy CLAY. (RESIDUAL WEALD CLAY FORMATION)		
							51.45	0.90			
1.20 - 2.00	100	10	0	21	0.90 - 1.20 B1 1.00 D2 1.60 - 1.75 C1	SPT(C) 1.20m, N=34 (3,4/5,9,10,10)	51.15	(0.30) 1.20	Stiff light brown mottled light brownish grey and dark orangish brown sandy CLAY, with frequent extremely weak to very weak fine to coarse angular to subangular mudstone lithorelics. (DESTRUCTURED WEALD CLAY FORMATION)		
								(1.10)	Very stiff slightly sandy to light brown mottled light grey and orangish brown CLAY, thickly interbedded with extremely weak to very weak light grey weathered dark orangish brown mudstone. Fractures are drilling induced to weakness of rock. (DISTINCTLY WEALD CLAY FORMATION)		
2.00 - 3.00	100	57	15	16	2.40 - 2.47 C2	SPT(C) 2.00m, 100 (6,9/100 for 150mm)	50.05	2.30	Extremely weak to very weak thinly laminated to thinly bedded light grey and light brown MUDSTONE. Fractures are horizontal, extremely closely to closely spaced (19 - 150mm) planar with rough surfaces. Apertures are partly open to moderately wide and clean. Weathering is dark orangish brown penetrating <15mm on fractured surfaces. (DISTINCTLY TO PARTIALLY WEATHERED WEALD CLAY FORMATION)		
3.00 - 4.00	80	30	0	10	3.92 - 4.00 C3	SPT(C) 3.00m, 100 (6,18/100 for 150mm)		(2.05)	*...between 3.00 - 4.00mbgl with frequent bands recovered as very stiff light grey mottled dark orangish brown sandy clay. Fractures are horizontal, very closely to closely spaced (20 - 70mm) planar with rough surfaces. Apertures are moderately wide and clean.*		
4.00 - 5.00	100	60	37	9	4.73 - 4.88 C4	SPT(C) 4.00m, N=74 (10,12/10,12,22,30)	48.00	4.35	*...between 4.00 - 4.35mbgl recovered as slightly sandy clay.*		
5.00 - 6.00	100	95	37	9	5.85 - 6.00 C5	SPT(C) 5.00m, 100 (25 for 75mm/100 for 75mm)		(3.15)	Very weak to weak thinly to thickly laminated MUDSTONE with rare bands recovered as very stiff silty clay. Fractures are horizontal, very closely to closely spaced (40 - 170mm) planar with rough and smooth surfaces. Apertures are moderately wide to wide open with occasional clay infill. (UNWEATHERED WEALD CLAY FORMATION)		
6.00 - 7.50	24	0	0			SPT(C) 6.00m, 100 (25 for 75mm/100 for 150mm)			*...between 5.00 - 6.00mbgl fractures are subhorizontal to horizontal, very closely to closely spaced (20 - 150mm) planar with rough and smooth surfaces. Apertures are partly open to moderately wide and clean.* *...between 6.00 - 7.20mbgl no recovery.*		
									...between 7.20 - 7.50 recovered as firm dark grey mottled dark orangish brown clay.		
7.50 - 9.00	100	73	67	7	8.40 - 8.74 C6	SPT(C) 7.50m, 100 (25 for 75mm/100 for 150mm)	44.85	7.50	Weak thinly to thickly laminated MUDSTONE, with occasional bands of hard silty clay. Fractures are subhorizontal to horizontal. Extremely closely to medium spaced (18 - 340mm) planar with rough surfaces. Apertures are tight to wide and clean. (UNWEATHERED WEALD CLAY FORMATION)		
9.00 - 10.50	95	80	78	5	9.18 - 9.52 C7	SPT(C) 9.00m, 100 (25 for 75mm/100 for 75mm)			*...between 9.00 - 10.50mbgl fractures are horizontal, very closely to medium spaced (30 - 320mm) planar with rough surfaces. Apertures are tight*		

Groundwater

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
03-12-2019	16:00	7.50	1.50	2.91
04-12-2019	16:00	16.50	1.50	2.52
05-12-2019	16:00	19.50	1.50	2.85

Borehole Diameter

Depth (m)	Dia (mm)

Casing Diameter

Depth (m)	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Installation

Top (m)	Base (m)	Type	Dia (mm)
0.00	1.00	PLAIN	50
1.00	7.00	SLOTTED	50

Remarks:

1. Inspection pit hand excavated to 1.20mbgl. 2. Rotary cored with PWF and water flush to 19.5mbgl. 3. Ground water encountered at 0.90mbgl (perched). 4. 50mm monitoring well installed to 7.0mbgl on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
0.90			0		Perched

Fracture spacing reported as Index average over 1m. TCR, SCR and RQD reported in %

endeavour drilling

Contract Name:	Client:	Borehole ID:
P1, Land North of Horsham, West Sussex	Legal and General (Strategic Land North of Horsham) Ltd	BH202

Contract Number:	Date Started:	Loggged By:	Checked By:	Status:	Sheet 2 of 3
J4175	03/12/2019	OW	MJS	FINAL	

Geobore 'S' Rotary Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Print Date:	Scale:
	518551.6	133562.9	52.35mOD	Commacchio 205	21/02/2020	1:50

Weather:	Termination: Reached target depth	SPT Hammer: SPT5 Energy Ratio: 65%

Samples & In Situ Testing							Strata Details				Groundwater	
Depth	TCR	SCR	RQD	FI	Sample	SPT	Level (mAOD)	Legend	Depth (m) (Thickness)	Strata Description	Water Strike	Backfill/ Installation
10.50 - 12.00	140	114	108	5	11.00 - 11.43 C8	SPT(C) 10.50m, 100 (25 for 75mm/100 for 75mm)				*...between 10.50 to 12.0m fractures ar horizontal to sub-horizontal very closely to medium spaced (25-43mm) with rough and smooth surfaces. Apertures are tight to wide and clean.*		
12.00 - 13.50	97	85	110	11	12.48 - 12.58 C9	SPT(C) 12.00m, 100 (25 for 75mm/100 for 75mm)			(10.88)	*...between 12.0 and 13.0m fractures are horizontal to sub-vertical very closely to closely spaced (25-110mm) with rough and smooth surfaces. Apertures are tight to wide with occasional clay infilling.* *...at 12.45m with smooth polished fractured surface.*		
13.50 - 15.00	143	130	80	8	14.67 - 14.93 C10	SPT(C) 13.50m, 100 (25 for 75mm/100 for 75mm)				*....between 13.50 and 15m fractures are horizontal to sub-horizontal very closely to medium spaced (40-38mm) planar with rough to smooth surfaces. Apertures are tight to moderately wide with rare clay infilling.*		
15.00 - 16.50	150	118	98	6	15.94 - 16.25 C11	SPT(C) 15.00m, 100 (25 for 75mm/100 for 75mm)				*...between 15.0 and 16.50m are horizontal to sub-vertical very closely to medium spaced (20-29mm) planar with rough surfaces. Apertures are tight to wide and occasionally infilled with stiff clay.* *...at 15.94m fracture is smooth and polished surface.*		
16.50 - 18.00	135	82	49	10	16.74 - 17.04 C12	SPT(C) 16.50m, 100 (25 for 75mm/100 for 150mm)				*...between 16.50 and 18.0m fractures are horizontal to sub-vertical very closely to medium spaced (30-29mm) planar with rough and smooth surfaces. Apertures are tight to moderately wide with occasional clay infill and rare mudstone gravel infill.*		
18.00 - 19.50	142	105	48	12	18.50 - 18.67 C13	SPT(C) 18.00m, 100 (25 for 75mm/100 for 75mm)	33.97		18.38 (0.51)	Moderately weak to medium strong light grey and yellowish brown thinly laminated to very thinly bedded fine grained SANDSTONE with occasional bands recovered as angular to sub-angular fine to coarse gravel. Fractures are horizontal extremely closely to closely spaced (10-140mm) planar with smooth surfaces. Apertures are open to moderately wide and clean. (UNWEATHERED WEALD CLAY FORMATION)		
				12			33.46		18.89 (0.61)			
						SPT(C) 19.50m, 100 (22,3/100 for 75mm)	32.85		19.50	Weak thinly laminated to thickly laminated MUDSTONE with occasional bands of hard silty		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)
03-12-2019	16:00	7.50	1.50	2.91
04-12-2019	16:00	16.50	1.50	2.52
05-12-2019	16:00	19.50	1.50	2.85

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Installation			
Top (m)	Base (m)	Type	Dia (mm)
0.00	1.00	PLAIN	50
1.00	7.00	SLOTTED	50

Remarks:

1. Inspection pit hand excavated to 1.20mbgl. 2. Rotary cored with PWF and water flush to 19.5mbgl. 3. Ground water encountered at 0.90mbgl (perched). 4. 50mm monitoring well installed to 7.0mbgl on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
0.90			0		Perched

Fracture spacing reported as Index average over 1m. TCR, SCR and RQD reported in %

endeavour drilling

Contract Name:	Client:	Borehole ID:
P1, Land North of Horsham, West Sussex	Legal and General (Strategic Land North of Horsham) Ltd	BH202

Contract Number:	Date Started:	Loggged By:	Checked By:	Status:	Sheet 3 of 3
J4175	03/12/2019	OW	MJS	FINAL	

Geobore 'S' Rotary Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Print Date:	Scale:
	518551.6	133562.9	52.35mOD	Commacchio 205	21/02/2020	1:50

Weather: | Termination: Reached target depth | SPT Hammer: SPT5 Energy Ratio: 65%

Samples & In Situ Testing | Strata Details | Groundwater

Depth	TCR	SCR	RQD	FI	Sample	SPT	Level (mAOD)	Legend	Depth (m) (Thickness)	Strata Description	Water Strike	Backfill/ Installation
										clay. Fractures are horizontal very closely to closely spaced (30-100mm) planar with rough and smooth surfaces. Apertures are open to moderately wide with occasional clay infill. (UNWEATHERED WEALD CLAY FORMATION)		
										End of Borehole at 19.50m		

21 22 23 24 25 26 27 28 29 30

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
03-12-2019	16:00	7.50	1.50	2.91
04-12-2019	16:00	16.50	1.50	2.52
05-12-2019	16:00	19.50	1.50	2.85

Borehole Diameter

Depth (m)	Dia (mm)

Casing Diameter

Depth (m)	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Installation

Top (m)	Base (m)	Type	Dia (mm)
0.00	1.00	PLAIN	50
1.00	7.00	SLOTTED	50

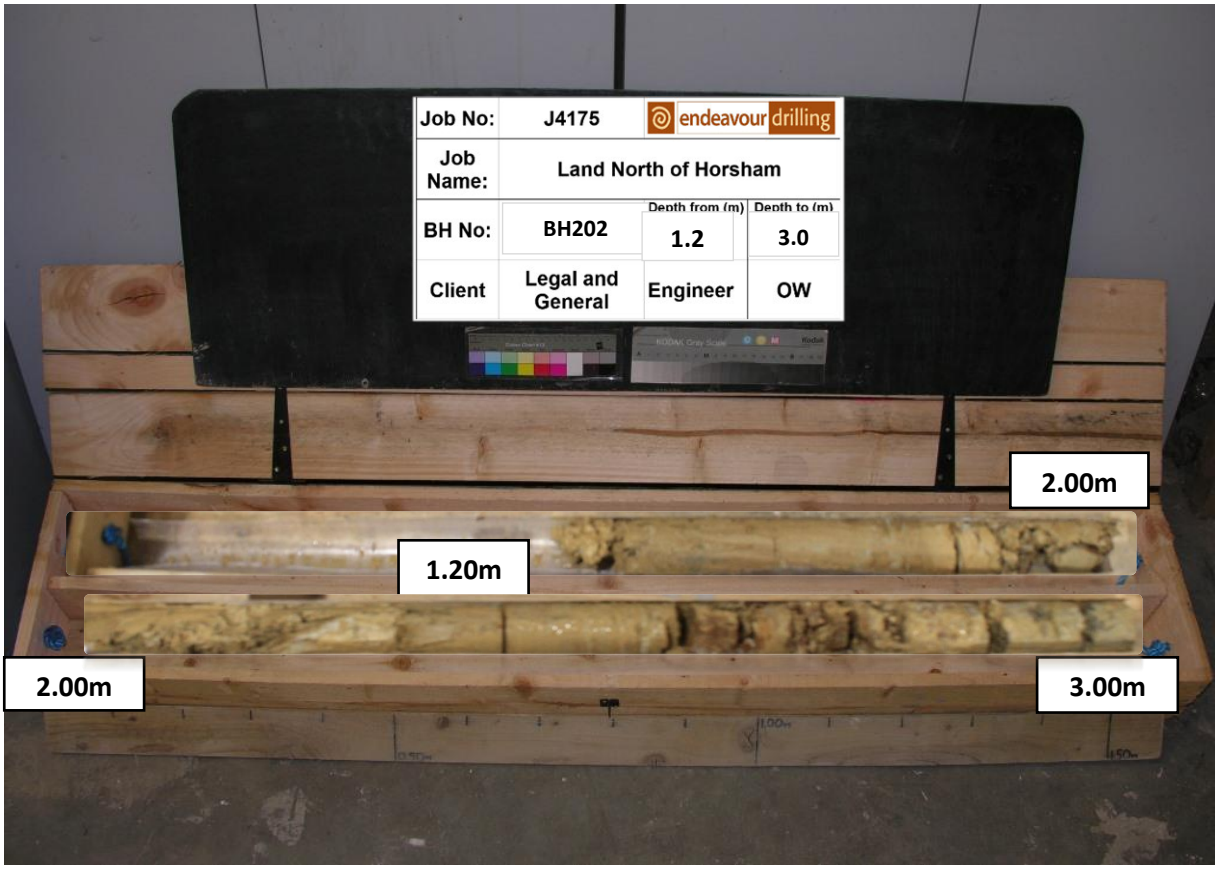
Remarks:

1. Inspection pit hand excavated to 1.20mbgl. 2. Rotary cored with PWF and water flush to 19.5mbgl. 3. Ground water encountered at 0.90mbgl (perched). 4. 50mm monitoring well installed to 7.0mbgl on completion.

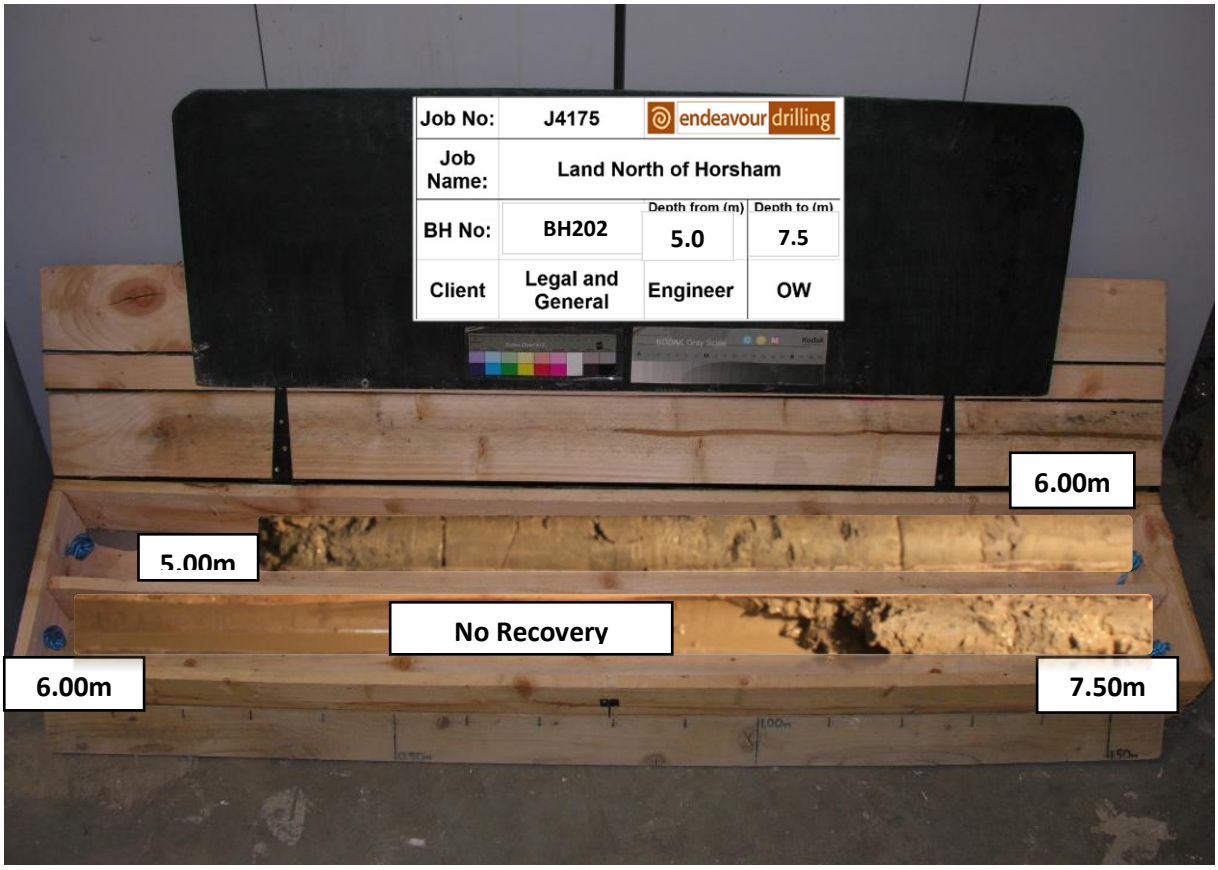
Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
0.90			0		Perched

Fracture spacing reported as Index average over 1m. TCR, SCR and RQD reported in %

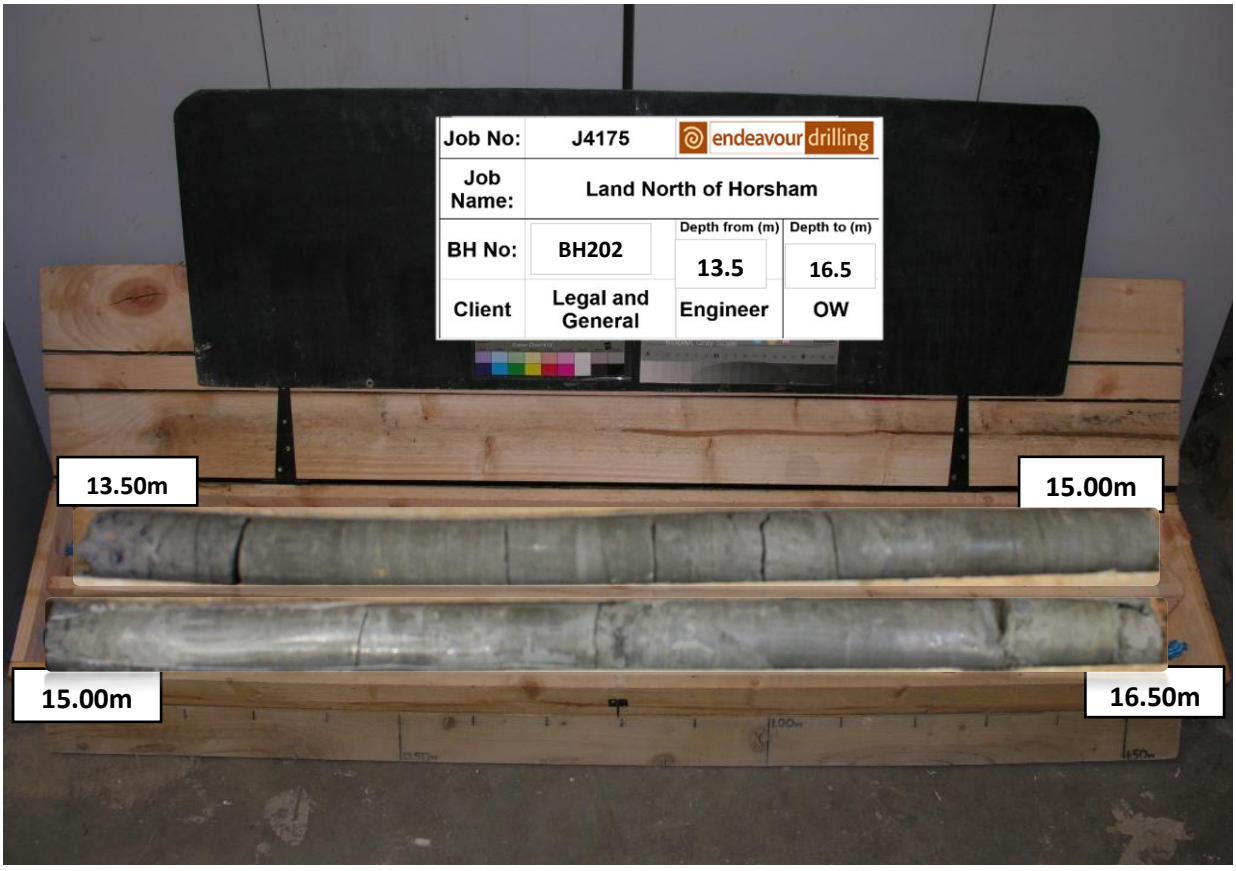

Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH202
Depth from (m): 1.2
Depth to (m): 3.0
Client: Legal and General
Engineer: OW
2.00m
1.20m
2.00m
3.00m


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH202
Depth from (m): 3.0
Depth to (m): 5.0
Client: Legal and General
Engineer: OW
3.00m
4.00m
4.00m
5.00m


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH202
Depth from (m): 5.0
Depth to (m): 7.5
Client: Legal and General
Engineer: OW
6.00m
5.00m
No Recovery
6.00m
7.50m


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH202
Depth from (m): 7.5
Depth to (m): 10.5
Client: Legal and General
Engineer: OW
7.50m
9.00m
9.00m
10.50m


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH202
Depth from (m) 10.5
Depth to (m) 13.5
Client Legal and General
Engineer OW
10.50
12.00m
12.00m
13.50m


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH202
Depth from (m) 13.5
Depth to (m) 16.5
Client Legal and General
Engineer OW
13.50m
15.00m
15.00m
16.50m


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH202
Depth from (m) 16.5
Depth to (m) 19.5
Client Legal and General
Engineer OW
16.50
18.00m
18.00m
19.50m

endeavour drilling

Contract Name:	Client:	Borehole ID:
P1, Land North of Horsham, West Sussex	Legal and General (Strategic Land North of Horsham) Ltd	BH203

Contract Number:	Date Started:	Loggged By:	Checked By:	Status:	Sheet 1 of 2
J4175	06/12/2019	OW	MJS	FINAL	

Geobore 'S' Rotary Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Print Date:	Scale:
	518663.6	134139.8	62.05mOD	Comacchio205	21/02/2020	1:50

Weather: Frequent showers | Termination: Reached target depth | SPT Hammer: SPT5 Energy Ratio: 65%

Depth	TCR	SCR	RQD	FI	Sample	SPT	Level (mAOD)	Depth (m) (Thickness)	Strata Description	Water Strike	Backfill/ Installation
					0.50 ES1		61.85	0.20	TOP SOIL - Dark brown sandy CLAY with frequent rootlets <2mm (living).		
					1.10 ES2	SPT(C) 1.20m, N=29 (2,2/6,7,9,7)	60.85	(1.00) 1.20	Firm light brown mottled orangish brown and light grey sandy CLAY. (RESIDUAL WEALD CLAY FORMATION)		
1.20 - 2.00	100	0	0		1.80 - 2.00 D1	SPT(C) 2.00m, N=34 (4,6/8,8,8,10)	60.65	1.40 (1.00)	Firm to stiff light brown mottled orangish brown and slight grey slightly silty CLAY. (RESIDUAL WEALD CLAY FORMATION) Very stiff dark brownish orange sandy CLAY thinly laminated with extremely weak dark brown bluish grey mudstone recovered as fine to coarse angular to sub-angular gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
2.00 - 3.00	100	23	0	10	2.84 - 2.92 C1	SPT(C) 3.00m, 100 (8,11/100 for 200mm)	59.65	2.40 (0.90)	Stiff light brown mottled orangish brown and light grey slightly sandy CLAY thickly interbedded with extremely weak dark orangish brown and grey mudstone. Fractures are horizontal very closely to closely spaced (50-90-106) planar with rough and smooth surfaces. Apertures are open to moderately wide and clean. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
3.00 - 4.00	100	45	0	18	3.48 - 3.57 C2		58.75	3.30 (0.70)	Very weak thinly laminated to thinly bedded MUDSTONE. Fractures are horizontal very closely to closely spaced (4-10-31) planar with rough and smooth surfaces. Apertures are open to moderately wide and clean. Weathering is dark orange penetrating up to 20mm along fractured surfaces and with frequent bands recovered as stiff silty clay. (PARTIALLY WEATHERED WEALD CLAY FORMATION)		
4.00 - 5.00	100	30	0	24	4.20 - 4.76 C3	SPT(C) 4.00m, N=74 (10,12/12,12,20, 30)	58.05	4.00 (2.00)	Very stiff dark grey and dark orangish brown slightly sandy CLAY thickly interbedded with extremely weak partially weathered to very weak dark grey weathered dark orangish brown thickly laminated mudstone. Fractures are horizontal extremely close to very closely spaced (2-21-60mm) planar with rough and smooth surfaces. Apertures are open to tight wide and clean. Weathering penetrating up to 15mm and distinctly to partially weathered. (DISTINCTLY TO PARTIALLY WEATHERED WEALD CLAY FORMATION) *...between 5.0 and 5.25m no recovery.* *...between 5.0-6.0m mudstone bands becoming rare.*		
5.00 - 6.00	75	0	0		5.82 - 6.00 C4	SPT(C) 5.00m, 100 (10,13/100 for 285mm)	56.05	6.00			
6.00 - 7.50	95	69	33	15	6.80 - 6.98 C5	SPT(C) 6.00m, 100 (20,5/100 for 145mm)					
7.50 - 9.00	79	77	45	13	8.72 - 9.00 C6	SPT(C) 7.50m, 100 (25 for 75mm/100 for 45mm)		(6.00)	Very weak to weak dark grey thinly to thickly laminated MUDSTONE with rare bands recovered as very stiff silty clay. Fractures are horizontal to sub-horizontal extremely closely to very closely spaced (3-180-61mm) planar with rough to smooth surfaces. Apertures are tight to open with clay infilling and clean. (UNWEATHERED WEALD CLAY FORMATION) *...at 6.80m fractures with smooth polished surfaces.* *...between 7.50 to 9.0m fractures are horizontal extremely closely to medium spaced (5-280-95mm) planar with rough and smooth surfaces. Apertures are tight to open with occasional clay infilling.*		
9.00 - 10.50	98	65	11	14	9.84 - 10.00 C7	SPT(C) 9.00m, 100 (21,4/100 for 135mm)			*...between 9.0-10.50m fractures are horizontal to sub-horizontal extremely closely to very closely spaced (10-170-60mm) planar with rough to smooth surfaces apertures are tight to clean with frequent clay infilling.*		

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
06-12-2019	16:30	4.00		
09-12-2019	16:30	12.00		

Borehole Diameter

Depth (m)	Dia (mm)
1.20	300

Casing Diameter

Depth (m)	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Installation

Top (m)	Base (m)	Type	Dia (mm)
0.00	1.00	PLAIN	50
1.00	6.00	SLOTTED	50

Remarks:

1. Inspection pit hand excavated to 1.20mbgl.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Fracture spacing reported as Index average over 1m. TCR, SCR and RQD reported in %

endeavour drilling

Contract Name:	Client:	Borehole ID:
P1, Land North of Horsham, West Sussex	Legal and General (Strategic Land North of Horsham) Ltd	BH203

Contract Number:	Date Started:	Loggged By:	Checked By:	Status:	Sheet 2 of 2
J4175	06/12/2019	OW	MJS	FINAL	

Geobore 'S' Rotary Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Print Date:	Scale:
	518663.6	134139.8	62.05mOD	Comacchio205	21/02/2020	1:50

Weather: Frequent showers | Termination: Reached target depth | SPT Hammer: SPT5 Energy Ratio: 65%

Samples & In Situ Testing							Strata Details				Groundwater	
Depth	TCR	SCR	RQD	FI	Sample	SPT	Level (mAOD)	Legend	Depth (m) (Thickness)	Strata Description	Water Strike	Backfill/ Installation
10.50 - 12.00	100	83	37	8	10.90 - 11.20 C8	SPT(C) 10.50m, 100 (25 for 0mm/100 for 10mm)				*...between 10.50 to 12.0m fractures are horizontal to sub-horizontal (20-260-93mm extremely closely to medium spaced planar with rough to smooth surfaces. Apertures are tight to open with frequent clay infilling.*		
						SPT(C) 12.00m, 100 (25 for 0mm/100 for 10mm)	50.05		12.00	End of Borehole at 12.00m		

11 12 13 14 15 16 17 18 19 20

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)
06-12-2019	16:30	4.00		
09-12-2019	16:30	12.00		

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
1.20	300		

Remarks:

1. Inspection pit hand excavated to 1.20mbgl.

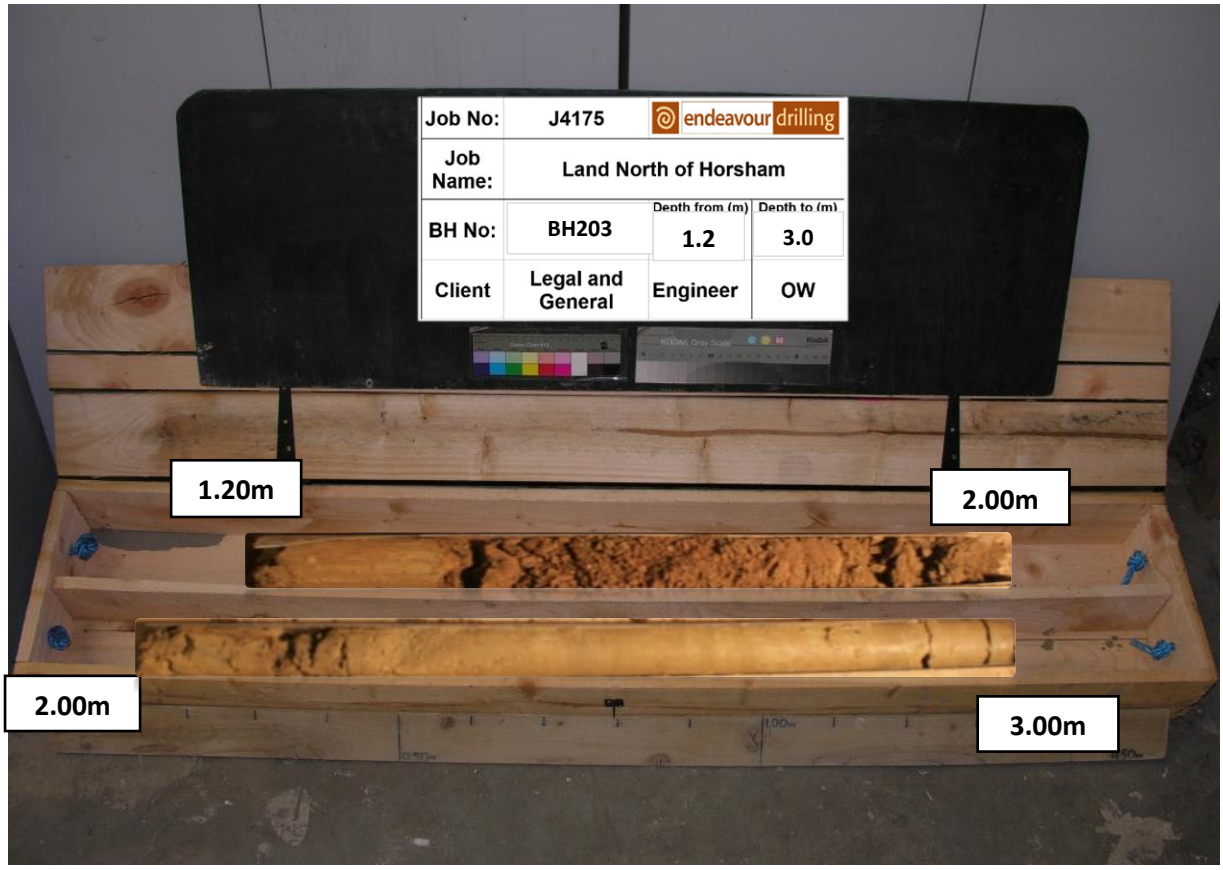
Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

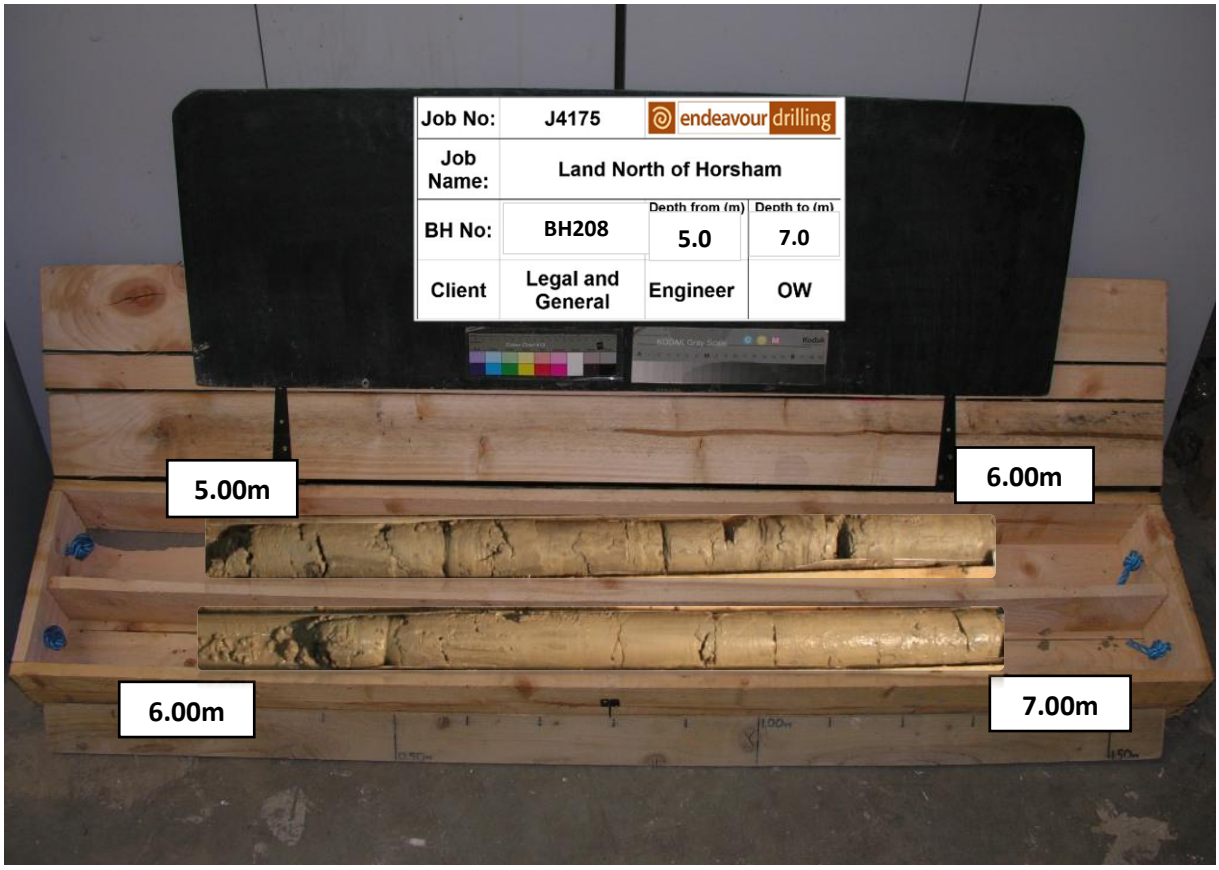
Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Installation			
Top (m)	Base (m)	Type	Dia (mm)
0.00	1.00	PLAIN	50
1.00	6.00	SLOTTED	50

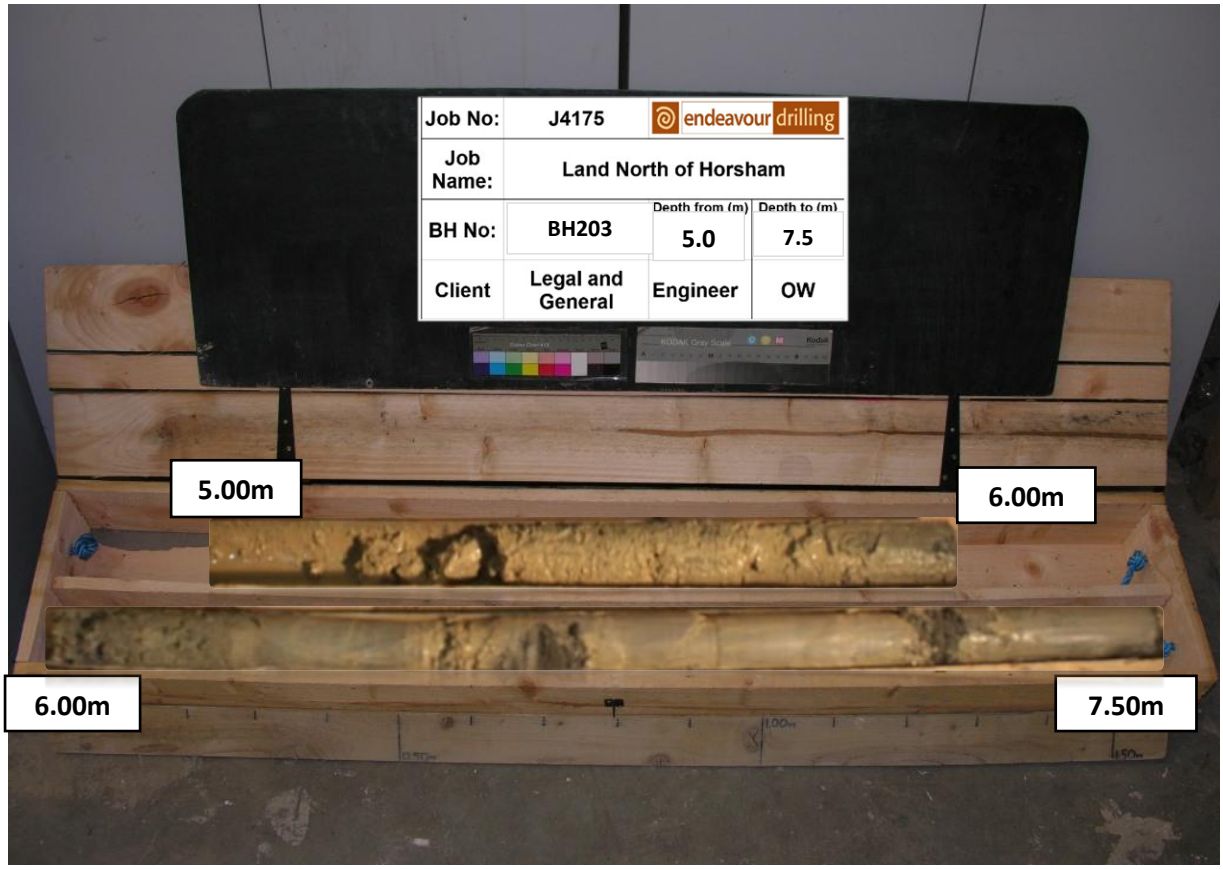
Fracture spacing reported as Index average over 1m. TCR, SCR and RQD reported in %


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH203
Depth from (m): 1.2
Depth to (m): 3.0
Client: Legal and General
Engineer: OW
1.20m
2.00m
2.00m
3.00m


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH203
Depth from (m): 3.0
Depth to (m): 5.0
Client: Legal and General
Engineer: OW
3.00m
4.00m
4.00m
5.00m


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH208
Depth from (m) 5.0
Depth to (m) 7.0
Client Legal and General
Engineer OW
5.00m
6.00m
6.00m
7.00m


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH208
Depth from (m) 7.0
Depth to (m) 8.0
Client Legal and General
Engineer OW
7.00m
8.00m


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH203
Depth from (m) 5.0
Depth to (m) 7.5
Client Legal and General
Engineer OW
5.00m
6.00m
6.00m
7.50m


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH203
Depth from (m) 7.5
Depth to (m) 10.5
Client Legal and General
Engineer OW
7.50m
9.00m
9.00m
10.50m


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH203
Depth from (m) 10.5
Depth to (m) 12.0
Client Legal and General
Engineer OW
10.50m
12.00m

endeavour drilling

Contract Name:	Client:	Borehole ID:
P1, Land North of Horsham, West Sussex	Legal and General (Strategic Land North of Horsham) Ltd	BH204

Contract Number:	Date Started:	Loggged By:	Checked By:	Status:	Sheet 1 of 1
J4175	10/12/2019	JJW	MJS	FINAL	

Geobore 'S' Rotary Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Print Date:	Scale:
	518910.2	134204.0	69.88mOD	Comacchio205	21/02/2020	1:50

Weather: Frequent showers | Termination: Reached target depth. | SPT Hammer: SPT5 Energy Ratio: 65%

Depth	TCR	SCR	RQD	FI	Sample	SPT	Level (mAOD)	Legend	Depth (m) (Thickness)	Strata Description	Water Strike	Backfill/ Installation
					0.50 ES1		69.68		0.20 (0.60)	TOP SOIL - Dark brown sandy CLAY with frequent rootlets <2mm (living). Firm light brown mottled orange and grey silty sandy CLAY. (RESIDUAL WEALD CLAY FORMATION)		
					1.20 ES2	SPT(C) 1.20m, N=17 (2,2/3,4,5,5)	69.08		0.80 (0.40)	Firm light brown mottled orange and grey slightly silty slightly sandy slightly gravelly CLAY. Gravel is fine to medium sub-angular of extremely weak mudstone. (RESIDUAL WEALD CLAY FORMATION)		
1.20 - 2.00	97	0	0		1.55 - 1.65 D1		68.68		1.20 (1.20)	Stiff light brown mottled orangish brown and light grey slightly sandy CLAY with occasional fine to medium angular to sub-angular extremely weak mudstone. (DESTRUCTURED WEALD CLAY FORMATION)		
2.00 - 3.00	100	20	0		2.80 - 3.00 D2	SPT(C) 2.00m, N=37 (7,5/6,8,11,12) SPT(C) 3.00m, N=39 (4,6/8,11,9,11)	67.48		2.40 (1.30)	Very stiff to hard light greyish brown mottled orangish brown CLAY with rare very thinly bedded extremely weak dark brown mudstone. Weathered blackish brown penetrating up to 22mm recovered as sub-angular coarse gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
3.00 - 4.00	100	30	0	34	3.90 - 4.00 C1		66.18		3.70	Extremely weak to very weak thinly laminated and thinly bedded MUDSTONE. Fractures are horizontal extremely closely to closely spaced (3-90-31mm) planar with rough surfaces. Apertures are tight to open with clay infilling. Weathering is dark orangish brown penetrating up to 21mm along fractured surfaces and also with occasional bands recovered as slightly silty slightly sandy clay. (DISTINCTLY WEATHRERED WEALD CLAY FORMATION)		
4.00 - 5.00	100	40	0	22	4.00 - 4.48 C2	SPT(C) 4.00m, N=42 (9,10/11,10,10,11)			(1.80)	*...between 4.0m to 5.0m fractures are horizontal extremely closely to closely spaced (10-90-33mm) planar with rough surfaces. Apertures are tight to open with clay infilling.*		
5.00 - 6.00	100	45	11	22	5.81 - 5.91 C3	SPT(C) 5.00m, 100 (6,16/100 for 225mm)	64.38		5.50	Very weak to weak dark grey thinly to thickly laminated MUDSTONE with occasional bands recovered as very stiff silty clay. Fractures are horizontal extremely closely to closely spaced (5-110-38mm) planar with smooth and rough surfaces. Apertures are open to moderately wide with occasional clay infilling. (UNWEATHRED WEALD CLAY FORMATION)		
6.00 - 7.50	95	57	0	23	7.20 - 7.29 C4	SPT(C) 6.00m, N=46 (6,7/9,11,12,14) SPT(C) 7.50m, N=100 (4,6/14,31,29,26)	62.23		(2.15) 7.65	*...between 6.0 to 7.0m fractures are sub-horizontal to horizontal extremely closely to closely spaced (3-80-28mm) planar with smooth surfaces. Apertures are open to moderately wide with rare clay infilling.* End of Borehole at 8.00m		

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
10-12-2019	16:30	5.00		
11-12-2019	16:30	8.00		

Borehole Diameter

Depth (m)	Dia (mm)

Casing Diameter

Depth (m)	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Installation

Top (m)	Base (m)	Type	Dia (mm)
0.00	1.00	PLAIN	50
1.00	6.00	SLOTTED	50

Remarks:

1. Inspection pit hand excavated to 1.20mbgl. 2. water? 3. Dynamic sampled to 3.0mbgl, then rotary cored with PWF and water flush to 8.0mbgl. 4. 50mm monitoring well installed to 6.0mbgl on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Fracture spacing reported as Index average over 1m. TCR, SCR and RQD reported in %


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH204
Depth from (m) 1.2
Depth to (m) 3.0
Client Legal and General
Engineer OW
1.20m
2.00m
2.00m
3.00m


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH204
Depth from (m) 3.0
Depth to (m) 5.0
Client Legal and General
Engineer OW
3.00m
4.00m
4.00m
5.00m


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH204
Depth from (m) 5.0
Depth to (m) 7.5
Client Legal and General
Engineer OW
5.00m
6.00m
6.00m
7.50m

endeavour drilling

Contract Name:	Client:	Borehole ID:
P1, Land North of Horsham, West Sussex	Legal and General (Strategic Land North of Horsham) Ltd	BH205

Contract Number:	Date Started:	Loggged By:	Checked By:	Status:	Sheet 1 of 1
J4175	11/12/2019	OW	MJS	FINAL	

Geobore 'S' Rotary Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Print Date:	Scale:
	519014.2	134092.3	64.74mOD	Comacchio205	21/02/2020	1:50

Weather: Frequent showers | Termination: Reached target depth | SPT Hammer: SPT5 Energy Ratio: 65%

Samples & In Situ Testing							Strata Details				Groundwater	
Depth	TCR	SCR	RQD	FI	Sample	SPT	Level (mAOD)	Legend	Depth (m) (Thickness)	Strata Description	Water Strike	Backfill/ Installation
					0.50 ES1		64.54		0.20	TOP SOIL - Dark brown sandy CLAY with frequent rootlets <2mm (living).		
									(1.00)	Firm light brown mottled orange and grey slightly silty slightly sandy slightly gravelly CLAY. Gravel is fine to medium sub-angular of extremely weak mudstone. (RESIDUAL WEALD CLAY FORMATION)		
										...from 1.0mbgl with occasional rootlets (living)		
					1.20 ES2	SPT(C) 1.20m, N=8 (2,2/2,2,2,2)	63.54		1.20			
1.20 - 2.00	100	0	0		1.70 - 2.00 C1				(1.00)	Stiff light brown mottled orangish brown and light grey slightly sandy CLAY. (RESIDUAL WEALD CLAY FORMATION)		
						SPT(C) 2.00m, N=22 (2,3/4,5,5,8)	62.54		2.20			
2.00 - 3.00	100	0	0		2.75 - 3.00 C2					Stiff dark brown mottled light grey sandy CLAY, with frequent fine to coarse angular to subangular extremely weak mudstone lithorelics. (RESIDUAL WEALD CLAY FORMATION)		
						SPT(C) 3.00m, N=42 (3,4/8,8,10,16)						
3.00 - 4.00	100	0	0		3.80 - 4.00 C3				(2.50)			
						SPT(C) 4.00m, N=100 (10,12/22,34,36, 8)				*...from 3.7mbgl becoming occasional very thinly bedded with extremely weak light grey weathered dark orangish brown mudstone recovered as fine to coarse angular to subangular gravel (DESTRUCTURED)*		
4.00 - 5.00	100	30	0	31	4.77 - 4.84 C4		60.04		4.70	Extremely weak to very weak thinly lamiated to thinly bedded dark grey MUDSTONE. Fractures are horizontal extremely closely to closely spaced (3mm - 70mm - 24mm) planar with rough surfaces. Apertures are tight to moderately wide with occasional clay infilling. Weathering dark orangish brown, penetrating <14mm along fractured surfaces, and also with occasional bands recovered as very stiff clay. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
						SPT(C) 5.00m, 100 (5,16/100 for 150mm)						
5.00 - 6.00	100	78	23	22	5.67 - 5.79 C5				(1.60)			
						SPT(C) 6.00m, 100 (6,18/100 for 75mm)						
6.00 - 7.00	100	72	45	12	6.80 - 7.00 C6		58.44		6.30	*...between 5.0 - 6.0mbgl fractures are horizontal to subhorizontal extremely closely to closely spaced (3mm - 120mm - 41mm) planar with rough surfaces. Apertures are tight to moderately wide with occasional clay infilling.*		
									(0.70)			
						SPT(C) 7.00m, N=69 (10,12/10,15,21, 23)	57.74		7.00	Very weak thinly laminated to thinly bedded dark grey MUDSTONE with rare bands recovered as silty clay. Fractures are horizontal to subhorizontal extremely closely to medium spaced (20mm - 210mm - 77mm) planar with rough and smooth surfaces. Apertures are open to wide with occasional gravel infill. Weathering is dark orange penetrating <20mm along fractured surfaces. (PARTIALLY WEATHERED WEALD CLAY FORMATION)		
7.00 - 8.00	100	45	0	16	7.80 - 7.90 C7				(1.00)			
						SPT(C) 8.00m, 100 (3,6/100 for 150mm)	56.74		8.00	Very stiff dark grey slightly sandy CLAY, thickly interbedded with with very weak dark grey thinly laminated mudstone. Fractures are horizontal very closely to closely spaced (25mm - 90mm - 38mm) planar with rough and smooth surfaces. Apertures are tight to open and clean. (UNWEATHERED WEALD CLAY FORMATION)		
										End of Borehole at 8.00m		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)
11-12-2019	16:00	4.00		
12-12-2019	16:00	8.00		

Borehole Diameter	
Depth (m)	Dia (mm)

Casing Diameter	
Depth (m)	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Installation			
Top (m)	Base (m)	Type	Dia (mm)
0.00	1.00	PLAIN	50
1.00	6.00	SLOTTED	50

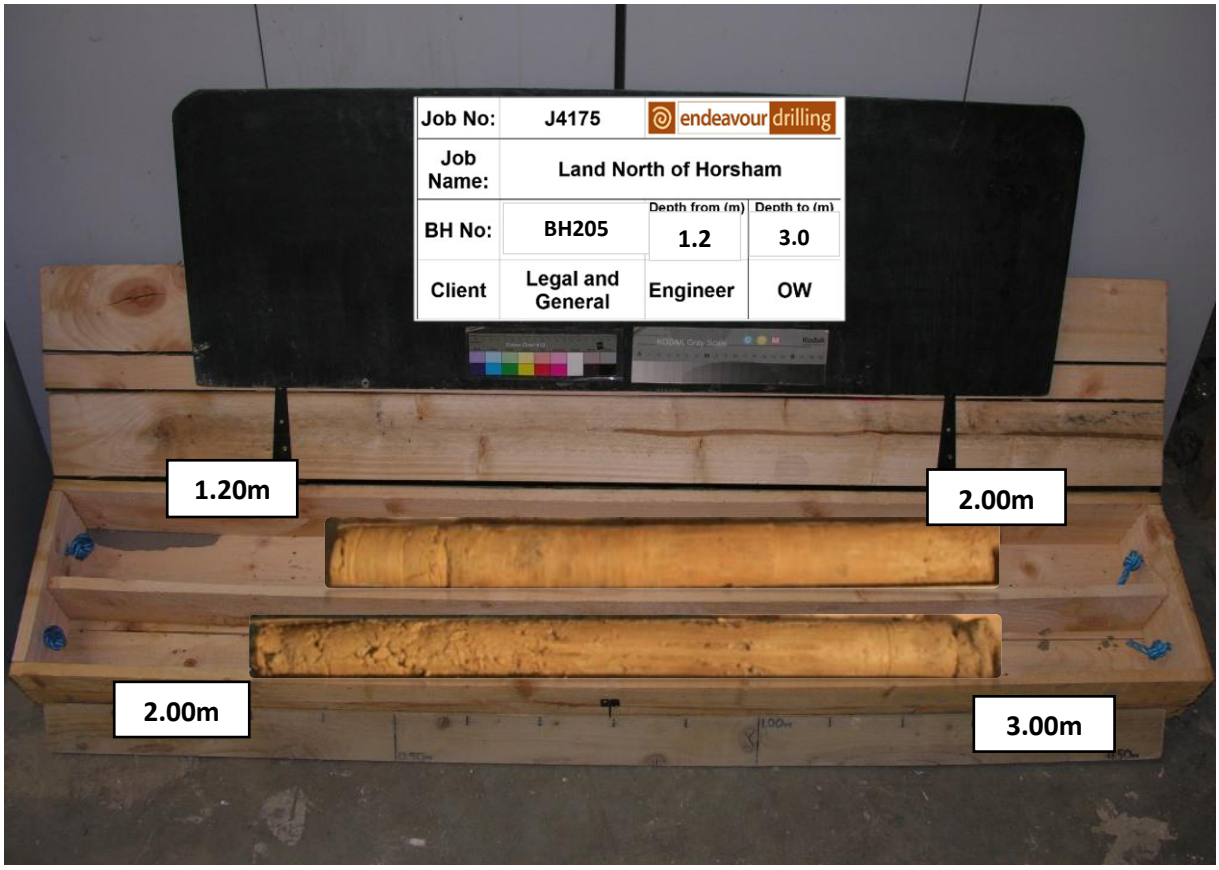
Remarks:

1. Inspection pit hand excavated to 1.20mbgl. 2. Rotary cored with PWF and water flush to 8.0mbgl. 3. No ground water encountered. 4. 50mm monitoring well installed to 6.0mbgl on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Fracture spacing reported as Index average over 1m. TCR, SCR and RQD reported in %


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH205
Depth from (m) 1.2
Depth to (m) 3.0
Client Legal and General
Engineer OW
1.20m
2.00m
2.00m
3.00m


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH205
Depth from (m) 3.0
Depth to (m) 5.0
Client Legal and General
Engineer OW
3.00m
4.00m
4.00m
5.00m


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH205
Depth from (m) 5.0
Depth to (m) 7.0
Client Legal and General
Engineer OW
5.00m
6.00m
6.00m
7.00m


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH205
Depth from (m) 7.0
Depth to (m) 8.0
Client Legal and General
Engineer OW
7.00m
8.00m

endeavour drilling

Contract Name:	Client:	Borehole ID:
P1, Land North of Horsham, West Sussex	Legal and General (Strategic Land North of Horsham) Ltd	BH206

Contract Number:	Date Started:	Loggged By:	Checked By:	Status:	Sheet 1 of 1
J4175	26/11/2019	OW	MJS	FINAL	

Geobore 'S' Rotary Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Print Date:	Scale:
	519048.0	133482.5	52.39mOD	Comacchio205	21/02/2020	1:50

Weather: Showers | Termination: Reached target depth. | SPT Hammer: SPT5 Energy Ratio: 65%

Depth	TCR	SCR	RQD	FI	Sample	SPT	Level (mAOD)	Legend	Depth (m) (Thickness)	Strata Description	Water Strike	Backfill/ Installation
					0.20 ES1 0.40 0.40 D1 ES2 HV 0.50m, 56kPa HV 0.90m, 32kPa 1.00 D2 1.40 - 1.50 D3 1.80 - 2.00 D4		52.09		(0.30) 0.30	TOPSOIL - Light brown sandy CLAY with frequent rootlets <2mm (living).		
									(0.90)	Stiff light brown mottled orangish brown and light grey sandy CLAY. (RESIDUAL WEALD CLAY FORMATION)		
						SPT(S) 1.20m, N=22 (2,2/2,9,5,6)	51.19		1.20			
									(0.60)	Stiff dark brown mottled dark greyish brown sandy CLAY with occasional lenses of light grey silty clay (<9mm thickness) and occasional gravel of fine to medium angular to sub-angular extremely weak to very weak mudstone lithorelics. (RESIDUAL WEALD CLAY FORMATION)		
							50.59		1.80			
						SPT(S) 2.00m, N=28 (6,7/7,6,7,8)	50.39		2.00	Very weak dark brown MUDSTONE recovered as fine to medium angular to sub-angular gravel. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
									(1.40)	Stiff dark brown sandy CLAY thickly interbedded with extremely weak to very weak dark orangish brown and brown mudstone, recovered as angular to subangular, fine to coarse gravel and rare cobbles. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
					3.00 - 3.45 UT1							
3.00 - 4.00	100	5	0		3.55 - 3.78 C1		48.99		3.40	Very stiff light grey slightly sandy CLAY with occasional light orangish brown staining penetrating up to 6mm thickly interbedded with rare extremely weak light grey mudstone. (DISTINCTLY TO PARTIALLY WEATHERED WEALD CLAY FORMATION)		
						SPT(S) 4.00m, 113 (11,21/37,30,46,)	48.39		4.00			
4.00 - 5.00	100	78	50	9	4.40 - 4.55 C2				(1.00)	Very weak thinly laminated to thinly bedded MUDSTONE. With occasional bands recovered as very stiff clay. Fractures are horizontal, closely to medium spaced (35-260-98) planar with rough surfaces. Apertures are partly open to wide and with occasional gravel infilling. Weathering is dark orange and reddish brown penetrating up to 4mm along fractured surfaces. (PARTIALLY WEATHERED WEALD CLAY FORMATION)		
						SPT(S) 5.00m, 111 (12,25/30,51,30,)	47.39		5.00			
5.00 - 6.50	71	49	17	12	5.76 - 5.91 C3					Very weak to weak dark grey thinly to thickly laminated MUDSTONE with rare bands recovered as very stiff silty clay. Fractures are horizontal, very closely to closely spaced, (35-150-62) planar with rough and smooth surfaces. Apertures are moderately wide to wide with occasional gravel infilling. (UNWEATHERED WEALD CLAY FORMATION)		
						SPT(S) 6.50m, 100 (21,27/48,46,6,)			(3.00)	*...between 5.0m to 5.40mbgl no recovery.* *...between 6.50m to 8.00mbgl fractures are horizontal, to subhorizontal extremley closely to closely spaced, (4-190-65) planar with smooth surfaces. Apertures are partly open to moderately wide with occasional clay infilling.*		
6.50 - 8.00	100	85	40	10	7.78 - 8.00 C4							
						SPT(S) 8.00m, 100 (20,48/41,57,2,)	44.39		8.00			
										End of Borehole at 8.30m		

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
26-11-2019	16:00	1.80		
27-11-2019	16:00	4.00		
28-11-2019	16:00	8.00		

Borehole Diameter

Depth (m)	Dia (mm)
1.20	300
1.80	117

Casing Diameter

Depth (m)	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Installation

Top (m)	Base (m)	Type	Dia (mm)
0.00	1.00	PLAIN	50
1.00	6.00	SLOTTED	50

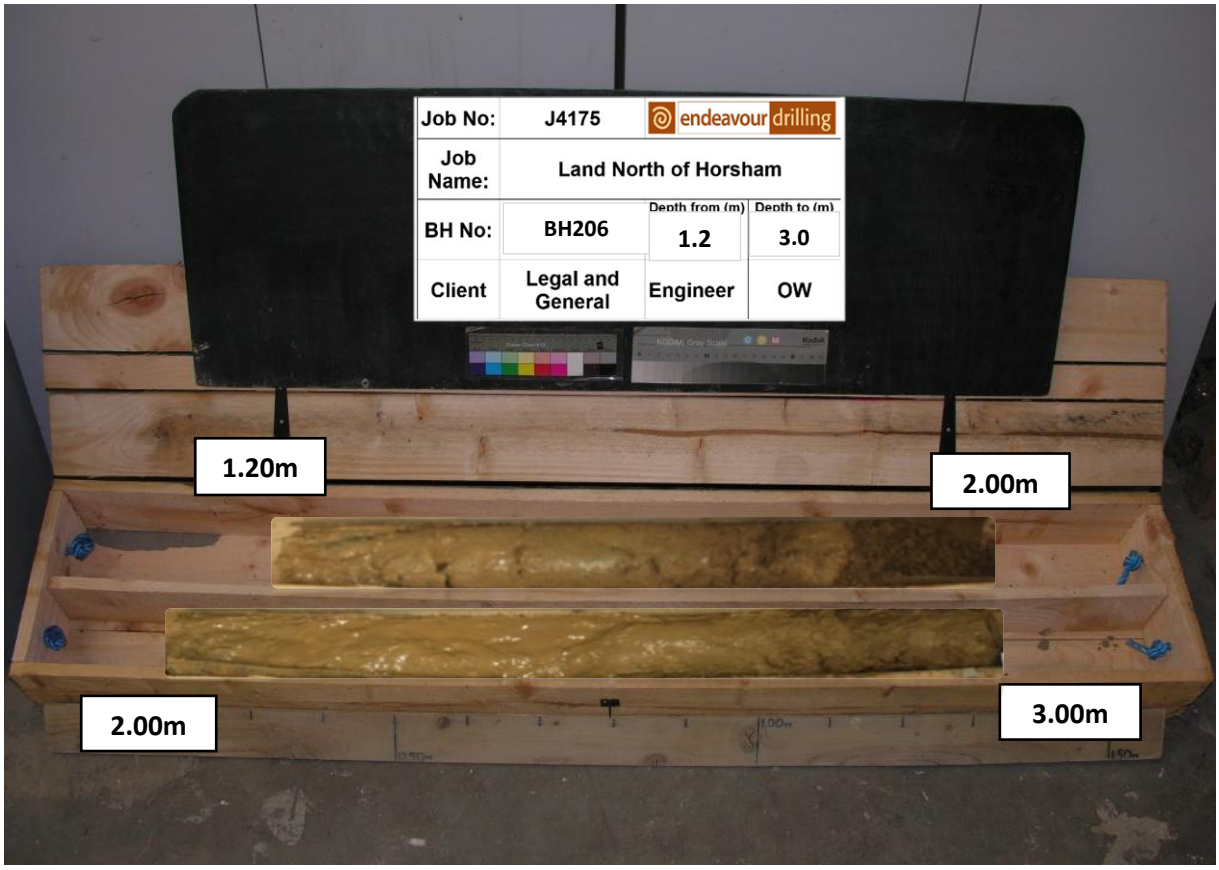
Remarks:

1. Inspection pit hand excavated to 1.20mbgl. 2. Water strike at 1.20mbgl (5mins - 1.10, 10mins - 1.04m, 15mins 0.97m, 20mins 0.96m). 3. Dynamic sampled to 3.0mbgl, then rotary cored with PWF and water flush to 8.0mbgl. 4. 50mm monitoring well installed to 6.0mbgl on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.20			0		Perched

Fracture spacing reported as Index average over 1m. TCR, SCR and RQD reported in %


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH206
Depth from (m) 1.2
Depth to (m) 3.0
Client Legal and General
Engineer OW
1.20m
2.00m
2.00m
3.00m


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH206
Depth from (m) 3.0
Depth to (m) 5.0
Client Legal and General
Engineer OW
3.00m
4.00m
4.00m
5.00m


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH206
Depth from (m) 5.0
Depth to (m) 7.5
Client Legal and General
Engineer OW
5.00m
6.50m
6.50m
8.00m

endeavour drilling

Contract Name:	Client:	Borehole ID:
P1, Land North of Horsham, West Sussex	Legal and General (Strategic Land North of Horsham) Ltd	BH207

Contract Number:	Date Started:	Loggged By:	Checked By:	Status:	Sheet 1 of 2
J4175	29/11/2019	OW	MJS	FINAL	

Geobore 'S' Rotary Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Print Date:	Scale:
	518949.2	133461.2	52.54mOD	Comacchio 205	21/02/2020	1:50

Weather: Frequent showers | Termination: Reached target depth. | SPT Hammer: SPT5 Energy Ratio: 65%

Depth	TCR	SCR	RQD	FI	Sample	SPT	Level (mAOD)	Legend	Depth (m) (Thickness)	Strata Description	Water Strike	Backfill/ Installation
					0.20 - 0.40 D1 0.30 - 0.40 ES1 0.80 - 0.90 0.80 - 1.20 B1 ES2 1.30 - 1.50 D2		52.09 51.24		(0.45) 0.45 (0.85) 1.30	TOPSOIL - Light brown sandy CLAY with frequent rootlets <2mm (living). Stiff dark brown mottled dark greyish brown sandy CLAY with occasional lenses of light grey silty clay (<9mm thickness) and occasional fine to medium angular to sub-angular extremely weak to very weak mudstone lithorelics. (RESIDUAL WEALD CLAY FORMATION)		
1.50 - 2.00	100	0	0		1.80 - 2.00 D3					Stiff dark brown sandy CLAY with frequent fine to medium angular to sub-angular extremely weak to very weak mudstone lithorelics and rare very thinnly bedded extremely weak to very weak dark orangish brown and brown mudstone, recovered as angular to subangular, fine to coarse gravel. (RESIDUAL WEALD CLAY FORMATION)		
2.00 - 3.00	65	10	0			SPT(C) 2.00m, N=81 (9,12/11,14,24,32)			(1.70)	*...from 2.50mbgl becoming thickly interbedded with rare extremely weak light grey mudstone.*		
					2.90 - 2.95 C1	SPT(C) 3.00m, 103 (28,42/103 for 150mm)	49.54		3.00	Extremely weak to very weak thinly laminated to thinly bedded MUDSTONE with occasional bands recovered as very stiff clay. Fractures are horizontal to subhorizontal, extremely closely to closely spaced (17 - 120 - 57mm) planar with rough surfaces. Apertures are open to moderately wide and clean. Weathering is dark orangish brown penetrating <80mm along fractured surfaces. (PARTIALLY WEATHERED WEALD CLAY FORMATION)		
3.00 - 4.00	100	82	12		3.70 - 3.82 C2							
4.00 - 5.00	87	75	69		4.71 - 5.00 C3	SPT(C) 4.00m, 126 (21,41/126 for 150mm)						
5.00 - 6.00	80	54	41		5.47 - 5.76 C4	SPT(C) 5.00m, 114 (19,46/114 for 150mm)				*...Between 5.0 - 6.0mbgl fractures are horizontal to subhorizontal, very closely spaced to medium spaced (40 - 290 - 146mm) planar with smooth surfaces, apertures are tight to moderately wide and clean*		
6.00 - 7.50	100	89	32		6.93 - 7.12 C5	SPT(C) 6.00m, 40 (42,62/40 for 75mm)				*...between 6.0 - 7.5mbgl fractures are horizontal to subhorizontal, extremely closely to medium spaced (5 - 21 - 69mm) planar with rough and smooth surface, apertures are tight to wide with rare clay infilling.*		
7.50 - 9.00	97	81	50		7.61 - 7.89 C6	SPT(C) 7.50m, 124 (31,48/124 for 150mm)						
9.00 - 10.50	100	97	41			SPT(C) 9.00m, 73 (60 for 75mm/73 for 75mm)						

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
29-11-2019	16:00	1.50		
17-12-2019	16:30	6.00		
19-12-2019	16:30	15.00		
20-12-2019	00:00	20.00		

Borehole Diameter

Depth (m)	Dia (mm)

Casing Diameter

Depth (m)	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Installation

Top (m)	Base (m)	Type	Dia (mm)
0.00	6.00	PLAIN	19
6.00	7.00	SLOTTED	19

Remarks:

1. Inspection pit hand excavated to 1.20mbgl. 2. Dynamic sampled to 1.5mbgl, then rotary cored with PWF and water flush to 1.50mbgl. No ground water encountered 4. 50mm monitoring well installed to 7.0mbgl on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Fracture spacing reported as Index average over 1m. TCR, SCR and RQD reported in %

endeavour drilling

Contract Name:	Client:	Borehole ID:
P1, Land North of Horsham, West Sussex	Legal and General (Strategic Land North of Horsham) Ltd	BH207

Contract Number:	Date Started:	Loggged By:	Checked By:	Status:	Sheet 2 of 2
J4175	29/11/2019	OW	MJS	FINAL	

Geobore 'S' Rotary Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Print Date:	Scale:
	518949.2	133461.2	52.54mOD	Comacchio 205	21/02/2020	1:50

Weather: Frequent showers | Termination: Reached target depth. | SPT Hammer: SPT5 Energy Ratio: 65%

Samples & In Situ Testing							Strata Details				Groundwater	
Depth	TCR	SCR	RQD	FI	Sample	SPT	Level (mAOD)	Legend	Depth (m) (Thickness)	Strata Description	Water Strike	Backfill/ Installation
					10.30 - 10.50 C7	SPT(C) 10.50m, 122 (46,61/122 for 150mm)						
10.50 - 12.00	92	84	19		10.82 - 11.11 C8				(16.50)	...at 11.22mbgl smooth polished surface fracture.		
12.00 - 13.50	100	89	81		12.84 - 13.32 C9	SPT(C) 12.00m, 101 (48,42/101 for 130mm)				...between 12.0 - 13.5mbgl fractures are horizontal, very closely to medium spaced (38 - 420 - 191mm) planar with rough and smooth surfaces. Apertures are tight to moderately wide and clean.		
13.50 - 15.00	100	87	60		14.51 - 14.80 C10	SPT(C) 13.50m, 60 (72 for 75mm/60 for 75mm)				...between 13.5 - 15.0mbgl fractures are horizontal, very closely to medium spaced (28 - 400 - 186mm) planar with rough and smooth surfaces. Apertures are tight to moderately wide and clean.		
15.00 - 16.50	100	81	54		15.85 - 16.07 C11	SPT(C) 15.00m, 101 (50,48/101 for 150mm)				...between 15.0 - 16.5mbgl fractures are horizontal to vertical extremely close to medium spaced (10 - 225 - 108mm) planar and undulating with rough and smooth surfaces. Apertures are tight to moderately wide with occasional clay infilling.		
16.50 - 18.00	100	73	68		17.54 - 17.80 C12	SPT(C) 16.50m, 75 (25 for 75mm/75 for 75mm)				...between 16.5 - 18.0mbgl fractures are horizontal to vertical very closely to medium spaced (23 - 263 - 120mm) planar with rough and smooth surfaces. Apertures are tight to moderately wide open with rare clay infilling.		
18.00 - 19.50	96	87	73		18.79 - 19.26 C13	SPT(C) 18.00m, 77 (31 for 75mm/77 for 75mm)				...between 18.0 - 19.5m fractures are horizontal to vertical very closely to medium spaced (27 - 483 - 228mm) planar with rough and smooth surfaces. Apertures are very tight to moderately wide and clean.		
						SPT(C) 19.50m, 82 (29 for 75mm/82 for 40mm)	33.04		19.50	End of Borehole at 19.50m		

Start & End of Shift Observations				
Date	Time	Depth (m)	Casing (m)	Water (m)
29-11-2019	16:00	1.50		
17-12-2019	16:30	6.00		
19-12-2019	16:30	15.00		
20-12-2019	00:00	20.00		

Borehole Diameter		Casing Diameter	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)

Flush Information				
Top (m)	Base (m)	Flush Type	Return	Flush Colour

Installation			
Top (m)	Base (m)	Type	Dia (mm)
0.00	6.00	PLAIN	19
6.00	7.00	SLOTTED	19

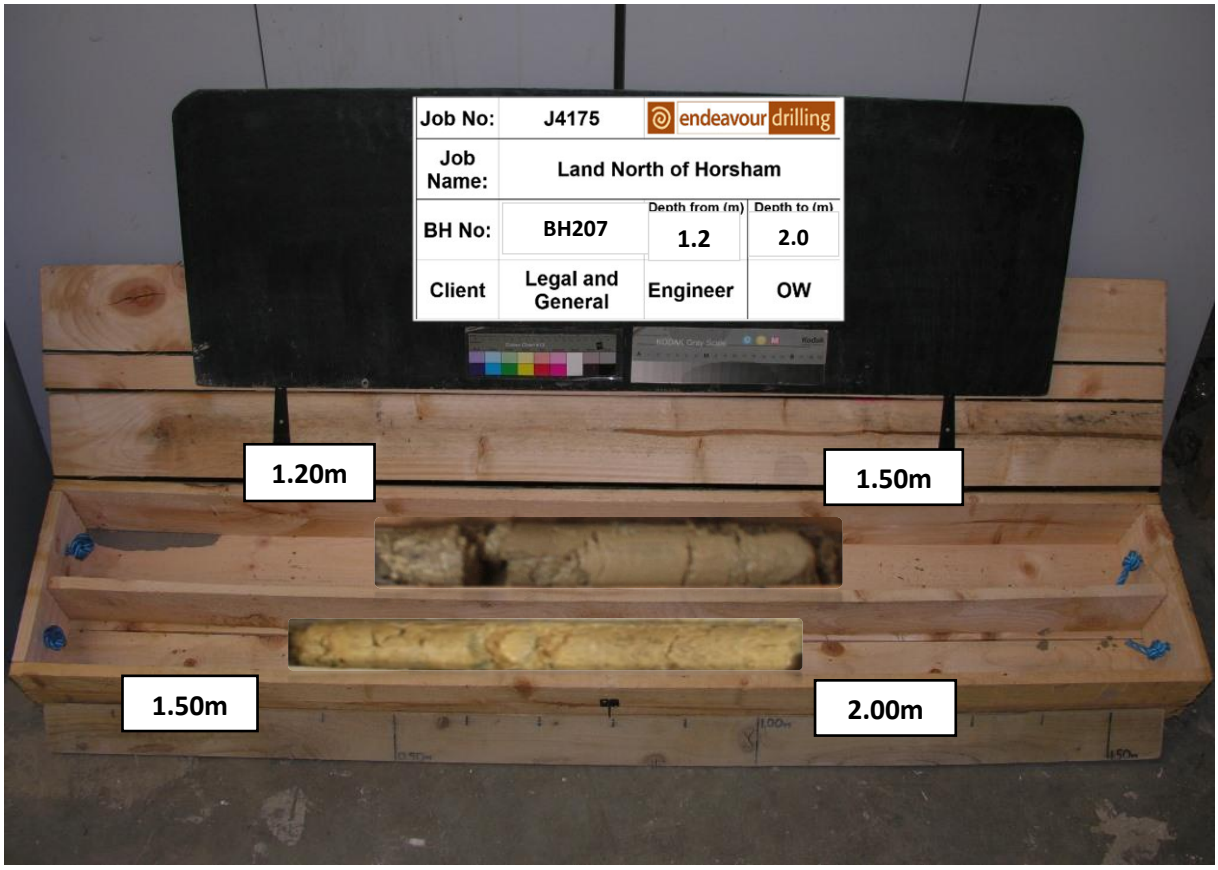
Remarks:

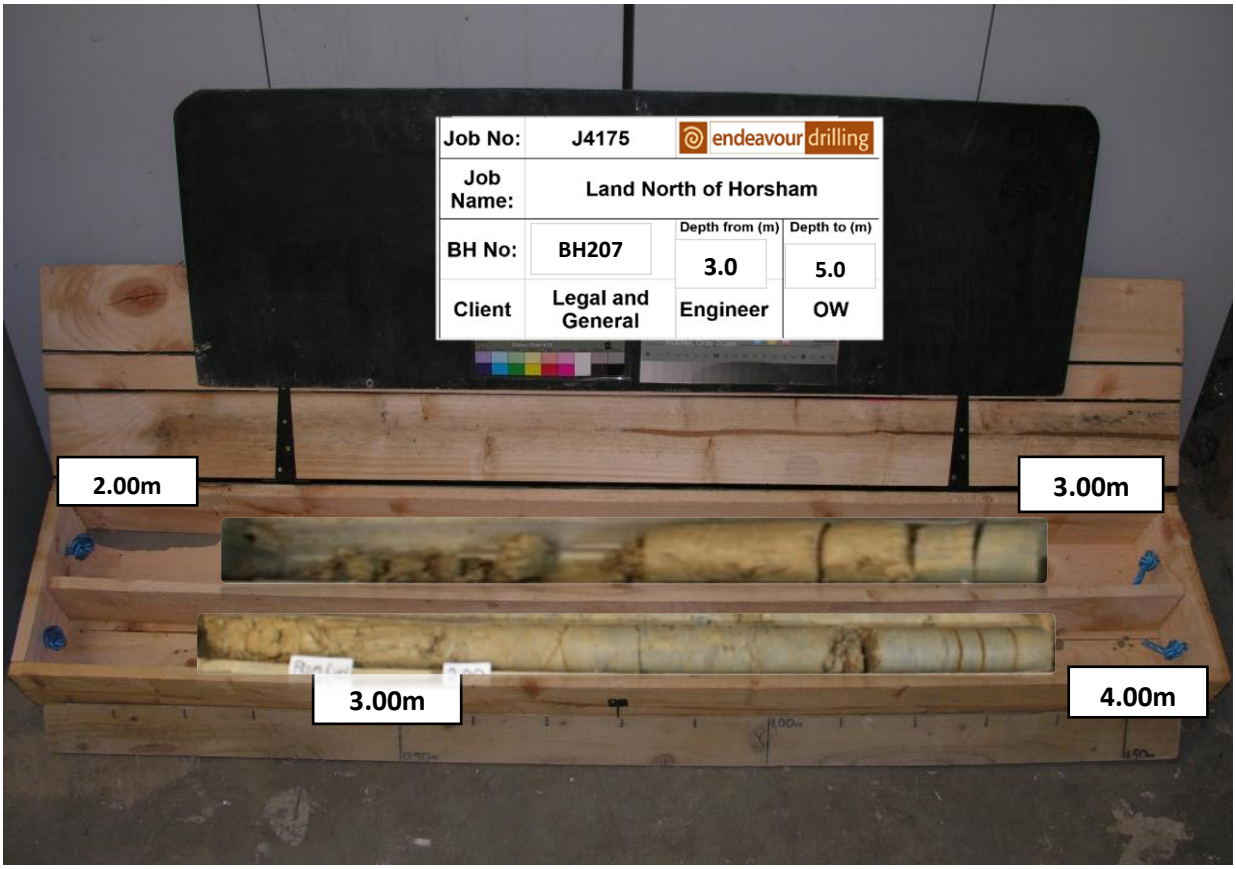
1. Inspection pit hand excavated to 1.20mbgl. 2. Dynamic sampled to 1.5mbgl, then rotary cored with PWF and water flush to 1.50mbgl. No ground water encountered 4. 50mm monitoring well installed to 7.0mbgl on completion.

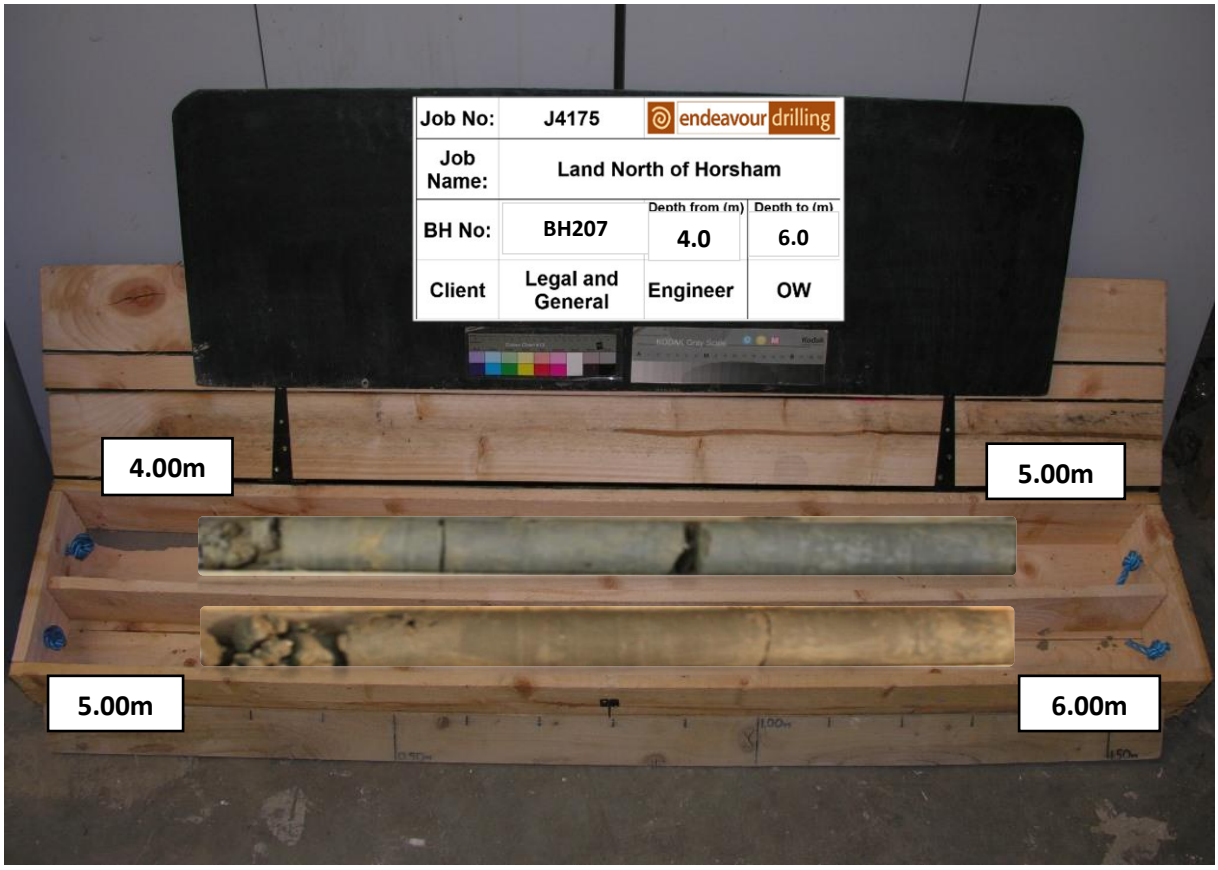
Water Strikes

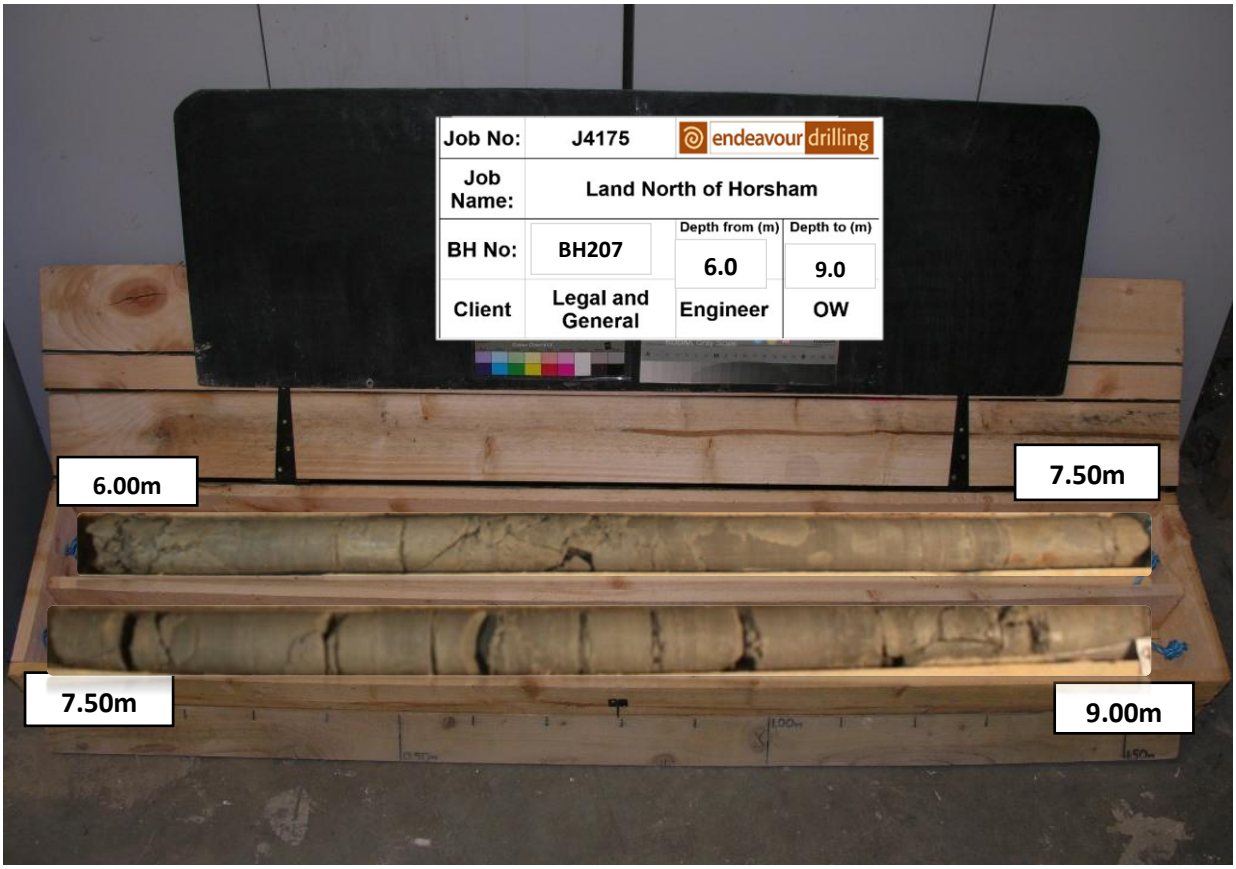
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

Fracture spacing reported as Index average over 1m. TCR, SCR and RQD reported in %


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH207
Depth from (m) 1.2
Depth to (m) 2.0
Client Legal and General
Engineer OW
1.20m
1.50m
1.50m
2.00m

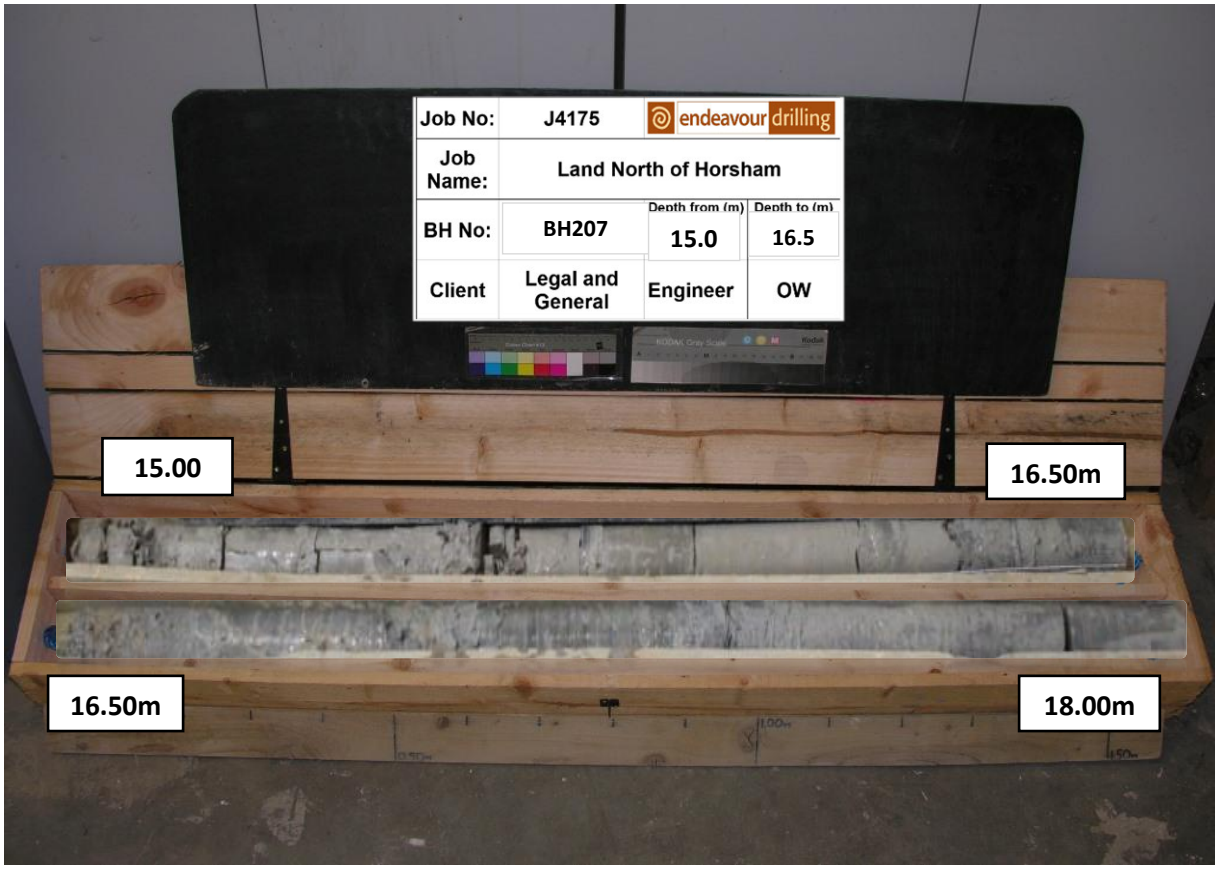

Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH207
Depth from (m) 3.0
Depth to (m) 5.0
Client Legal and General
Engineer OW
2.00m
3.00m
3.00m
4.00m

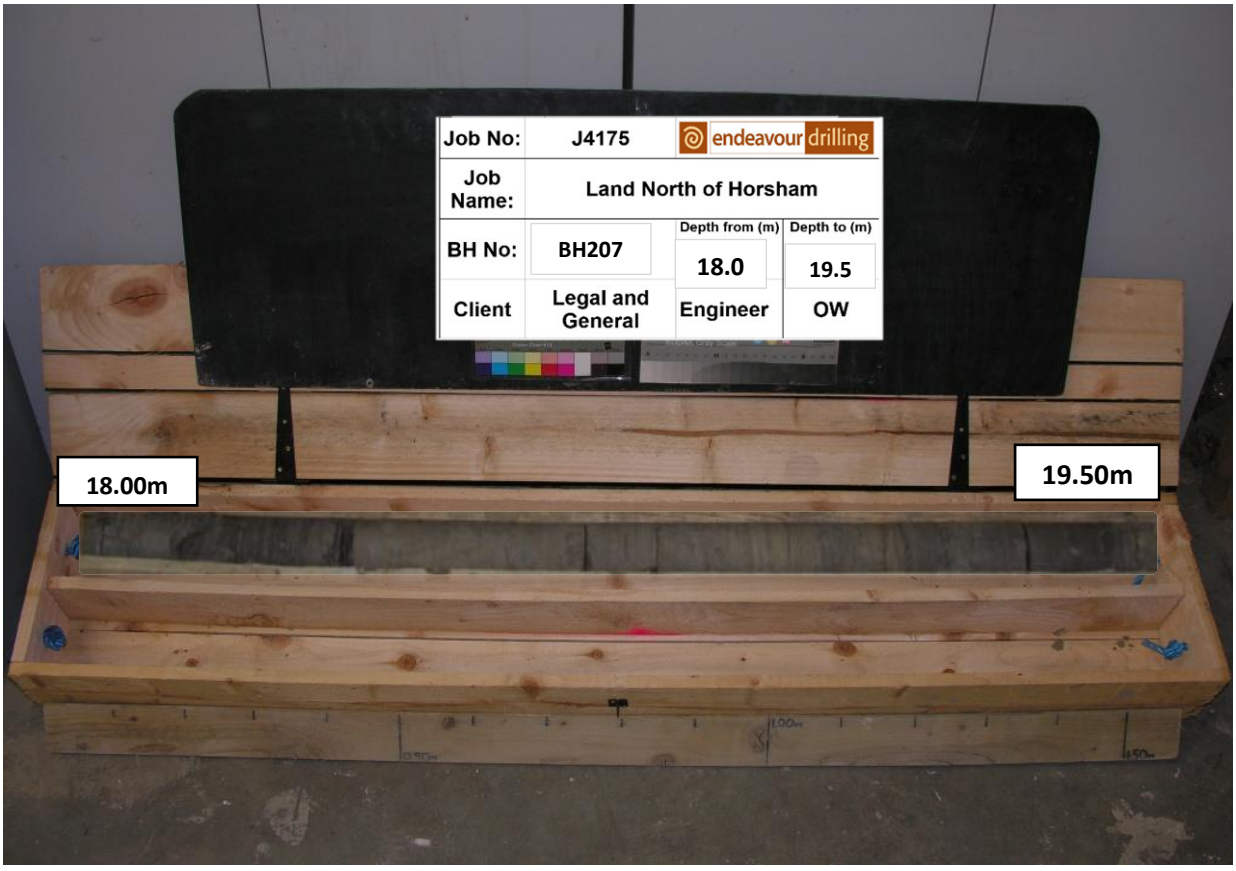

Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH207
Depth from (m) 4.0
Depth to (m) 6.0
Client Legal and General
Engineer OW
4.00m
5.00m
5.00m
6.00m


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH207
Depth from (m) 6.0
Depth to (m) 9.0
Client Legal and General
Engineer OW
6.00m
7.50m
7.50m
9.00m


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH207
Depth from (m) 9.0
Depth to (m) 12.0
Client Legal and General
Engineer OW
9.00m
10.50m
10.50m
12.00m


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH207
Depth from (m) 12.0
Depth to (m) 15.0
Client Legal and General
Engineer OW
12.00m
13.50m
13.50m
15.00m


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH207
Depth from (m) 15.0
Depth to (m) 16.5
Client Legal and General
Engineer OW
15.00
16.50m
16.50m
18.00m


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH207
Depth from (m) 18.0
Depth to (m) 19.5
Client Legal and General
Engineer OW
18.00m
19.50m

endeavour drilling

Contract Name:	Client:	Borehole ID:
P1, Land North of Horsham, West Sussex	Legal and General (Strategic Land North of Horsham) Ltd	BH208

Contract Number:	Date Started:	Loggged By:	Checked By:	Status:	Sheet 1 of 1
J4175	16/12/2019	OW	MJS	FINAL	

Geobore 'S' Rotary Drilling Log	Easting:	Northing:	Ground Level:	Plant Used:	Print Date:	Scale:
	519258.5	133671.9	54.28mOD	Commacchio 205	21/02/2020	1:50

Weather: Occasional showers | Termination: Reached target depth. | SPT Hammer: SPT5 Energy Ratio: 65%

Depth	TCR	SCR	RQD	FI	Sample	SPT	Level (mAOD)	Legend	Depth (m) (Thickness)	Strata Description	Water Strike	Backfill/ Installation
					0.10 ES1		53.98		(0.30) 0.30	TOP SOIL - Dark brown slightly gravelly silty sandy CLAY with occasional rootlets <2mm (living). Gravel is fine to medium sub-angular of extremely weak mudstone.		
					0.50 0.50 B1 ES2		53.68		(0.30) 0.60	Firm to stiff light brown mottled orangish and grey silty slightly sandy CLAY with occasional rootlets <2mm (living). (RESIDUAL WEALD CLAY FORMATION)		
					1.20 1.20 B2	SPT(C) 1.20m, N=100 (4,5/12,22,29,37)	53.08		(0.60) 1.20 (0.40)	Stiff light brown mottled grey slightly sandy gravelly CLAY. Gravel is fine to medium sub-angular of extremely weak mudstone. (RESIDUAL)		
1.20 - 2.00	100	38	0	70	ES3		52.68		1.60	Stiff light brown mottled orangish brown and light grey sandy CLAY. (DESTRUCTURED WEALD CLAY FORMATION)		
						SPT(C) 2.00m, 100 (7,16/55,45,,)			(1.40)	Extremely weak dark brown and dark grey thinly laminated MUDSTONE with bands recovered as slightly sandy clay and fine to coarse angular to sub-angular gravel. Fractures are horizontal extremely closely spaced, planar with rough surfaces (2-18mm) Apertures are tight to open and infilled occasional with fine to coarse angular gravel. Weathering is dark orangish and reddish brown penetrating up to 40mm. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
2.00 - 3.00	100	40	0	63								
						SPT(C) 3.00m, N=70 (3,7/7,13,21,29)	51.28		3.00			
3.00 - 4.00	100	36	14	24	3.60 - 3.74 C1				(1.00)	Very stiff light grey slightly sandy CLAY medium interbedded with extremely weak dark grey thinly laminated mudstone. Fractures are horizontal extremely closely to closely spaced (12 - 14mm). Planar with rough surfaces. Apertures are tight to moderately wide with occasional clay infilling. (DISTINCTLY TO PARTIALLY WEATHERED WEALD CLAY FORMATION)		
						SPT(C) 4.00m, 100 (4,19/100 for 180mm)	50.28		4.00			
4.00 - 5.00	100	90	0	37	4.70 - 4.79 C2					Extremely weak to very weak dark grey thinly to thickly laminated MUDSTONE with rare bands recovered as very stiff silty clay. Fractures are horizontal extremely closely to closely spaced (12-90mm) planar with rough and smooth surfaces. Apertures are open to wide with rare clay infilling. (UNWEATHERED WEALD CLAY FORMATION)		
						SPT(C) 5.00m, 100 (5,9/100 for 170mm)				*...between 5.0 to 6.0m fractures are horizontal very closely to closely spaced (40-45mm) planar with rough and smooth surfaces. Apertures are open to wide with occasional clay infilling.*		
5.00 - 6.00	100	60	14	23	5.40 - 5.48 C3				(4.00)	*...between 6.0 to 7.0m fractures are horizontal very closely to closely spaced (35-120mm) planar with rough and smooth surfaces. Apertures are open to moderately wide and clean.*		
						SPT(C) 6.00m, 100 (7,16/100 for 160mm)						
6.00 - 7.00	100	85	12	16	6.49 - 6.58 C4					*...below 7.0m becoming very weak to weak. Fractures are horizontal extremely closely to closely spaced (13-180mm) Planar with smooth surfaces. Apertures are open to moderately wide and clean.*		
						SPT(C) 7.00m, 100 (4,16/100 for 40mm)						
7.00 - 8.00	100	90	34		7.30 - 7.48 C5							
						SPT(C) 8.00m, 100 (25 for 75mm/100 for 90mm)	46.28		8.00	End of Borehole at 8.00m		

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
16-12-2019	16:30	3.00		
17-12-2019	16:30	8.00		

Borehole Diameter

Depth (m)	Dia (mm)

Casing Diameter

Depth (m)	Dia (mm)

Flush Information

Top (m)	Base (m)	Flush Type	Return	Flush Colour

Installation

Top (m)	Base (m)	Type	Dia (mm)
0.00	1.00	PLAIN	50
1.00	6.00	SLOTTED	50

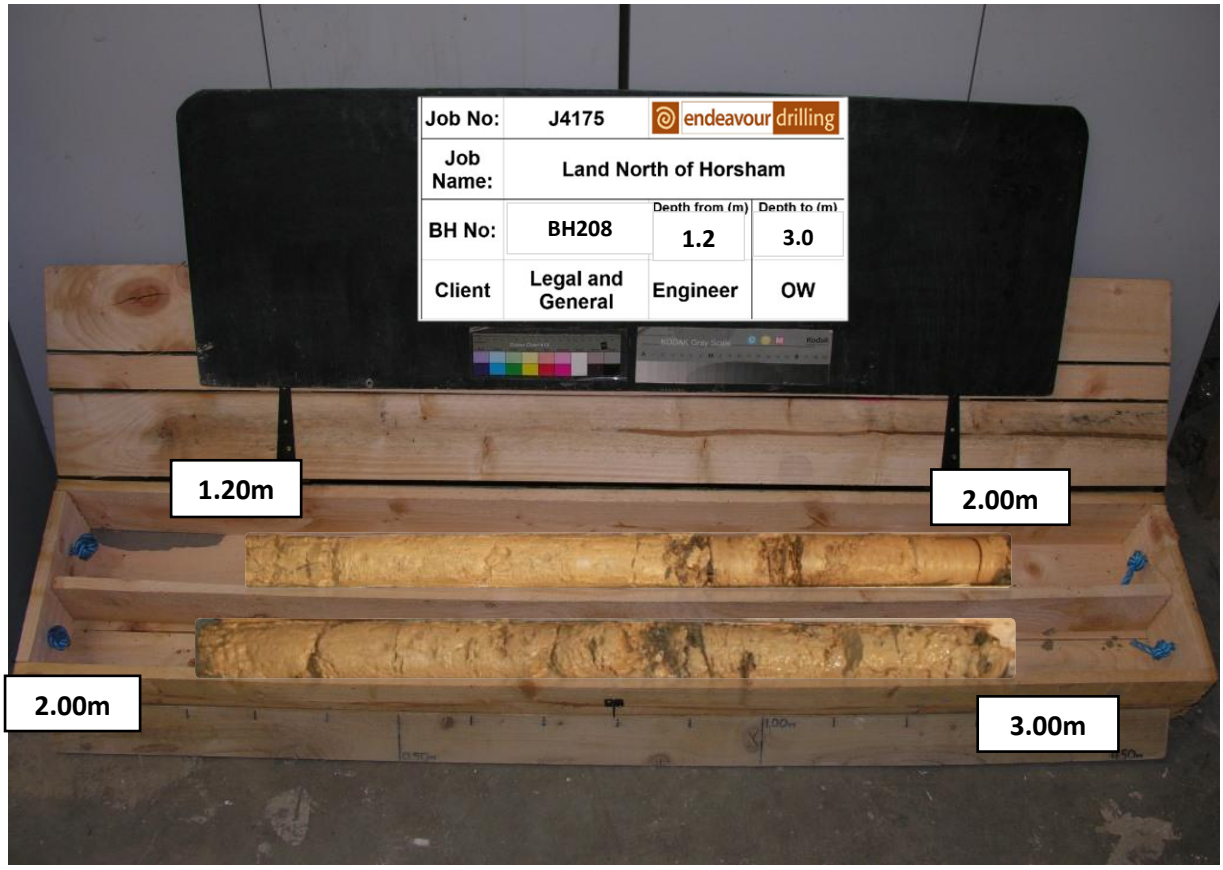
Remarks:

1. Inspection pit hand excavated to 1.20mbgl. 2. Perched groundwater encountered at 0.90mbgl (slow inflow) 3. Dynamic sampled to 3.0mbgl, then rotary cored with PWF and water flush to 8.0mbgl. 4. 50mm monitoring well installed to 6.0mbgl on completion.

Water Strikes

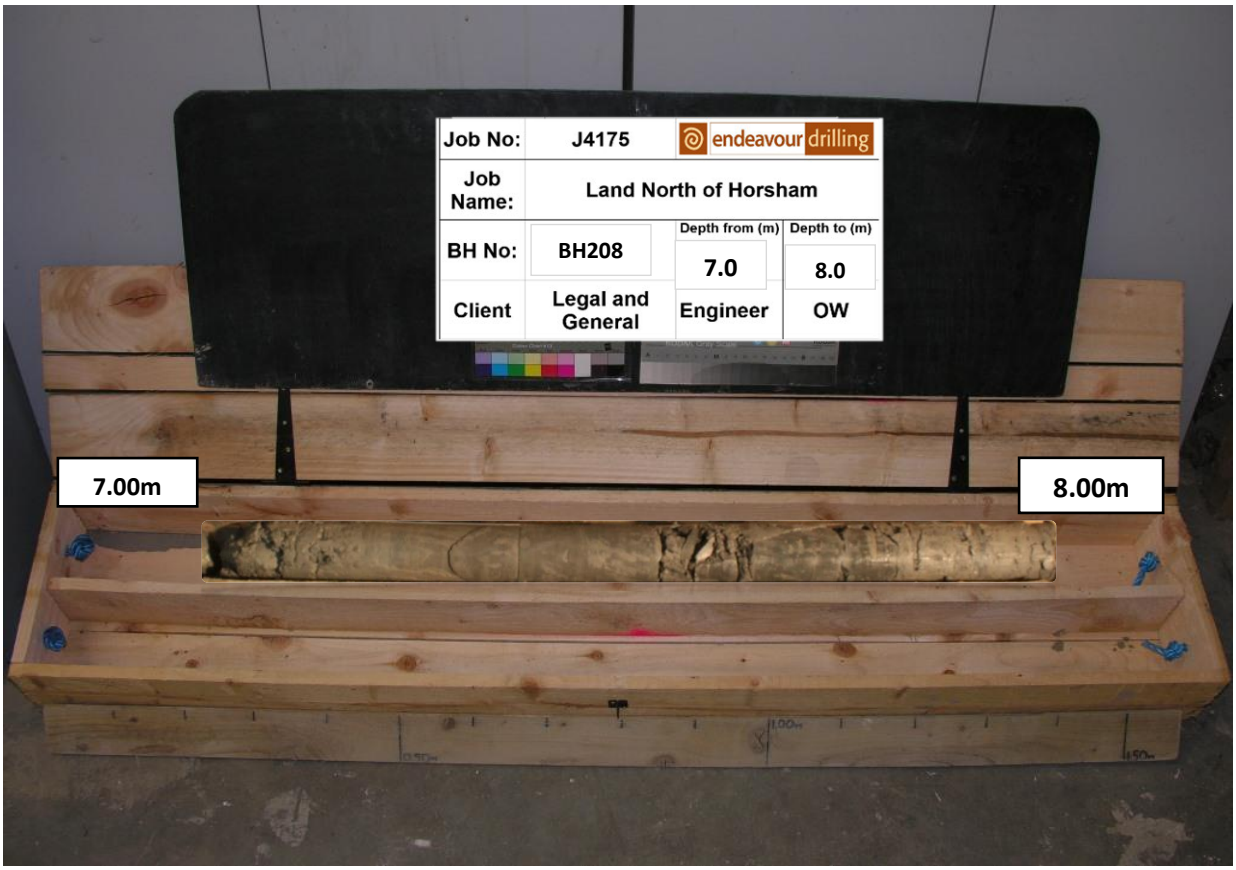
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
0.90			0		Perched, slow inflow.

Fracture spacing reported as Index average over 1m. TCR, SCR and RQD reported in %


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH208
Depth from (m) 1.2
Depth to (m) 3.0
Client Legal and General
Engineer OW
1.20m
2.00m
2.00m
3.00m


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH208
Depth from (m) 3.0
Depth to (m) 5.0
Client Legal and General
Engineer OW
3.00m
4.00m
4.00m
5.00m


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH208
Depth from (m) 5.0
Depth to (m) 7.0
Client Legal and General
Engineer OW
5.0m
6.0m
6.0m
7.0m


Job No: J4175
endeavour drilling
Job Name: Land North of Horsham
BH No: BH208
Depth from (m) 7.0
Depth to (m) 8.0
Client Legal and General
Engineer OW
7.00m
8.00m

APPENDIX C

Falling Head Test Results (Borehole)

VARIABLE HEAD PERMEABILITY TEST (BOREHOLE)

CONTRACT: Land North of Horsham BOREHOLE No.: BH202 TEST No.: 1

DATE: 3-Dec-19

TYPE OF TEST: ***FALLING*** HEAD

Diameter of casing (D):	*150*	(mm)	
Height of TOP of casing above ground level:	*0.00*	(m)	
Depth to bottom of casing below ground level (m):	*1.50*	(m)	(Withdrawn to impervious layer)
Depth to bottom of borehole below ground level before test:	*2.00*	(m)	
Depth to bottom of borehole below ground level after test:	*2.00*	(m)	
Standing ground water level (mbgl):	*0.00*	(m)	on 3-Dec-19

DATUM:All depths to water level measured from top of casing. i.e.SWL 2.00 m below datum

TIME ELAPSED (mins)	WATER LEVEL* (m)	HEAD H (m)	HEAD RATIO H/Ho
0	0	2	1.0000
0.5	0.010	1.99	0.9950
1	0.010	1.99	0.9950
1.5	0.010	1.99	0.9950
2	0.010	1.99	0.9950
2.5	0.010	1.99	0.9950
3	0.010	1.99	0.9950
3.5	0.010	1.99	0.9950
4	0.010	1.99	0.9950
4.5	0.010	1.99	0.9950
5	0.010	1.99	0.9950
6	0.010	1.99	0.9950
7	0.010	1.99	0.9950
8	0.010	1.99	0.9950
9	0.010	1.99	0.9950
10	0.010	1.99	0.9950
15	0.010	1.99	0.9950
20	0.010	1.99	0.9950
25	0.010	1.99	0.9950
30	0.010	1.99	0.9950
40	0.010	1.99	0.9950
50	0.010	1.99	0.9950
60	0.010	1.99	0.9950

CALCULATION OF PERMEABILITY OF SOIL:

Employing Hvorslev formula: k = A/FT

where:

k is the permeability of soil

A is the cross-section area of borehole casing

F is the intake factor (see below)

T is the basic time lag factor as defined in Figure 8 of BS 5930:1999 (Page 52)

No assessment possible due to limited fall in water depth after 60 minutes

Endeavour Drilling Ltd

VARIABLE HEAD PERMEABILITY TEST (BOREHOLE)

CONTRACT: Land North of Horsham BOREHOLE No.: BH202 TEST No.: 2

DATE: 3-Dec-19

TYPE OF TEST: ***FALLING*** HEAD

Diameter of casing (D):	*150*	(mm)	
Height of TOP of casing above ground level:	*0.00*	(m)	
Depth to bottom of casing below ground level (m):	*1.50*	(m)	(Withdrawn to impervious layer)
Depth to bottom of borehole below ground level before test:	*4.00*	(m)	
Depth to bottom of borehole below ground level after test:	*4.00*	(m)	
Standing ground water level (mbgl):	*0.00*	(m)	on 3-Dec-19

DATUM:All depths to water level measured from top of casing. i.e.SWL 4.00 m below datum

TIME ELAPSED (mins)	WATER LEVEL* (m)	HEAD H (m)	HEAD RATIO H/Ho
0	0	4	1.0000
0.5	0.00	4	1.0000
1	0.00	4	1.0000
1.5	0.00	4	1.0000
2	0.00	4	1.0000
2.5	0.00	4	1.0000
3	0.00	4	1.0000
3.5	0.00	4	1.0000
4	0.00	4	1.0000
4.5	0.00	4	1.0000
5	0.00	4	1.0000
6	0.00	4	1.0000
7	0.00	4	1.0000
8	0.00	4	1.0000
9	0.005	3.995	0.9988
10	0.005	3.995	0.9988
15	0.005	3.995	0.9988
20	0.010	3.99	0.9975
25	0.010	3.99	0.9975
30	0.010	3.99	0.9975
40	0.010	3.99	0.9975
50	0.010	3.99	0.9975
60	0.010	3.99	0.9975

CALCULATION OF PERMEABILITY OF SOIL:

Employing Hvorslev formula: k = A/FT

where:

k is the permeability of soil

A is the cross-section area of borehole casing

F is the intake factor (see below)

T is the basic time lag factor as defined in Figure 8 of BS 5930:1999 (Page 52)

No assessment possible due to limited fall in water depth after 60 minutes

Endeavour Drilling Ltd

VARIABLE HEAD PERMEABILITY TEST (BOREHOLE)

CONTRACT: Land North of Horsham BOREHOLE No.: BH202 TEST No.: 3
DATE: 3-Dec-19

TYPE OF TEST: ***FALLING*** HEAD

Diameter of casing (D):	*150*	(mm)	
Height of TOP of casing above ground level:	*0.00*	(m)	
Depth to bottom of casing below ground level (m):	*1.50*	(m)	(Withdrawn to impervious layer)
Depth to bottom of borehole below ground level before test:	*6.00*	(m)	
Depth to bottom of borehole below ground level after test:	*6.00*	(m)	
Standing ground water level (mbgl):	*0.00*	(m)	on 3-Dec-19

DATUM:All depths to water level measured from top of casing. i.e.SWL 6.00 m below datum

TIME ELAPSED (mins)	WATER LEVEL* (m)	HEAD H (m)	HEAD RATIO H/Ho
0	0	6	1.0000
0.5	0.01	5.99	0.9983
1	0.02	5.98	0.9967
1.5	0.03	5.97	0.9950
2	0.05	5.95	0.9917
2.5	0.10	5.9	0.9833
3	0.16	5.84	0.9733
3.5	0.17	5.83	0.9717
4	0.18	5.82	0.9700
4.5	0.19	5.81	0.9683
5	0.21	5.79	0.9650
6	0.23	5.77	0.9617
7	0.24	5.76	0.9600
8	0.25	5.75	0.9583
9	0.27	5.73	0.9550
10	0.28	5.72	0.9533
15	0.35	5.65	0.9417
20	0.34	5.66	0.9433
25	0.36	5.64	0.9400
30	0.37	5.63	0.9383
40	0.40	5.6	0.9333
50	0.41	5.59	0.9317
60	0.42	5.58	0.9300

CALCULATION OF PERMEABILITY OF SOIL:

Employing Hvorslev formula: k = A/FT
where:

k is the permeability of soil
A is the cross-section area of borehole casing
F is the intake factor (see below)
T is the basic time lag factor as defined in Figure 8 of BS 5930:1999 (Page 52)

No assessment possible due to limited fall in water depth after 60 minutes

Endeavour Drilling Ltd

VARIABLE HEAD PERMEABILITY TEST (BOREHOLE)

CONTRACT: Land North of Horsham BOREHOLE No.: BH207 TEST No.: 1

DATE: 3-Dec-19

TYPE OF TEST: ***FALLING*** HEAD

Diameter of casing (D):	*150*	(mm)	
Height of TOP of casing above ground level:	*0.00*	(m)	
Depth to bottom of casing below ground level (m):	*1.50*	(m)	(Withdrawn to impervious layer)
Depth to bottom of borehole below ground level before test:	*2.00*	(m)	
Depth to bottom of borehole below ground level after test:	*2.00*	(m)	
Standing ground water level (mbgl):	*0.00*	(m)	on 3-Dec-19

DATUM:All depths to water level measured from top of casing. i.e.SWL 2.00 m below datum

TIME ELAPSED (mins)	WATER LEVEL* (m)	HEAD H (m)	HEAD RATIO H/Ho
0	0	2	1.0000
0.5	0.000	2	1.0000
1	0.000	2	1.0000
1.5	0.000	2	1.0000
2	0.005	1.995	0.9975
2.5	0.005	1.995	0.9975
3	0.005	1.995	0.9975
3.5	0.005	1.995	0.9975
4	0.005	1.995	0.9975
4.5	0.005	1.995	0.9975
5	0.005	1.995	0.9975
6	0.007	1.993	0.9965
7	0.008	1.992	0.9960
8	0.008	1.992	0.9960
9	0.008	1.992	0.9960
10	0.010	1.99	0.9950
15	0.010	1.99	0.9950
20	0.010	1.99	0.9950
25	0.011	1.989	0.9945
30	0.011	1.989	0.9945
40	0.012	1.988	0.9940
50	0.013	1.987	0.9935
60	0.014	1.986	0.9930

CALCULATION OF PERMEABILITY OF SOIL:

Employing Hvorslev formula: k = A/FT

where:

k is the permeability of soil

A is the cross-section area of borehole casing

F is the intake factor (see below)

T is the basic time lag factor as defined in Figure 8 of BS 5930:1999 (Page 52)

No assessment possible due to limited fall in water depth after 60 minutes

Endeavour Drilling Ltd

VARIABLE HEAD PERMEABILITY TEST (BOREHOLE)

CONTRACT: Land North of Horsham BOREHOLE No.: BH207 TEST No.: 2

DATE: 3-Dec-19

TYPE OF TEST: ***FALLING*** HEAD

Diameter of casing (D):	*150*	(mm)	
Height of TOP of casing above ground level:	*0.00*	(m)	
Depth to bottom of casing below ground level (m):	*1.50*	(m)	(Withdrawn to impervious layer)
Depth to bottom of borehole below ground level before test:	*4.00*	(m)	
Depth to bottom of borehole below ground level after test:	*4.00*	(m)	
Standing ground water level (mbgl):	*0.00*	(m)	on 3-Dec-19

DATUM:All depths to water level measured from top of casing. i.e.SWL 4.00 m below datum

TIME ELAPSED (mins)	WATER LEVEL* (m)	HEAD H (m)	HEAD RATIO H/Ho
0	0	4	1.0000
0.5	0.030	3.97	0.9925
1	0.035	3.965	0.9913
1.5	0.040	3.96	0.9900
2	0.042	3.958	0.9895
2.5	0.045	3.955	0.9888
3	0.048	3.952	0.9880
3.5	0.052	3.948	0.9870
4	0.055	3.945	0.9863
4.5	0.058	3.942	0.9855
5	0.060	3.94	0.9850
6	0.063	3.937	0.9843
7	0.066	3.934	0.9835
8	0.068	3.932	0.9830
9	0.070	3.93	0.9825
10	0.072	3.928	0.9820
15	0.074	3.926	0.9815
20	0.076	3.924	0.9810
25	0.078	3.922	0.9805
30	0.080	3.92	0.9800
40	0.080	3.92	0.9800
50	0.080	3.92	0.9800
60	0.080	3.92	0.9800

CALCULATION OF PERMEABILITY OF SOIL:

Employing Hvorslev formula: k = A/FT

where:

k is the permeability of soil

A is the cross-section area of borehole casing

F is the intake factor (see below)

T is the basic time lag factor as defined in Figure 8 of BS 5930:1999 (Page 52)

No assessment possible due to limited fall in water depth after 60 minutes

Endeavour Drilling Ltd

VARIABLE HEAD PERMEABILITY TEST (BOREHOLE)

CONTRACT: Land North of Horsham BOREHOLE No.: BH207 TEST No.: 3

DATE: 3-Dec-19

TYPE OF TEST: ***FALLING*** HEAD

Diameter of casing (D):	*150*	(mm)	
Height of TOP of casing above ground level:	*0.00*	(m)	
Depth to bottom of casing below ground level (m):	*1.50*	(m)	(Withdrawn to impervious layer)
Depth to bottom of borehole below ground level before test:	*6.00*	(m)	
Depth to bottom of borehole below ground level after test:	*6.00*	(m)	
Standing ground water level (mbgl):	*0.00*	(m)	on 3-Dec-19

DATUM:All depths to water level measured from top of casing. i.e.SWL 6.00 m below datum

TIME ELAPSED (mins)	WATER LEVEL* (m)	HEAD H (m)	HEAD RATIO H/Ho
0	0	6	1.0000
0.5	0.006	5.994	0.9990
1	0.008	5.992	0.9987
1.5	0.010	5.99	0.9983
2	0.010	5.99	0.9983
2.5	0.010	5.99	0.9983
3	0.011	5.989	0.9982
3.5	0.013	5.987	0.9978
4	0.014	5.986	0.9977
4.5	0.015	5.985	0.9975
5	0.016	5.984	0.9973
6	0.017	5.983	0.9972
7	0.018	5.982	0.9970
8	0.019	5.981	0.9968
9	0.020	5.98	0.9967
10	0.021	5.979	0.9965
15	0.022	5.978	0.9963
20	0.023	5.977	0.9962
25	0.024	5.976	0.9960
30	0.025	5.975	0.9958
40	0.025	5.975	0.9958
50	0.025	5.975	0.9958
60	0.025	5.975	0.9958

CALCULATION OF PERMEABILITY OF SOIL:

Employing Hvorslev formula: k = A/FT

where:

k is the permeability of soil

A is the cross-section area of borehole casing

F is the intake factor (see below)

T is the basic time lag factor as defined in Figure 8 of BS 5930:1999 (Page 52)

No assessment possible due to limited fall in water depth after 60 minutes

APPENDIX D

Windowless Sample Borehole Records

endeavour drilling

Contract Name:	Client:	Borehole ID:
P1, Land North of Horsham, West Sussex	Legal and General (Strategic Land North of Horsham) Ltd	WS201

Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	29/11/2019	JJW	MJS	FINAL	

Window Sample Log	Easting:	Northing:	Ground Level:	Plant Used:	Print Date:	Scale:
	518758.8	133697.6	59.33mOD	Dando Terrier	21/02/2020	1:30

Weather: Dry/Sunny | Termination: SPT refusal at 2.3mbgl. | SPT Hammer: DTO658 Energy Ratio: 64%

Samples & In Situ Testing			Strata Details				Groundwater	
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
			59.23	0.10		TOP SOIL - Dark brown mottled black slightly silty sandy CLAY.		
0.40	D1			(0.70)		MADE GROUND - Firm dark brownish black slightly gravelly sandy CLAY. Gravel is fine to coarse sub-angular to sub-rounded of brick.		
0.50	ES1	PID 0.50m, 0.2ppm						
0.80	D2		58.53	0.80		Stiff dark reddish brown mottled grey gravelly CLAY. Gravel is fine to coarse angular to sub-angular of extremely weak mudstone. [RESIDUAL WEALD CLAY FORMATION]		
1.00	B1	PID 1.00m, 0.3ppm						
1.00 - 1.20	ES2							
1.20 - 1.65	D3	SPT(S) 1.20m, N=36 (5,5/8,9,10,9)		(0.75)				
			57.78	1.55		Dark brown mottled black and orange extremely weak MUDSTONE with occasional light grey and orange thinly laminated (6mm) clay. Recovered as fine to coarse angular to sub-angular gravel. [DESTRUCTURED WEALD CLAY FORMATION]		
2.00 - 2.30	D4	SPT(S) 2.00m, N=100 (17,8/100 for 150mm)		(0.75)				
			57.03	2.30		End of Borehole at 2.30m		

1 2 3 4 5 6

Start & End of Shift Observations					Borehole Diameter		Casing Diameter	
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
29-11-2019	14:00	2.30			1.20	300		
					2.00	101		

Remarks:

1. Inspection pit hand excavated to 1.20mbgl. No groundwater encountered. 3. On completion 50mm monitoring well installed to 2.0mbgl with concrete and raised cover installed at surface.

Chiselling				Installation			
From (m)	To (m)	Duration	Remarks	Top (m)	Base (m)	Type	Dia (mm)
				0.00	1.00	PLAIN	50
				1.00	2.00	SLOTTED	50

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

endeavour drilling

Contract Name:	Client:	Borehole ID:
P1, Land North of Horsham, West Sussex	Legal and General (Strategic Land North of Horsham) Ltd	WS202

Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	28/11/2019	JJW	MJS	FINAL	

Window Sample Log	Easting:	Northing:	Ground Level:	Plant Used:	Print Date:	Scale:
	518845.9	133765.4	59.33mOD	Dando Terrier	21/02/2020	1:30

Weather: Dry/Sunny

Termination: Service encountered.

Samples & In Situ Testing			Strata Details				Groundwater	
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
			59.18	0.15		CONCRETE		
			59.03	0.30		MADE GROUND - Stiff dark brown mottled orange and grey slightly gravelly sandy CLAY with occasional roots <3mm (living). Gravel is fine to coarse sub-angular to sub-rounded of flint and brick.		
						End of Borehole at 0.30m		

1 2 3 4 5 6

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
28-11-2019	15:30	0.30		

Borehole Diameter

Depth (m)	Dia (mm)
0.30	300

Casing Diameter

Depth (m)	Dia (mm)

Remarks:

1. Inspection pit hand excavated to 0.30mbgl. 2. Drain encountered at 0.30mbgl. 3. Back filled with arisings and concrete on completion.

Chiselling

From (m)	To (m)	Duration	Remarks

Installation

Top (m)	Base (m)	Type	Dia (mm)

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

endeavour drilling

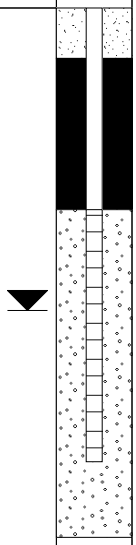
Contract Name:	Client:	Borehole ID:
P1, Land North of Horsham, West Sussex	Legal and General (Strategic Land North of Horsham) Ltd	WS202A

Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	28/11/2019	JJW	MJS	FINAL	

Window Sample Log	Easting:	Northing:	Ground Level:	Plant Used:	Print Date:	Scale:
	518845.9	133765.4	59.33mOD	Dando Terrier	21/02/2020	1:30

Weather: Dry/Sunny | Termination: SPT refusal at 2.10mbgl. | SPT Hammer: DTO658 Energy Ratio: 64%

Samples & In Situ Testing			Strata Details				Groundwater	
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
			59.18	0.15		CONCRETE		
		HV 0.20m, 107kPa				MADE GROUND - Stiff dark brown mottled orange and grey slightly gravelly sandy CLAY with occasional roots <3mm (living). Gravel is fine to coarse sub-angular to sub-rounded of flint and brick.		
0.30	ES1	PID 0.30m, 0.9ppm	59.03	0.30				
0.35	D1							
		HV 0.50m, 112kPa		(0.37)				
0.60	D2					Stiff grey mottled yellow and orange sandy CLAY with frequent rootlets <2mm (living). [RESIDUAL WEALD CLAY FORMATION]		
			58.66	0.67				
						Stiff light grey mottled orange slightly gravelly sandy CLAY with occasional rootlets <2mm. Gravel is fine to medium angular to sub-angular of extremely weak mudstone. [RESIDUAL WEALD CLAY FORMATION]		
0.90	ES2	PID 0.90m, 0.1ppm						
		HV 1.00m, 105kPa						
1.10 - 1.25	B1			(0.83)				
1.25 - 1.70	D3	SPT(S) 1.25m, N=15 (1,1/2,2,4,7)						
			57.83	1.50				
						Dark reddish brown mottled black and orange extremely weak MUDSTONE with occasional light grey and orange thinly laminated (6mm) clay. Recovered as fine to coarse angular to sub-angular gravel. [DESTRUCTURED WEALD CLAY FORMATION]		
1.80 - 2.10	D4	SPT(S) 1.80m, N=100 (11,14/100 for 150mm)		(0.60)				
			57.23	2.10		End of Borehole at 2.10m		



Start & End of Shift Observations					Borehole Diameter		Casing Diameter	
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
28-11-2019	16:30	2.10			1.20	300		
					1.80	101		

Remarks:

1. Inspection pit hand excavated to 1.20mbgl. Ground water encountered at 1.20mgbl (slow inflow) 3. On completion 50mm monitoring well installed to 1.80mbgl with concrete and cover installed at surface.

Chiselling				Installation			
From (m)	To (m)	Duration	Remarks	Top (m)	Base (m)	Type	Dia (mm)
				0.00	0.80	PLAIN	50
				0.80	1.80	SLOTTED	50

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.20			0		Slow inflow

endeavour drilling

Contract Name:	Client:	Borehole ID:
P1, Land North of Horsham, West Sussex	Legal and General (Strategic Land North of Horsham) Ltd	WS204

Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	29/11/2019	JJW	MJS	FINAL	

Window Sample Log	Easting:	Northing:	Ground Level:	Plant Used:	Print Date:	Scale:
	518862.5	133820.5	58.60mOD	Dando Terrier	21/02/2020	1:30

Weather: Dry/Sunny

Termination: Service encountered.

Samples & In Situ Testing			Strata Details				Groundwater	
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
			58.40	0.20		BITUMEN		
				(0.30)		MADE GROUND - Dark brown mottled black sandy fine to coarse sub-angular to sub-rounded GRAVEL of brick and concrete with occasional rootlets <2mm and roots <30mm (dead).		
			58.10	0.50		MADE GROUND - Stiff dark grey mottled orange slightly sandy slightly gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded of brick and metal.		
				(0.40)				
			57.70	0.90		End of Borehole at 0.90m		

1 2 3 4 5 6

Start & End of Shift Observations					Borehole Diameter		Casing Diameter	
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
29-11-2019	09:00	0.90			0.90	300		

Remarks:

1. Inspection pit hand excavated to 0.90mbgl. 2. Drain encountered at 0.90mbgl. 3. Back filled with arisings on completion.

Chiselling				Installation			
From (m)	To (m)	Duration	Remarks	Top (m)	Base (m)	Type	Dia (mm)

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

endeavour drilling

Contract Name:	Client:	Borehole ID:
P1, Land North of Horsham, West Sussex	Legal and General (Strategic Land North of Horsham) Ltd	WS204A

Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	29/11/2019	JJW	MJS	FINAL	

Window Sample Log	Easting:	Northing:	Ground Level:	Plant Used:	Print Date:	Scale:
	518862.5	133820.5	58.60mOD	Dando Terrier	21/02/2020	1:30

Weather: Dry/Sunny | Termination: SPT refusal at 2.31mbgl | SPT Hammer: DTO658 Energy Ratio: 64%

Samples & In Situ Testing			Strata Details				Groundwater	
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
			58.45	0.15		BITUMEN		
0.25 - 0.40	B1			(0.40)		MADE GROUND - Dark brown mottled black sandy fine to coarse sub-angular to sub-rounded GRAVEL of brick concrete, wood, ceramic and metal with occasional fine to coarse gravel sized pockets of sandy clay.		
0.45	ES1	PID 0.45m, 0.2ppm	58.05	0.55		MADE GROUND - Firm dark grey mottled orange and black slightly gravelly sandy CLAY with occasional rootlets <2mm (dead). Gravel is fine to medium sub-angular to sub-rounded of brick.		
0.65	D1	HV 0.60m, 51kPa	57.80	0.80		Firm light grey mottled orange sandy CLAY with rare root traces. [RESIDUAL WEALD CLAY FORMATION]		
		HV 0.90m, 63kPa						
1.00	D2	PID 1.00m, 0.3ppm		(0.50)				
1.00	ES3							
1.20 - 1.65	D3	SPT(S) 1.20m, N=31 (2,3/5,7,9,10)	57.30	1.30		Dark brown mottled black and orange extremely weak MUDSTONE with occasional light grey and orange thinly laminated (6mm) clay. Recovered as fine to coarse angular to sub-angular gravel. [DESTRUCTURED WEALD CLAY FORMATION]		
				(1.01)				
2.00 - 2.31	D4	SPT(S) 2.00m, 153 (7,15/153 for 160mm)						
			56.29	2.31		End of Borehole at 2.31m		

1 2 3 4 5 6

Start & End of Shift Observations					Borehole Diameter		Casing Diameter	
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
29-11-2019	11:00	2.31						

Chiselling				Installation			
From (m)	To (m)	Duration	Remarks	Top (m)	Base (m)	Type	Dia (mm)
				0.00	1.00	PLAIN	50
				1.00	2.00	SLOTTED	50

Remarks:

1. Inspection pit hand excavated to 1.20mbgl. No ground water encountered 3. On completion 50mm monitoring well installed to 2.0mbgl with concrete and cover installed at surface.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

endeavour drilling

Contract Name:	Client:	Borehole ID:
P1, Land North of Horsham, West Sussex	Legal and General (Strategic Land North of Horsham) Ltd	WS205

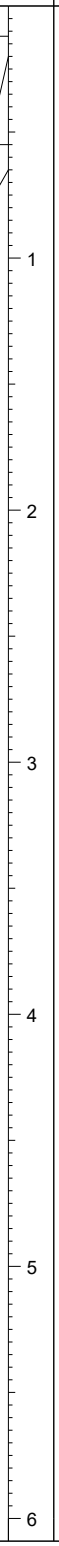
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	28/11/2019	JJW	MJS	FINAL	

Window Sample Log	Easting:	Northing:	Ground Level:	Plant Used:	Print Date:	Scale:
	518895.1	133784.9	59.78mOD	Dando Terrier	21/02/2020	1:30

Weather: Dry/Sunny

Termination: Service encountered.

Samples & In Situ Testing			Strata Details				Groundwater	
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
			59.66	0.12		BITUMEN		
			59.58	0.20		MADE GROUND - Dark brown mottled black slightly sandy gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded of brick, concrete and pottery.		
				(0.35)		MADE GROUND - Stiff greenish grey mottled yellow slightly sandy CLAY with rare rootlets <2mm (living).		
			59.23	0.55		Stiff light grey mottled orange sandy reworked CLAY with occasional rootlets <2mm.		
			59.13	0.65		End of Borehole at 0.65m		



Start & End of Shift Observations					Borehole Diameter		Casing Diameter	
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
28-11-2019	12:00	0.65			0.65	300		

Remarks:

1. Inspection pit hand excavated to 0.65mbgl. 2. Cable encountered at 0.65mbgl. 3. Back filled with arisings on completion.

Chiselling				Installation			
From (m)	To (m)	Duration	Remarks	Top (m)	Base (m)	Type	Dia (mm)

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

endeavour drilling

Contract Name:	Client:	Borehole ID:
P1, Land North of Horsham, West Sussex	Legal and General (Strategic Land North of Horsham) Ltd	WS205A

Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	28/11/2019	JJW	MJS	FINAL	

Window Sample Log	Easting:	Northing:	Ground Level:	Plant Used:	Print Date:	Scale:
	518895.1	133784.9	59.78mOD	Dando Terrier	21/02/2020	1:30

Weather: Dry/Sunny | Termination: SPT refusal at 1.75mbgl | SPT Hammer: DTO658 Energy Ratio: 64%

Samples & In Situ Testing			Strata Details				Groundwater	
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
			59.66	0.12		BITUMEN		
0.17	ES1	HV 0.13m, 93kPa	59.63	0.15		MADE GROUND - Stiff dark brown mottled black slightly sandy gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded of brick, concrete and pottery.		
0.20	D1	PID 0.17m, 0.2ppm		(0.40)		MADE GROUND - Stiff greenish grey mottled yellow slightly sandy CLAY with rare rootlets <2mm (living).		
		HV 0.40m, 110kPa						
0.55	D2		59.23	0.55		Very stiff light grey mottled orange sandy reworked CLAY with occasional rootlets <2mm (living) [RESIDUAL WEALD CLAY FORMATION]		
		HV 0.70m, 120kPa						
0.80 - 1.10	B1		58.98	0.80		Dark reddish brown mottled black and orange extremely weak MUDSTONE with occasional light grey and orange thinly laminated (6mm) clay. Recovered as fine to coarse angular to sub-angular gravel. [DESTRUCTURED WEALD CLAY FORMATION]		
1.10	D3	SPT(S) 1.10m, N=15 (4,3/4,3,3,5)						
1.10 - 1.55	ES2	PID 1.10m, 0.2ppm		(0.95)				
1.60 - 1.75	D4	SPT(S) 1.60m, 100 (18,7/100 for 150mm)						
			58.03	1.75		End of Borehole at 1.75m		

1 2 3 4 5 6

Start & End of Shift Observations					Borehole Diameter		Casing Diameter	
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
28-11-2019	12:30	1.75			1.20	300		
					1.60	101		

Remarks:

1. Inspection pit hand excavated to 1.10mbgl. Ground water encountered at 1.10mgbl (slow inflow) 3. On completion 50mm monitoring well installed to 1.60mbgl with concrete and cover installed at surface.

Chiselling				Installation			
From (m)	To (m)	Duration	Remarks	Top (m)	Base (m)	Type	Dia (mm)
				0.00	0.60	PLAIN	50
				0.60	1.60	SLOTTED	50

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.10			0		Slow inflow

endeavour drilling

Contract Name:	Client:	Borehole ID:
P1, Land North of Horsham, West Sussex	Legal and General (Strategic Land North of Horsham) Ltd	WS206

Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	28/11/2019	JJW	MJS	FINAL	

Window Sample Log	Easting:	Northing:	Ground Level:	Plant Used:	Print Date:	Scale:
	518896.3	133737.7	60.20mOD	Dando Terrier	21/02/2020	1:30

Weather: Dry/Sunny | Termination: SPT refusal at 2.24mbgl. | SPT Hammer: DTO658 Energy Ratio: 64%

Samples & In Situ Testing			Strata Details				Groundwater	
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
0.10 - 0.26	B1		60.15	0.05		BITUMEN		
0.26	ES1	PID 0.26m, 0.2ppm	59.94	0.26		MADE GROUND - Dark brown mottled black and light brown very sandy fine to coarse angular to sub-rounded GRAVEL of clinker, brick and concrete with occasional cobbles of brick.		
		HV 0.50m, 67kPa		(0.34)		Firm light grey mottled yellow slightly sandy CLAY with occasional rootlets <2mm (living). [RESIDUAL WEALD CLAY FORMATION]		
0.60 - 0.80	B2		59.60	0.60				
0.70	D1					Very stiff light orangish brown mottled grey sandy gravelly CLAY. Gravel is fine to coarse angular to sub-angular of extremely weak mudstone. [RESIDUAL WEALD CLAY FORMATION]		
		HV 1.00m, 120kPa		(0.75)				
1.20	D2	SPT(S) 1.20m, N=22 (7,9/7,5,5,5)						
1.20 - 1.45	ES2	PID 1.20m, 0.2ppm	58.85	1.35				
1.70	D4					Dark brown mottled black and orange extremely weak to very weak MUDSTONE with occasional light grey and orange thinly laminated (6mm) clay. Recovered as fine to coarse angular to sub-angular gravel. [DESTRUCTURED WEALD CLAY FORMATION]		
				(0.89)				
2.00 - 2.45	D3	SPT(S) 2.00m, 100 (18,35/100 for 95mm)						
			57.96	2.24		End of Borehole at 2.24m		

1 2 3 4 5 6

Start & End of Shift Observations					Borehole Diameter		Casing Diameter	
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
28-11-2019	11:00	2.24			1.20	300		
					2.00	101		

Remarks:

1. Inspection pit hand excavated to 1.20mbgl. No groundwater encountered. 3. On completion 50mm monitoring well installed to 2.0mbgl with concrete and cover installed at surface.

Chiselling			
From (m)	To (m)	Duration	Remarks

Installation			
Top (m)	Base (m)	Type	Dia (mm)
0.00	1.00	PLAIN	50
1.00	2.00	SLOTTED	50

Water Strikes					
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks

endeavour drilling

Contract Name:	Client:	Borehole ID:
P1, Land North of Horsham, West Sussex	Legal and General (Strategic Land North of Horsham) Ltd	WS207A

Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	29/11/2019	JJW	MJS	FINAL	

Window Sample Log	Easting:	Northing:	Ground Level:	Plant Used:	Print Date:	Scale:
	519035.0	133402.2	52.72mOD	Dando Terrier	21/02/2020	1:30

Weather: Dry/Sunny | Termination: SPT refusal at 4.50mbgl | SPT Hammer: DTO658 Energy Ratio: 64%

Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation
			52.59	0.13		TOP SOIL - Dark brown slightly sandy CLAY with frequent rootlets <2mm (alive)		
0.30	D1	PID 0.30m, 6.0ppm				MADE GROUND - Dark brown slightly sandy gravelly CLAY with frequent rootlets <2mm and occasional roots <10mm (dead). Gravel is fine to coarse sub-angular to sub-rounded of brick and concrete.		
0.35	ES1		52.32	0.40		Firm dark brown silty sandy slightly gravelly CLAY. Gravel is fine to medium sub-angular to sub-rounded of flint with rare shell fragments. [ALLUVIUM]		
0.90	ES2	PID 0.90m, 10.2ppm		(0.90)				
1.00	B1							
1.00 - 1.20	D2							
1.20 - 1.65	D5	SPT(S) 1.20m, N=12 (2,2/1,3,4,4)	51.42	1.30		Firm light brown mottled orange and grey slightly sandy CLAY with occasional rootlets <2mm and roots <4mm (dead). [RESIDUAL WEALD CLAY FORMATION]		
				(0.50)				
			50.92	1.80		*from 1.70mbgl with rare fine to coarse angular gravel of extremely weak mudstone.*		
2.00 - 2.45	D6	SPT(S) 2.00m, N=31 (4,4/16,5,5,5)				Dark brown mottled black and grey extremely weak MUDSTONE with grey thinly laminated (<6mm) clay. Recovered as fine to medium angular mudstone. [DESTRUCTURED WEALD CLAY FORMATION]		
				(0.70)				
2.30	D3							
			50.22	2.50		Stiff light brown mottled grey sandy slightly gravelly CLAY. Gravel is fine fine to medium angular of extremely weak mudstone. [DESTRUCTURED WEALD CLAY FORMATION]		
2.80	D4							
3.00 - 3.45	D7	SPT(S) 3.00m, N=25 (4,3/4,5,8,8)						
				(1.50)				
4.00 - 4.45	D8	SPT(S) 4.00m, N=47 (3,3/7,8,14,18)	48.72	4.00		Dark brown mottled black and orange extremely weak to very weak MUDSTONE with light grey and orange thinly laminated (<6mm) clay. Recovered as fine to medium angular gravel. [DISTINCTLY WEATHERED WEALD CLAY FORMATION]		
				(0.80)				
4.50 - 4.80	D9	SPT(S) 4.50m, 100 (13,12/100 for 150mm)						
			47.92	4.80		End of Borehole at 4.80m		

1 2 3 4 5 6

Start & End of Shift Observations

Date	Time	Depth (m)	Casing (m)	Water (m)
29-11-2019	16:00	4.80		

Borehole Diameter

Depth (m)	Dia (mm)
1.20	300
2.00	101
3.00	87
4.00	67
4.80	67

Casing Diameter

Depth (m)	Dia (mm)

Chiselling

From (m)	To (m)	Duration	Remarks

Installation

Top (m)	Base (m)	Type	Dia (mm)
0.00	1.00	PLAIN	50
1.00	4.50	SLOTTED	50

Remarks:

1. Inspection pit hand excavated to 1.20mbgl. Ground water encountered at 4.45mbgl (slow inflow) 3. On completion 50mm monitoring well installed to 4.50mbgl with concrete and raised cover installed at surface.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
4.45			0		Slow inflow

APPENDIX E

Machine Excavated Trial Pit Records

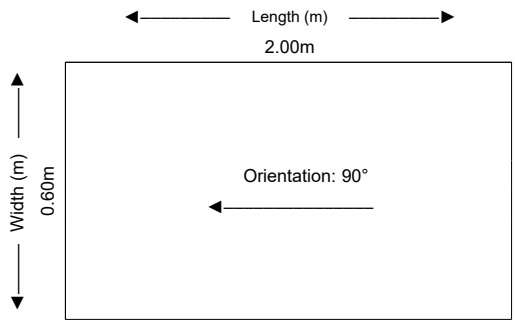
endeavour drilling

Contract Name:		Client:			Trial Pit ID:
P1, Land North of Horsham, West Sussex		Legal and General (Strategic Land North of Horsham) Ltd			TP201
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	03/12/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518531.9	134064.6	60.24mOD	13T Excavator	21/02/2020	1:30
Weather: Dry/Sunny	Termination: Reached target depth		Stability: Good		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.10	D1			(0.30)		TOP SOIL - Brown silty sandy CLAY.		
0.10	ES1		59.94	0.30				
0.50	ES2	HV 0.50m, 73kPa				Firm to stiff light grey and orange silty sandy CLAY. [RESIDUAL WEALD CLAY FORMATION]		
				(1.10)				
		HV 1.00m, 95kPa					1	
1.50	B1		58.84	1.40		Light bluish grey and light brown mottled black extremely weak to weak MUDSTONE with occasional thinly laminated clay (<6mm) recovered as sandy fine to coarse angular gravel. [DESTRUCTURED WEALD CLAY FORMATION]		
				(1.10)			2	
2.40	B2							
2.50	B3		57.74	2.50		Light brown mottled blue grey and black very weak to moderately weak MUDSTONE. Recovered as sandy fine to coarse angular gravel and occasional cobbles. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
				(0.80)			3	
3.30	B4		56.94	3.30		Grey brown mottled black and reddish orange weak to moderately weak MUDSTONE with light blueish grey thinly laminated (<6mm) silty clay. Recovered as sandy fine to coarse angular gravel and occasional cobbles. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
				(0.70)				
			56.24	4.00		End of Trial Pit at 4.00m	4	

Dimensions:

Final Depth: 4.00m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 4.0mbgl. 2. No groundwater encountered 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks



TP201 – 0.0mbgl – 4.0mbgl



TP201 – 0.0mbgl – 4.0mbgl



TP201 – 0.0mbgl – 4.0mbgl

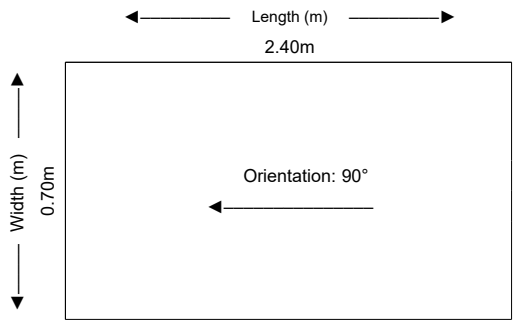
endeavour drilling

Contract Name:			Client:		Trial Pit ID:
P1, Land North of Horsham, West Sussex			Legal and General (Strategic Land North of Horsham) Ltd		TP202
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	02/12/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518586.7	134237.1	67.15mOD	13T Excavator	21/02/2020	1:30
Weather: Dry/Sunny		Termination: Refusal at 3.0mbgl		Stability: Unstable		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.10 0.10	D1 ES1			(0.40)		TOP SOIL - Brown slightly gravelly silty sandy CLAY with occasional rootlets <2mm (living).		
			66.75	0.40				
0.50 0.50	B1 ES2	HV 0.50m, 70kPa				Firm light bluish grey mottled dark orangish brown slightly sandy silty CLAY with occasional rootlets <2mm (dead). [RESIDUAL WEALD CLAY FORMATION]		
		HV 1.00m, 60kPa		(1.40)			1	
1.50	D2	HV 1.50m, 62kPa						
			65.35	1.80		Light bluish grey and light brown extremely weak MUDSTONE. Recovered as sandy clayey fine to coarse sub-angular gravel. [DESTRUCTURED WEALD CLAY FORMATION]	2	
				(0.60)				
2.40	B2		64.75	2.40		Light brown mottled blue grey and orange extremely weak to very weak MUDSTONE. Recovered as sandy clayey fine to coarse sub-angular gravel. [DESTRUCTURED WEALD CLAY FORMATION]		
				(0.60)				
			64.15	3.00		End of Trial Pit at 3.00m	3	
							4	

Dimensions:

Final Depth: 3.00m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.0mbgl. 2. Ground water encountered at 0.80mbgl (moderate inflow) 3. Soak away test carried out from 1.65mbgl 4. Trial pit unstable, 20mm gravel infill to 0.60mbgl 5. Gravel removed and backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
0.80			0		Moderate inflow



TP202 – 0.0mbgl – 3.0mbgl



TP202 – 0.0mbgl – 3.0mbgl



TP202 – 0.0mbgl – 3.0mbgl

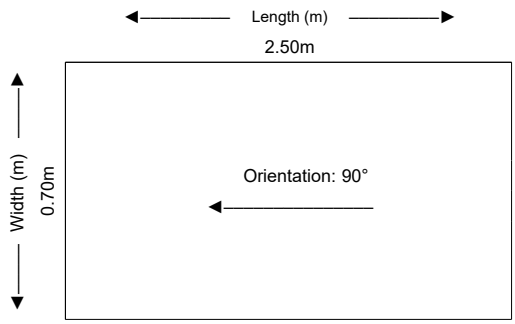
endeavour drilling

Contract Name:			Client:		Trial Pit ID:
P1, Land North of Horsham, West Sussex			Legal and General (Strategic Land North of Horsham) Ltd		TP203
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	02/12/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518610.8	134148.8	64.12mOD	13T Excavator	21/02/2020	1:30
Weather: Dry/Sunny		Termination: Refusal at 3.60mbgl		Stability: Good	

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.10 0.10	D1 ES1			(0.35)		TOP SOIL - Dark brown slightly sandy slightly gravelly silty CLAY with occasional rootlets <2mm (living).		
			63.77	0.35				
0.50 0.50	B1 ES2	HV 0.50m, 70kPa				Firm light blueish grey mottled orange and grey slightly sandy slightly gravelly silty CLAY. Gravel is fine to medium sub-angular weak mudstone. [RESIDUAL WEALD CLAY FORMATION]		
		HV 1.00m, 70kPa					1	
				(1.75)				
1.50	D2	HV 1.50m, 68kPa						
		HV 2.00m, 67kPa					2	
2.10	B2		62.02	2.10		Light bluish grey mottled light brown and black extremely weak to weak MUDSTONE. Recovered as clayey sandy fine to coarse sub-angular gravel. [DESTRUCTURED WEALD CLAY FORMATION]		
				(1.20)				
3.10	D3						3	
			60.82	3.30		Dark reddish brown and brownish orange very weak to moderately weak MUDSTONE. Recovered as sandy fine to coarse sub-angular gravel and occasional cobbles. [DESTRUCTURED WEALD CLAY FORMATION]		
3.40	B3			(0.30)				
			60.52	3.60		End of Trial Pit at 3.60m		
							4	

Dimensions:

Final Depth: 3.60m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.60mbgl. 2. No groundwater encountered 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks



TP203 – 0.0mbgl – 3.6mbgl







TP203 – 0.0mbgl – 3.6mbgl

endeavour drilling

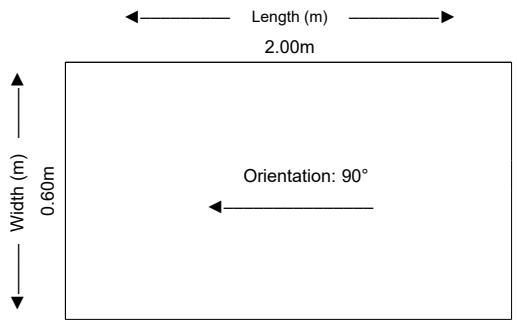
Contract Name:			Client:		Trial Pit ID:
P1, Land North of Horsham, West Sussex			Legal and General (Strategic Land North of Horsham) Ltd		TP204
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	02/12/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518607.6	133981.7	58.15mOD	13T Excavator	21/02/2020	1:30
Weather: Dry/Sunny	Termination: Refusal at 3.50mbgl		Stability: Good		

Samples & In Situ Testing			Strata Details					
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
0.10 0.10	D1 ES1			(0.50)		TOP SOIL - Brown slightly gravelly silty sandy CLAY with occasional rootlets <2mm (living). Gravel is fine to medium sub-angular to sub-rounded brick.		
		HV 0.50m, 80kPa	57.65	0.50				
0.60 0.60	B1 ES2			(0.90)		Firm to stiff light grey and orange mottled black slightly sandy slightly gravelly silty CLAY. Gravel is fine to coarse sub-angular extremely weak to very weak mudstone. [RESIDUAL WEALD CLAY FORMATION]		
1.40	B2		56.75	1.40				
				(0.40)		Light grey and brownish orange extremely weak MUDSTONE with thinly laminated silty clay (<6mm). Recovered as fine to coarse sub-angular clayey sandy gravel. [DESTRUCTURED WEALD CLAY FORMATION]		
1.80	B3		56.35	1.80				
				(0.80)		Light brown mottled bluish brown extremely weak to very weak MUDSTONE. Recovered as fine to coarse sub-angular sandy gravel and occasional cobbles. [DISTINCTLY WEATHERED WEALD CLAY FORMATION]		
			55.55	2.60				
2.70	B4			(0.90)		Light brown mottled bluish grey and orange weak to moderately weak MUDSTONE. Recovered as sub-angular fine to coarse sub-angular sandy gravel and occasional cobbles. (PARTIALLY WEATHERED WEALD CLAY FORMATION]		
			54.65	3.50		End of Trial Pit at 3.50m		

1 2 3 4

Dimensions:

Final Depth: 3.50m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.0mbgl. 2. Ground water encountered at 2.20mbgl (slow inflow) 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
2.20			0		Slow inflow



TP204 – 0.0mbgl – 3.5mbgl



TP204 – 0.0mbgl – 3.5mbgl



TP204 – 0.0mbgl – 3.5mbgl

endeavour drilling

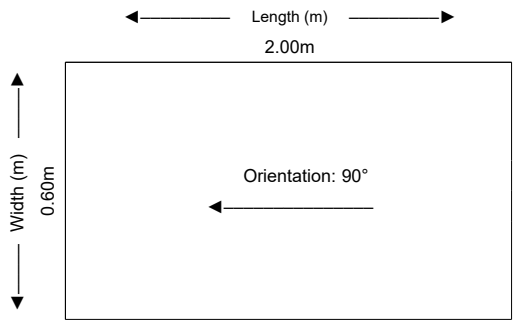
Contract Name:			Client:		Trial Pit ID:
P1, Land North of Horsham, West Sussex			Legal and General (Strategic Land North of Horsham) Ltd		TP205
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	09/12/2019	JJW	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518600.7	133613.3	54.31mOD	13T Excavator	21/02/2020	1:30
Weather: Overcast		Termination: Refusal at 3.00mbgl		Stability: Good		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.10	D1			(0.30)		TOP SOIL - Dark brown slightly sandy silty CLAY.		
0.10	ES1		54.01	0.30				
0.50	B1	HV 0.50m, 71kPa				Firm light brown mottled orange and grey silty sandy CLAY. (RESIDUAL WEALD CLAY FORMATION)		
0.50	ES2			(0.90)				
			53.11	1.20				
1.30	B2					Reddish brown mottled grey and black extremely weak MUDSTONE with rare grey thinly (<6mm) laminated grey clay. Recovered as clayey sandy fine to coarse sub-angular gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
				(0.90)				
			52.21	2.10				
2.20	B3					Dark reddish brown mottled black and grey extremely weak to very weak MUDSTONE. Recovered as sandy fine to coarse sub-angular gravel. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
				(0.70)				
			51.51	2.80				
2.90	B4					Dark brown mottled grey and black moderately weak to medium strong MUDSTONE. Recovered as sandy fine to coarse sub-angular gravel and occasional cobbles. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
			51.31	3.00		End of Trial Pit at 3.00m		

1 2 3 4

Dimensions:

Final Depth: 3.00m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.0mbgl. 2. No ground water encountered 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks



TP205 – 0.0mbgl – 3.0mbgl



TP205 – 0.0mbgl – 3.0mbgl



TP205 – 0.0mbgl – 3.0mbgl

endeavour drilling

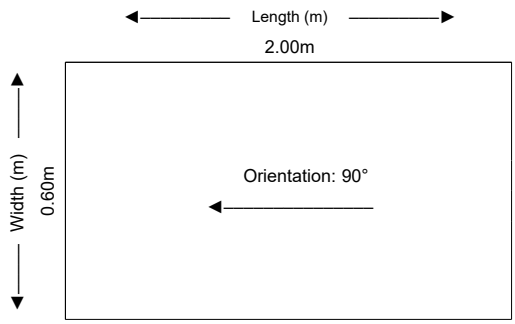
Contract Name:			Client:		Trial Pit ID:
P1, Land North of Horsham, West Sussex			Legal and General (Strategic Land North of Horsham) Ltd		TP206
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	03/12/2019	JJW	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518614.6	134068.1	60.34mOD	13T Excavator	21/02/2020	1:30
Weather: Dry/Sunny		Termination: Refusal at 3.30mbgl		Stability: Good		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.10 0.10	D1 ES1			(0.30)		TOP SOIL - Dark brown slightly sandy slightly gravelly silty CLAY with occasional rootlets <2mm (living).		
			60.04	0.30				
0.50 0.50	B1 ES2	HV 0.50m, 81kPa		(1.10)		Light brown mottled orange and grey silty sandy CLAY with occasional rootlets <2mm (living). [RESIDUAL WEALD CLAY FORMATION]		
			58.94	1.40		Brown mottled orange and black extremely weak to very weak MUDSTONE. Recovered as fine to coarse sub-angular gravel. [DESTRUCTURED WEALD CLAY FORMATION]		
1.70	B2			(0.90)				
			58.04	2.30		Brown mottled orange very weak MUDSTONE with occasional thinly laminated grey clay (<6mm) recovered as fine to coarse sub-angular to angular gravel and occasional cobbles. [DISTINCTLY WEATHERED WEALD CLAY FORMATION]		
2.40	B3			(0.70)				
3.00 3.00	B4 D2		57.34	3.00		Reddish Brown and grey mottled black very weak MUDSTONE recovered as fine to coarse sub-angular to angular gravel and occasional cobbles. (DISTINCTLY WEATHERED WEALD CLAY FORMATION]		
				(0.30)				
			57.04	3.30		End of Trial Pit at 3.30m		

1 2 3 4

Dimensions:

Final Depth: 3.30m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.30mbgl. 2. No groundwater encountered 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks



TP206 – 0.0mbgl – 3.30mbgl



TP206 – 0.0mbgl – 3.30mbgl



TP206 – 0.0mbgl – 3.30mbgl

endeavour drilling

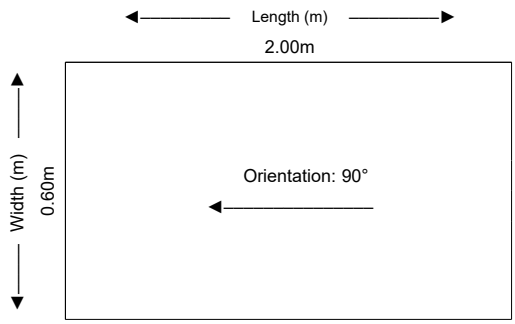
Contract Name:		Client:			Trial Pit ID:
P1, Land North of Horsham, West Sussex		Legal and General (Strategic Land North of Horsham) Ltd			TP207
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	10/12/2019	JJW	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518618.4	133717.2	54.96mOD	13T Excavator	21/02/2020	1:30
Weather: Frequent showers		Termination: Refusal at 3.50mbgl			Stability: Good	

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.20	D1			(0.30)		TOP SOIL - Dark brown slightly sandy silty CLAY.		
0.20	ES1		54.66	0.30		Firm yellowish brown mottled orange and grey slightly sandy silty CLAY. (RESIDUAL WEALD CLAY FORMATION)		
0.60	B1	HV 0.60m, 62kPa						
0.60	ES2			(0.90)				
			53.76	1.20				
1.30	B2					Reddish brown mottled orange and grey extremely weak MUDSTONE with grey thinly laminated (<6mm) silty clay. Recovered as sandy fine to coarse sub-angular gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
				(1.40)				
2.30	D2							
2.60	B3		52.36	2.60		Light brown mottled orange and brown and black very weak MUDSTONE. Recovered as slightly sandy fine to coarse sub-angular gravel and frequent cobbles. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
				(0.90)				
3.50	B4		51.46	3.50		End of Trial Pit at 3.50m		

1 2 3 4

Dimensions:

Final Depth: 3.50m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.50mbgl. 2. Ground water encountered at 2.0mbgl (slow inflow) 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
2.00			0		Slow inflow



TP207 – 0.0mbgl – 3.50mbgl



TP207 – 0.0mbgl – 3.50mbgl



TP207 – 0.0mbgl – 3.50mbgl

endeavour drilling

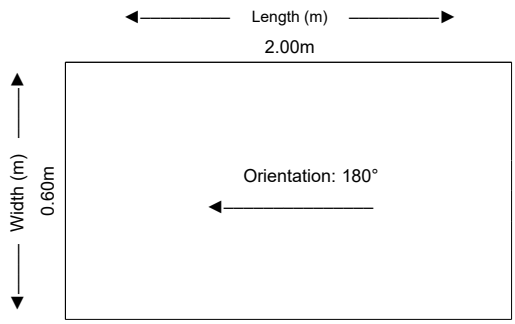
Contract Name:			Client:		Trial Pit ID:
P1, Land North of Horsham, West Sussex			Legal and General (Strategic Land North of Horsham) Ltd		TP208
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	05/12/2019	JJW	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518657.3	133892.0	55.74mOD	13T Excavator	21/02/2020	1:30
Weather: Dry/Sunny	Termination: Reached target depth		Stability: Unstable		

Samples & In Situ Testing			Strata Details					
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
0.10 0.10	D1 ES1			(0.30)		TOP SOIL - Dark brown silty clay with occasional rootlets <2mm (living).		
			55.44	0.30				
0.50 0.50	B1 ES2	HV 0.50m, 120kPa		(0.50)		Very stiff light brown mottled grey and orange silty sandy CLAY with occasional rootlets <2mm (living). (RESIDUAL WEALD CLAY FORMATION)		
			54.94	0.80				
0.90	B2					Brown mottled orange and grey extremely weak MUDSTONE with occasional thinly laminated (<6mm) clay. Recovered as clayey sandy fine to medium gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
				(1.00)				
			53.94	1.80				
1.90 2.00	B3 D2			(0.80)		Stiff blue grey mottled orange slightly sandy slightly gravelly CLAY with rare roots <6mm (dead). (DESTRUCTURED WEALD CLAY FORMATION)		
			53.14	2.60				
2.70	B4			(0.40)		Blue grey mottled lightly brown and orange extremely weak to very weak MUDSTONE. Recovered as clayey sandy fine to coarse sub-angular gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
			52.74	3.00				
3.10	B5					Blue grey weak to moderate weak MUDSTONE. Recovered as fine to coarse sub-angular gravel and frequent cobbles. (PARTIALLY WEATHERED WEALD CLAY FORMATION)		
				(1.00)				
			51.74	4.00		End of Trial Pit at 4.00m		

1
2
3
4

Dimensions:

Final Depth: 4.00m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 4.0mbgl. 2. Ground water encountered at 2.0mbgl (rapid inflow) 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
3.00			0		Rapid inflow



TP208 – 0.0mbgl – 4.00mbgl



TP208 – 0.0mbgl – 4.00mbgl



TP208 – 0.0mbgl – 4.00mbgl

endeavour drilling

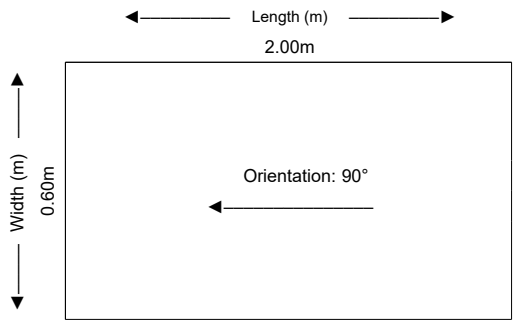
Contract Name:		Client:			Trial Pit ID:
P1, Land North of Horsham, West Sussex		Legal and General (Strategic Land North of Horsham) Ltd			TP210
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	10/12/2019	JJW	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518665.7	133706.3	56.63mOD	13T Excavator	21/02/2020	1:30
Weather: Frequent showers		Termination: Refusal at 3.10mbgl			Stability: Good	

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.10	D1			(0.30)		TOP SOIL - Dark brown slightly sandy silty CLAY		
0.10	ES1		56.33	0.30				
0.50	B1	HV 0.50m, 60kPa				Firm light brown mottled orange and grey slightly gravelly silty CLAY. Gravel is fine to coarse sub-angular mudstone. (RESIDUAL WEALD CLAY FORMATION)		
0.50	ES2			(0.80)				
			55.53	1.10				
1.30	B2					Orangish brown mottled grey extremely weak MUDSTONE with occasional grey thinly laminated clay. Recovered as fine to coarse clayey sandy gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
				(0.90)				
			54.63	2.00				
2.10	B3					Light greyish brown extremely weak to very weak MUDSTONE. Recovered as sandy fine to coarse sub-angular gravel and with occasional cobbles. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
				(1.10)				
3.10	B4		53.53	3.10		End of Trial Pit at 3.10m		

1 2 3 4

Dimensions:

Final Depth: 3.10m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.10mbgl. 2. Ground water encountered at 1.20mbgl (slow inflow) 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.20			0		Slow inflow



TP210 – 0.0mbgl – 3.10mbgl



TP210 – 0.0mbgl – 3.10mbgl



TP210 – 0.0mbgl – 3.10mbgl

endeavour drilling

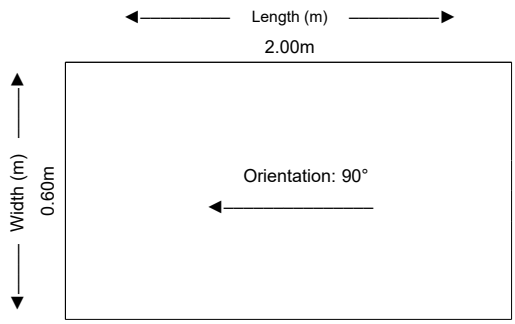
Contract Name:			Client:		Trial Pit ID:
P1, Land North of Horsham, West Sussex			Legal and General (Strategic Land North of Horsham) Ltd		TP211
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	05/12/2019	JJW	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518668.7	134016.1	58.76mOD	13T Excavator	21/02/2020	1:30
Weather: Dry/Sunny	Termination: Reached target depth		Stability: Good		

Samples & In Situ Testing			Strata Details					
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
0.10 0.10	D1 ES1			(0.30)		TOP SOIL - Dark brown silty clay with occasional rootlets <2mm (living).		
			58.46	0.30				
0.50 0.50	B1 ES2	HV 0.50m, 57kPa		(0.70)		Firm brown mottled orange and grey silty sandy CLAY with frequent rootlets<2mm and occasional roots <10mm (living). (RESIDUAL WEALD CLAY FORMATION)		
			57.76	1.00				
1.10	B2					Light brown mottled orange and black extremely weak MUDSTONE with occasional thin lenses of blue grey clay. Recovered as clayey fine to coarse sub-angular gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
				(1.40)				
2.10 2.10	B3 D2							
			56.36	2.40				
2.50	B4					Dark reddish brown mottled black and grey extremely weak to very weak MUDSTONE. Recovered as fine to coarse sub-angular gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
				(0.70)				
			55.66	3.10				
3.20	B5					Blue grey and dark brown very weak to moderate weak MUDSTONE. Recovered as fine to coarse sub-angular gravel and occasional cobbles. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
				(0.90)				
			54.76	4.00		End of Trial Pit at 4.00m		

1 2 3 4

Dimensions:

Final Depth: 4.00m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 4.0mbgl. 2. Ground water encountered at 3.40mbgl (rapid inflow) 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
3.40			0		Slow inflow



TP211 – 0.0mbgl – 4.0mbgl



TP211 – 0.0mbgl – 4.0mbgl



TP211 – 0.0mbgl – 4.0mbgl

endeavour drilling

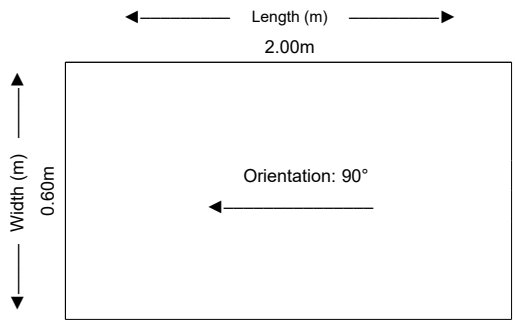
Contract Name:		Client:			Trial Pit ID:
P1, Land North of Horsham, West Sussex		Legal and General (Strategic Land North of Horsham) Ltd			TP212
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	09/12/2019	JJW	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518695.6	133563.0	55.96mOD	13T Excavator	21/02/2020	1:30
Weather: Overcast		Termination: Refusal at 3.70mbgl			Stability: Good	

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.10	D1					TOP SOIL - Dark brown slightly gravelly silty sandy clay. Gravel is fine to coarse sub-angular of flint.		
0.10	ES1		55.76	0.20				
0.50	B1	HV 0.50m, 75kPa				Firm to stiff brown mottled orange and grey slightly silty slightly sandy slightly gravelly CLAY. Gravel is fine to coarse sub-angular of extremely weak mudstone. (RESIDUAL WEALD CLAY FORMATION)		
0.50	ES2			(0.80)				
1.00	B2		54.96	1.00		Reddish brown mottled black extremely weak MUDSTONE with rare grey thinly laminated (<6mm) clay. Recovered as sandy fine to coarse sub-angular gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
				(1.50)				
2.00	D2							
2.50	B3		53.46	2.50		Reddish brown mottled black extremely weak MUDSTONE with rare grey thinly laminated (<6mm) clay. Recovered as clayey sandy fine to coarse sub-angular gravel and rare cobbles. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
				(0.80)				
			52.66	3.30		Grey mottled reddish brown very weak to moderately weak MUDSTONE. Recovered as sandy fine to coarse sub-angular gravel and occasional cobbles. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
				(0.40)				
3.70	B4		52.26	3.70		End of Trial Pit at 3.70m		

1 2 3 4

Dimensions:

Final Depth: 3.70m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.70mbgl. 2. Ground water encountered at 2.0mbgl (slow inflow) 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks



TP212 – 0.0mbgl – 3.70mbgl



TP212 – 0.0mbgl – 3.70mbgl



TP212 – 0.0mbgl – 3.70mbgl

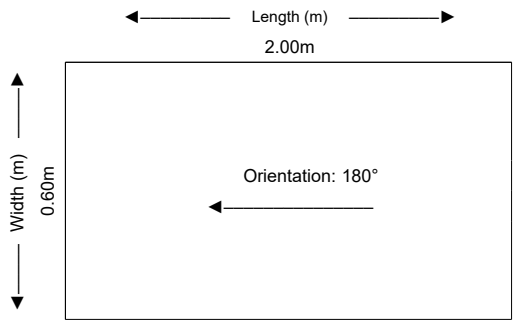
endeavour drilling

Contract Name:			Client:		Trial Pit ID:
P1, Land North of Horsham, West Sussex			Legal and General (Strategic Land North of Horsham) Ltd		TP213
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	05/12/2019	JJW	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518706.9	133910.4	56.23mOD	13T Excavator	21/02/2020	1:30
Weather: Dry/Sunny	Termination: Refusal at 3.50mbgl		Stability: Unstable		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.10	D1					TOP SOIL - Dark brown silty CLAY with occasional rootlets <2mm (living).		
0.10	ES1		56.03	0.20				
				(0.40)		Stiff brown mottled orange and grey silty sandy CLAY with frequent rootlets <2mm (living). (RESIDUAL WEALD CLAY DEPOSITS)		
0.50	B1	HV 0.50m, 91kPa						
0.50	ES2		55.63	0.60				
						Brown mottled grey and orange extremely weak MUDSTONE with occasional blue grey thinly laminated (<6mm) clay. Recovered as fine to coarse sub-angular clayey sandy gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
1.00	B2						1	
				(1.20)				
			54.43	1.80				
1.90	B3					Stiff blue grey slightly sandy slightly gravelly silty CLAY. Gravel is fine to coarse sub-angular mudstone. (DESTRUCTURED WEALD CLAY FORMATION)		
2.00	D2			(0.50)			2	
			53.93	2.30				
						Blue grey mottled lightly brown and orange extremely weak to very weak MUDSTONE. Recovered as clayey sandy fine to coarse sub-angular gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
				(0.80)				
2.90	B5						3	
			53.13	3.10				
3.20	B4					Blue grey very weak to moderate weak MUDSTONE. Recovered as fine to coarse sub-angular gravel. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
				(0.40)				
			52.73	3.50				
						End of Trial Pit at 3.50m		
							4	

Dimensions:

Final Depth: 3.50m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.50mbgl. 2. Ground water encountered at 2.30mbgl (rapid inflow) 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
2.30			0		Rapid inflow.



TP213 – 0.0mbgl – 3.50mbgl



TP213 – 0.0mbgl – 3.50mbgl



TP213 – 0.0mbgl – 3.50mbgl

endeavour drilling

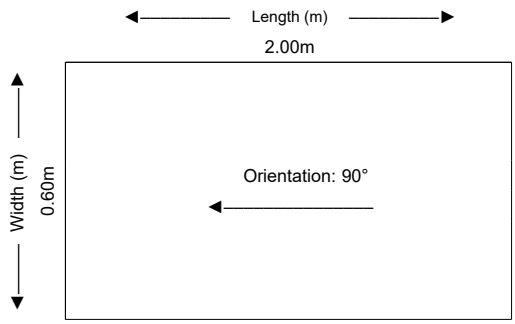
Contract Name:		Client:			Trial Pit ID:
P1, Land North of Horsham, West Sussex		Legal and General (Strategic Land North of Horsham) Ltd			TP214
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	09/12/2019	JJW	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518713.4	133636.4	57.06mOD	13T Excavator	21/02/2020	1:30
Weather: Overcast		Termination: Refusal at 3.00mbgl			Stability: Good	

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.10	D1			(0.30)		TOP SOIL - Dark brown slightly sandy silty CLAY.		
0.10	ES1		56.76	0.30				
0.50	B1	HV 0.50m, 80kPa				Stiff light brown slightly silty sandy gravelly CLAY. Gravel is fine to medium of extremely weak mudstone. (RESIDUAL WEALD CLAY FORMATION)		
0.50	ES2			(0.70)				
1.10	B2		56.06	1.00		Dark brown mottled grey and dark reddish brown extremely weak MUDSTONE with occasional thinly laminated clay. Recovered as clayey fine to coarse sub-angular gravel and occasional cobbles. (DESTRUCTURED WEALD CLAY FORMATION)		
				(1.00)				
2.10	D2		55.06	2.00		Reddish brown mottled black very weak to moderate weak MUDSTONE. Recovered as fine to coarse sub-angular gravel and occasional cobbles. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
				(1.10)				
3.10	B3		53.96	3.10		End of Trial Pit at 3.00m		

1 2 3 4

Dimensions:

Final Depth: 3.00m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.0mbgl. 2. No ground water encountered 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks



TP214 – 0.0mbgl – 3.0mbgl



TP214 – 0.0mbgl – 3.0mbgl



TP214 – 0.0mbgl – 3.0mbgl

endeavour drilling

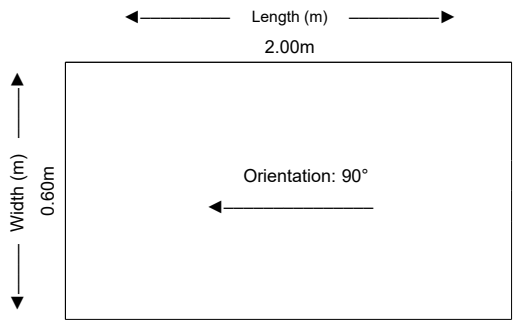
Contract Name:		Client:			Trial Pit ID:
P1, Land North of Horsham, West Sussex		Legal and General (Strategic Land North of Horsham) Ltd			TP215
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	05/12/2019	JJW	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518699.1	134055.2	59.84mOD	13T Excavator	21/02/2020	1:30
Weather: Dry/Sunny	Termination: Reached target depth		Stability: Good		

Samples & In Situ Testing			Strata Details					
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
0.10 0.10	D1 ES1			(0.30)		TOP SOIL - Dark brown silty CLAY with occasional rootlets <2mm (living).		
			59.54	0.30				
0.60 0.60	B1 ES2	HV 0.60m, 69kPa		(0.90)		Firm light brown mottled orange and grey silty sandy slightly gravelly CLAY. Gravel is fine to medium sub-angular of mudstone. (RESIDUAL WEALD CLAY FORMATION)		
			58.64	1.20				
1.30	B2			(0.90)		Light brownish orange mottled grey and black extremely weak MUDSTONE with occasional blue grey thinly laminated clay. Recovered as clayey fine to coarse sub-angular gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
			57.74	2.10				
2.20	B3			(0.60)		Light brown mottled red and black extremely weak to very weak MUDSTONE. Recovered as fine to coarse sub-angular sandy gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
			57.14	2.70				
2.80	B4			(0.70)		Reddish brown mottled black very weak MUDSTONE. Recovered as fine to coarse sub-angular gravel and occasional cobbles. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
			56.44	3.40				
3.50	B5			(0.60)		Blue grey mottled reddish brown extremely weak to very weak MUDSTONE. Recovered as fine to coarse sub-angular gravel and occasional cobbles. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
			55.84	4.00		End of Trial Pit at 4.00m		

1 2 3 4

Dimensions:

Final Depth: 4.00m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 4.0mbgl. 2. No ground water encountered 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks



TP215 – 0.0mbgl – 4.0mbgl



TP215 – 0.0mbgl – 4.0mbgl



TP215 – 0.0mbgl – 4.0mbgl

endeavour drilling

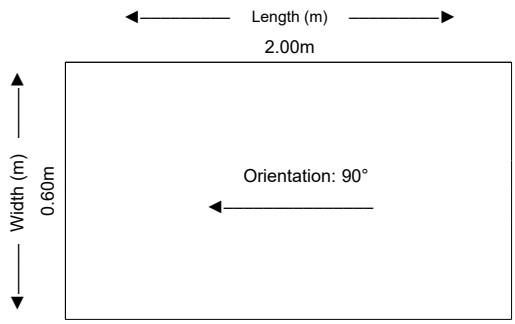
Contract Name:		Client:			Trial Pit ID:
P1, Land North of Horsham, West Sussex		Legal and General (Strategic Land North of Horsham) Ltd			TP216
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	10/12/2019	JJW	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518726.6	133746.9	57.54mOD	13T Excavator	21/02/2020	1:30
Weather: Frequent showers		Termination: Refusal at 3.20mbgl			Stability: Good	

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.20	D1			(0.40)		TOP SOIL - Dark brown slightly sandy silty CLAY occasional rootlets <2mm and roots <5mm (living)		
0.20	ES1		57.14	0.40				
0.70	B1	HV 0.70m, 81kPa				Stiff yellowish brown mottled black and orange slightly sandy slightly gravelly silty CLAY with occasional rootlets <2mm (living). Gravel is fine to medium sub-angular of mudstone. (RESIDUAL WEALD CLAY FORMATION)		
0.70	ES2			(1.00)				
		HV 1.40m, 71kPa	56.14	1.40				
1.50	B2			(0.60)		Firm light grey mottled orange and brown slightly gravelly silty CLAY. Gravel is fine to medium sub-angular of mudstone. (RESIDUAL WEALD CLAY FORMATION)		
2.10	B3		55.54	2.00		Dark reddish brown mottled orange and black extremely weak MUDSTONE with rare grey thinly laminated clay. Recovered as sandy fine to coarse sub-angular gravel and with rare cobbles. (DESTRUCTURED WEALD CLAY FORMATION)		
2.80	D2			(1.00)				
			54.54	3.00		Light brown mottled orange and grey very weak to moderately weak MUDSTONE. Recovered as slightly sandy fine to coarse gravel and occasional cobbles. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
3.20	B4		54.34	3.20		End of Trial Pit at 3.20m		

1 2 3 4

Dimensions:

Final Depth: 3.20m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.20mbgl. 2. Ground water encountered at 2.20mbgl (slow inflow) 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
2.20			0		Slow inflow



TP215 – 0.0mbgl – 4.0mbgl



TP215 – 0.0mbgl – 4.0mbgl



TP215 – 0.0mbgl – 4.0mbgl

endeavour drilling

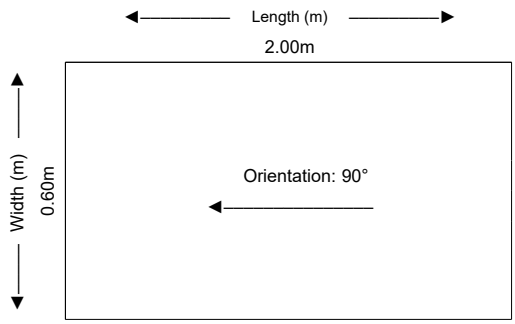
Contract Name:			Client:		Trial Pit ID:
P1, Land North of Horsham, West Sussex			Legal and General (Strategic Land North of Horsham) Ltd		TP217
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	05/12/2019	JJW	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518724.9	134099.8	61.88mOD	13T Excavator	21/02/2020	1:30
Weather: Dry/Sunny		Termination: Refusal at 3.50mbgl		Stability: Good		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.10 0.10	D1 ES1			(0.40)		TOP SOIL - Dark brown silty CLAY with occasional rootlets <2mm (living).		
			61.48	0.40				
0.60 0.60	B1 ES2	HV 0.60m, 70kPa		(0.80)		Firm light brown mottled orange and grey slightly gravelly silty sandy CLAY. Gravel if fine to medium of extremely weak mudstone. (RESIDUAL WEALD CLAY FORMATION)		
			60.68	1.20				
1.30	B2			(1.00)		Reddish brown mottled grey and orange extremely weak MUDSTONE with grey thinly laminated clay. Recovered as fine to coarse sub-angular clayey gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
			59.68	2.20				
2.30	B3			(1.00)		Light grey mottled brown and black very weak MUDSTONE. Recovered as fine to coarse sub-angular gravel and occasional cobbles. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
			58.68	3.20				
3.30	B4			(0.30)		Light brownish grey very weak to moderately weak MUDSTONE. Recovered as fine to coarse sub-angular gravel and occasional cobbles and rare boulders. (PARTIALLY WEATHERED WEALD CLAY FORMATION)		
			58.38	3.50		End of Trial Pit at 3.50m		

1 2 3 4

Dimensions:

Final Depth: 3.50m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.50mbgl. 2. No ground water encountered 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks



TP217 – 0.0mbgl – 3.50mbgl



TP217 – 0.0mbgl – 3.50mbgl



TP217 – 0.0mbgl – 3.50mbgl

endeavour drilling

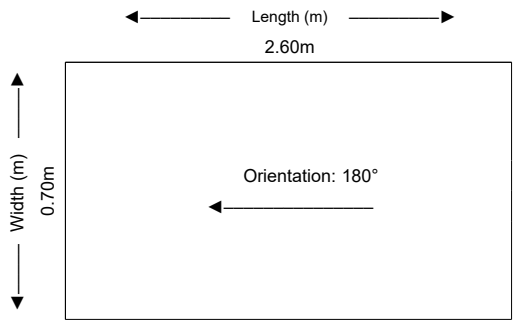
Contract Name:			Client:		Trial Pit ID:
P1, Land North of Horsham, West Sussex			Legal and General (Strategic Land North of Horsham) Ltd		TP218
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	04/12/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518746.8	133967.4	57.56mOD	13T Excavator	21/02/2020	1:30
Weather: Sunny		Termination: Refusal at 3.7mbgl		Stability: Good		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.10	D1					TOPSOIL - Brown silty sandy CLAY, with occasional rootlets.		
0.10	ES1		57.31	0.25				
0.40	B1					Stiff brownish grey and orange slightly sandy silty CLAY. (RESIDUAL WEALD CLAY FORMATION		
0.40	ES2	HV 0.50m, 86kPa		(0.85)				
1.10	B2		56.46	1.10		Light bluish grey and brown mottled black extremely weak MUDSTONE, with frequent thinly laminated (<6mm) silty clay, recovered as clayey sandy gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
				(0.90)				
2.10	B3		55.56	2.00		Reddish brown and light brown extremely weak to weak MUDSTONE. Recovered as sandy gravel. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
				(1.50)				
3.10	D2							
3.50	B4		54.06	3.50		Blueish grey mottled dark orange weak to moderately weak MUDSTONE. Recovered as sandy gravel and cobbles. (PARTIALLY WEATHERED WEALD CLAY FORMATION)		
			53.86	3.70		End of Trial Pit at 3.70m		

1 2 3 4

Dimensions:

Final Depth: 3.70m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.7mbgl. 2. Ground water encountered at 3.5mbgl (moderate inflow) 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
3.50			0		Moderate inflow



TP218 – 0.0mbgl – 3.7mbgl



TP218 – 0.0mbgl – 3.7mbgl



TP218 – 0.0mbgl – 3.7mbgl

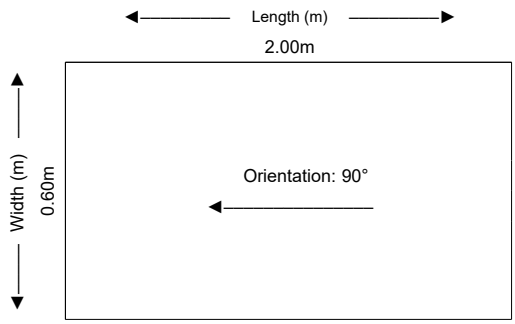
endeavour drilling

Contract Name:			Client:		Trial Pit ID:
P1, Land North of Horsham, West Sussex			Legal and General (Strategic Land North of Horsham) Ltd		TP219
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	09/12/2019	JJW	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518758.8	133594.4	57.31mOD	13T Excavator	21/02/2020	1:30
Weather: Overcast		Termination: Refusal at 3.50mbgl		Stability: Good		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.20	D1			(0.30)		TOP SOIL - Dark brown slightly sandy silty CLAY.		
0.20	ES1		57.01	0.30				
0.50	B1	HV 0.50m, 65kPa				Firm brown mottled orange and grey slightly sandy slightly gravelly silty CLAY. Gravel is fine to medium sub-angular extremely weak mudstone. (RESIDUAL WEALD CLAY FORMATION)		
0.50	ES2			(0.70)				
			56.31	1.00				
1.10	B2					Brown mottled orange and dark red extremely weak MUDSTONE with occasional thinly laminated grey clay (<6mm). Recovered as clayey sandy fine to coarse sub-angular gravel. (DESTRUCTURED WEALD CLAY FORMATION)	1	
				(1.60)				
2.10	D2						2	
			54.71	2.60				
2.70	B3					Light grey mottled brown very weak to moderately weak MUDSTONE. Recovered as sandy fine to coarse sub-angular gravel and frequent cobbles. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
				(0.90)			3	
3.50	B4		53.81	3.50		End of Trial Pit at 3.50m		
							4	

Dimensions:

Final Depth: 3.50m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.50mbgl. 2. No ground water encountered 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks



TP219 – 0.0mbgl – 3.50mbgl



TP219 – 0.0mbgl – 3.50mbgl



TP219 – 0.0mbgl – 3.50mbgl

endeavour drilling

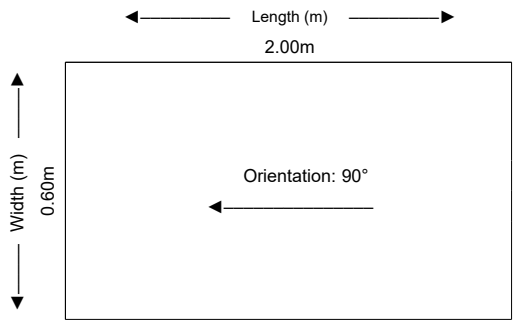
Contract Name:		Client:			Trial Pit ID:
P1, Land North of Horsham, West Sussex		Legal and General (Strategic Land North of Horsham) Ltd			TP220
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	10/12/2019	JJW	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518775.6	133686.4	59.73mOD	13T Excavator	21/02/2020	1:30
Weather: Frequent showers		Termination: Refusal at 2.80mbgl			Stability: Good	

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.20	D1			(0.30)		TOP SOIL - Dark brown slightly sandy silty CLAY.		
0.20	ES1		59.43	0.30		Stiff light brown and dark reddish grey mottled orange slightly silty slightly sandy slightly gravelly CLAY. Gravel is fine to medium of extremely weak mudstone. (RESIDUAL WEALD CLAY FORMATION)		
0.60	B1	HV 0.60m, 80kPa						
0.60	ES2			(0.70)				
			58.73	1.00		Dark red mottled brown and black extremely weak MUDSTONE with occasional thinly laminated grey silty clay (<6mm). Recovered as sandy fine to coarse sub-angular gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
1.10	B2			(0.50)				
			58.23	1.50		Yellowish brown mottled orange and grey extremely weak MUDSTONE with occasional thinly laminated grey silty clay. Recovered as clayey sandy fine to coarse sub-angular gravel and rare cobbles. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
1.60	B3			(0.60)				
			57.63	2.10		Light brown mottled black extremely weak to very weak MUDSTONE. Recovered as sandy fine to coarse sub-angular gravel and occasional cobbles. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
2.20	B4			(0.70)				
2.80	B5		56.93	2.80		End of Trial Pit at 2.80m		

1 2 3 4

Dimensions:

Final Depth: 2.80m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 2.80mbgl. 2. No ground water encountered 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks



TP220 – 0.0mbgl – 2.80mbgl



TP220 – 0.0mbgl – 2.80mbgl



TP220 – 0.0mbgl – 2.80mbgl

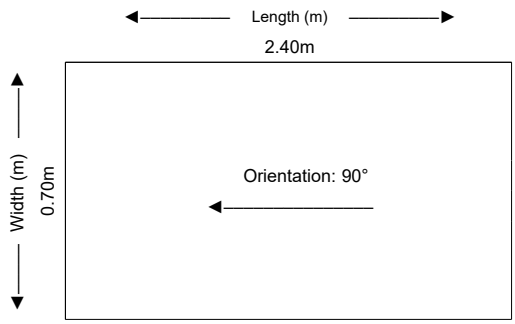
endeavour drilling	Contract Name: P1, Land North of Horsham, West Sussex		Client: Legal and General (Strategic Land North of Horsham) Ltd			Trial Pit ID: TP221
	Contract Number: J4175	Date Started: 04/12/2019	Logged By: RAF	Checked By: MJS	Status: FINAL	Sheet 1 of 1
Trial Pit Log	Easting: 518795.1	Northing: 133989.7	Ground Level: 58.95mOD	Plant Used: 13T Excavator	Date Printed: 21/02/2020	Scale: 1:30
Weather: Sunny		Termination: Refusal at 3.3mbgl			Stability: Good	

Samples & In Situ Testing			Strata Details					
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
0.10 0.10	D1 ES1			(0.30)		TOPSOIL - Brown slightly sandy silty CLAY, with occasional rootlets.		
			58.65	0.30				
0.50 0.50	B1 ES2	HV 0.50m, 70kPa				Firm light grey and orange mottled reddish brown slightly sandy silty CLAY. [RESIDUAL WEALD CLAY FORMATION]		
				(1.00)				
		HV 1.00m, 66kPa						
1.30	B2		57.65	1.30		Light bluish grey and brownish orange mottled dark brown and black extremely weak MUDSTONE, with frequently thinly laminated silty clay (<6mm). Recovered as clayey sandy gravel. [DESTRUCTURED WEALD CLAY FORMATION]		
				(1.00)				
2.30	B3		56.65	2.30		Light brown mottled dark orange, black and dark brown MUDSTONE, with occasional thinly laminated silty clay (<6mm) of light blue silty clay, recovered as slightly clayey sandy gravel. [DISTINCTLY WEATHERED WEALD CLAY FORMATION]		
				(0.50)				
2.80	B4		56.15	2.80		Brownish grey mottled dark brownish orange weak to medium strong MUDSTONE. Recovered as sandy gravelly cobbles with occasional boulders. [PARTIALLY WEATHERED WEALD CLAY FORMATION]		
				(0.50)				
3.30	B5		55.65	3.30		End of Trial Pit at 3.30m		

1 2 3 4

Dimensions:

Final Depth: 3.30m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.30mbgl. 2. No ground water encountered. 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks



TP221 – 0.0mbgl – 3.3mbgl



TP221 – 0.0mbgl – 3.3mbgl



TP221 – 0.0mbgl – 3.3mbgl

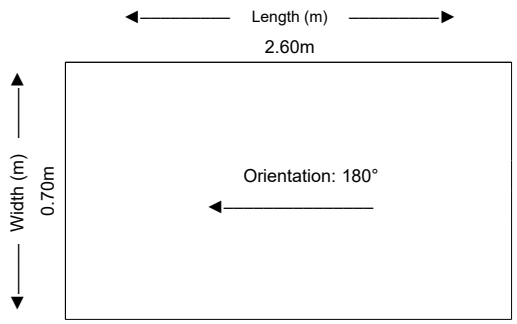
endeavour drilling

Contract Name:		Client:			Trial Pit ID:
P1, Land North of Horsham, West Sussex		Legal and General (Strategic Land North of Horsham) Ltd			TP222
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	04/12/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518796.1	133906.3	56.98mOD	13T Excavator	21/02/2020	1:30
Weather: Sunny	Termination: Reached target depth		Stability: Unstable		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.10	D1			(0.30)		TOPSOIL - Brown silty sandy CLAY, with occasional rootlets.		
0.10	ES1		56.68	0.30				
0.50	B1	HV 0.50m, 95kPa		(0.80)		Stiff light grey and orange mottled black slightly sandy silty CLAY. [RESIDUAL WEALD CLAY FORMATION]		
0.50	ES2							
1.10	B2		55.88	1.10		Greyish blue mottled brown slightly sandy silty CLAY, with frequent thinly laminated extremely weak mudstone (<6mm), and with occasional dead roots <8mm. [RESIDUAL WEALD CLAY FORMATION]		
2.10	D2			(1.60)				
2.70	B3		54.28	2.70		Reddish brown and greyish brown very weak to weak MUDSTONE. Recovered as clayey sandy gravel. [DESTRUCTURED WEALD CLAY FORMATION]		
2.90	B4		54.18	2.80		Dark bluish grey mottled extremely weak to very weak MUDSTONE. Recovered as clayey sandy gravel. [DESTRUCTURED WEALD CLAY FORMATION]		
3.90	D3			(1.20)				
			52.98	4.00		End of Trial Pit at 4.00m		

Dimensions:

Final Depth: 4.00m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 4.0mbgl. 2. Ground water encountered at 3.2mbgl (fast inflow) 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
3.20			0		Fast inflow



TP222 – 0.0mbgl – 4.0mbgl



TP222 – 0.0mbgl – 4.0mbgl



TP222 – 0.0mbgl – 4.0mbgl

endeavour drilling

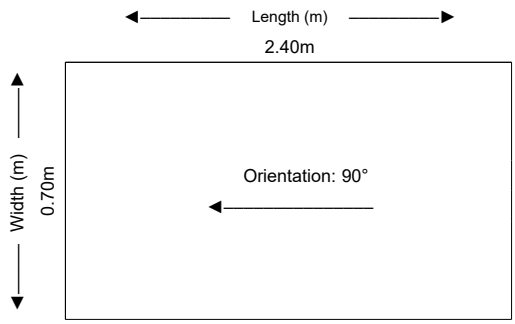
Contract Name:			Client:		Trial Pit ID:
P1, Land North of Horsham, West Sussex			Legal and General (Strategic Land North of Horsham) Ltd		TP223
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	04/12/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518819.4	134084.4	63.94mOD	13T Excavator	21/02/2020	1:30
Weather: Sunny		Termination: Refusal at 3.2mbgl		Stability: Good		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.10 0.10	D1 ES1			(0.30)		TOPSOIL - Brown silty sandy CLAY, with occasional rootlets.		
			63.64	0.30				
0.50 0.50	B1 ES2	HV 0.50m, 67kPa		(0.90)		Firm light brownish grey mottled orange slightly sandy silty CLAY. [RESIDUAL WEALD CLAY FORMATION]		
1.20	B2		62.74	1.20		Greyish brown and light grey mottled black and dark orange extremely weak to weak MUDSTONE. Recovered as clayey sandy gravel. [DISTINCTLY WEATHERED WEALD CLAY FORMATION]		
				(1.00)				
2.20	B3		61.74	2.20		Light brown mottled light bluish grey and brownish orange weak to moderately weak MUDSTONE, Recovered as sandy gravel and cobbles. [DISTINCTLY WEATHERED WEALD CLAY FORMATION]		
				(0.60)				
2.80	B4		61.14	2.80		Greyish brown mottled brownish black moderately weak to medium strong MUDSTONE recovered as sandy gravel and cobbles. [PARTIALLY WEATHERED WEALD CLAY FORMATION]		
				(0.40)				
			60.74	3.20		End of Trial Pit at 3.20m		

1 2 3 4

Dimensions:

Final Depth: 3.20m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.20mbgl. 2. No ground water encountered 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks



TP223 – 0.0mbgl – 3.2mbgl



TP223 – 0.0mbgl – 3.2mbgl



TP223 – 0.0mbgl – 3.2mbgl

endeavour drilling

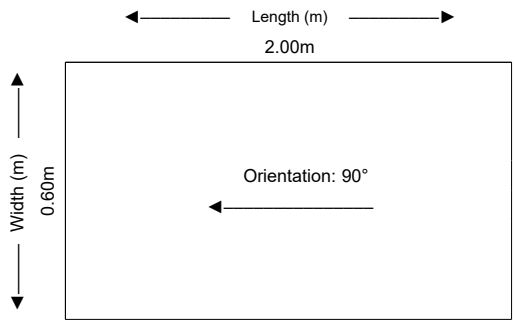
Contract Name:			Client:		Trial Pit ID:
P1, Land North of Horsham, West Sussex			Legal and General (Strategic Land North of Horsham) Ltd		TP224
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	02/12/2019	JJW	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518831.6	134037.0	61.64mOD	13T Excavator	21/02/2020	1:30
Weather: Dry/Sunny	Termination: Reached target depth		Stability: Good		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.10 0.10	D1 ES1			(0.35)		TOP SOIL - Dark brown slightly sandy slightly gravelly silty CLAY with occasional rootlets <2mm (living).		
0.40 0.40	B1 ES1	HV 0.40m, 81kPa	61.29	0.35		Stiff brown mottled grey and orange silty sandy CLAY. (RESIDUAL WEALD CLAY FORMATION)		
				(0.75)				
1.10	B2		60.54	1.10		Brown mottled orange and grey extremely weathered MUDSTONE with occasional thinly laminated grey silty clay. Recovered as fine to coarse angular gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
				(0.50)				
1.60	B3		60.04	1.60		Dark brown and black mottled orange very weak MUDSTONE. Recovered as fine to coarse angular to sub-angular gravel and occasional cobbles. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
				(1.00)				
2.70 2.80	D2 B4		59.04	2.60		Reddish brown and light brown very weak to moderate weak MUDSTONE. Recovered as fine to coarse angular gravel. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
				(1.40)				
3.80	D3							
			57.64	4.00		End of Trial Pit at 4.00m		

1 2 3 4

Dimensions:

Final Depth: 4.00m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 4.0mbgl. 2. No groundwater encountered 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks



TP224 – 0.0mbgl – 4.0mbgl



TP224 – 0.0mbgl – 4.0mbgl



TP224 – 0.0mbgl – 4.0mbgl

endeavour drilling

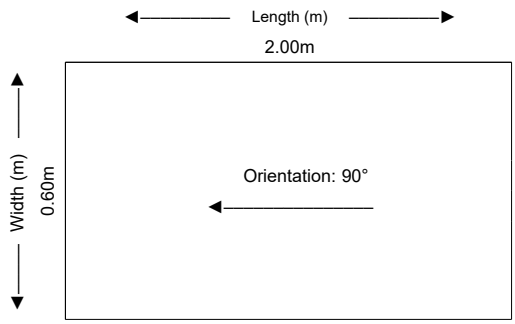
Contract Name:			Client:		Trial Pit ID:
P1, Land North of Horsham, West Sussex			Legal and General (Strategic Land North of Horsham) Ltd		TP225
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	09/12/2019	JJW	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518838.9	133596.0	57.84mOD	13T Excavator	21/02/2020	1:30
Weather: Overcast		Termination: Refusal at 3.40mbgl		Stability: Good		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.20	D1			(0.30)		TOP SOIL - Dark brown slightly sandy silty CLAY.		
0.20	ES1		57.54	0.30		Firm light brown mottled grey and orange slightly silty slightly sandy slightly gravelly CLAY. Gravel is fine to coarse sub-angular of extremely weak mudstone. (RESIDUAL WEALD CLAY FORMATION)		
0.60	B1	HV 0.60m, 69kPa		(0.50)				
0.60	ES2		57.04	0.80		Light brown mottled orange and grey extremely weak MUDSTONE with rare thinly laminated grey clay (<6mm) recovered as clayey sandy fine to coarse sub-angular gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
0.90	B2			(1.40)				
2.00	D2							
2.30	B3		55.64	2.20		Light grey mottled brown and orange very weak to moderately weak MUDSTONE with rare thin laminations of grey clay. Recovered as sandy fine to coarse sub-angular gravel and rare cobbles. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
				(1.20)				
3.30	B4		54.44	3.40		End of Trial Pit at 3.40m		

1 2 3 4

Dimensions:

Final Depth: 3.40m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.40mbgl. 2. No ground water encountered 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks



TP225 – 0.0mbgl – 3.40mbgl



TP225 – 0.0mbgl – 3.40mbgl



TP225 – 0.0mbgl – 3.40mbgl

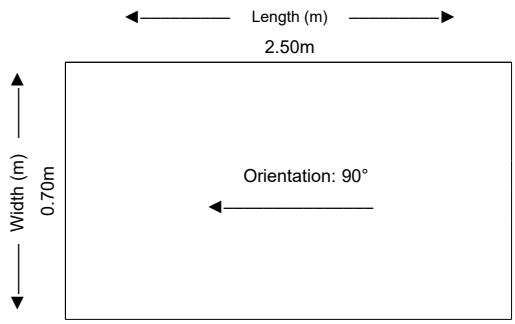
endeavour drilling

Contract Name:		Client:			Trial Pit ID:
P1, Land North of Horsham, West Sussex		Legal and General (Strategic Land North of Horsham) Ltd			TP226
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	03/12/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518852.0	134129.5	57.26mOD	13T Excavator	21/02/2020	1:30
Weather: Sunny	Termination: Reached target depth		Stability: Good		

Samples & In Situ Testing			Strata Details					
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
0.10 0.10	D1 ES1			(0.30)		TOPSOIL - Brown silty sandy CLAY, with occasional rootlets.		
			56.96	0.30		Firm light brownish grey mottled orangish brown slightly sandy slightly gravelly silty CLAY. Gravel is fine to coarse subangular very weak to weak mudstone. [RESIDUAL WEALD CLAY FORMATION]		
0.50 0.50	B1 ES2	HV 0.50m, 56kPa						
		HV 1.00m, 100kPa				1		
				(1.70)				
1.50	D2	HV 1.50m, 70kPa						
2.00	B2	HV 2.00m, 65kPa	55.26	2.00		Light brownish grey mottled orangish brown extremely weak MUDSTONE, with occasional thinly laminated silty clay (<6mm) [DESTRUCTURED WEALD CLAY FORMATION]		
				(0.50)		2		
2.50	B3	HV 2.50m, 59kPa	54.76	2.50		Bluish grey mottled brown and black very weak to weak MUDSTONE, with occasional thinly laminated silty clay (<6mm). [DESTRUCTURED WEALD CLAY FORMATION]		
				(0.90)		3		
3.40	B4		53.86	3.40		Greyish brown mottled bluish grey and orange very weak to medium strong MUDSTONE. Recovered as sandy gravel and cobbles. [DISTINCTLY WEATHERED WEALD CLAY FORMATION]		
				(0.30)				
3.70	B5		53.56	3.70		Light brown mottled reddish brown and black moderately weak to medium strong MUDSTONE. Recovered as sandy gravel and cobbles. [PARTIALLY WEATHERED WEALD CLAY FORMATION]		
				(0.40)		4		
			53.16	4.10		End of Trial Pit at 4.10m		

Dimensions:

Final Depth: 4.10m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 4.10mbgl. 2. Ground water encountered at 2.80mbgl (slow inflow) 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
2.80			0		Slow inflow



TP226 – 0.0mbgl – 4.1mbgl



TP226 – 0.0mbgl – 4.1mbgl



TP226 – 0.0mbgl – 4.1mbgl

endeavour drilling

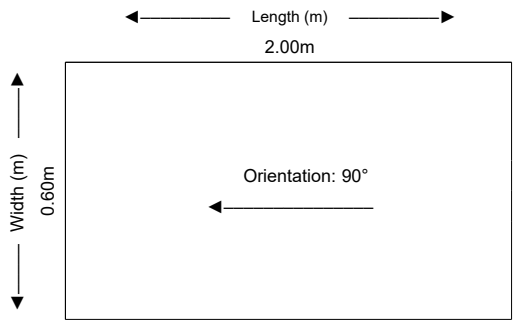
Contract Name:			Client:		Trial Pit ID:
P1, Land North of Horsham, West Sussex			Legal and General (Strategic Land North of Horsham) Ltd		TP227
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	06/12/2019	JJW	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518851.7	133665.4	60.29mOD	13T Excavator	21/02/2020	1:30
Weather: Overcast/Occasional showers		Termination: Refusal at 3.20mbgl		Stability: Good		

Samples & In Situ Testing			Strata Details					
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
0.10	D1			(0.30)		TOP SOIL - Brown slightly silty slightly sandy slightly gravelly CLAY. Gravel is fine to medium of brick.		
0.10	ES1		59.99	0.30				
0.50	B1	HV 0.50m, 70kPa		(0.50)		Firm reddish brown mottled orange slightly sandy slightly gravelly CLAY with occasional rootlets <2mm (living). Gravel is fine to medium subangular of extremely weak mudstone. (RESIDUAL WEALD CLAY FORMATION)		
0.50	ES2		59.49	0.80				
0.90	B2			(0.30)		Yellowish brown mottled orange and grey slightly silty slightly sandy gravelly CLAY with occasional rootlets <2mm (living). Gravel is fine to coarse sub-angular of extremely weak mudstone. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
1.10	B3		59.19	1.10		Reddish brown and yellow very weak to moderate weak MUDSTONE. Recovered as fine to coarse sub-angular sandy gravel. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
				(0.70)				
1.90	B4		58.49	1.80		Reddish brown and yellow very weak medium weak MUDSTONE. Recovered as fine to coarse sub-angular sandy gravel and occasional cobbles. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
				(1.40)				
3.10	B5		57.09	3.20		End of Trial Pit at 3.20m		

1 2 3 4

Dimensions:

Final Depth: 3.20m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.20mbgl. 2. No ground water encountered 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks



TP227 – 0.0mbgl – 3.20mbgl



TP227 – 0.0mbgl – 3.20mbgl



TP227 – 0.0mbgl – 3.20mbgl

endeavour drilling

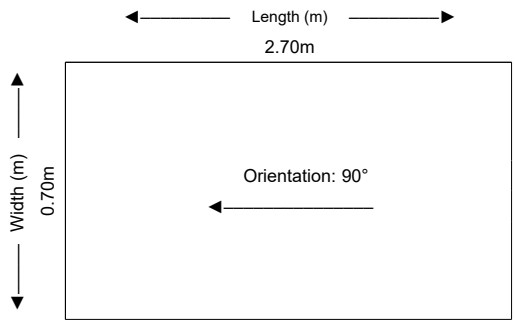
Contract Name:		Client:			Trial Pit ID:
P1, Land North of Horsham, West Sussex		Legal and General (Strategic Land North of Horsham) Ltd			TP228
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	03/12/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518868.7	134202.3	68.90mOD	13T Excavator	21/02/2020	1:30
Weather: Sunny		Termination: Refusal at 3.7mbgl			Stability: Good	

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.10 0.10	D1 ES1			(0.35)		TOPSOIL - Brown silty sandy CLAY, with occasional rootlets.		
			68.55	0.35				
0.50 0.50	B1 ES2	HV 0.50m, 57kPa		(0.85)		Firm light grey mottled brownish orange and black slightly sandy slightly gravelly silty CLAY. Gravel is fine to coarse subangular very weak to weak of mudstone. [RESIDUAL WEALD CLAY FORMATION]		
1.20	B2		67.70	1.20		Light bluish grey extremely weak to very weak MUDSTONE, with occasional thinly laminated silty clay. [DESTRUCTURED WEALD CLAY FORMATION]		
				(0.90)				
2.10	B3		66.80	2.10		Light brown mottled reddish brown and blackish brown weak to medium strong MUDSTONE. Recovered as sandy gravel and cobbles. [DISTINCTLY WEATHERED WEALD CLAY FORMATION]		
				(0.90)				
3.00	B4		65.90	3.00		Bluish grey mottled dark brownish orange extremely weak to very weak MUDSTONE. Recovered as clayey sandy gravel. [DISTINCTLY WEATHERED WEALD CLAY FORMATION]		
				(0.50)				
3.50	B5		65.40	3.50		Greyish brown mottled reddish brown and blackish brown weak to medium strong MUDSTONE. Recovered as sandy gravel and cobbles. [DISTINCTLY WEATHERED WEALD CLAY FORMATION]		
			65.20	3.70		End of Trial Pit at 3.70m		

1 2 3 4

Dimensions:

Final Depth: 3.70m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.70mbgl. 2. Ground water encountered at 2.20mbgl (slow inflow) 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
2.20			0		Slow inflow



TP228 – 0.0mbgl – 3.7mbgl



TP228 – 0.0mbgl – 3.7mbgl



TP228 – 0.0mbgl – 3.7mbgl

endeavour drilling

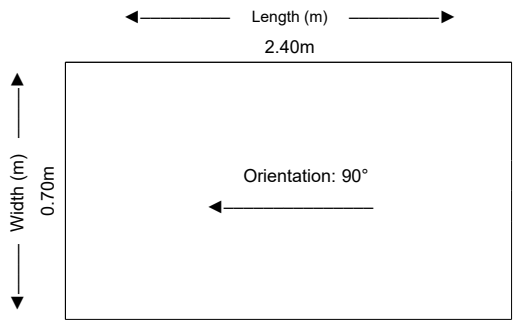
Contract Name:		Client:			Trial Pit ID:
P1, Land North of Horsham, West Sussex		Legal and General (Strategic Land North of Horsham) Ltd			TP229
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	03/12/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518861.0	134271.7	70.67mOD	13T Excavator	21/02/2020	1:30
Weather: Sunny		Termination: Reached target depth		Stability: Good	

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.10 0.10	D1 ES1			(0.30)		TOPSOIL - Dark brown silty sandy CLAY, with occasional rootlets.		
			70.37	0.30		Firm light grey and orange slightly sandy silty CLAY. [RESIDUAL WEALD CLAY FORMATION]		
0.50 0.50	B1 ES2	HV 0.50m, 60kPa		(0.90)				
			69.47	1.20		Brownish orange mottled light grey and reddish brown extremely weak MUDSTONE, with occasional thinly laminated silty clay. Recovered as clayey sandy gravel. [DESTRUCTURED WEALD CLAY FORMATION]		
1.30	B2			(1.10)				
2.30	B3		68.37	2.30		Orangish brown mottled grey and reddish brown extremely weak to weak MUDSTONE. Recovered as sandy gravel. [DISTINCTLY WEATHERED WEALD CLAY FORMATION]		
				(0.30)				
			68.07	2.60		Light brown and grey mottled reddish brown and bluish grey extremely weak to very weak MUDSTONE, with occasional thin laminations of silty clay. Recovered as clayey sandy gravel. [DISTINCTLY WEALD CLAY FORMATION]		
2.70	B4			(1.40)				
3.70	D2							
			66.67	4.00		End of Trial Pit at 4.00m		

1 2 3 4

Dimensions:

Final Depth: 4.00m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 4.0mbgl. 2. No ground water encountered. 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks



TP229 – 0.0mbgl – 4.0mbgl



TP229 – 0.0mbgl – 4.0mbgl



TP229 – 0.0mbgl – 4.0mbgl

endeavour drilling

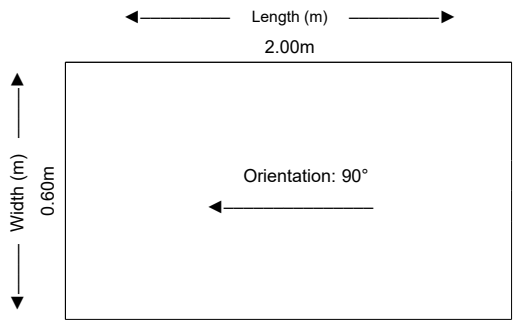
Contract Name:		Client:			Trial Pit ID:
P1, Land North of Horsham, West Sussex		Legal and General (Strategic Land North of Horsham) Ltd			TP230
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	27/11/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518871.0	133902.7	58.27mOD	13T Excavator	21/02/2020	1:30
Weather: Showers		Termination: Refusal at 3.70mbgl			Stability: Good	

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.10 0.10	D1 ES1			(0.40)		TOP SOIL - Brown silty sandy clay with occasional rootlets <2mm (living).		
0.50 0.50	B1 ES2	HV 0.50m, 83kPa	57.87	0.40		Stiff light brownish orange and light grey silty slightly sandy CLAY. (RESIDUAL WEALD CLAY FORMATION)		
		HV 1.00m, 89kPa		(1.20)				
1.60	B2		56.67	1.60		Brown orange mottled light brownish grey extremely weak MUDSTONE with thinly laminated (<6mm) silty clay. Recovered as sandy clay sub-angular gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
				(0.90)				
2.50	B3		55.77	2.50		Light bluish grey and brownish orange extremely weak to weak MUDSTONE with rare thinly laminated (<6mm) silty clay. Recovered as sandy clayey sub-angular gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
				(0.50)				
3.00	B4		55.27	3.00		Reddish brown and brownish orange mottled light brown and blue grey very weak to moderately weak MUDSTONE. Recovered as sandy sub-angular gravel and cobbles. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
				(0.40)				
3.40	B5		54.87	3.40		Blue grey mottled red brown and orange weak to medium strong MUDSTONE. Recovered as sandy sub-angular gravel and cobbles. (PARTIALLY WEATHERED WEALD CLAY FORMATION)		
				(0.30)				
			54.57	3.70		End of Trial Pit at 3.70m		

1 2 3 4

Dimensions:

Final Depth: 3.70m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.70mbgl. 2. Ground water encountered at 3.40mbgl (moderate inflow). 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
3.40			0		Moderate inflow.



TP230 – 0.0mbgl – 3.7mbgl



TP230 – 0.0mbgl – 3.7mbgl



TP230 – 0.0mbgl – 3.7mbgl

endeavour drilling

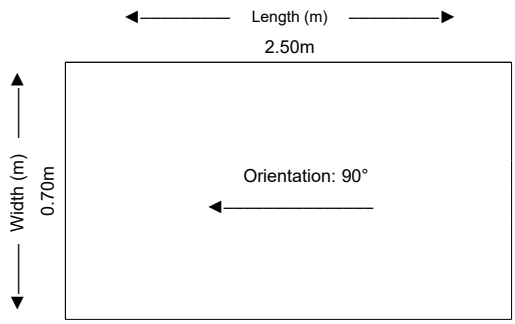
Contract Name:		Client:			Trial Pit ID:
P1, Land North of Horsham, West Sussex		Legal and General (Strategic Land North of Horsham) Ltd			TP231
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	27/11/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518903.6	133920.8	59.10mOD	13T Excavator	21/02/2020	1:30
Weather: Showers	Termination: Refusal at 3.80mbgl			Stability: Good		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.20	D1			(0.40)		TOP SOIL - Brown silty sandy clay with occasional rootlets <2mm (living).		
0.20	ES1		58.70	0.40				
		HV 0.50m, 90kPa				Stiff light brownish orange and light grey slightly sandy slightly gravelly silty CLAY. Gravel is fine to coarse sub-angular of very weak mudstone. (RESIDUAL)		
0.60	B1							
0.60	ES2							
		HV 1.00m, 90kPa		(1.20)				
			57.50	1.60				
1.70	B2					Brownish orange mottled light grey extremely weak MUDSTONE with frequent thin laminations of silty clay. Recovered as sandy clayey sub-angular gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
				(1.30)				
2.70	D2							
			56.20	2.90				
3.00	B3					Reddish brown and brownish orange mottled light brown and blue grey very weak to medium weak MUDSTONE with frequent thin laminations of silty clay. Recovered as sandy sub-angular gravel and cobbles. (DISTINCTLY WEATHERED)		
				(0.90)				
			55.30	3.80		End of Trial Pit at 3.80m		

1 2 3 4

Dimensions:

Final Depth: 3.80m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.80mbgl. 2. No ground water encountered 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks



TP231 – 0.0mbgl – 3.8mbgl



TP231 – 0.0mbgl – 3.8mbgl



TP231 – 0.0mbgl – 3.8mbgl

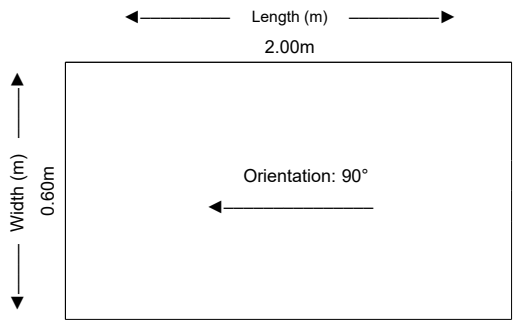
endeavour drilling

Contract Name:			Client:		Trial Pit ID:
P1, Land North of Horsham, West Sussex			Legal and General (Strategic Land North of Horsham) Ltd		TP232
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	02/12/2019	JJW	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518906.6	134108.3	67.55mOD	14T Excavator	21/02/2020	1:30
Weather:	Termination: Refusal at 3.20mbgl			Stability: Good		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.10	D1					TOP SOIL - Dark brown slightly sandy slightly gravelly silty clay with occasional rootlets <2mm (living). Gravel is fine to coarse sub-angular to sub-rounded of brick and clinker.		
0.10	ES1		67.35	0.20				
		HV 0.40m, 78kPa				Stiff light brown mottled orange and grey slightly sandy slightly gravelly CLAY. Gravel is fine to medium of extremely weak mudstone. (RESIDUAL WEALD CLAY FORMATION)		
0.50	B1							
0.50	ES2			(1.30)				
							1	
1.50	B2		66.05	1.50		Brown mottled grey and orange extremely weak to very weak MUDSTONE with occasional thinly laminated of grey silty clay (<6mm). Recovered as fine to coarse angular gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
				(0.30)				
			65.75	1.80		Brown mottled dark brown and orange and black very weak to weak MUDSTONE. Recovered as fine to coarse angular to sub-angular gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
2.00	B3						2	
				(1.00)				
			64.75	2.80		Dark grey and brown mottled orange and blue grey very weak to weak MUDSTONE with occasional thinly laminated blue grey silty clay. Recovered as fine to coarse angular to sub-angular gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
3.00	B4			(0.40)			3	
3.20	B5		64.35	3.20		End of Trial Pit at 3.20m		
							4	

Dimensions:

Final Depth: 3.20m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.20mbgl. 2. No groundwater encountered 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks



TP232 – 0.0mbgl – 3.20mbgl



TP232 – 0.0mbgl – 3.20mbgl



TP232 – 0.0mbgl – 3.20mbgl

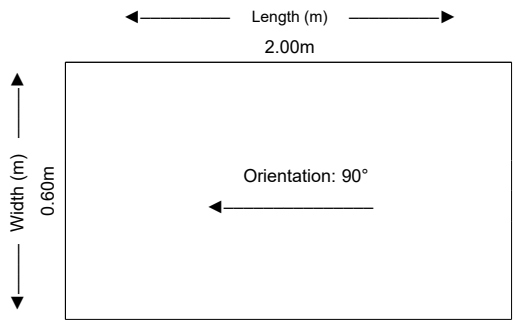
endeavour drilling

Contract Name:			Client:		Trial Pit ID:
P1, Land North of Horsham, West Sussex			Legal and General (Strategic Land North of Horsham) Ltd		TP233
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	27/11/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518911.9	133856.4	57.97mOD	13T Excavator	21/02/2020	1:30
Weather:	Termination: Trial pit abandoned due to suspected land drain.			Stability: Good		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.10 0.10	D1 ES1		57.72	0.25		TOP SOIL - Brown silty sandy clay with occasional rootlets <2mm (living).		
0.50 0.50	B1 ES2		57.47	0.50		Light brown slightly sandy slightly gravelly silty CLAY. Gravel is fine to coarse sub-angular weak mudstone. (RESIDUAL WEALD CLAY FORMATION) *...at 0.40mbgl possible water pipe.* End of Trial Pit at 0.50m		

Dimensions:

Final Depth: 0.50m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 0.50mbgl. 2. Ground water encountered at 0.40mbgl. Trial Pit was abandoned due to rapid inflow. 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
0.40			0		Rapid inflow



TP233 – 0.0mbgl – 0.5mbgl

endeavour drilling

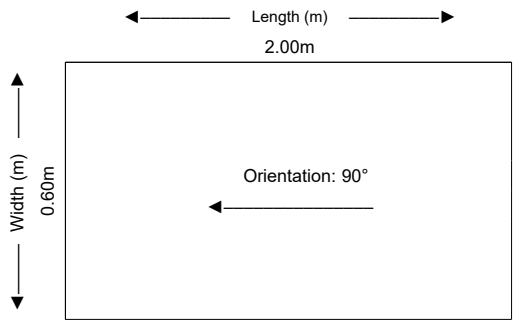
Contract Name:		Client:			Trial Pit ID:
P1, Land North of Horsham, West Sussex		Legal and General (Strategic Land North of Horsham) Ltd			TP234
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	09/12/2019	JJW	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518907.7	133612.0	57.89mOD	13T Excavator	21/02/2020	1:30
Weather: Overcast		Termination: Refusal at 3.0mbgl			Stability: Good	

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.10	D1			(0.30)		TOP SOIL - Dark brown slightly sandy CLAY.		
0.10	ES1		57.59	0.30				
0.50	ES2	HV 0.60m, 67kPa		(0.70)		Firm light brown mottled orange and grey slightly sandy slightly gravelly silty CLAY. Gravel is fine to medium sub-angular mudstone. (RESIDUAL WEALD CLAY FORMATION)		
1.10	B1		56.89	1.00		Light brown mottled orange and grey and black extremely weak MUDSTONE with occasional thinly laminated grey clay (<6mm). Recovered as sandy fine to coarse sub-angular gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
				(0.70)				
1.80	B2		56.19	1.70		Dark brown mottled black extremely weak to very weak MUDSTONE. Recovered as sandy fine to coarse sub-angular gravel. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
				(0.60)				
2.40	B3		55.59	2.30		Light brown mottled grey extremely weak to moderately weak MUDSTONE. Recovered as sandy fine to coarse sub-angular gravel and rare cobbles. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
				(0.70)				
			54.89	3.00		End of Trial Pit at 3.00m		

1 2 3 4

Dimensions:

Final Depth: 3.00m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.0mbgl. 2. No groundwater encountered 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks



TP234 – 0.0mbgl – 3.0mbgl



TP234 – 0.0mbgl – 3.0mbgl



TP234 – 0.0mbgl – 3.0mbgl

endeavour drilling

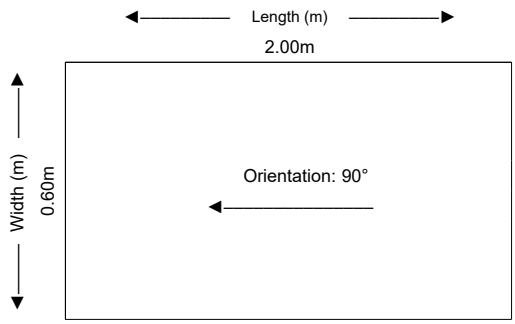
Contract Name:		Client:			Trial Pit ID:
P1, Land North of Horsham, West Sussex		Legal and General (Strategic Land North of Horsham) Ltd			TP235
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	02/12/2019	JJW	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518920.6	134067.0	64.46mOD	13T Excavator	21/02/2020	1:30
Weather:	Termination: Refusal at 3.80mbgl			Stability: Good		

Samples & In Situ Testing			Strata Details					
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
0.10	D1			(0.30)		TOP SOIL - Dark brown slightly sandy slightly gravelly silty CLAY, with occasional rootlets <2mm (living).		
0.10	ES1		64.17	0.30				
		HV 0.40m, 79kPa				Stiff light brown mottled orange and grey slightly sandy silty CLAY. (RESIDUAL WEALD CLAY FORMATION)		
0.50	B1			(0.50)				
0.50	ES2							
0.80	B2	HV 0.80m, 77kPa	63.66	0.80		Stiff brownish orange mottled grey slightly sandy slightly gravelly silty CLAY. Gravel is fine to coarse of extremely weak mudstone. (RESIDUAL WEALD CLAY FORMATION)		
				(0.90)				
1.80	B3		62.76	1.70		Orangish brown mottled grey extremely weak MUDSTONE with occasional thinly laminated blue grey silty clay (<6mm) recovered as fine to coarse angular gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
				(1.05)				
2.80	B4		61.72	2.75		Dark reddish brown mottled orange very weak to moderately weak MUDSTONE. Recovered as fine to coarse sub-angular gravel. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
				(0.35)				
			61.36	3.10		Dark reddish brown mottled black and orange weak to moderately weak MUDSTONE. Recovered as fine to coarse angular gravel and occasional cobbles. (PARTIALLY WEATHERED WEALD CLAY FORMATION)		
				(0.70)				
3.70	B5		60.66	3.80		End of Trial Pit at 3.80m		

1 2 3 4

Dimensions:

Final Depth: 3.80m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.80mbgl. 2. No groundwater encountered 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks



TP235 – 0.0mbgl – 3.80mbgl



TP235 – 0.0mbgl – 3.80mbgl



TP235 – 0.0mbgl – 3.80mbgl

endeavour drilling

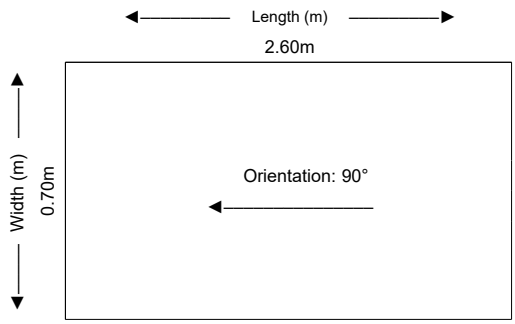
Contract Name:		Client:			Trial Pit ID:
P1, Land North of Horsham, West Sussex		Legal and General (Strategic Land North of Horsham) Ltd			TP236
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	02/12/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518947.9	134161.0	68.51mOD	13T Excavator	21/02/2020	1:30
Weather: Sunny		Termination: Reached target depth		Stability: Good		

Samples & In Situ Testing			Strata Details					
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
0.10	D1					TOPSOIL - Brown slightly gravelly silty sandy CLAY. Gravel is fine to medium subangular of brick.		
0.10	ES1			(0.40)				
			68.11	0.40		Firm brownish orange and light brownish grey slightly sandy silty CLAY. [RESIDUAL WEALD CLAY FORMATION]		
0.50	B1	HV 0.50m, 58kPa						
0.50	ES2			(0.60)				
1.00	B2	HV 1.00m, 69kPa	67.51	1.00		Firm brownish orange and light grey silty CLAY, with frequent thinly laminated extremely weak mudstone (<6mm). [DESTRUCTURED WEALD CLAY FORMATION]		
				(0.80)				
1.80	B3		66.71	1.80		Light bluish grey mottled brown extremely weak MUDSTONE. Recovered as slightly clayey sandy gravel. [DISTINCTLY WEATHERED WEALD CLAY FORMATION]		
				(0.70)				
2.50	B4		66.01	2.50		Light brown mottled dark brownish orange and light grey extremely weak to weak MUDSTONE, with occasional dead rootlets. Recovered as clayey sandy gravel and rare cobbles. [DISTINCTLY WEATHERED WEALD CLAY FORMATION]		
				(1.30)				
3.50	D2							
3.80	B5		64.71	3.80		Brownish grey mottled reddish brown moderately weak MUDSTONE. Recovered as sandy gravel and cobbles. [PARTIALLY WEATHERED WEALD CLAY FORMATION]		
			64.51	4.00		End of Trial Pit at 4.00m		

1 2 3 4

Dimensions:

Final Depth: 4.00m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 4.0mbgl. 2. No ground water encountered. 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks



TP236 – 0.0mbgl – 4.0mbgl



TP236 – 0.0mbgl – 4.0mbgl



TP236 – 0.0mbgl – 4.0mbgl

endeavour drilling

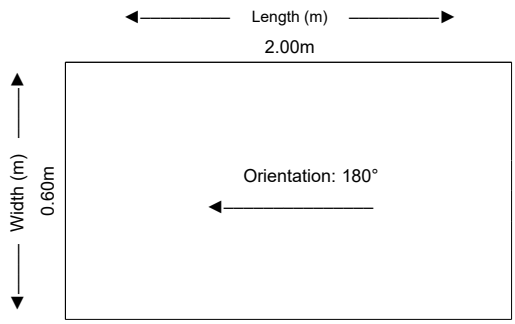
Contract Name:			Client:		Trial Pit ID:
P1, Land North of Horsham, West Sussex			Legal and General (Strategic Land North of Horsham) Ltd		TP237
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	06/12/2019	JJW	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518956.1	133691.6	60.29mOD	13T Excavator	21/02/2020	1:30
Weather: Overcast/Occasional showers	Termination: Refusal at 3.70mbgl		Stability: Good		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.10	D1			(0.30)		TOP SOIL - Brown slightly silty slightly sandy slightly gravelly CLAY. Gravel is fine to medium of brick.		
0.10	ES1		59.99	0.30				
0.50	B1	HV 0.50m, 70kPa				Firm yellowish brown slightly sandy slightly gravelly CLAY. Gravel if fine to medium sub-angular of extremely weak mudstone. (RESIDUAL WEALD CLAY FORMATION)	▼	
0.50	ES2			(1.10)				
			58.89	1.40				
1.50	B2					Reddish brown mottled black very weak to moderately weak MUDSTONE. Recovered as fine to coarse sub-angular gravel and rare cobbles. (DESTURCTURED WEALD CLAY FORMATION)		
				(0.80)				
			58.09	2.20				
2.70	B3					Yellowish brown mottled black and brown weak to moderately weak MUDSTONE. Recovered as fine to coarse sub-angular sandy gravel. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
				(1.50)				
3.40	B4							
			56.59	3.70		End of Trial Pit at 3.70m		

1 2 3 4

Dimensions:

Final Depth: 3.70m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.70mbgl. 2. Ground water encountered at 0.50mbgl (moderate inflow) 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
0.50			0		Moderate inflow



TP237 – 0.0mbgl – 3.70mbgl



TP237 – 0.0mbgl – 3.70mbgl



TP237 – 0.0mbgl – 3.70mbgl

endeavour drilling

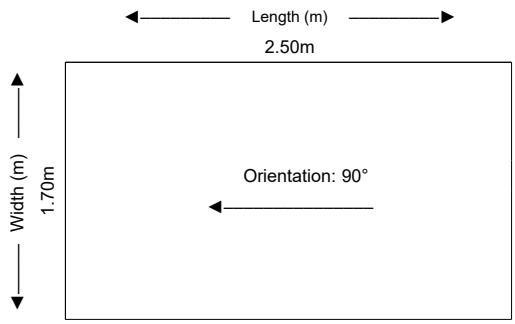
Contract Name:			Client:		Trial Pit ID:
P1, Land North of Horsham, West Sussex			Legal and General (Strategic Land North of Horsham) Ltd		TP238
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	29/11/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518959.6	134235.7	70.79mOD	13T Excavator	21/02/2020	1:30
Weather: Showers		Termination: Reached target depth		Stability: Stable		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.10 0.10	D1 ES1			(0.30)		TOP SOIL - Brown silty sandy clay with occasional rootlets <2mm (living).		
			70.49	0.30		Firm light bluish grey mottled orangish brown slightly sandy silty CLAY. (RESIDUAL WEALD CLAY FORMATION)		
0.50 0.50	B1 ES2	HV 0.50m, 58kPa		(0.60)				
0.90	B2	HV 1.00m, 70kPa	69.89	0.90		Light bluish grey and orangish brown extremely weak MUDSTONE with frequent thinly laminated silty clay (<6mm). (DESTRUCTURED WEALD CLAY FORMATION)		
				(1.40)				
1.90	D2							
2.30	B3		68.49	2.30		Light brown mottled blackish brown and dark orange and light bluish grey very weak to moderately weak MUDSTONE. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
				(0.70)				
			67.79	3.00		End of Trial Pit at 3.00m		

1 2 3 4

Dimensions:

Final Depth: 3.00m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.00mbgl. 2. No groundwater encountered 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks



TP238 – 0.0mbgl – 3.0mbgl



TP238 – 0.0mbgl – 3.0mbgl



TP238 – 0.0mbgl – 3.0mbgl

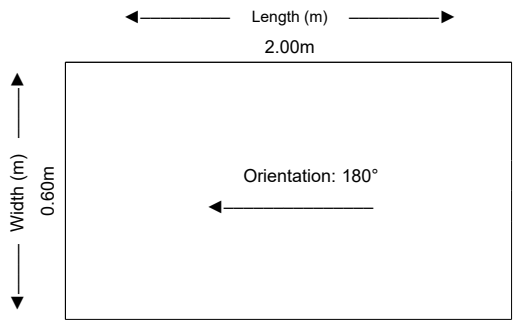
endeavour drilling

Contract Name:		Client:			Trial Pit ID:
P1, Land North of Horsham, West Sussex		Legal and General (Strategic Land North of Horsham) Ltd			TP239
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	27/11/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518965.2	133960.3	60.91mOD	13T Excavator	21/02/2020	1:30
Weather: Showers	Termination: Reached target depth		Stability: Good		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.15	D1			(0.30)		TOP SOIL - Brown silty sandy clay with occasional rootlets <2mm (living).		
0.15	ES1		60.61	0.30				
0.50	B1	HV 0.50m, 60kPa				Firm light brownish orange and light grey slightly gravelly silty sandy CLAY. Gravel is fine to coarse angular very weak mudstone. (RESIDUAL WEALD CLAY FORMATION)		
0.50	ES2			(0.80)				
		HV 1.00m, 65kPa						1
			59.81	1.10				
1.20	B2					Firm light bluish grey silty CLAY with frequent thickly laminated (6-20mm) extremely week mudstone. (RESIDUAL WEALD CLAY FORMATION)		
				(1.00)				
								2
			58.81	2.10				
2.20	B3					Light greyish brown mottled blue grey and black very weak to moderately weak MUDSTONE. Recovered as sandy clayey sub-angular gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
				(1.10)				
								3
3.20	B4		57.71	3.20		Reddish brown and light brown mottled blue grey and black very weak to medium strong MUDSTONE. recovered as sandy sub-angular gravel and cobbles. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
				(0.80)				
			56.91	4.00		End of Trial Pit at 4.00m		4

Dimensions:

Final Depth: 4.00m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 4.0mbgl. 2. Ground water encountered at 1.80mbgl (slow inflow) 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.80			0		Slow inflow



TP239 – 0.0mbgl – 4.0mbgl



TP239 – 0.0mbgl – 4.0mbgl



TP239 – 0.0mbgl – 4.0mbgl

endeavour drilling

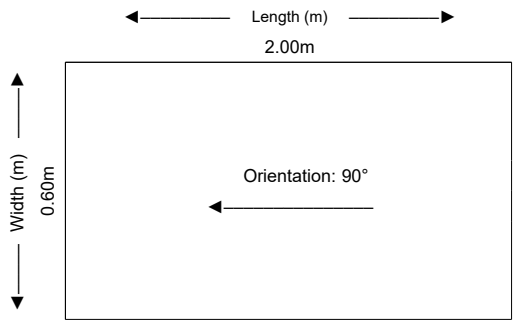
Contract Name:		Client:			Trial Pit ID:
P1, Land North of Horsham, West Sussex		Legal and General (Strategic Land North of Horsham) Ltd			TP240
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	26/11/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518998.2	133773.2	59.84mOD	8T Excavator	21/02/2020	1:30
Weather: Rain	Termination: Refusal at 3.0mbgl			Stability: Good		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.10	D3			(0.30)		TOP SOIL - Light brown sandy CLAY with frequent rootlets <2mm (living).		
0.10	ES1		59.54	0.30				
0.40	B1					Firm to stiff light grey mottled brownish orange slightly sandy silty CLAY. (RESIDUAL WEALD CLAY FORMATION)		
0.40	ES2	HV 0.50m, 73kPa		(0.80)				
1.10	B2		58.74	1.10		Brownish red mottled light bluish grey and black extremely weak to moderately weak MUDSTONE with frequent thin to thick (<20mm) laminations of silty clay. Recovered as clayey sandy fine to coarse subangular gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
2.00	D2			(1.90)				
3.00	D3		56.84	3.00		End of Trial Pit at 3.00m		

1 2 3 4

Dimensions:

Final Depth: 3.00m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.0mbgl. 2. No ground water encountered 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks



TP240 – 0.0mbgl – 3.0mbgl



TP240 – 0.0mbgl – 3.0mbgl



TP240 – 0.0mbgl – 3.0mbgl

endeavour drilling

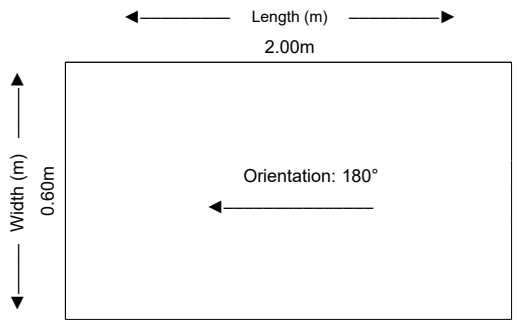
Contract Name:			Client:		Trial Pit ID:
P1, Land North of Horsham, West Sussex			Legal and General (Strategic Land North of Horsham) Ltd		TP241
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	06/12/2019	JJW	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518972.0	133645.8	58.42mOD	13T Excavator	21/02/2020	1:30
Weather: Overcast/Occasional showers		Termination: Refusal at 3.50mbgl		Stability: Good	

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.10 0.10	D1 ES1			(0.30)		TOP SOIL - Brown slightly silty slightly sandy slightly gravelly CLAY. Gravel is fine to medium of brick.		
			58.12	0.30				
0.50	ES2	HV 0.50m, 65kPa		(0.70)		Light brown mottled orange and grey slightly sandy silty CLAY. (RESIDUAL WEALD CLAY FORMATION)		
			57.42	1.00				
1.20	B1					Firm light brown mottled orange and grey extremely weak MUDSTONE. with occasional thinly laminated grey clay (<6mm). Recovered as clayey sandy gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
				(1.70)				
2.30	D2							
			55.72	2.70				
2.90	B2					Light yellowish brown mottled black very weak to moderately weak MUDSTONE. Recovered as fine to coarse sub-angular gravel with occasional cobbles. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
				(0.80)				
			54.92	3.50		End of Trial Pit at 3.50m		

1 2 3 4

Dimensions:

Final Depth: 3.50m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.50mbgl. 2. Ground water encountered at 1.70mbgl (slow inflow) 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.70			0		Slow inflow



TP241 – 0.0mbgl – 3.50mbgl



TP241 – 0.0mbgl – 3.50mbgl



TP241 – 0.0mbgl – 3.50mbgl

endeavour drilling

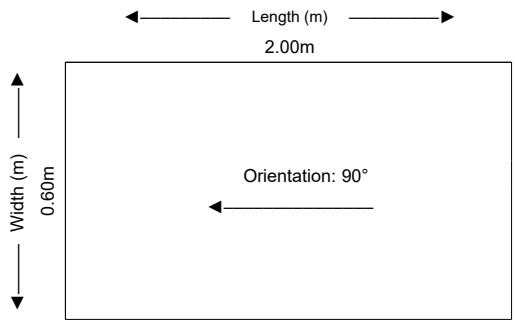
Contract Name:		Client:			Trial Pit ID:
P1, Land North of Horsham, West Sussex		Legal and General (Strategic Land North of Horsham) Ltd			TP242
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	27/11/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	518995.9	133875.7	59.42mOD	13T Excavator	21/02/2020	1:30
Weather: Showers		Termination: Refusal at 2.80mbgl			Stability: Good	

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.10	D1					TOP SOIL - Brown silty sandy clay with occasional rootlets <2mm (living).		
0.10	ES1			(0.35)				
			59.07	0.35		Firm light grey and orange silty sandy CLAY. (RESIDUAL WEALD CLAY DEPOSITS)		
0.50	B1	HV 0.50m, 63kPa						
0.50	ES2			(0.75)				
1.10	B2		58.32	1.10		Light bluish grey and orange extremely weak to very weak MUDSTONE with frequent thin laminations (<6mm) of silty clay. (DESTRUCTURED WEALD CLAY FORMATION)		
				(1.30)				
2.10	D2							
2.40	B3		57.02	2.40		Light greyish brown mottled dark blackish brown and orange very weak to moderately weak mudstone. Recovered as sandy clayey fine to coarse sub-angular gravel. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
				(0.40)				
			56.62	2.80		End of Trial Pit at 2.80m		

1 2 3 4

Dimensions:

Final Depth: 2.80m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 2.80mbgl. 2. No ground water encountered 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks



TP242 – 0.0mbgl – 2.8mbgl



TP242 – 0.0mbgl – 2.8mbgl



TP242 – 0.0mbgl – 2.8mbgl

endeavour drilling

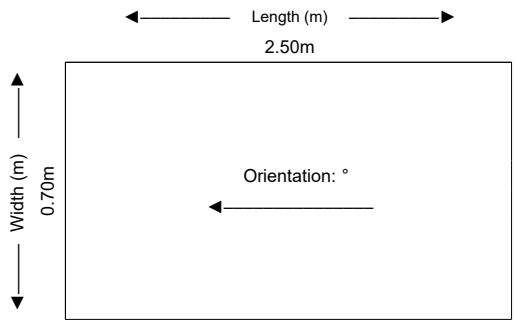
Contract Name:			Client:		Trial Pit ID:
P1, Land North of Horsham, West Sussex			Legal and General (Strategic Land North of Horsham) Ltd		TP243
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	28/11/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	519033.2	134053.3	63.88mOD	13T Excavator	21/02/2020	1:30
Weather: Showers		Termination: Refusal at 3.4mbgl		Stability: Good		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.20	D1			(0.30)		TOPSOIL - Brown silty sandy CLAY, with occasional rootlets.		
0.20	ES1		63.58	0.30		Firm light grey and orange slightly sandy silty CLAY. [RESIDUAL WEALD CLAY FORMATION]		
0.50	B1	HV 0.50m, 55kPa						
0.50	ES2							
		HV 1.00m, 80kPa						
				(1.70)				
1.50	D2	HV 1.50m, 77kPa						
2.00	B2		61.88	2.00		Light bluish grey and orange extremely weak MUDSTONE, with frequent thinly laminated silty clay (<6mm). Recovered as clayey sandy gravel. [DESTRUCTURED WEALD CLAY FORMATION]		
				(0.30)				
2.30	B3		61.58	2.30		Light brown mottled light bluish grey extremely weak to very weak MUDSTONE, with frequent thinly laminated silty clay. (<6mm) Recovered as clayey sandy gravel. [DESTRUCTURED WEALD CLAY FORMATION]		
				(0.60)				
			60.98	2.90				
3.00	B4					Light brown mottled blackish brown weak to medium strong MUDSTONE. Recovered as sandy gravel and cobbles. [PARTIALLY WEATHERED WEALD CLAY FORMATION]		
				(0.50)				
			60.48	3.40		End of Trial Pit at 3.40m		

1 2 3 4

Dimensions:

Final Depth: 3.40m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.4mbgl. 2. No groundwater encountered 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks



TP243 – 0.0mbgl – 3.4mbgl



TP243 – 0.0mbgl – 3.4mbgl



TP243 – 0.0mbgl – 3.4mbgl

endeavour drilling

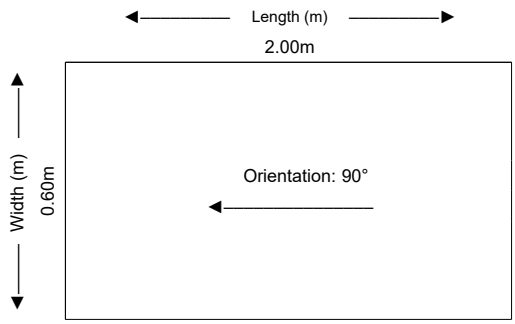
Contract Name:		Client:			Trial Pit ID:
P1, Land North of Horsham, West Sussex		Legal and General (Strategic Land North of Horsham) Ltd			TP244
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	26/11/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	519038.6	133524.6	53.07mOD	8T Excavator	21/02/2020	1:30
Weather: Rain	Termination: Refusal at 3.0mbgl		Stability: Good		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.30	D1			(0.40)		TOP SOIL - Brown silty sandy clay with occasional rootlets <2mm (living).		
0.30	ES1		52.67	0.40				
0.50	B1	HV 0.50m, 80kPa				Stiff light grey mottled brownish orange slightly sandy silty CLAY. (RESIDUAL WEALD CLAY FORMATION)		
0.50	ES2							
		HV 1.00m, 92kPa		(1.40)				
1.50	D2							
1.80	B2		51.27	1.80		Light grey mottled brownish orange silty CLAY with frequent thinly laminated (<6mm) extremely weak to very weak mudstone. Recovered as clayey sandy gravel (DESTRUCTURED WEALD CLAY FORMATION)		
				(0.70)				
2.50	B3		50.57	2.50		Dark reddish brown mottled light grey extremely weak to medium strong MUDSTONE. Recovered as slightly sandy clayey sub-angular gravel. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
				(0.50)				
			50.07	3.00		End of Trial Pit at 3.00m		

1 2 3 4

Dimensions:

Final Depth: 3.00m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.0mbgl. 2. Ground water encountered at 2.5mbgl (slow inflow) 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
2.50			0		Slow inflow



TP244 – 0.0mbgl – 3.0mbgl



TP244 – 0.0mbgl – 3.0mbgl

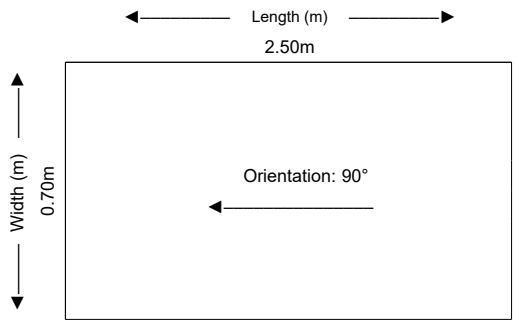
endeavour drilling

Contract Name:		Client:			Trial Pit ID:
P1, Land North of Horsham, West Sussex		Legal and General (Strategic Land North of Horsham) Ltd			TP245
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	28/12/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	519044.8	134150.6	67.32mOD	13T Excavator	21/02/2020	1:30
Weather:	Termination: Reached target depth		Stability: Good		

Samples & In Situ Testing			Strata Details					
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
0.10	D1		67.07	0.25		TOPSOIL - Dark brown slightly gravelly silty sandy CLAY, with occasional rootlets. Gravel is fine to coarse subangular to subrounded of mudstone, flint and chalk.		
0.10	ES1							
0.40	B1			(0.45)		Firm dark orangish brown slightly gravelly silty sandy CLAY. Gravel is fine to coarse subangular to subrounded of mudstone. [REWORKED WEALD CLAY FORMATION]		
0.40	ES2	HV 0.50m, 65kPa	66.62	0.70				
0.80	B2					Firm dark brownish grey mottled blackish brown and reddish brown slightly gravelly silty sandy CLAY. Gravel is fine to coarse subangular to subrounded of mudstone and chalk. [REWORKED WEALD CLAY FORMATION]		
		HV 1.00m, 110kPa				1		
		HV 1.50m, 70kPa		(1.80)				
1.80	D2							
		HV 2.00m, 60kPa				2		
2.50	B3	HV 2.50m, 50kPa	64.82	2.50		Soft to firm light bluish grey and orange slightly sandy slightly gravelly silty CLAY. Gravel is fine to coarse subangular of very weak mudstone. Recovered as clay. [RESIDUAL WEALD CLAY FORMATION]		
				(0.50)				
		HV 3.00m, 50kPa	64.32	3.00		3		
3.10	B4					Light bluish grey mottled orange and brownish orange extremely weak to very weak MUDSTONE, with frequent thinly laminated silty clay (<6mm). Recovered as clayey sandy gravel. [DESTRUCTURED WEALD CLAY FORMATION]		
				(0.70)				
3.70	B5		63.62	3.70		Bluish grey mottled brownish orange extremely weak to weak MUDSTONE. Recovered as sandy clayey gravel. [DESTRUCTURED WEALD CLAY FORMATION]		
				(0.40)		4		
			63.22	4.10		End of Trial Pit at 4.10m		

Dimensions:

Final Depth: 4.10m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 4.1mbgl. 2. No groundwater encountered 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks



TP245 – 0.0mbgl – 4.1mbgl



TP245 – 0.0mbgl – 4.1mbgl



TP245 – 0.0mbgl – 4.1mbgl

endeavour drilling

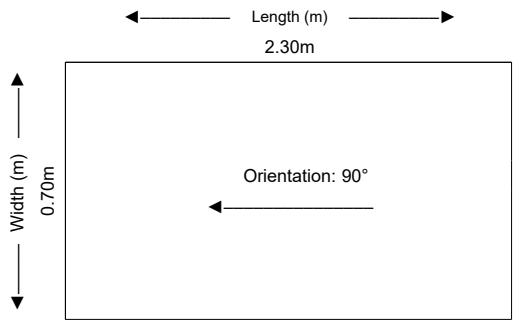
Contract Name:		Client:			Trial Pit ID:
P1, Land North of Horsham, West Sussex		Legal and General (Strategic Land North of Horsham) Ltd			TP246
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	28/12/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	519052.2	133988.9	62.88mOD	13T Excavator	21/02/2020	1:30
Weather: Showers		Termination: Refusal at 3.6mbgl			Stability: Good	

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.20	D1			(0.40)		TOPSOIL - Brown silty sandy CLAY, with occasional rootlets.		
0.20	ES1		62.48	0.40				
		HV 0.50m, 70kPa				Firm to stiff light bluish grey and orange slightly sandy slightly gravelly silty CLAY. Gravel is fine to coarse subangular of very weak MUDSTONE. [RESIDUAL WEALD CLAY FORMATION]		
0.60	B1							
0.60	ES2			(0.80)				
1.20	B2		61.68	1.20		Light bluish grey and brownish orange mottled blackish brown extremely weak to very weak MUDSTONE, with occasional thinly laminated silty clay (<6mm). Recovered as clayey sandy gravel. [DISTINCTLY WEATHERED WEALD CLAY FORMATION]		
				(0.50)				
1.70	B3		61.18	1.70		Light bluish grey mottled blackish brown and brownish orange extremely weak to weak MUDSTONE. Recovered as clayey sandy gravel. [DISTINCTLY WEATHERED]		
				(0.90)				
			60.28	2.60				
2.70	B4					Light brown mottled brownish orange and blackish brown weak to moderately strong MUDSTONE. Recovered as sandy gravely and cobbles. [PARTIALLY WEATHERED WEALD CLAY FORMATION]		
				(0.70)				
			59.58	3.30				
3.40	B5			(0.30)		Light brown mottled dark reddish brown weak to medium strong MUDSTONE. Recovered as slightly sandy slightly gravelly cobbles and boulders. [PARTIALLY WEATHERED WEALD CLAY FORMATION]		
			59.28	3.60		End of Trial Pit at 3.60m		

1 2 3 4

Dimensions:

Final Depth: 3.60m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.4mbgl. 2. Groundwater encountered at 2.5mbgl (Moderate inflow) 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
2.50			0		Moderate inflow



TP246 – 0.0mbgl – 3.6mbgl



TP246 – 0.0mbgl – 3.6mbgl



TP246 – 0.0mbgl – 3.6mbgl

endeavour drilling

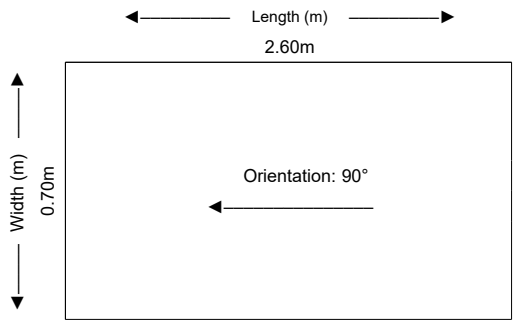
Contract Name:		Client:			Trial Pit ID:
P1, Land North of Horsham, West Sussex		Legal and General (Strategic Land North of Horsham) Ltd			TP247
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	28/11/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	519056.2	134224.9	70.36mOD	13T Excavator	21/02/2020	1:30
Weather: Showers	Termination: Reached target depth		Stability: Good		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.20	D1			(0.30)		TOPSOIL - Dark brown slightly gravelly silty sandy CLAY. Gravel is fine to coarse subangular to subrounded of mudstone.		
0.20	ES1		70.06	0.30				
0.50	B1	HV 0.50m, 60kPa				Firm greyish brown mottled orange slightly sandy silty CLAY. [RESIDUAL WEALD CLAY FORMATION]		
0.50	ES2			(0.90)				
1.20	B2		69.16	1.20		Light brown and bluish grey extremely weak to very weak MUDSTONE, with occasional thinly laminated silty clay (<6mm). [DESTRUCTURED WEALD CLAY FORMATION]		
				(1.10)				
2.30	B3		68.06	2.30		Light bluish grey and light brownish orange mottled blackish brown extremely weak to moderately weak MUDSTONE. Recovered as clayey sandy gravel. [DESTRUCTURED WEALD CLAY FORMATION]		
				(1.20)				
3.30	D2							
3.50	B4		66.86	3.50		Dark brownish grey mottled reddish brown and orange moderately weak to medium strong MUDSTONE. Recovered as sandy gravel and cobbles. [PARTIALLY WEATHERED WEALD CLAY FORMATION]		
				(0.50)				
			66.36	4.00		End of Trial Pit at 4.00m		

1 2 3 4

Dimensions:

Final Depth: 4.00m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 4.0mbgl. 2. Groundwater encountered at 0.3mbgl (Slow inflow) 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
0.30			0		Slow inflow



TP247 – 0.0mbgl – 4.0mbgl



TP247 – 0.0mbgl – 4.0mbgl



TP247 – 0.0mbgl – 4.0mbgl

endeavour drilling

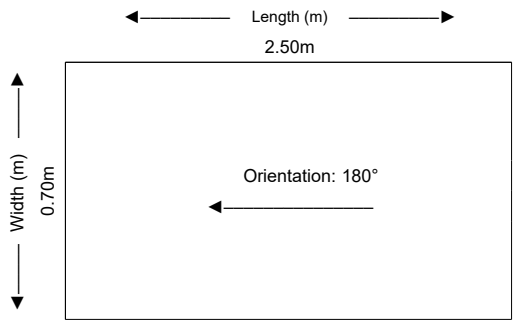
Contract Name:		Client:			Trial Pit ID:
P1, Land North of Horsham, West Sussex		Legal and General (Strategic Land North of Horsham) Ltd			TP248
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	27/11/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	519071.4	133937.3	61.83mOD	13T Excavator	21/02/2020	1:30
Weather: Showers		Termination: Refusal at 3.6mbgl			Stability: Good	

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.20	D1			(0.40)		TOP SOIL - Brown silty sandy clay with occasional rootlets <2mm (living).		
0.20	ES1		61.43	0.40				
		HV 0.50m, 60kPa				Stiff light brownish orange and light grey slightly sandy slightly gravelly silty CLAY. Gravel is fine to coarse sub-angular very weak mudstone. (RESIDUAL WEALD CLAY FORMATION)		
0.60	B1							
0.60	ES2			(0.80)				
		HV 1.00m, 70kPa						
1.20	B2		60.63	1.20		Firm light brownish orange and light grey silty CLAY with frequent thickly laminated (6-20mm) very weak mudstone. (RESIDUAL WEALD CLAY FORMATION)		
		HV 1.50m, 73kPa		(0.60)				
1.90	B3		60.03	1.80		Light greyish brown mottled light blueish grey and blackish brown extremely weak to weak MUDSTONE. Recovered as clayey slightly sandy fine to coarse sub-angular gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
				(0.80)				
2.60	B4		59.23	2.60		Bluish grey and light brown mottled blackish brown medium strong MUDSTONE. Recovered as sandy gravel and cobble (PARTIALLY WEATHERED WEALD CLAY FORMATION)		
				(1.00)				
3.60	D2		58.23	3.60		End of Trial Pit at 3.60m		

1
2
3
4

Dimensions:

Final Depth: 3.60m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.60mbgl. 2. Ground water encountered at 0.65mbgl (slow inflow) 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
0.65			0		Slow inflow



TP248 – 0.0mbgl – 3.6mbgl



TP248 – 0.0mbgl – 3.6mbgl



TP248 – 0.0mbgl – 3.6mbgl

endeavour drilling

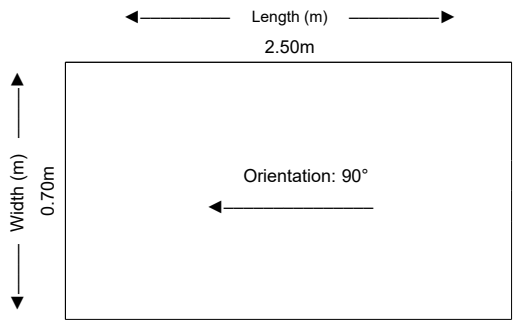
Contract Name:			Client:		Trial Pit ID:
P1, Land North of Horsham, West Sussex			Legal and General (Strategic Land North of Horsham) Ltd		TP249
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	28/11/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	519092.3	134046.8	64.65mOD	13T Excavator	21/02/2020	1:30
Weather: Showers		Termination: Refusal at 3.4mbgl		Stability: Good		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.10 0.10	D1 ES1			(0.35)		TOPSOIL - Brown silty sandy CLAY, with occasional rootlets.		
			64.30	0.35				
0.50 0.50	B1 ES2	HV 0.50m, 79kPa		(0.85)		Firm to stiff light bluish grey and orange slightly sandy slightly gravelly silty CLAY. Gravel is fine to coarse subangular of very weak mudstone. [RESIDUAL WEALD CLAY FORMATION]		
1.20	B2		63.45	1.20		Light bluish grey and brownish orange extremely weak MUDSTONE, with frequent thinly laminated silty clay (<6mm) Recovered as clayey sandy gravel. [DESTRUCTURED WEALD CLAY FORMATION]		
				(0.90)				
2.10	B3		62.55	2.10		Light brown mottled dark brown and orange and light bluish grey extremely weak to moderately weak MUDSTONE. Recovered as clayey sandy gravel [DESTRUCTURED WEALD CLAY FORMATION]		
				(0.30)				
2.40	B4		62.25	2.40		Light greyish brown mottled blackish brown and reddish brown very weak to medium strong MUDSTONE. Recovered as sandy gravel and cobbles. [DISTINCTLY WEATHERED WEALD CLAY FORMATION]		
				(1.00)				
			61.25	3.40		End of Trial Pit at 3.40m		

1 2 3 4

Dimensions:

Final Depth: 3.40m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.4mbgl. 2. Groundwater encountered at 0.35mbgl (slow inflow) 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
0.35			0		Moderate inflow



TP249 – 0.0mbgl – 3.4mbgl



TP249 – 0.0mbgl – 3.4mbgl



TP249 – 0.0mbgl – 3.4mbgl

endeavour drilling

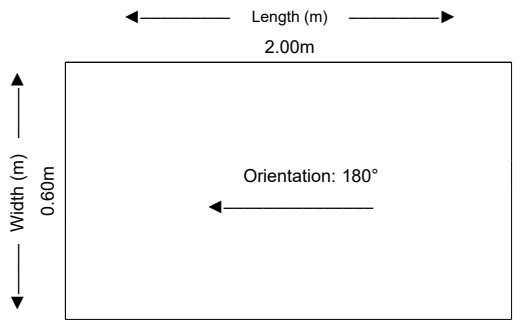
Contract Name:			Client:		Trial Pit ID:
P1, Land North of Horsham, West Sussex			Legal and General (Strategic Land North of Horsham) Ltd		TP250
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	26/11/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	519090.3	133616.4	54.77mOD	8T Excavator	21/02/2020	1:30
Weather: Rain	Termination: Refusal at 3.2mbgl		Stability: Good		

Samples & In Situ Testing			Strata Details					
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
0.20	D1			(0.30)		TOP SOIL - Brown silty sandy CLAY with occasional rootlets <2mm (living).		
0.20	ES1		54.47	0.30				
0.50	B1	HV 0.50m, 88kPa				Stiff light grey mottled brownish orange slightly sandy silty CLAY. (RESIDUAL WEALD CLAY FORMATION)		
0.50	ES2			(1.40)				
1.50	D2							
			53.07	1.70				
1.80	B2					Light bluish grey mottled brownish orange silty CLAY with frequent thinly laminated (<6mm) extremely weak to very weak mudstone. (RESIDUAL WEALD CLAY FORMATION)		
				(0.50)				
2.20	B3		52.57	2.20				
						Dark reddish brown mottled light greyish brown extremely weak to medium weak MUDSTONE. Recovered as slightly sandy clayey gravel and cobbles. (DISTINCTLY WEATHERED)		
				(1.00)				
3.20	D3		51.57	3.20				
						End of Trial Pit at 3.20m		

1 2 3 4

Dimensions:

Final Depth: 3.20m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.20mbgl. 2. No ground water encountered 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks



TP250 – 0.0mbgl – 3.2mbgl



TP250 – 0.0mbgl – 3.2mbgl



TP250 – 0.0mbgl – 3.2mbgl

endeavour drilling

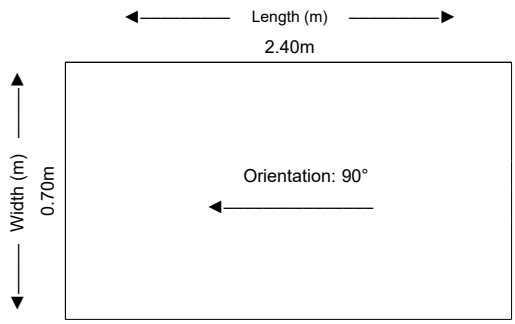
Contract Name:			Client:		Trial Pit ID:
P1, Land North of Horsham, West Sussex			Legal and General (Strategic Land North of Horsham) Ltd		TP251
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	28/11/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	519113.4	134138.3	67.44mOD	13T Excavator	21/02/2020	1:30
Weather: Showers		Termination: Refusal at 3.50mbgl		Stability: Good		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.10 0.10	D1 ES1			(0.30)		TOPSOIL - Brown silty sandy CLAY, with occasional rootlets.		
			67.14	0.30		Firm to stiff light bluish grey and orange slightly sandy slightly gravelly silty CLAY. Gravel is fine to coarse subangular of very weak mudstone. [RESIDUAL WEALD CLAY FORMATION]		
0.50 0.50	B1 ES2	HV 0.50m, 75kPa		(0.70)				
1.00	B2	HV 1.00m, 120kPa	66.44	1.00		Stiff light bluish grey and brownish orange silty CLAY, with frequent thinly laminated extremely weak mudstone (<6mm). [DESTRUCTURED WEALD CLAY FORMATION]		
				(0.90)				
1.90	B3		65.54	1.90		Brownish orange mottled dark brown and light bluish grey extremely weak to weak MUDSTONE, with occasional thinly laminated silty clay. Recovered as clayey sandy fine to coarse subangular gravel. [DESTRUCTURED WEALD CLAY FORMATION]		
				(0.60)				
2.50	B4		64.94	2.50		Brownish grey mottled blackish brown, reddish brown and orange extremely weak to medium strong MUDSTONE. Recovered as sandy gravel and cobbles. [DISTINCTLY WEATHERED]		
				(1.00)				
3.50	D2		63.94	3.50		End of Trial Pit at 3.50m		

1 2 3 4

Dimensions:

Final Depth: 3.50m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.5mbgl. 2. Groundwater encountered at 1.0mbgl (slow inflow) 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.00			0		Slow inflow



TP251 – 0.0mbgl – 3.5mbgl



TP251 – 0.0mbgl – 3.5mbgl



TP251 – 0.0mbgl – 3.5mbgl

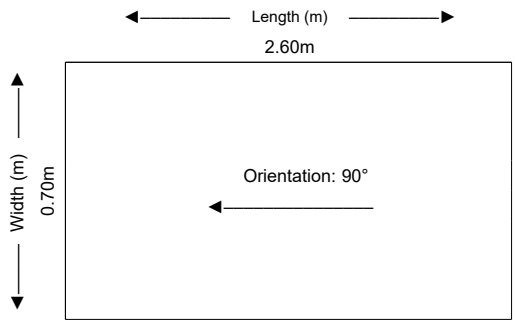
endeavour drilling

Contract Name:		Client:			Trial Pit ID:
P1, Land North of Horsham, West Sussex		Legal and General (Strategic Land North of Horsham) Ltd			TP252
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	29/11/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	519108.8	134232.9	71.67mOD	13T Excavator	21/02/2020	1:30
Weather: Sunny	Termination: Reached target depth		Stability: Good		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.10	D1					TOPSOIL - Brown silty sandy CLAY, with occasional rootlets.		
0.10	ES1			(0.35)				
			71.32	0.35		Stiff light bluish grey and brownish orange slightly sandy silty CLAY. [RESIDUAL WEALD CLAY FORMATION]		
0.50	B1	HV 0.50m, 83kPa						
0.50	ES2			(0.95)				
		HV 1.00m, 86kPa					1	
1.20	B2							
			70.37	1.30		Light brown and light brownish grey extremely weak MUDSTONE, with frequent thinly laminated silty clay (<6mm). Recovered as clayey sandy gravel. [DESTRUCTURED WEALD CLAY FORMATION]		
				(1.10)				
2.20	D2						2	
			69.27	2.40				
2.50	B3					Light brown mottled reddish brown and bluish grey extremely weak to moderately weak MUDSTONE. Recovered as clayey sandy gravel. [DESTRUCTURED WEALD CLAY FORMATION]		
				(0.60)				
			68.67	3.00		End of Trial Pit at 3.00m	3	
							4	

Dimensions:

Final Depth: 3.00m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.0mbgl. 2. No ground water encountered. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks



TP252 – 0.0mbgl – 3.0mbgl



TP252 – 0.0mbgl – 3.0mbgl



TP252 – 0.0mbgl – 3.0mbgl

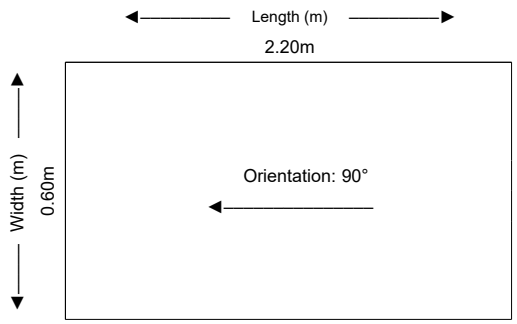
endeavour drilling

Contract Name:			Client:		Trial Pit ID:
P1, Land North of Horsham, West Sussex			Legal and General (Strategic Land North of Horsham) Ltd		TP253
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	26/11/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	519126.3	133573.9	52.98mOD	8T Excavator	21/02/2020	1:30
Weather: Rain	Termination: Refusal at 3.10mbgl			Stability: Good		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.15	D1			(0.30)		TOP SOIL - Brown silty sandy clay with occasional rootlets <2mm (living).		
0.15	ES1		52.68	0.30				
0.40	ES2					Firm to stiff light grey mottled brownish orange slightly sandy silty CLAY. (RESIDUAL WEALD CLAY FORMATION)		
0.50	B1	HV 0.50m, 80kPa						
				(1.00)				
		HV 1.00m, 76kPa					1	
1.30	B2		51.68	1.30		Stiff light grey mottled dark brownish orange slightly sandy silty CLAY with frequent thinly laminated (<6mm) mudstone. Recovered as very clayey silty gravel. (RESIDUAL WEALD CLAY FORMATION)		
				(0.30)				
1.60	B3		51.38	1.60		Light bluish grey mottled dark brownish orange extremely weak to very weak MUDSTONE. Recovered as clayey fine to coarse sub-angular gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
				(1.10)			2	
2.60	D2							
2.70	B4		50.28	2.70		Bluish grey mottled dark brownish orange very weak to moderately weak MUDSTONE. Recovered as sandy clayey fine to coarse gravel and cobbles. (PARTIALLY WEATHERED WEALD CLAY FORMATION)		
				(0.40)			3	
			49.88	3.10		End of Trial Pit at 3.10m		
							4	

Dimensions:

Final Depth: 3.10m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.10mbgl. 2. Ground water encountered at 0.75mbgl (slow inflow) 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
0.75			0		Slow inflow



TP253 – 0.0mbgl – 3.1mbgl



TP253 – 0.0mbgl – 3.1mbgl



TP253 – 0.0mbgl – 3.1mbgl

endeavour drilling

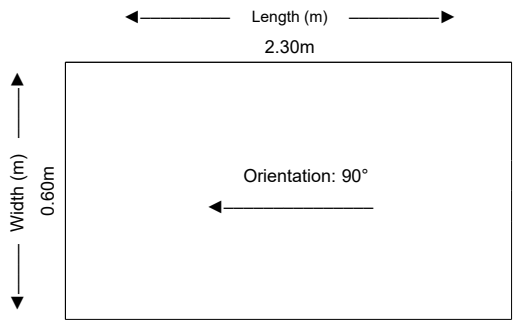
Contract Name:		Client:			Trial Pit ID:
P1, Land North of Horsham, West Sussex		Legal and General (Strategic Land North of Horsham) Ltd			TP254
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	26/11/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	519174.7	133637.4	53.09mOD	8T Excavator	21/02/2020	1:30
Weather: Rain	Termination: Reached target depth.		Stability: Good		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.20	D1			(0.40)		TOP SOIL - Brown silty sandy CLAY with occasional rootlets <2mm (living).		
0.20	ES1		52.69	0.40				
0.50	B1	HV 0.50m, 110kPa				Stiff light brownish grey mottled dark orange sandy slightly gravelly silty CLAY. Gravel is fine to coarse sub-angular very weak mudstone. (RESIDUAL WEALD CLAY FORMATION)		
0.50	ES2			(1.10)				
1.50	B2		51.59	1.50		Stiff light bluish grey mottled orangish brown silty CLAY with frequent thinly (<6mm) to thickly (6-20mm) laminated slightly sandy silt with rare dead roots <4mm (dead). (RESIDUAL WEALT CLAY FORMATION)		
				(1.10)				
2.50	D2		50.49	2.60		Reddish brown mottled bluish grey and brown extremely weak to weak MUDSTONE with frequent thinly laminated (<6mm) silty clay. Recovered as silty clayey fine to coarse sub-angular gravel. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
2.70	B3			(0.50)				
3.10	B4		49.99	3.10		Bluish grey mottled orangish brown very weak to moderately weak MUDSTONE. Recovered as fine to coarse sub-angular gravel and cobbles. (PARTIALLY WEATHERED WEALD CLAY FORMATION)		
				(0.90)				
			49.09	4.00		End of Trial Pit at 4.00m		

1 2 3 4

Dimensions:

Final Depth: 4.00m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 4.0mbgl. 2. Ground water encountered at 2.70mbgl (moderate inflow) 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
2.70			0		Moderate inflow



TP254 – 0.0mbgl – 4.0mbgl



TP254 – 0.0mbgl – 4.0mbgl



TP254 – 0.0mbgl – 4.0mbgl

endeavour drilling

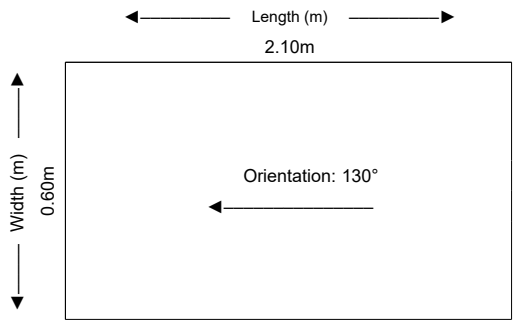
Contract Name:			Client:		Trial Pit ID:
P1, Land North of Horsham, West Sussex			Legal and General (Strategic Land North of Horsham) Ltd		TP255
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	25/11/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	519224.1	133701.5	55.90mOD	8T Excavator	21/02/2020	1:30
Weather: Rain	Termination: Refusal at 2.60mbgl		Stability: Good		

Samples & In Situ Testing			Strata Details					
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
0.20	ES1			(0.30)		TOP SOIL - Brown silty sandy CLAY with occasional rootlets <2mm (living).		
			55.60	0.30				
0.40	B1					Firm light orangish brown mottled light grey slightly sandy silty CLAY. (RESIDUAL WEALD CLAY FORMATION)		
0.40	ES2	HV 0.50m, 71kPa						
				(1.00)				
1.30	B2		54.60	1.30		Light bluish grey mottled brownish orange very weak to moderately weak MUDSTONE with frequent thinly laminated (<6mm) sandy clay. Recovered as clayey fine to coarse sub-angular gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
				(1.10)				
2.30	D1							
			53.50	2.40				
2.50	B3					Dark brownish black mottled dark orangish brown weak to moderately weak MUDSTONE. Recovered as clayey sandy fine to coarse sub-angular gravel. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
			53.30	2.60		End of Trial Pit at 2.60m		

1 2 3 4

Dimensions:

Final Depth: 2.60m



Inclination: 90°

General Remarks:

1. Trial pit machine excavated to 2.60mbgl. 2. Ground water encountered at 1.30mbgl (moderate inflow) 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
1.30			0		Moderate inflow



TP255 – 0.0mbgl – 2.60mbgl



TP255 – 0.0mbgl – 2.60mbgl



TP255 – 0.0mbgl – 2.60mbgl

endeavour drilling

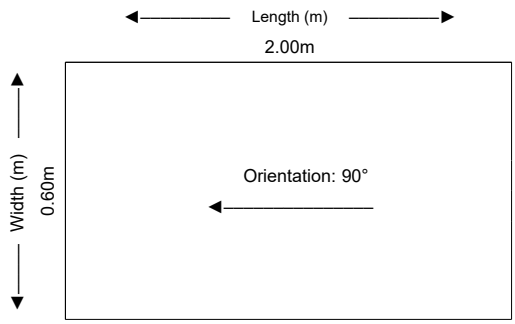
Contract Name:		Client:			Trial Pit ID:
P1, Land North of Horsham, West Sussex		Legal and General (Strategic Land North of Horsham) Ltd			TP256
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	25/11/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	519327.1	133713.4	54.12mOD	8T Excavator	21/02/2020	1:30
Weather: Rain	Termination: Refusal at 2.70mbgl		Stability:		

Samples & In Situ Testing			Strata Details					
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description	Water	Backfill
0.10	ES1		53.87	0.25		TOP SOIL - Brown silty sandy clay with occasional rootlets <2mm (living).		
0.30	B1							
0.30	ES2	HV 0.50m, 52kPa		(0.45)		Firm light orangish brown and light grey slightly gravelly silty sandy CLAY. Gravel is fine to coarse sub-angular very weak mudstone. (RESIDUAL WEALD CLAY FORMATION)		
0.80	B2		53.42	0.70		Dark brownish black and dark orange very weak MUDSTONE with thinly laminated (<6mm) silty clay. Recovered as slightly sandy slightly clayey fine to coarse sub-angular gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
				(0.80)				
1.60	B3		52.62	1.50		Dark reddish brown mottled brown weak to moderately weak MUDSTONE with frequent thinly to thickly (<20mm) laminated sandy clay. Recovered as slightly sandy slightly clayey fine to coarse sub-angular gravel and occasional cobbles. (DISTINCTLY WEATHERED WEALD CLAY FORMATION)		
				(1.20)				
2.60	D1		51.42	2.70		End of Trial Pit at 2.70m		

1 2 3 4

Dimensions:

Final Depth: 2.70m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 2.70mbgl. 2. No groundwater encountered. 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks



TP256 – 0.0mbgl – 2.70mbgl



P256 – 0.0mbgl – 2.70mbgl



TP256 – 0.0mbgl – 2.70mbgl

endeavour drilling

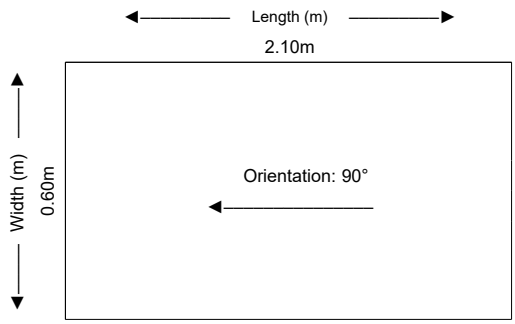
Contract Name:		Client:			Trial Pit ID:
P1, Land North of Horsham, West Sussex		Legal and General (Strategic Land North of Horsham) Ltd			TP257
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	25/11/2019	RAF	MJS	FINAL	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed:	Scale:
	519388.1	133732.2	54.37mOD	8T Excavator	21/02/2020	1:30
Weather: Rain	Termination: Refusal at 3.20mbgl			Stability: Good		

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.20	ES1			(0.35)		TOP SOIL - Brown slightly gravelly silty sandy CLAY. Gravel is fine to coarse sub-angular to sub-rounded of brick.		
0.40	ES2	HV 0.50m, 110kPa	54.02	0.35		Stiff orangish brown mottled light grey slightly gravelly silty sandy CLAY. Gravel is fine to coarse sub-angular very weak mudstone. (RESIDUAL WEALD CLAY FORMATION)		
				(0.75)				
			53.27	1.10				
1.20	B2					Dark brownish black and dark orange very weak MUDSTONE frequently thinly to thickly (<20mm) laminated sandy clay. Recovered as slightly clayey sandy fine to coarse sub-angular gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
1.40	B1			(0.70)				
1.80	B3		52.57	1.80		Stiff light bluish grey mottled orangish brown silty CLAY with occasional roots <5mm (dead) and with occasional thinly laminated (<6mm) extremely weak mudstone. Recovered as slightly sandy slightly gravelly clay. (DESTRUCTURED WEALD CLAY FORMATION)		
				(0.50)				
2.30	B4		52.07	2.30		Light bluish grey and dark brownish orange weak MUDSTONE frequently thinly to thickly (<20mm) laminated silty clay. Recovered as clayey sandy fine to coarse sub-angular gravel. (DESTRUCTURED WEALD CLAY FORMATION)		
				(0.90)				
			51.17	3.20		End of Trial Pit at 3.20m		

1 2 3 4

Dimensions:

Final Depth: 3.20m



Inclination: °

General Remarks:

1. Trial pit machine excavated to 3.20mbgl. 2. Ground water encountered at 0.40mbgl (slow inflow) 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
0.40			0		Slow inflow



TP257 – 0.0mbgl – 3.20mbgl



TP257 – 0.0mbgl – 3.20mbgl



TP257 – 0.0mbgl – 3.20mbgl

APPENDIX F

TRL-DCP Insitu Test Results

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

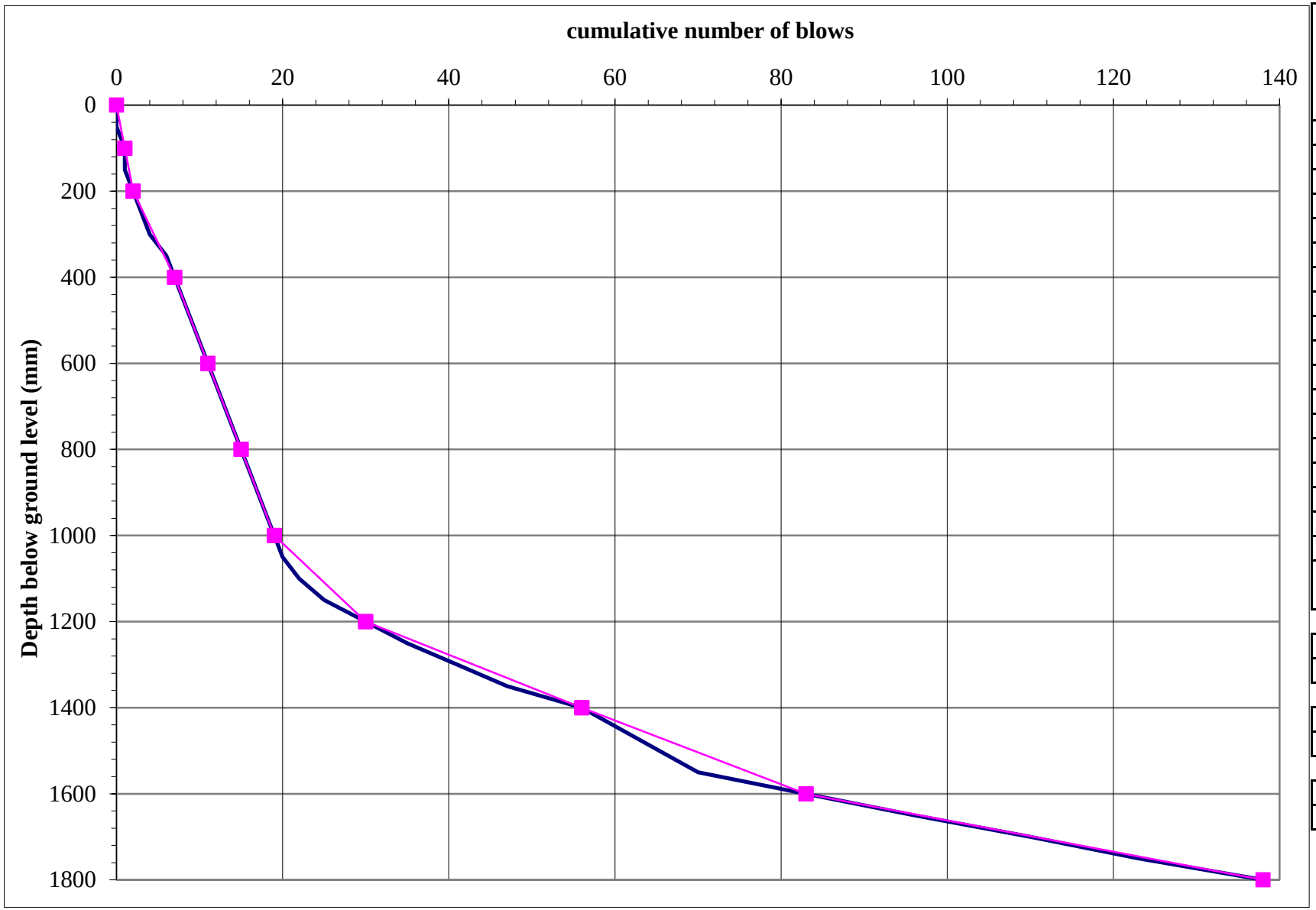
Test Number: TP201

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	100	1.2
100 200	100	1.2
200 400	40	3.8
400 600	50	2.9
600 800	50	2.9
800 1000	50	2.9
1000 1200	18	10.5
1200 1400	8	31
1400 1600	7	33.0
1600 1800	4	82.1

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

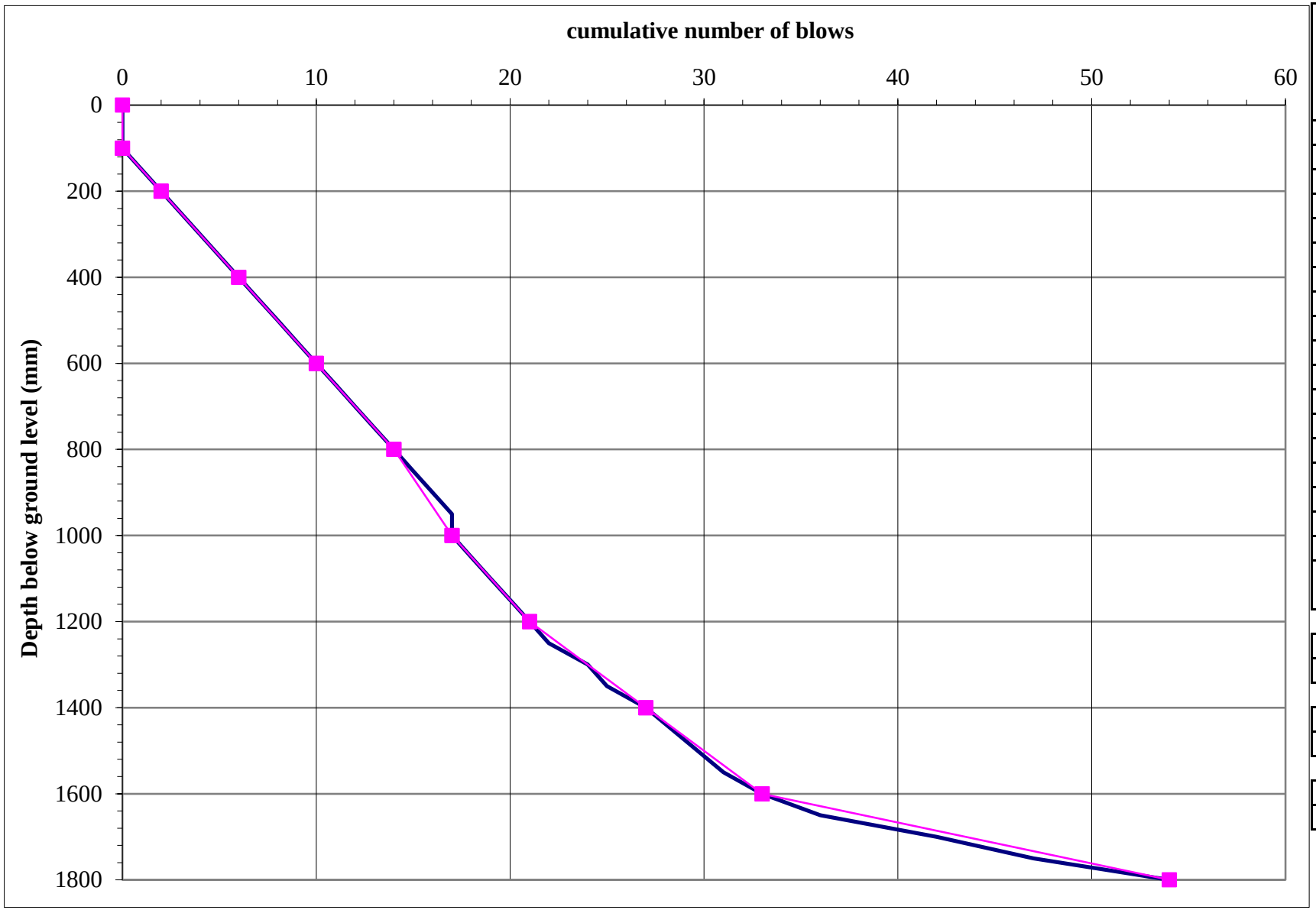
Test Number: TP202

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0	#DIV/0!	#DIV/0!
100		
100	50	2.9
200		
200	50	2.9
400		
400	50	2.9
600		
600	50	2.9
800		
800	67	2.0
1000		
1000	50	2.9
1200		
1200	33	5
1400		
1400	33	4.8
1600		
1600	10	23.9
1800		

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

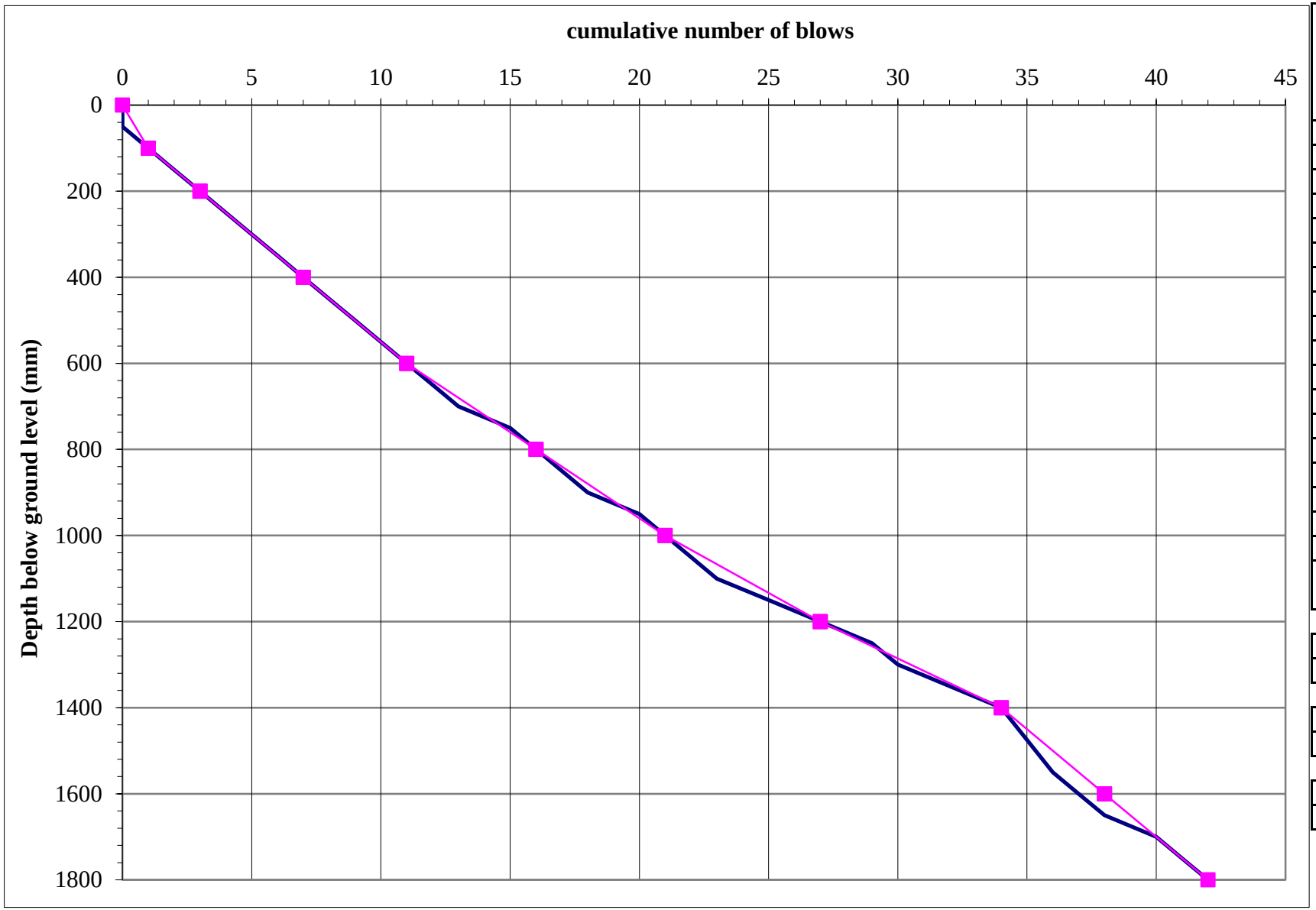
Test Number: TP203

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	100	1.2
100 200	50	2.9
200 400	50	2.9
400 600	50	2.9
600 800	40	3.8
800 1000	40	3.8
1000 1200	33	4.8
1200 1400	29	6
1400 1600	50	2.9
1600 1800	50	2.9

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

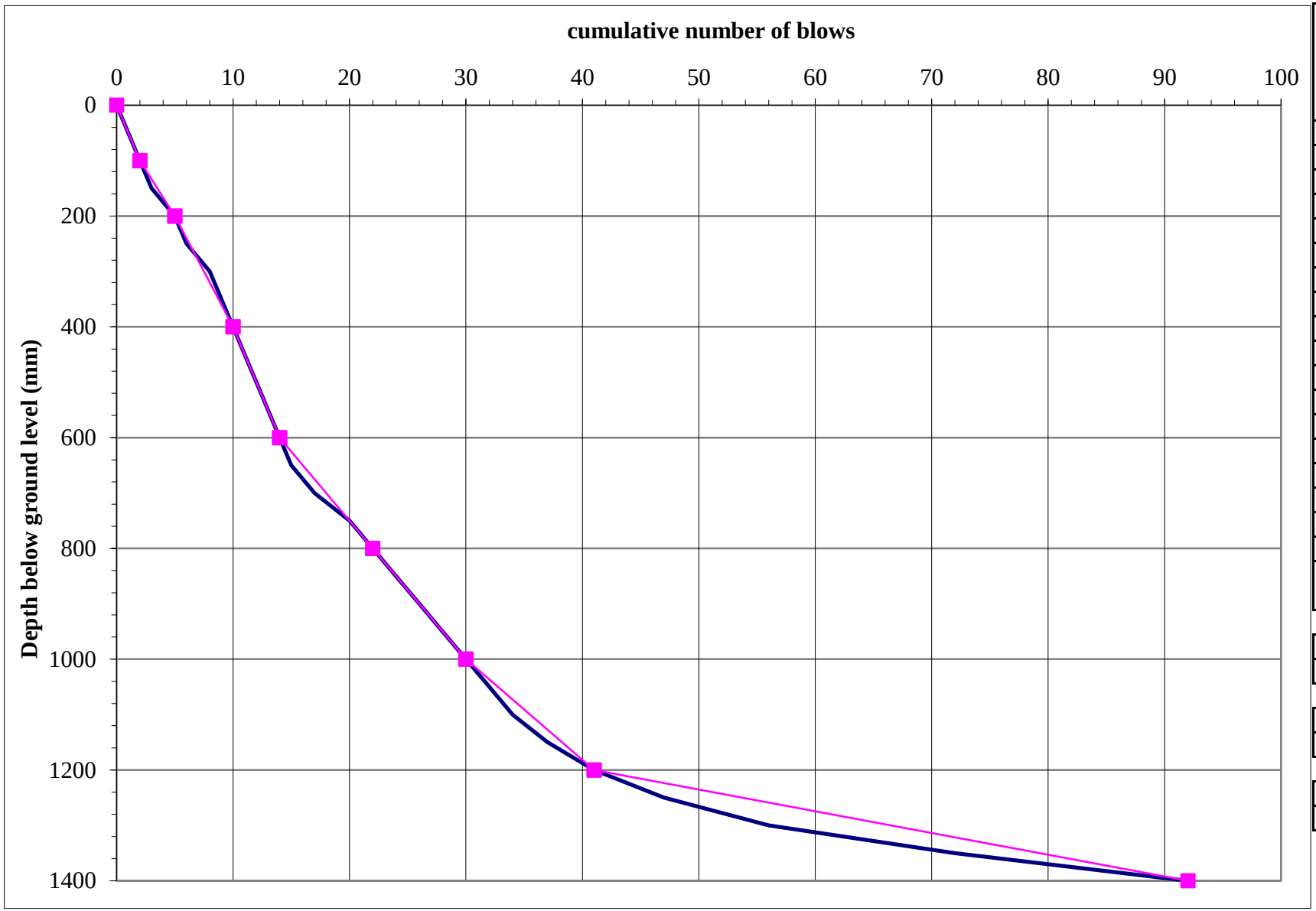
Test Number: TP204

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	50	2.9
100 200	33	4.8
200 400	40	3.8
400 600	50	2.9
600 800	25	7.0
800 1000	25	7.0
1000 1200	18	10.5
1200 1400	4	75

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

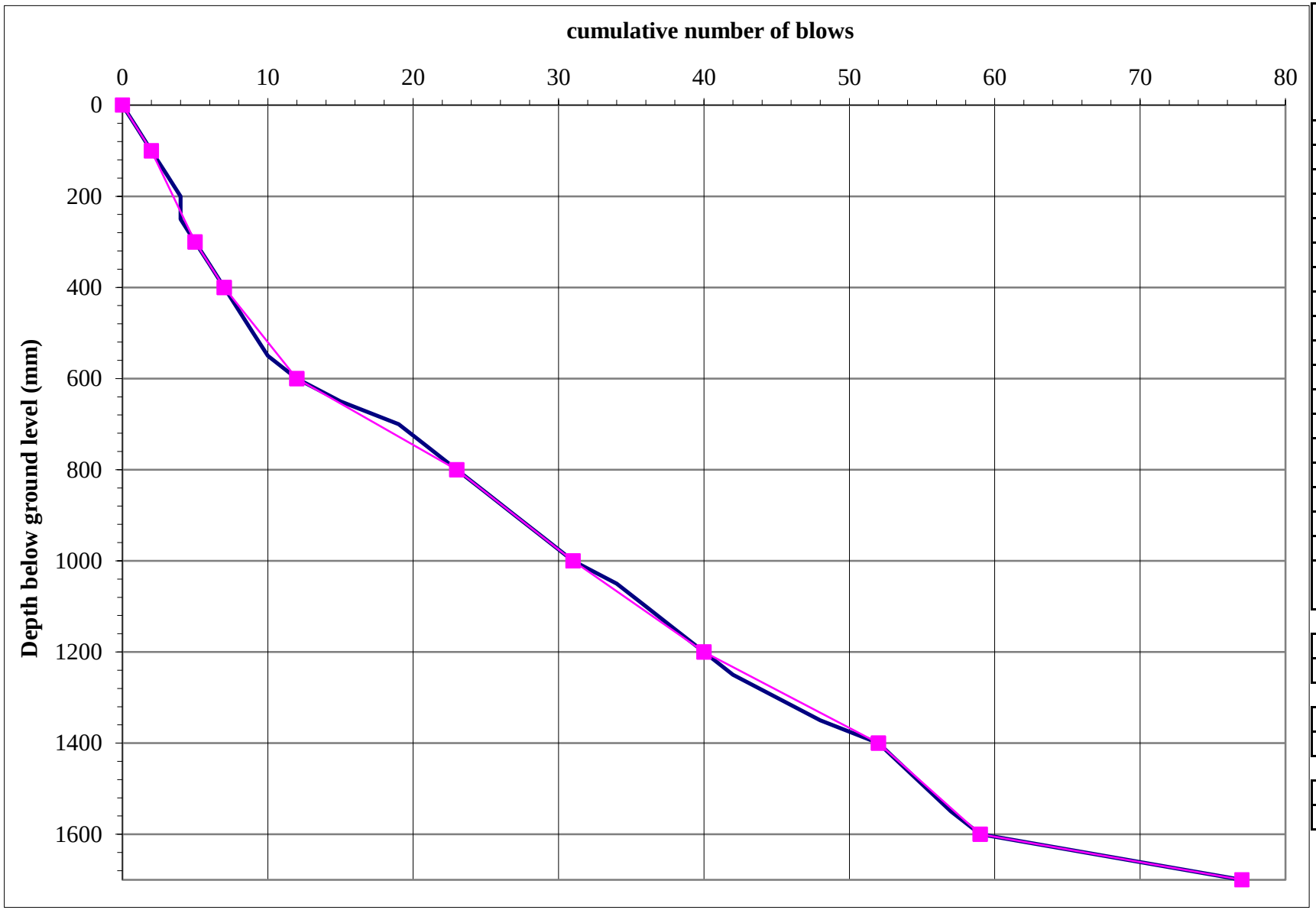
Test Number: TP205

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	50	2.9
100 300	67	2.0
300 400	50	2.9
400 600	40	3.8
600 800	18	10.5
800 1000	25	7.0
1000 1200	22	8.1
1200 1400	17	12
1400 1600	29	5.9
1600 1700	6	47.7

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

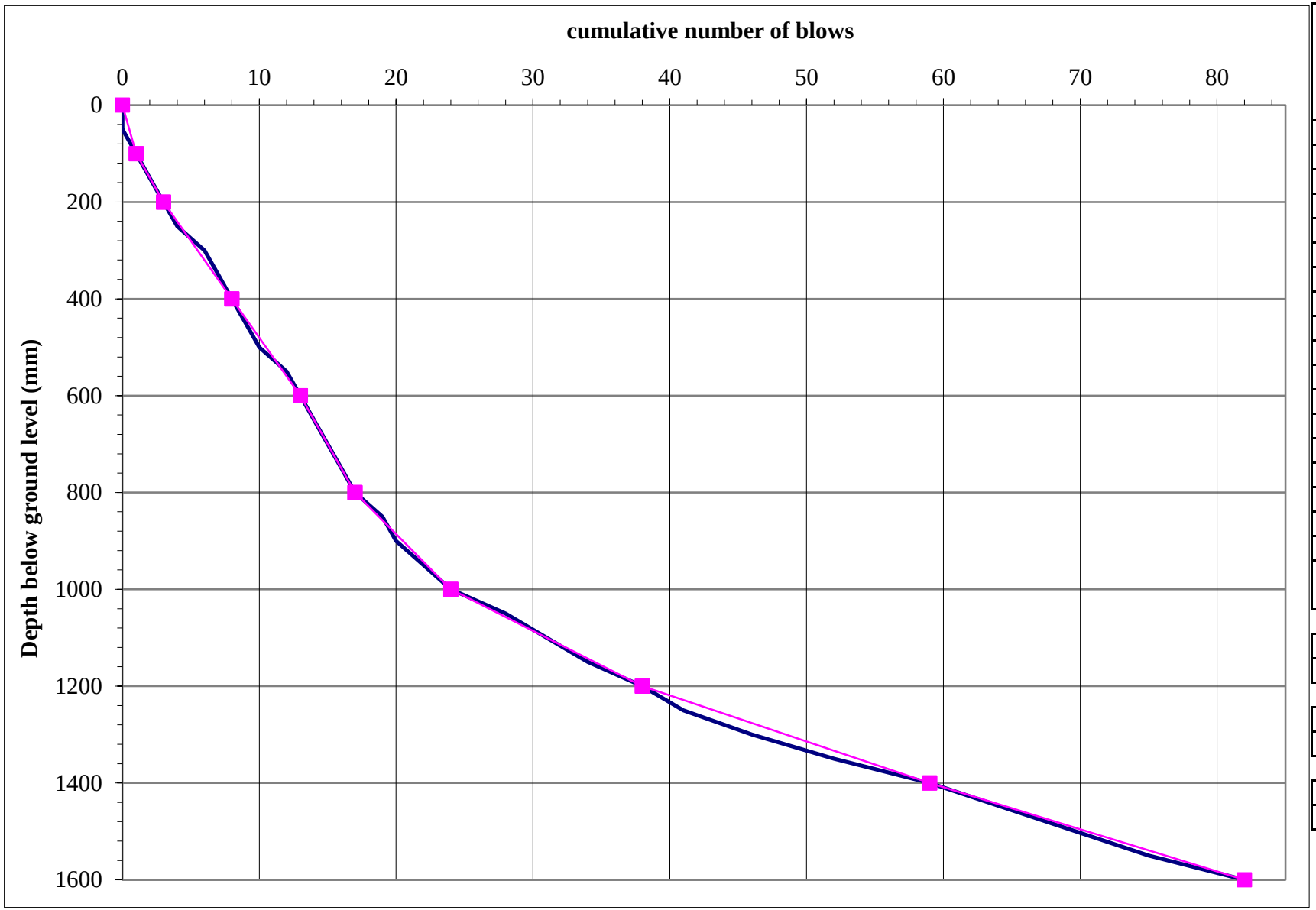
Test Number: TP206

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	100	1.2
100 200	50	2.9
200 400	40	3.8
400 600	40	3.8
600 800	50	2.9
800 1000	29	5.9
1000 1200	14	14.2
1200 1400	10	24
1400 1600	9	26.9

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

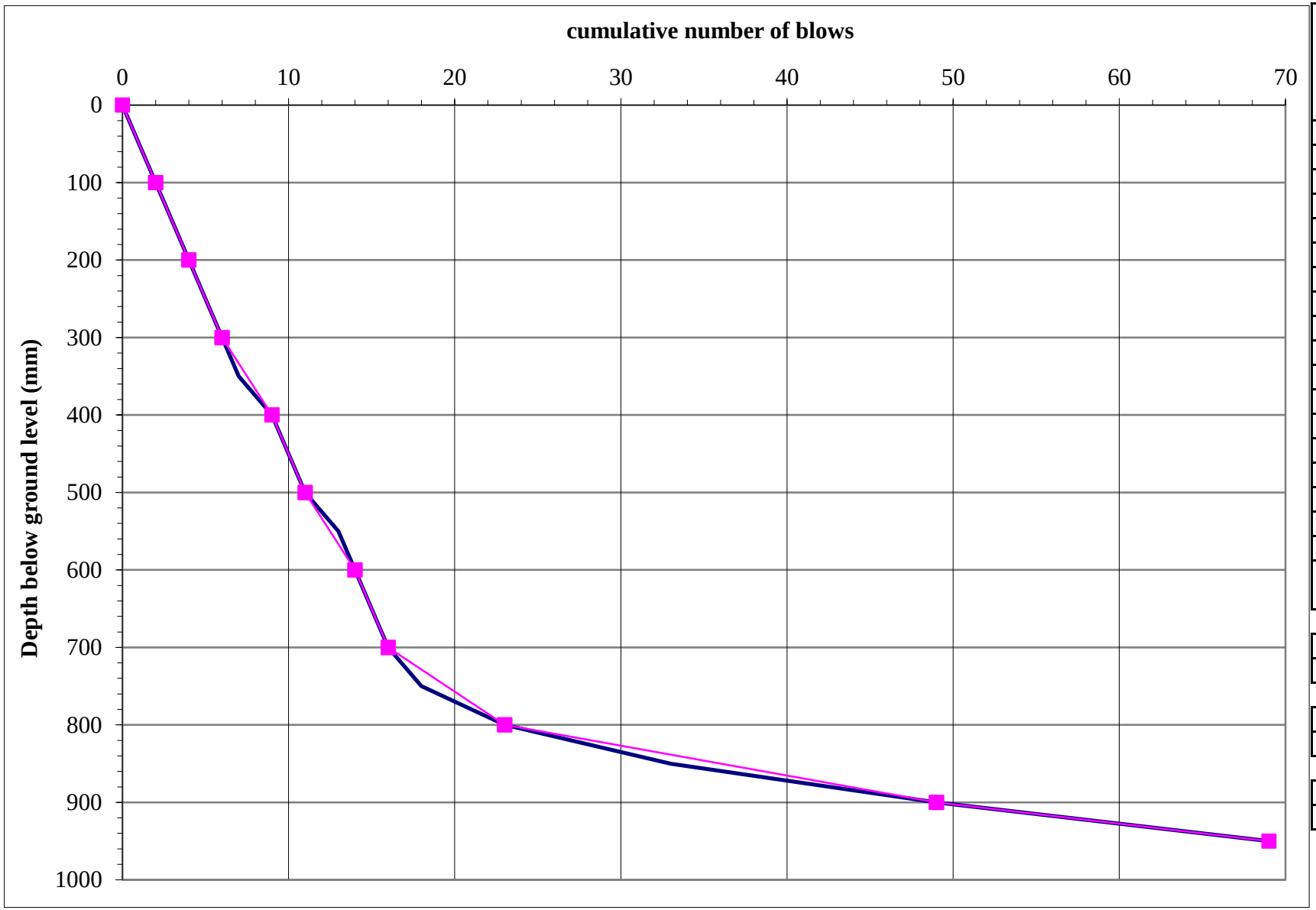
Test Number: TP207

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	50	2.9
100 200	50	2.9
200 300	50	2.9
300 400	33	4.8
400 500	50	2.9
500 600	33	4.8
600 700	50	2.9
700 800	14	14
800 900	4	76.4
900 950	3	132.6

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

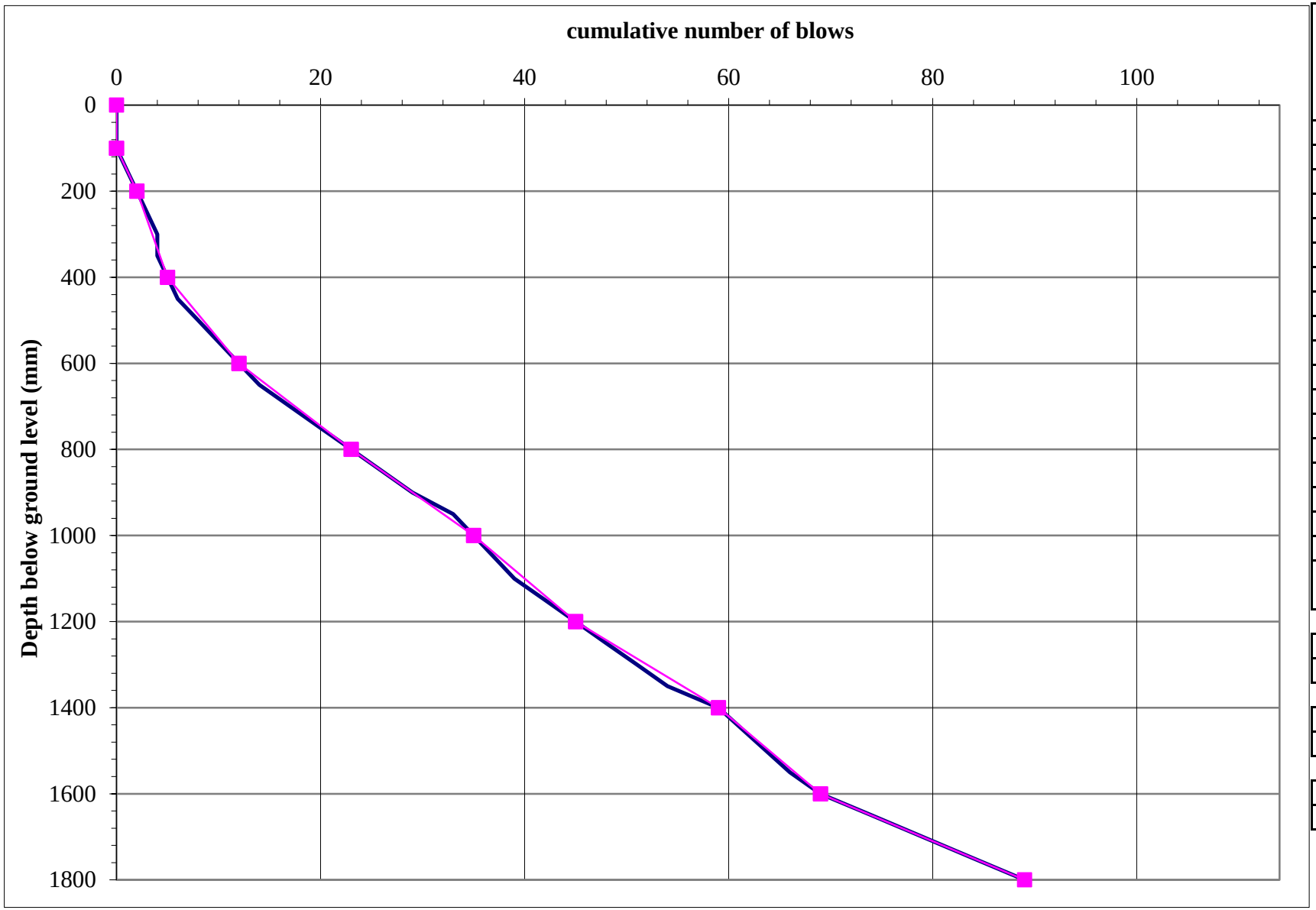
Test Number: TP208

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	#DIV/0!	#DIV/0!
100 200	50	2.9
200 400	67	2.0
400 600	29	5.9
600 800	18	10.5
800 1000	17	11.7
1000 1200	20	9.3
1200 1400	14	14
1400 1600	20	9.3
1600 1800	10	22.5

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

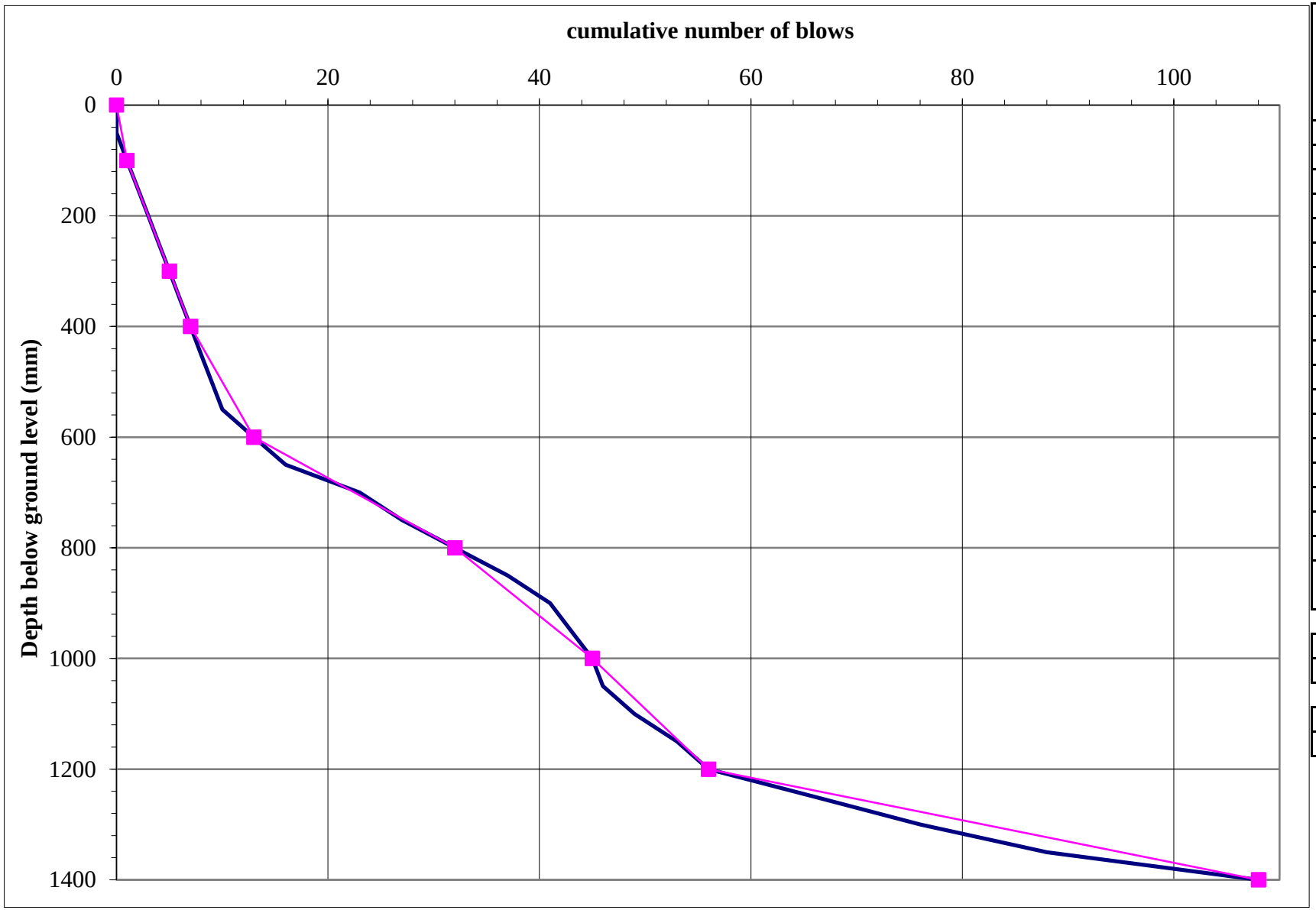
Test Number: TP210

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	100	1.2
100 300	50	2.9
300 400	50	2.9
400 600	33	4.8
600 800	11	21.1
800 1000	15	13.0
1000 1200	18	10.5
1200 1400	4	76
1400 0	13	16.1

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

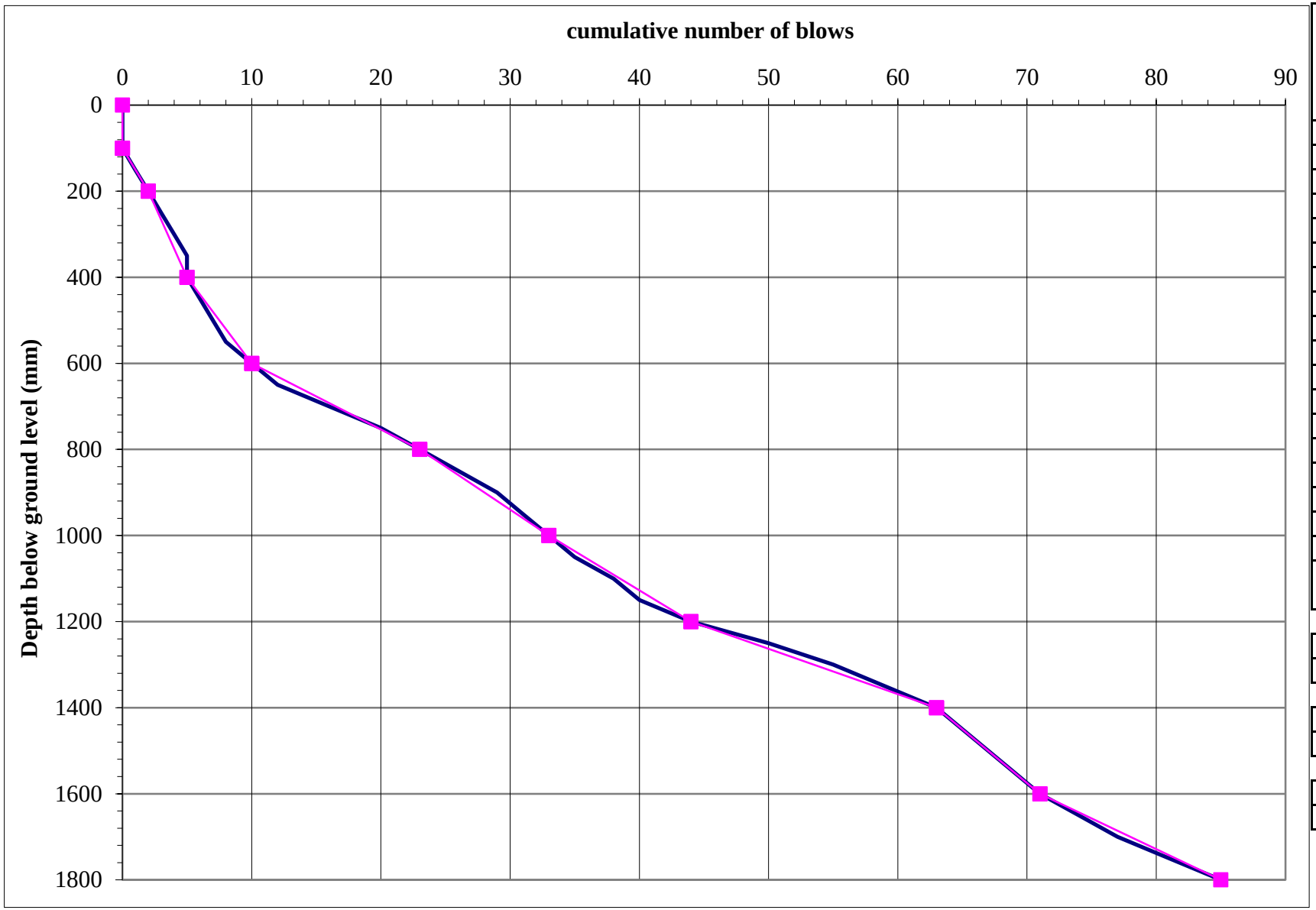
Test Number: TP211

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	#DIV/0!	#DIV/0!
100 200	50	2.9
200 400	67	2.0
400 600	40	3.8
600 800	15	13.0
800 1000	20	9.3
1000 1200	18	10.5
1200 1400	11	21
1400 1600	25	7.0
1600 1800	14	14.2

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

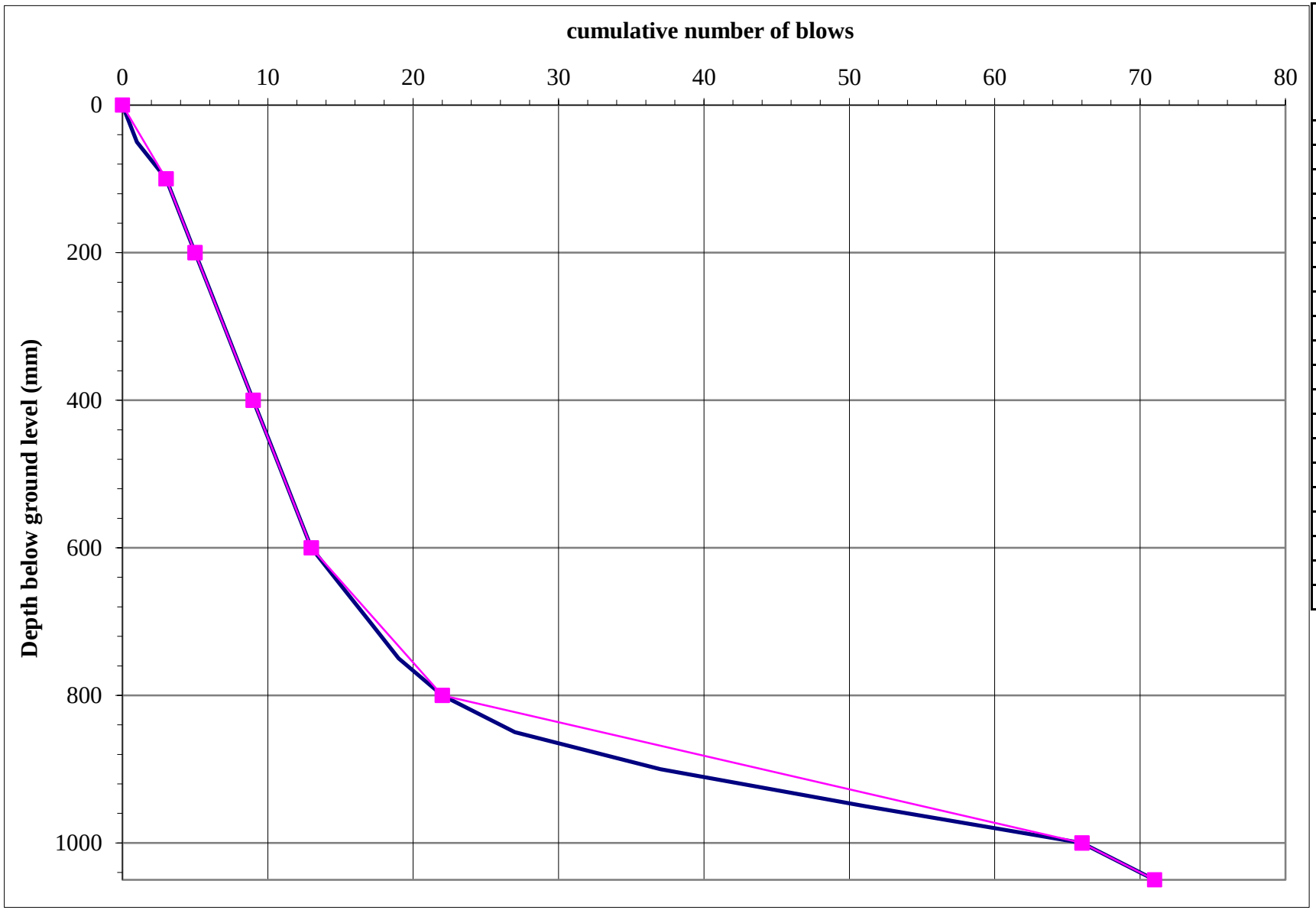
Test Number: TP212

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0	33	4.8
100		
100	50	2.9
200		
200	50	2.9
400		
400	50	2.9
600		
600	22	8.1
800		
800	5	61.7
1000		
1000	10	22.5
1050		

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

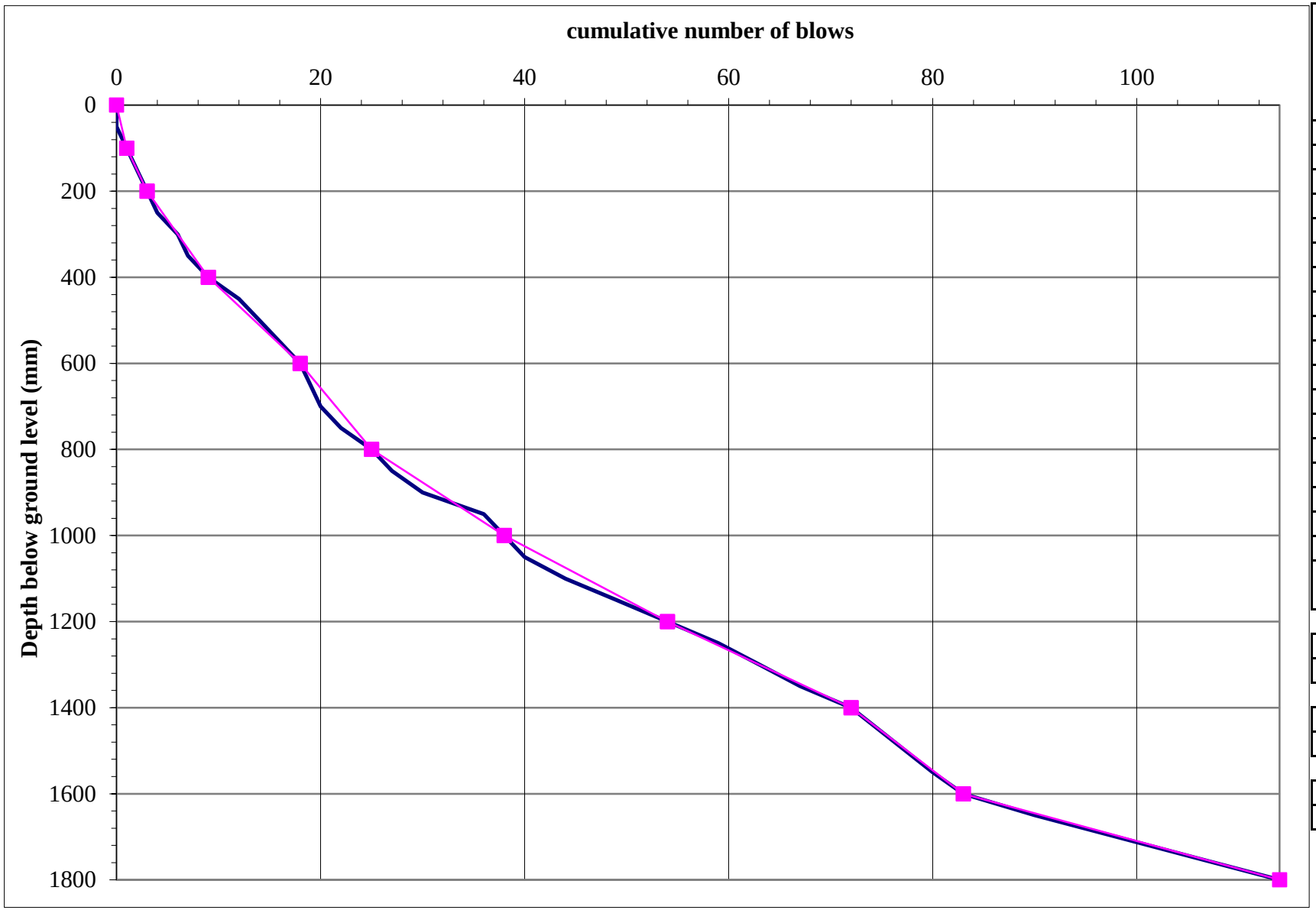
Test Number: TP213

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	100	1.2
100 200	50	2.9
200 400	33	4.8
400 600	22	8.1
600 800	29	5.9
800 1000	15	13.0
1000 1200	13	16.9
1200 1400	11	20
1400 1600	18	10.5
1600 1800	6	39.4

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

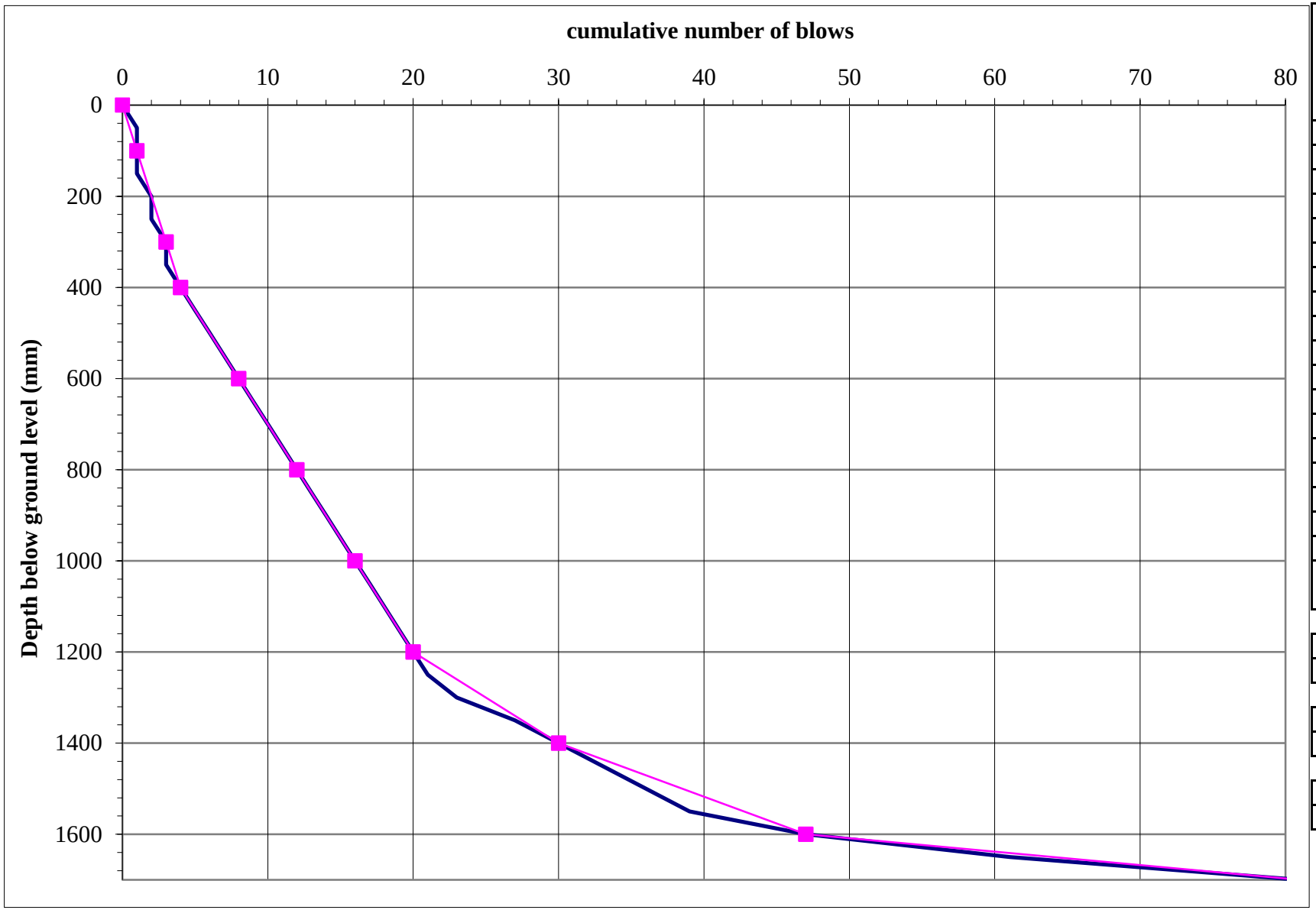
Test Number: TP214

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	100	1.2
100 300	100	1.2
300 400	100	1.2
400 600	50	2.9
600 800	50	2.9
800 1000	50	2.9
1000 1200	50	2.9
1200 1400	20	9
1400 1600	12	18.3
1600 1700	3	107.7

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

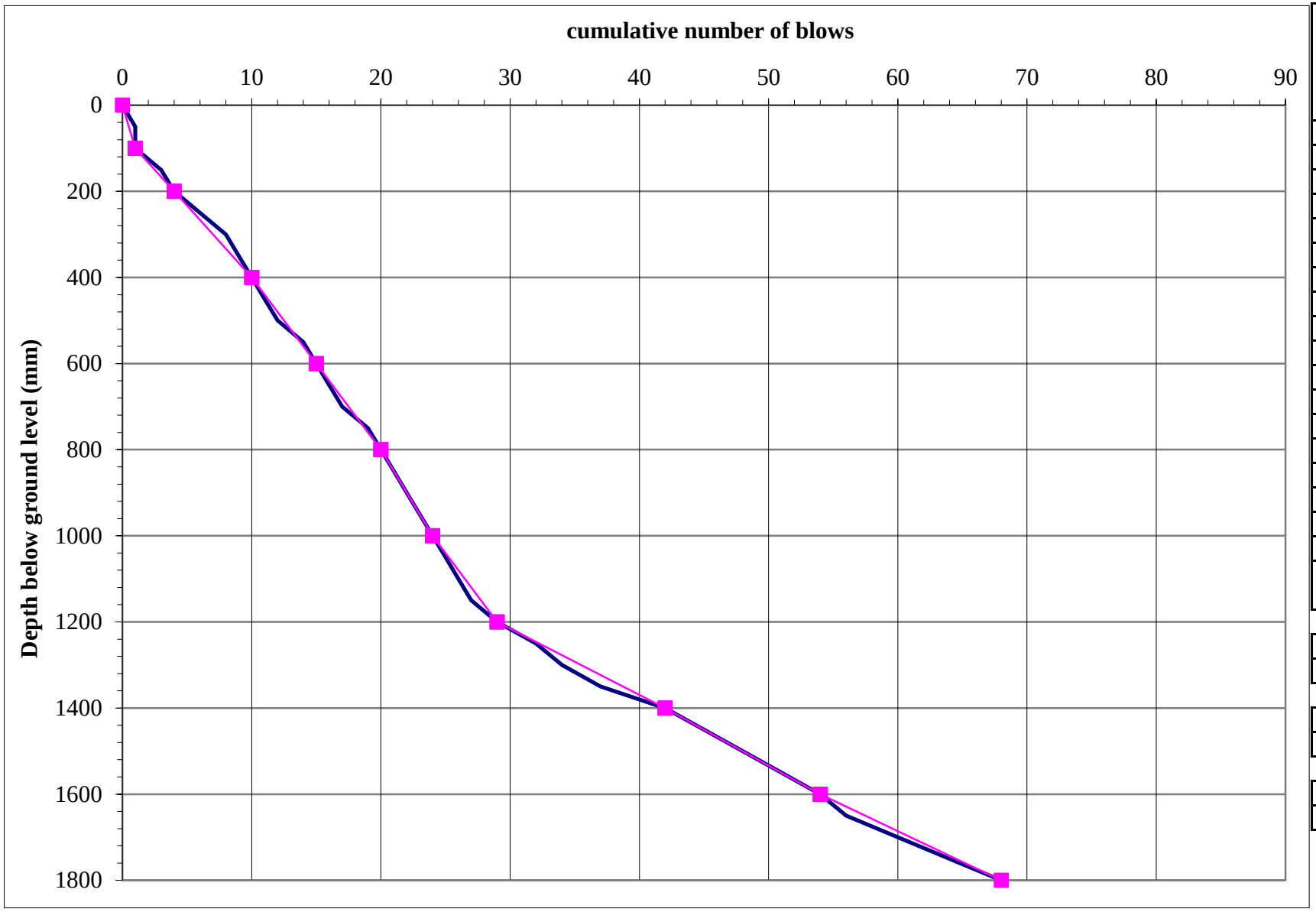
Test Number: TP215

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	100	1.2
100 200	33	4.8
200 400	33	4.8
400 600	40	3.8
600 800	40	3.8
800 1000	50	2.9
1000 1200	40	3.8
1200 1400	15	13
1400 1600	17	11.7
1600 1800	14	14.2

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

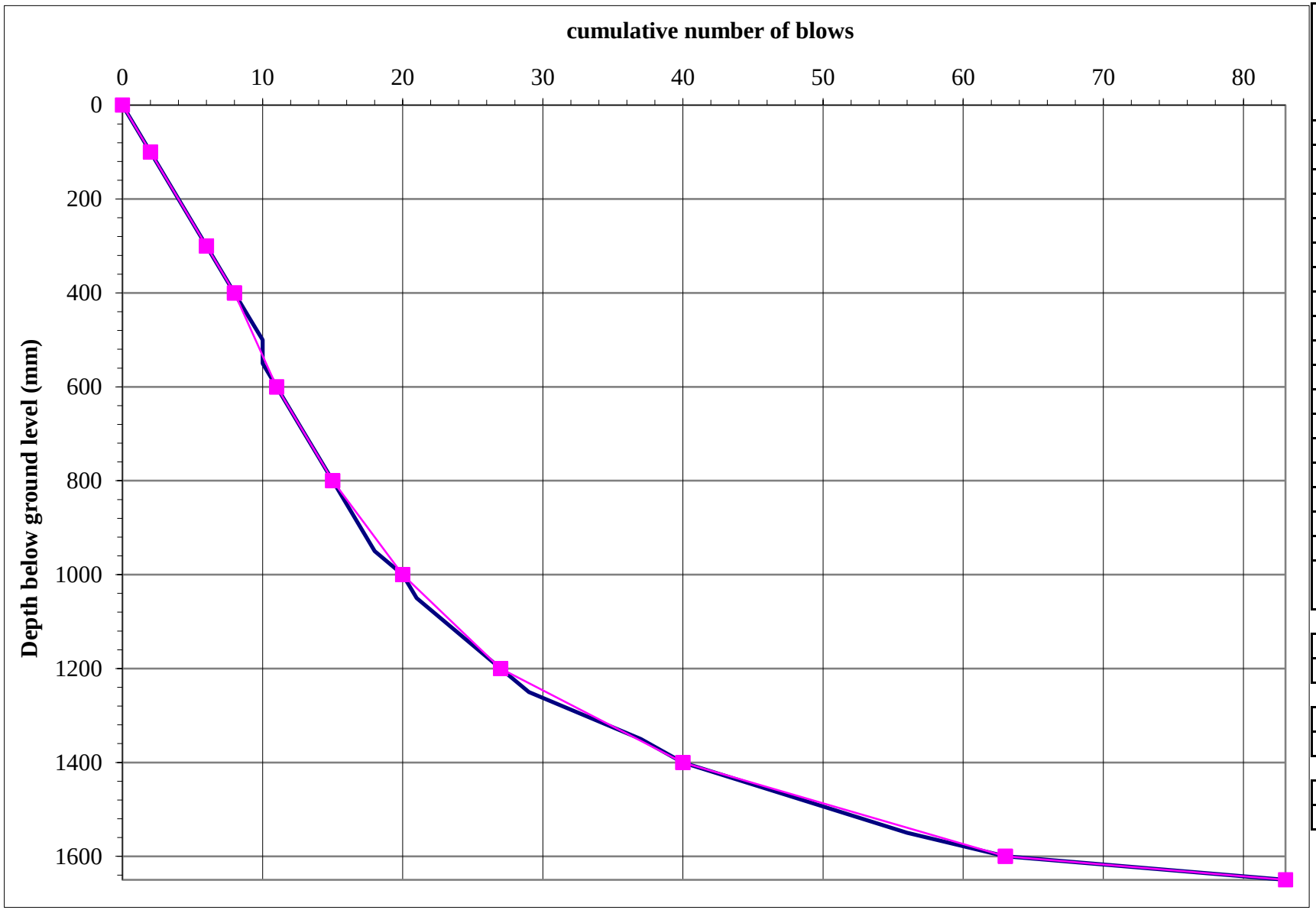
Test Number: TP216

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	50	2.9
100 300	50	2.9
300 400	50	2.9
400 600	67	2.0
600 800	50	2.9
800 1000	40	3.8
1000 1200	29	5.9
1200 1400	15	13
1400 1600	9	26.9
1600 1650	3	132.6

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

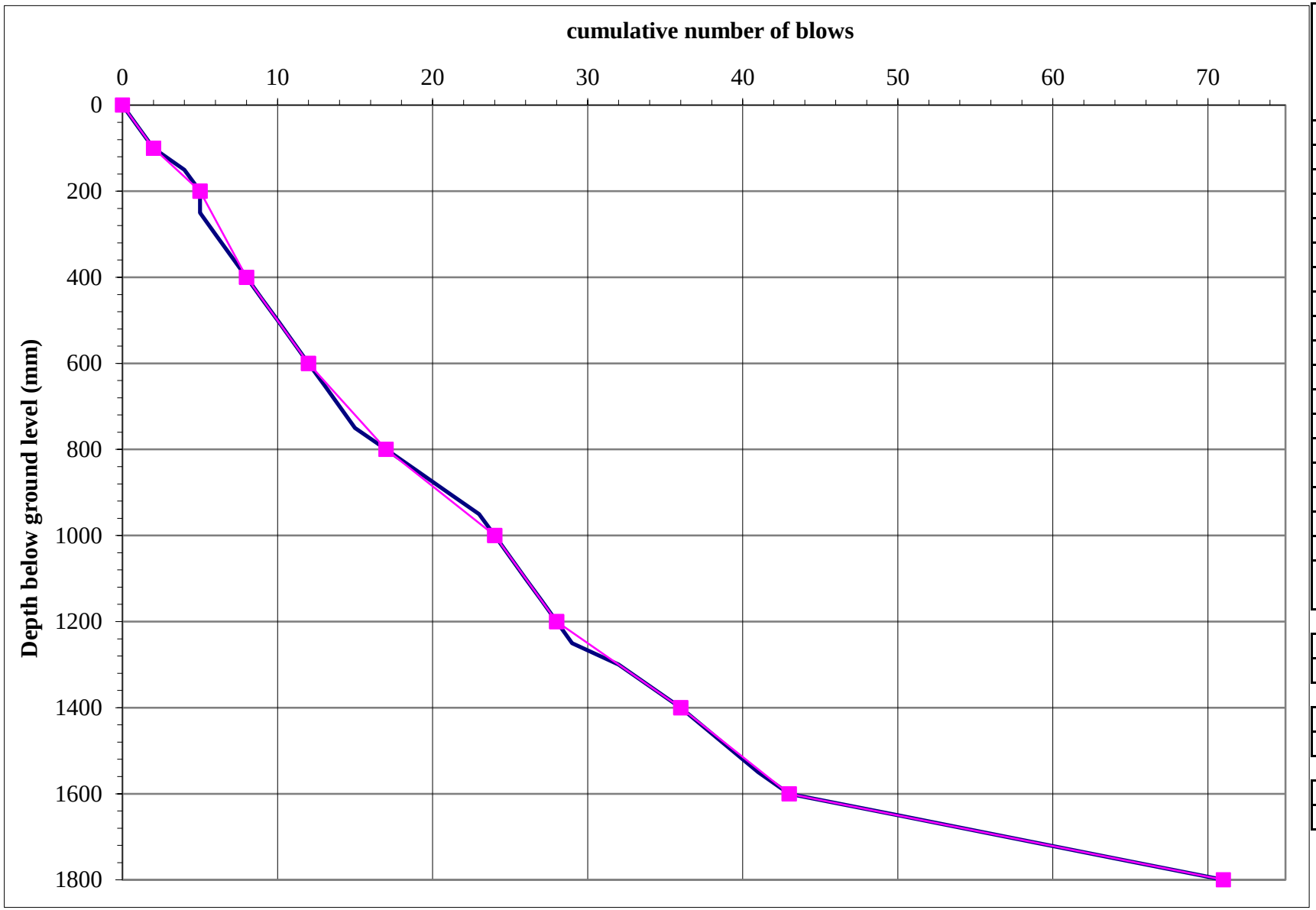
Test Number: TP217

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	50	2.9
100 200	33	4.8
200 400	67	2.0
400 600	50	2.9
600 800	40	3.8
800 1000	29	5.9
1000 1200	50	2.9
1200 1400	25	7
1400 1600	29	5.9
1600 1800	7	34.6

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

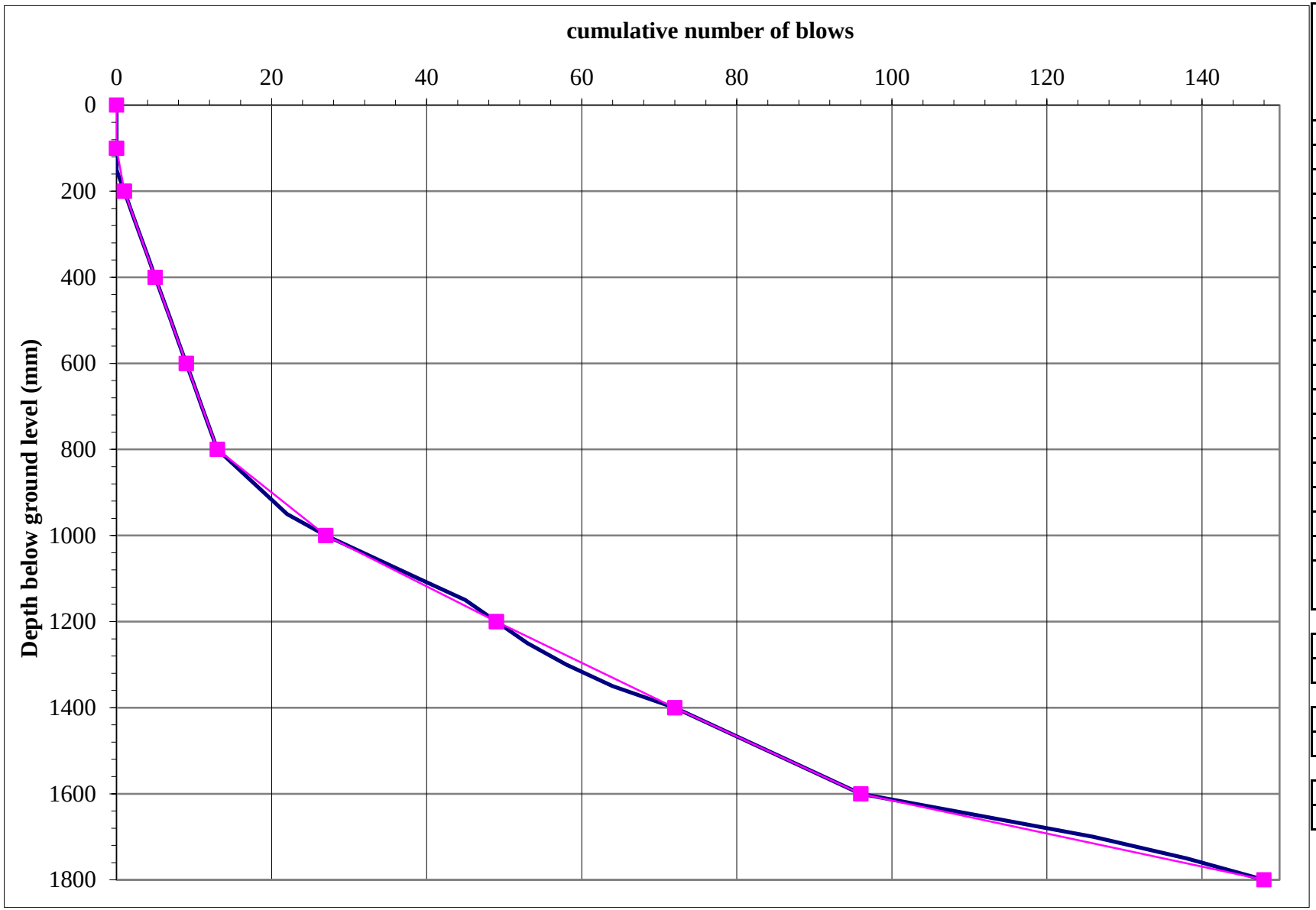
Test Number: TP218

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	#DIV/0!	#DIV/0!
100 200	100	1.2
200 400	50	2.9
400 600	50	2.9
600 800	50	2.9
800 1000	14	14.2
1000 1200	9	25.4
1200 1400	9	27
1400 1600	8	28.4
1600 1800	4	76.4

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

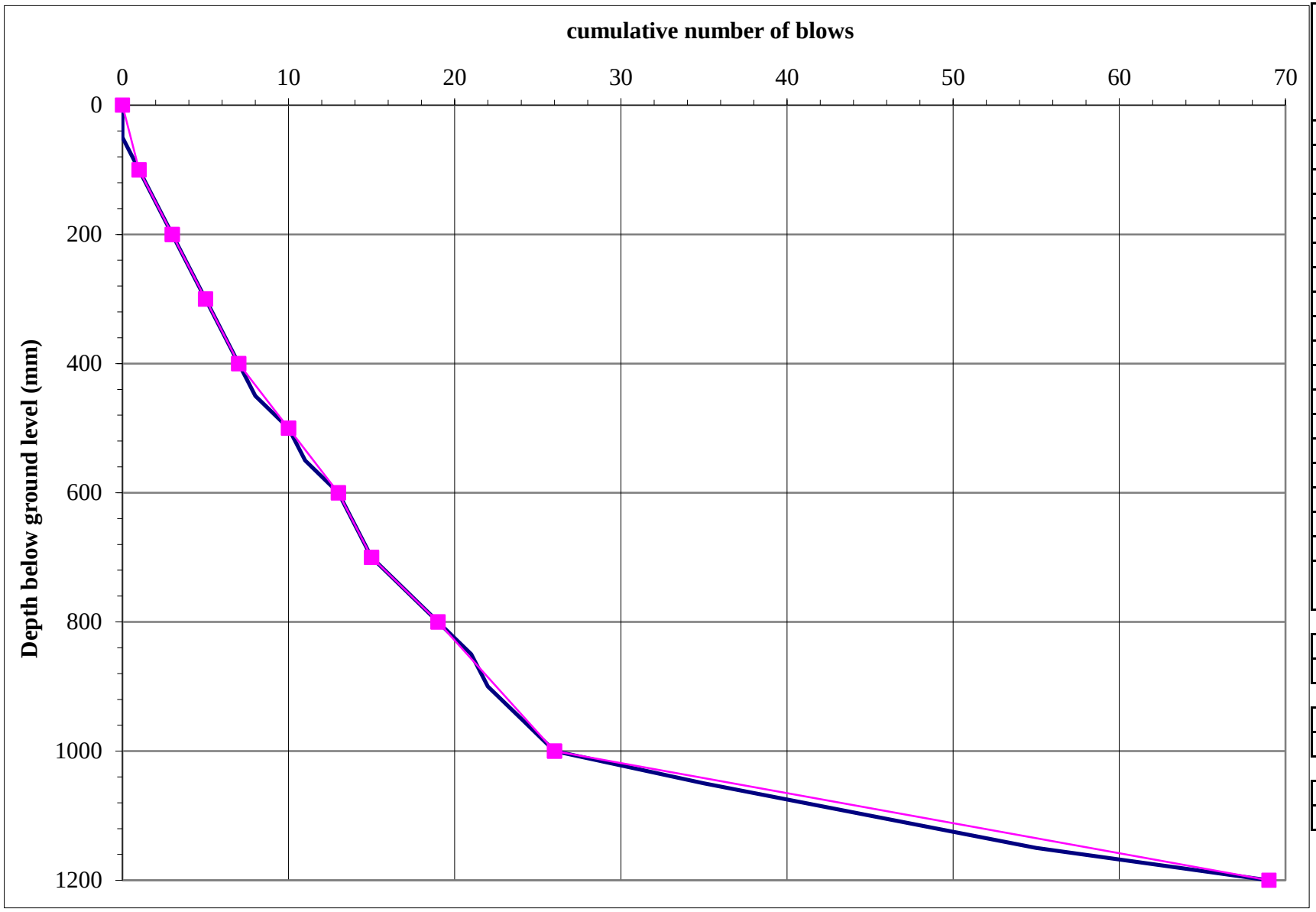
Test Number: TP219

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	100	1.2
100 200	50	2.9
200 300	50	2.9
300 400	50	2.9
400 500	33	4.8
500 600	33	4.8
600 700	50	2.9
700 800	25	7
800 1000	29	5.9
1000 1200	5	59.9

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

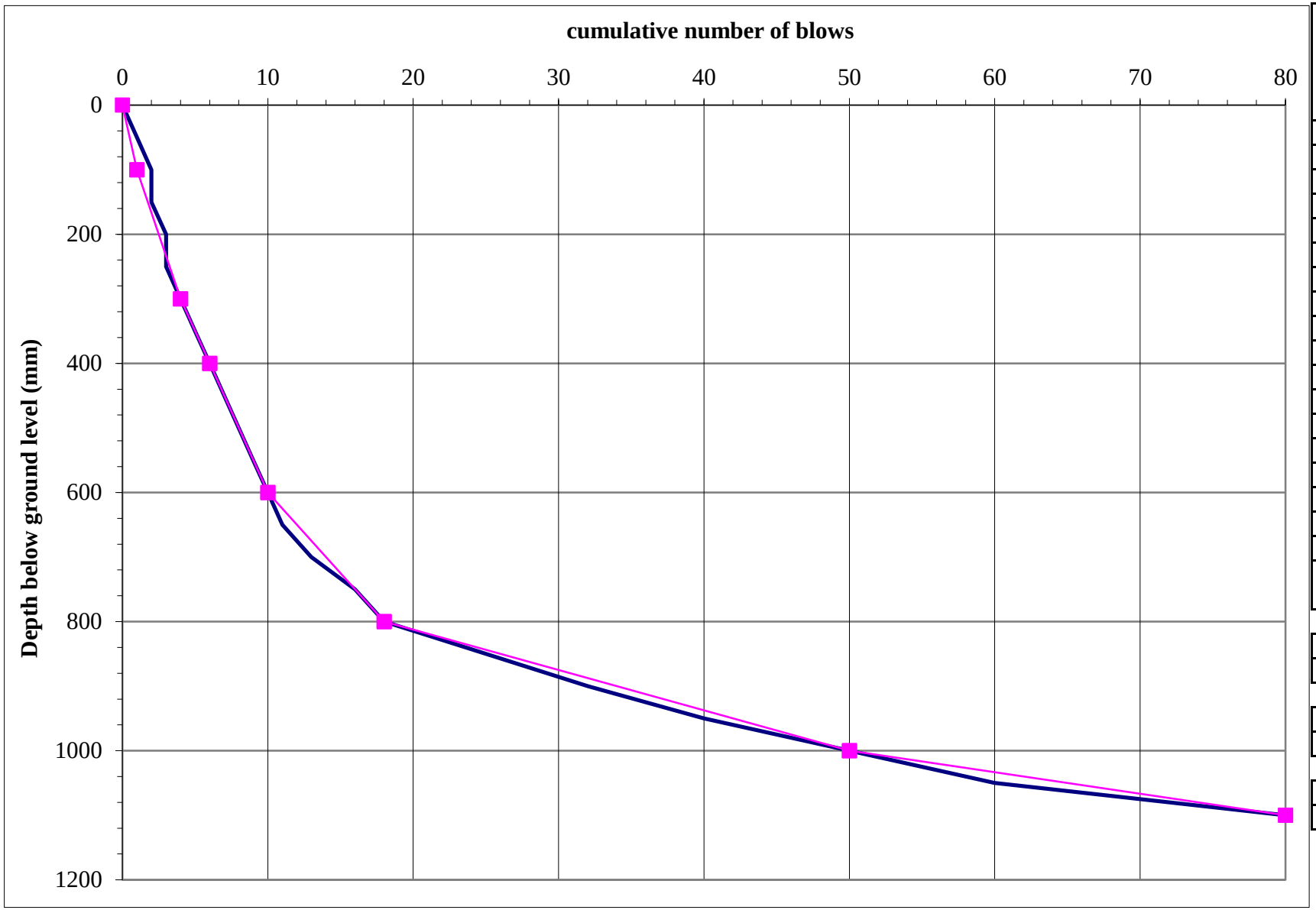
Test Number: TP220

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	100	1.2
100 300	67	2.0
300 400	50	2.9
400 600	50	2.9
600 800	25	7.0
800 1000	6	41.0
1000 1100	3	91.8
1100 0	14	15
0 0		
0 0		

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

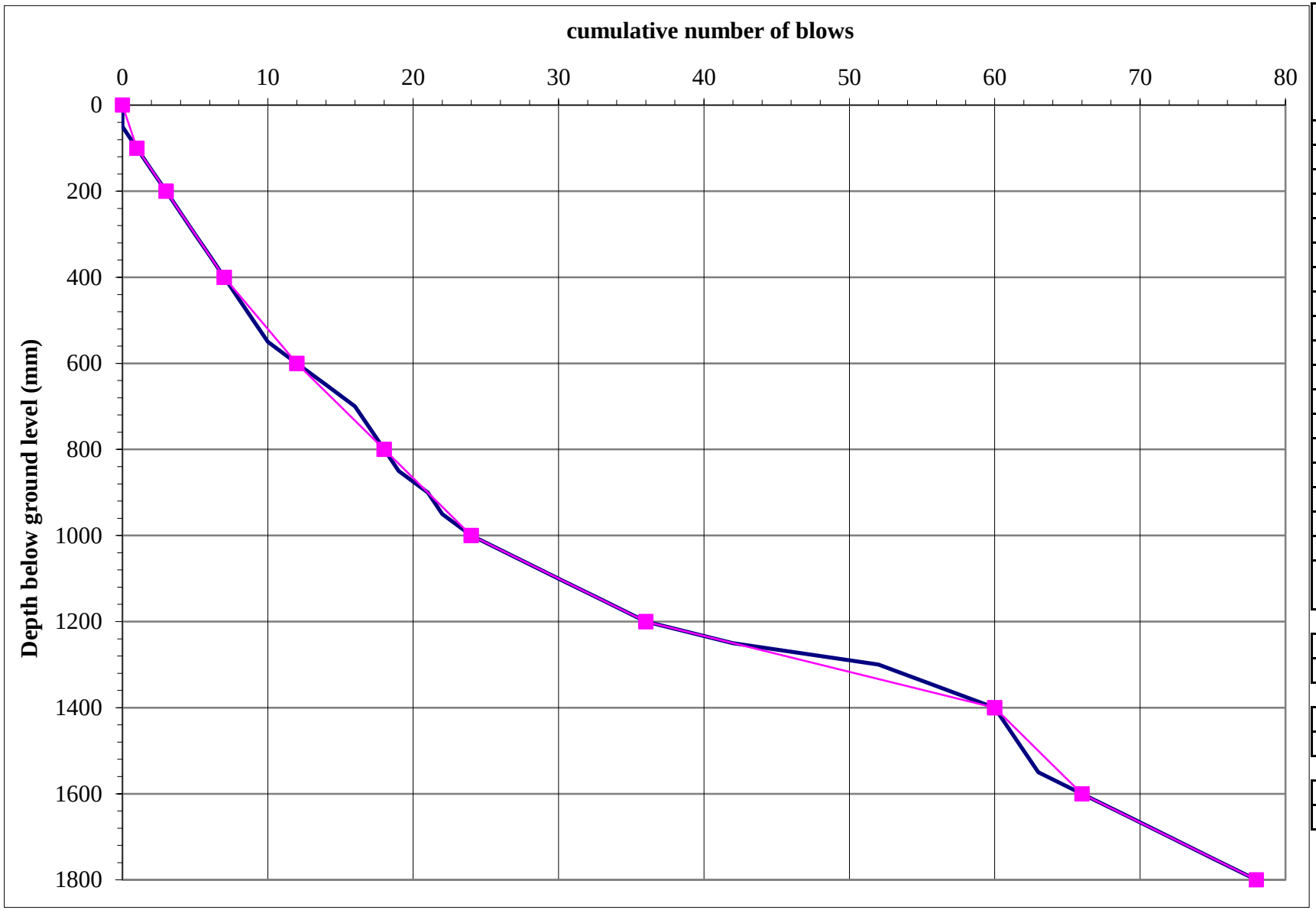
Test Number: TP221

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	100	1.2
100 200	50	2.9
200 400	50	2.9
400 600	40	3.8
600 800	33	4.8
800 1000	33	4.8
1000 1200	17	11.7
1200 1400	8	28
1400 1600	33	4.8
1600 1800	17	11.7

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

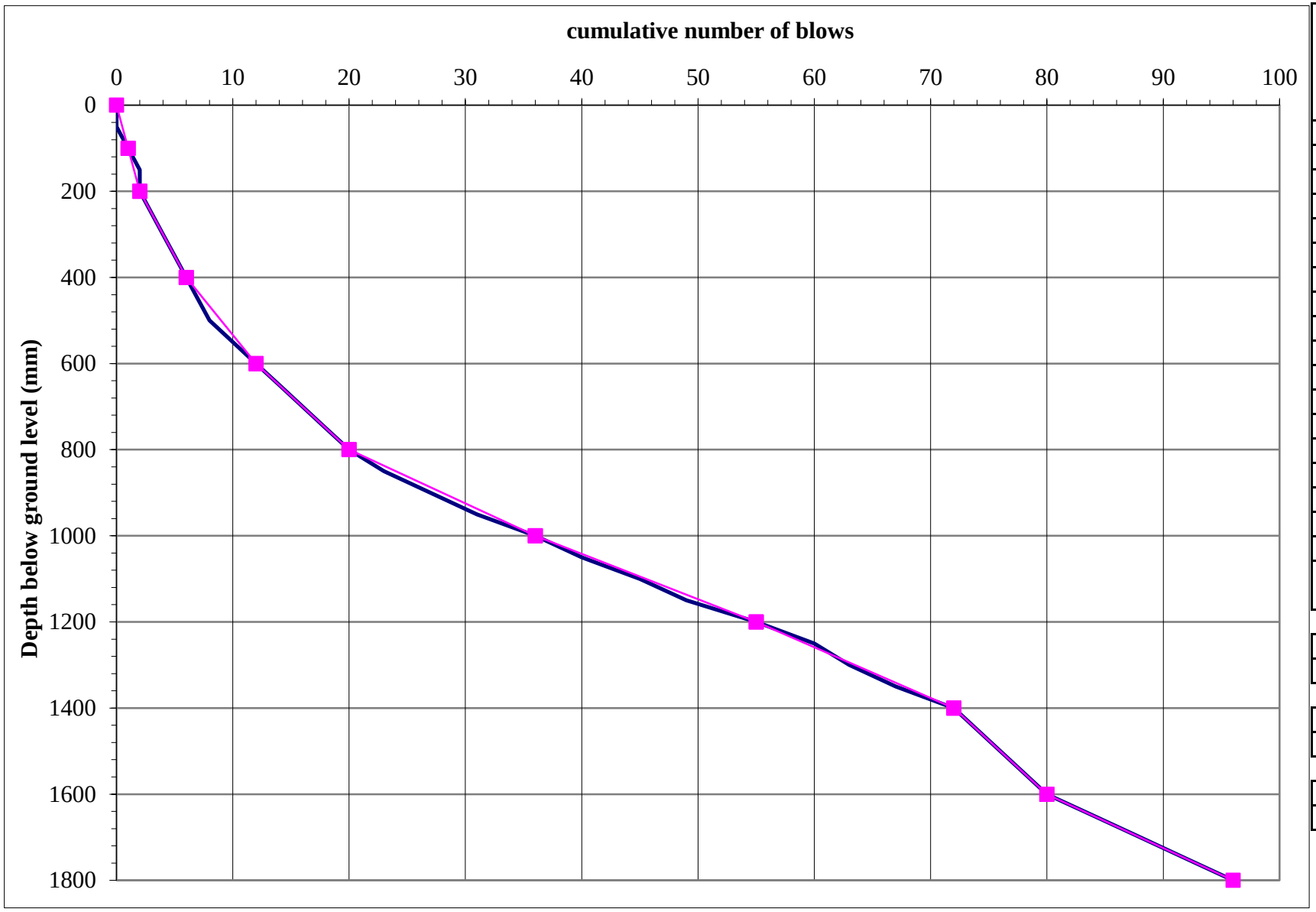
Test Number: TP222

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	100	1.2
100 200	100	1.2
200 400	50	2.9
400 600	33	4.8
600 800	25	7.0
800 1000	13	16.9
1000 1200	11	21.1
1200 1400	12	18
1400 1600	25	7.0
1600 1800	13	16.9

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

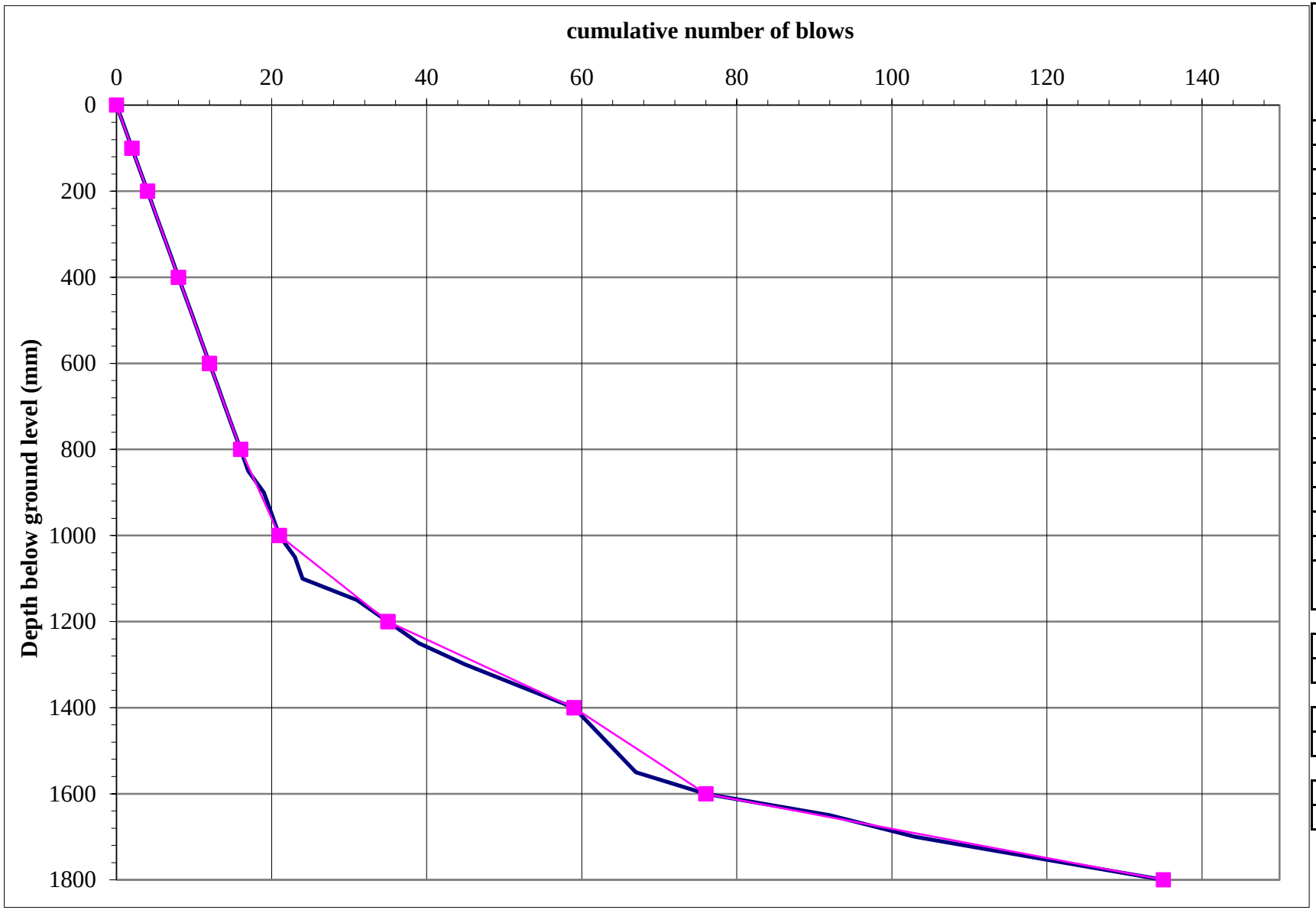
Test Number: TP223

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	50	2.9
100 200	50	2.9
200 400	50	2.9
400 600	50	2.9
600 800	50	2.9
800 1000	40	3.8
1000 1200	14	14.2
1200 1400	8	28
1400 1600	12	18.3
1600 1800	3	89.8

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

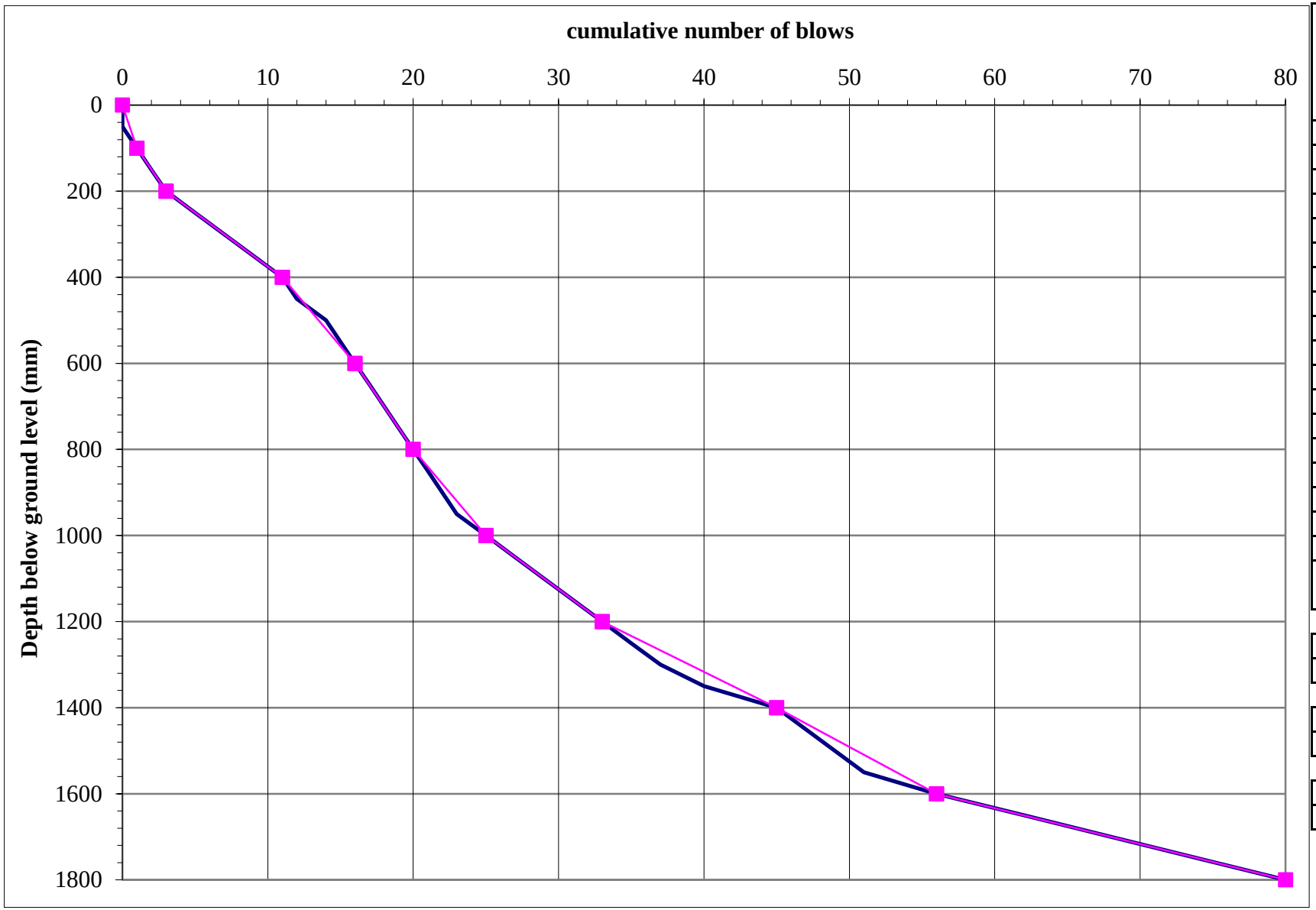
Test Number: TP224

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	100	1.2
100 200	50	2.9
200 400	25	7.0
400 600	40	3.8
600 800	50	2.9
800 1000	40	3.8
1000 1200	25	7.0
1200 1400	17	12
1400 1600	18	10.5
1600 1800	8	28.4

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

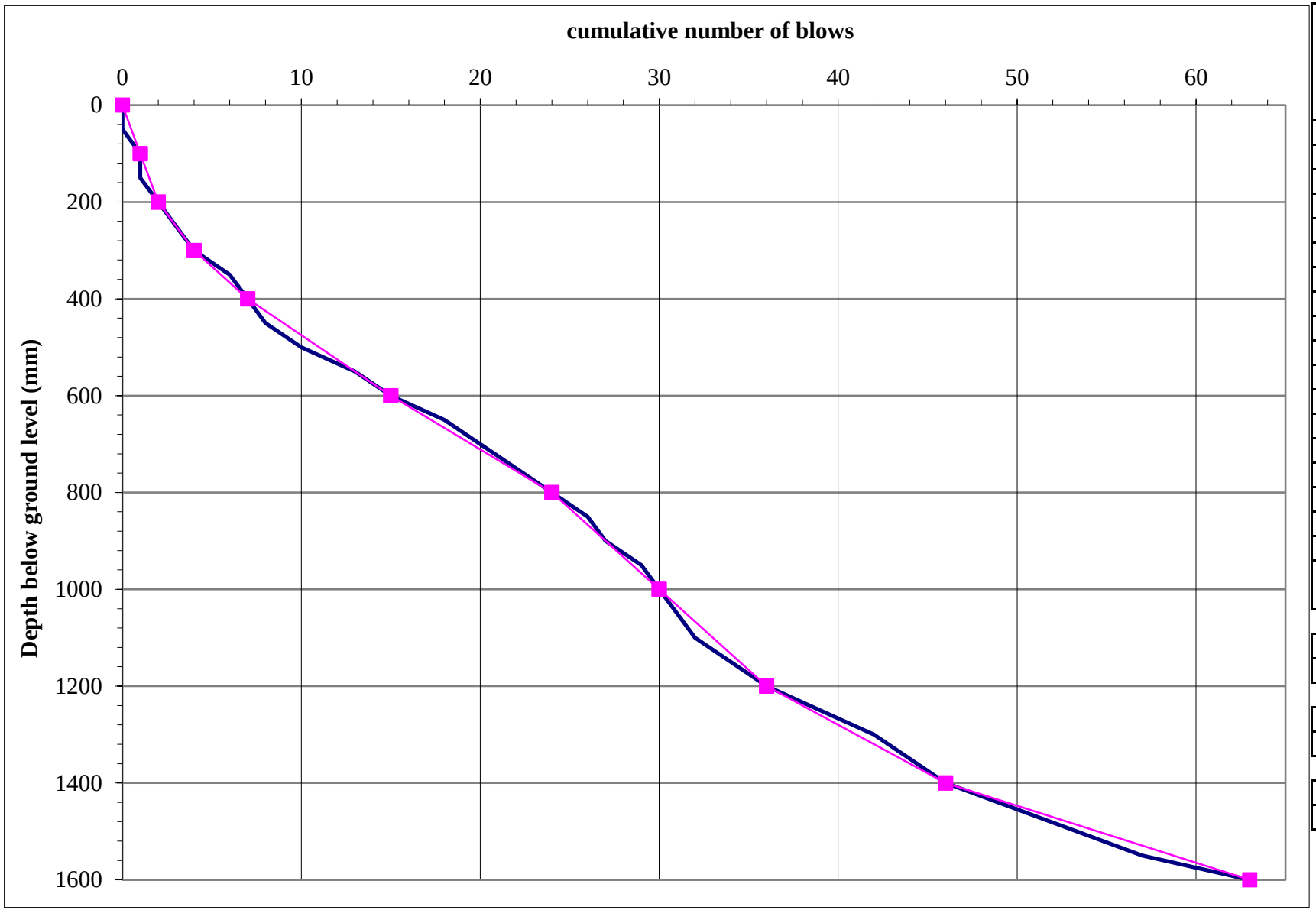
Test Number: TP225

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	100	1.2
100 200	100	1.2
200 300	50	2.9
300 400	33	4.8
400 600	25	7.0
600 800	22	8.1
800 1000	33	4.8
1000 1200	33	5
1200 1400	20	9.3
1400 1600	12	18.3

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

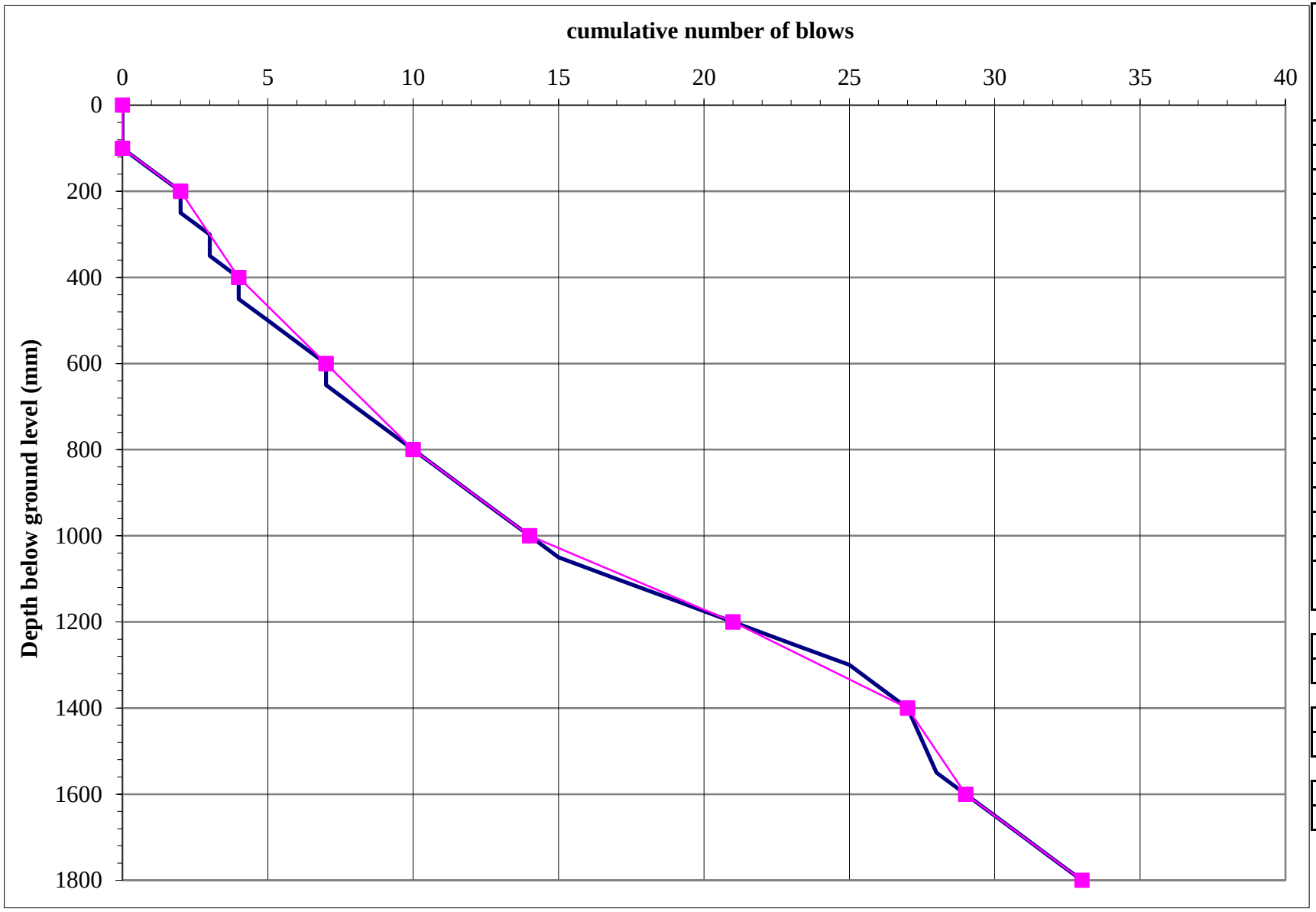
Test Number: TP226

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	#DIV/0!	#DIV/0!
100 200	50	2.9
200 400	100	1.2
400 600	67	2.0
600 800	67	2.0
800 1000	50	2.9
1000 1200	29	5.9
1200 1400	33	5
1400 1600	100	1.2
1600 1800	50	2.9

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

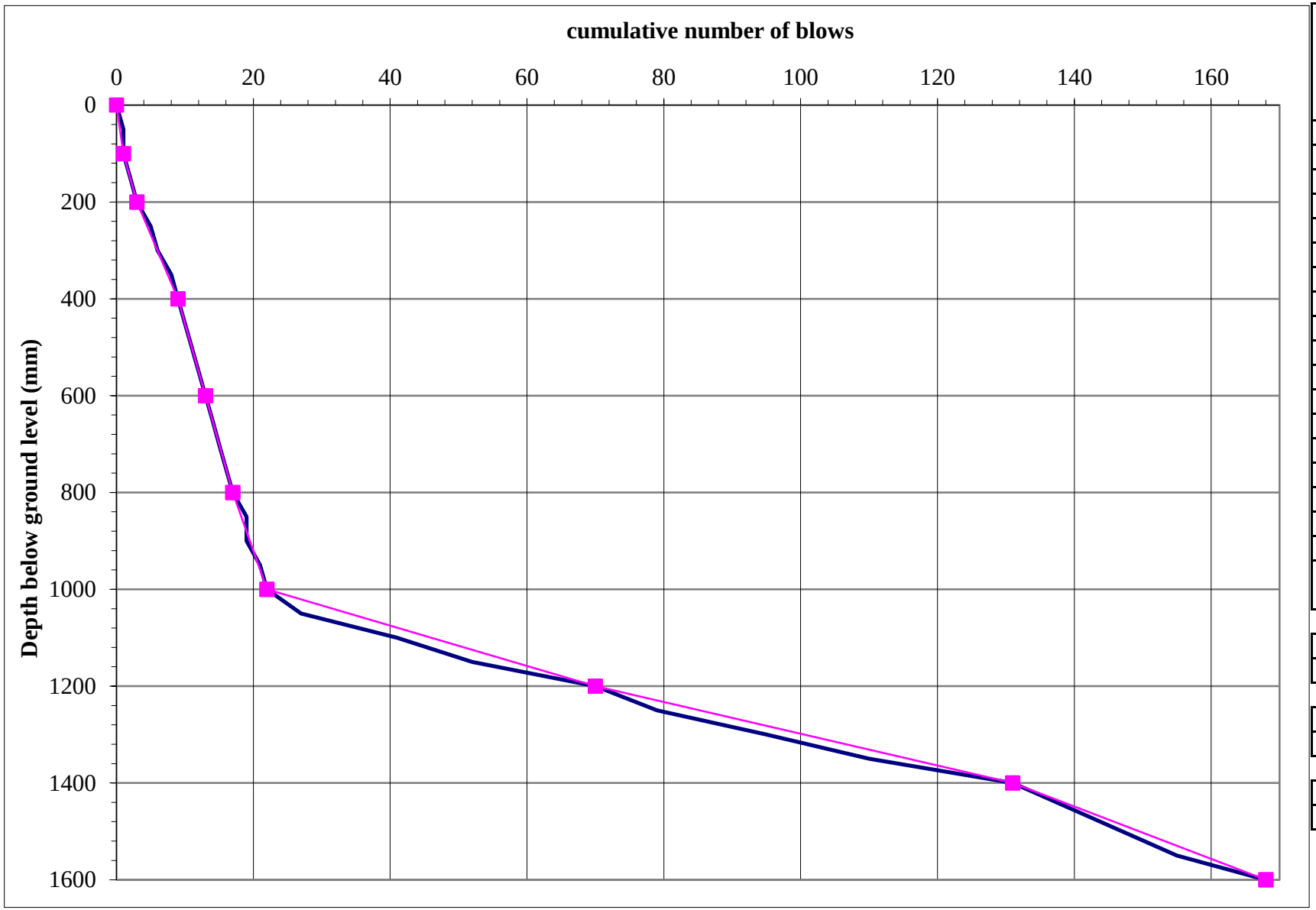
Test Number: TP227

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	100	1.2
100 200	50	2.9
200 400	33	4.8
400 600	50	2.9
600 800	50	2.9
800 1000	40	3.8
1000 1200	4	69.0
1200 1400	3	94
1400 1600	5	49.4
1600 0	10	23.9

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

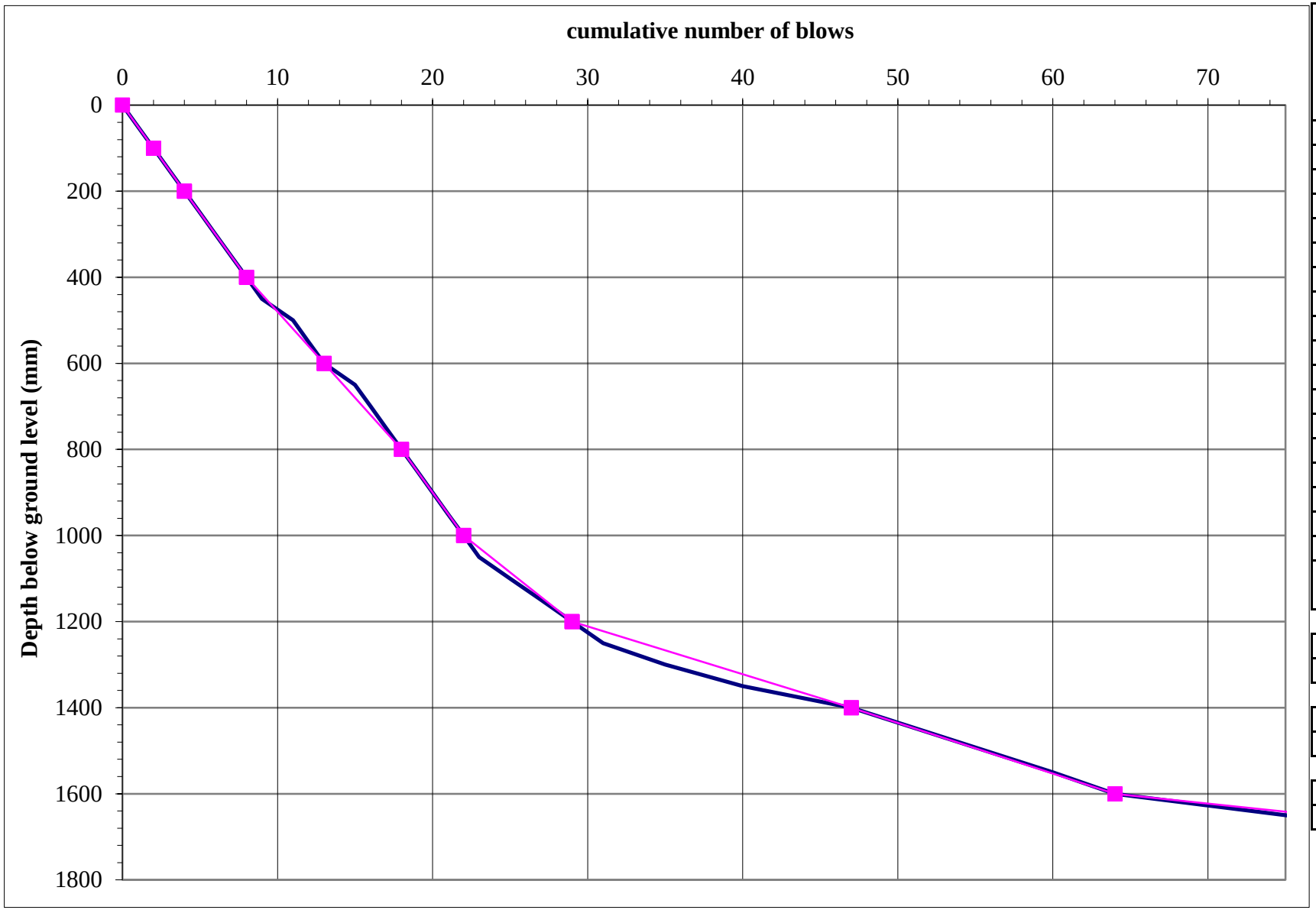
Test Number: TP228

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	50	2.9
100 200	50	2.9
200 400	50	2.9
400 600	40	3.8
600 800	40	3.8
800 1000	50	2.9
1000 1200	29	5.9
1200 1400	11	20
1400 1600	12	18.3
1600 1800	4	78.3

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

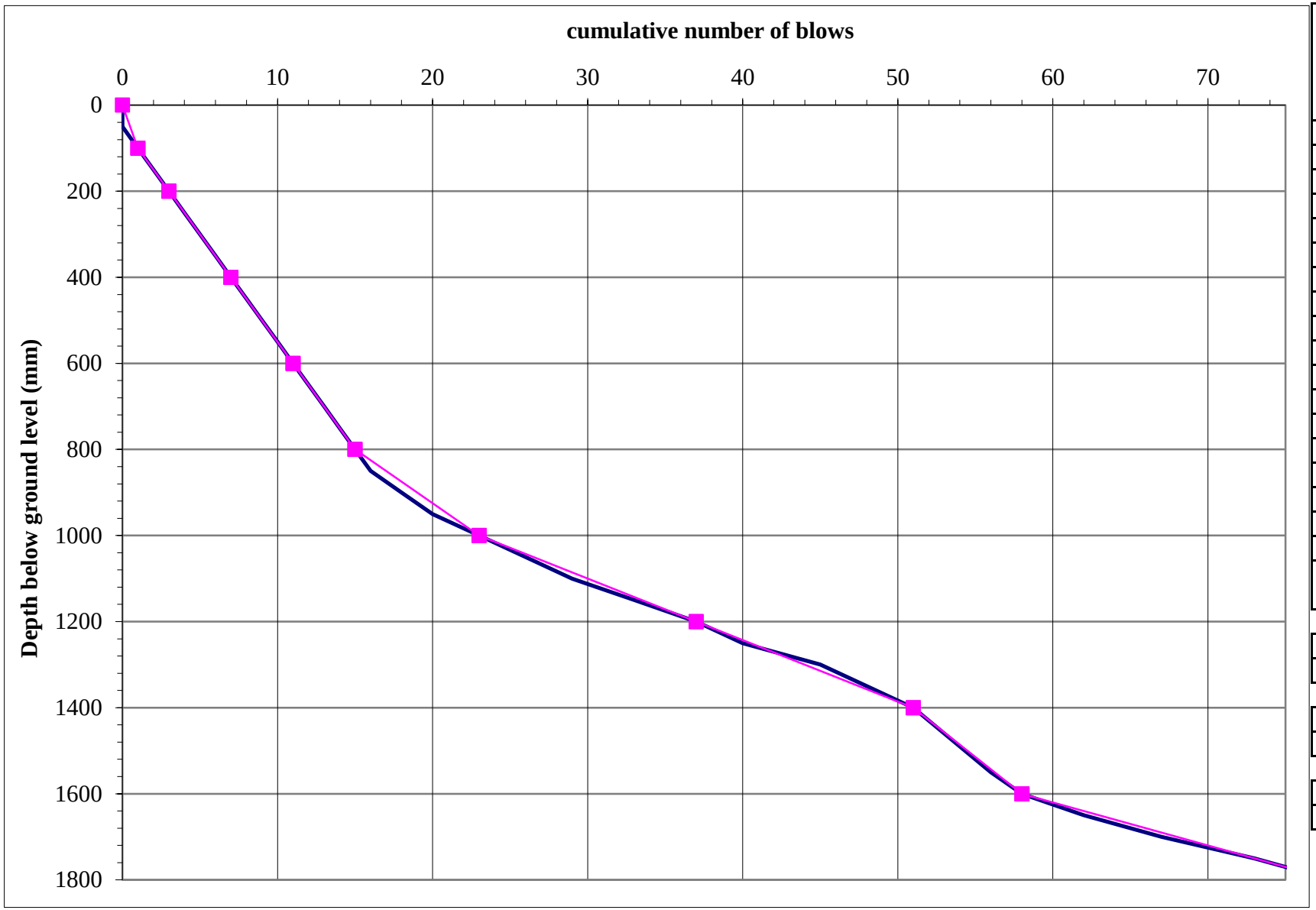
Test Number: TP229

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	100	1.2
100 200	50	2.9
200 400	50	2.9
400 600	50	2.9
600 800	50	2.9
800 1000	25	7.0
1000 1200	14	14.2
1200 1400	14	14
1400 1600	29	5.9
1600 1800	10	22.5

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

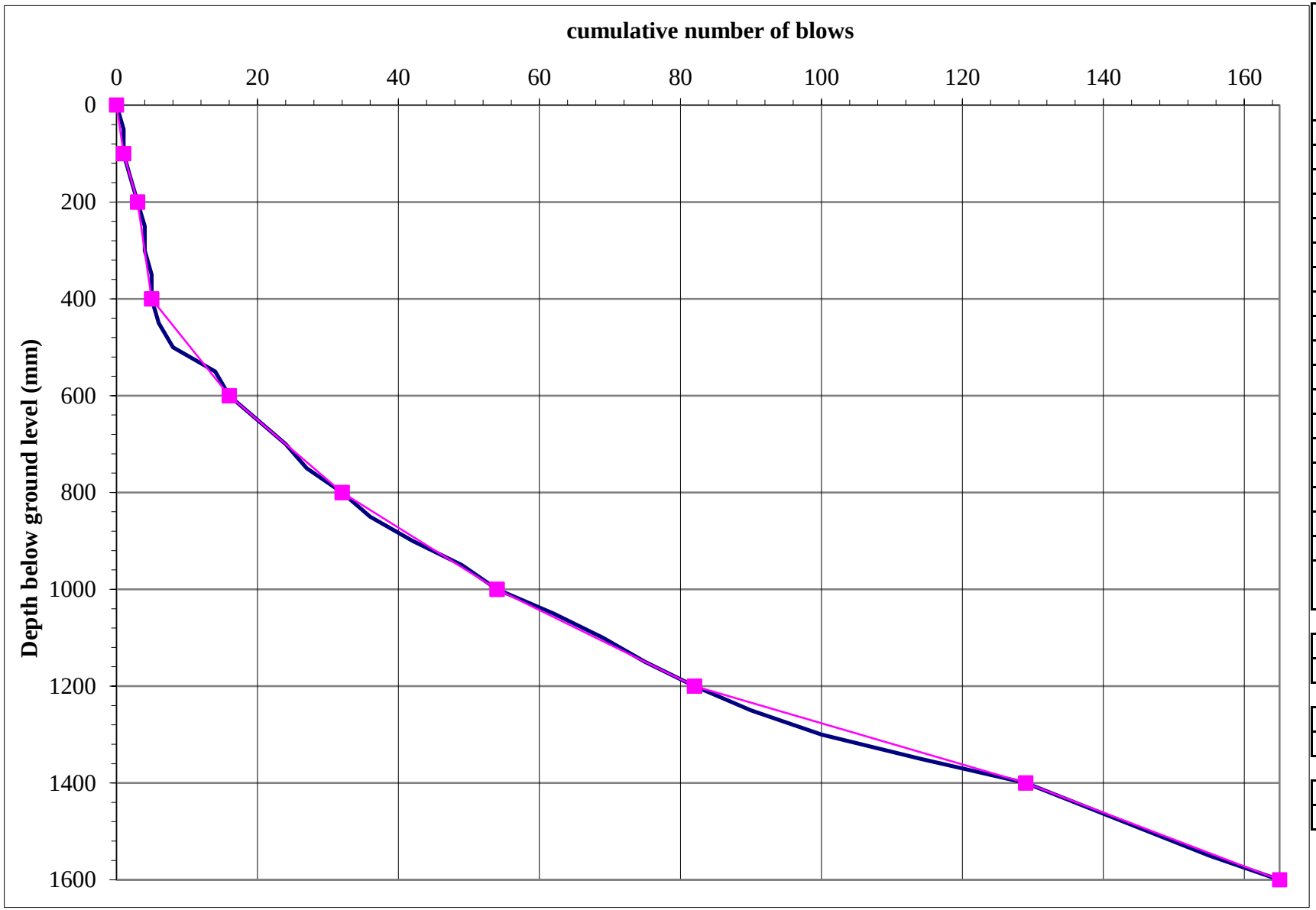
Test Number: TP230

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	100	1.2
100 200	50	2.9
200 400	100	1.2
400 600	18	10.5
600 800	13	16.9
800 1000	9	25.4
1000 1200	7	34.6
1200 1400	4	67
1400 1600	6	47.7

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

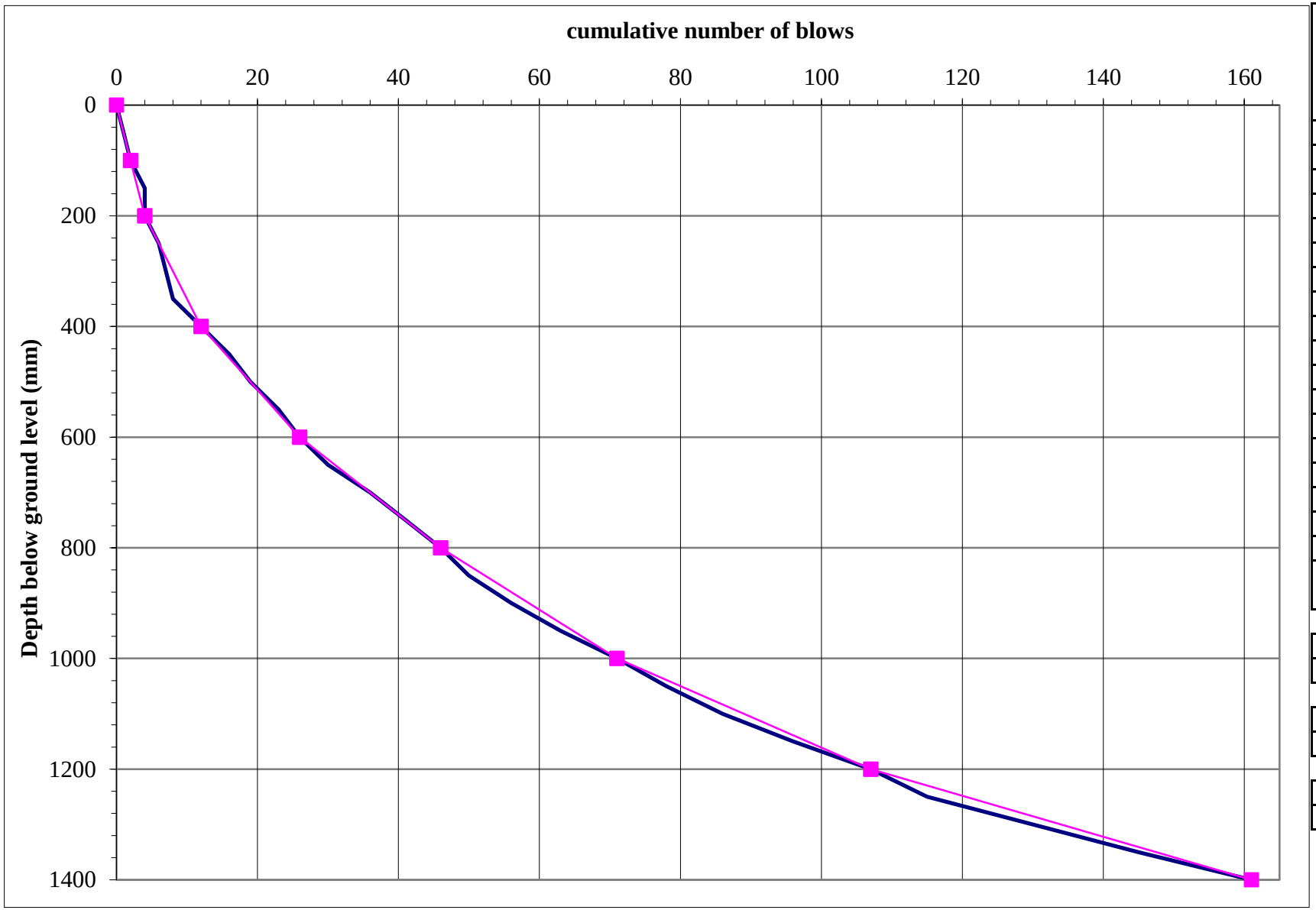
Test Number: TP231

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	50	2.9
100 200	50	2.9
200 400	25	7.0
400 600	14	14.2
600 800	10	22.5
800 1000	8	29.9
1000 1200	6	47.7
1200 1400	4	80

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

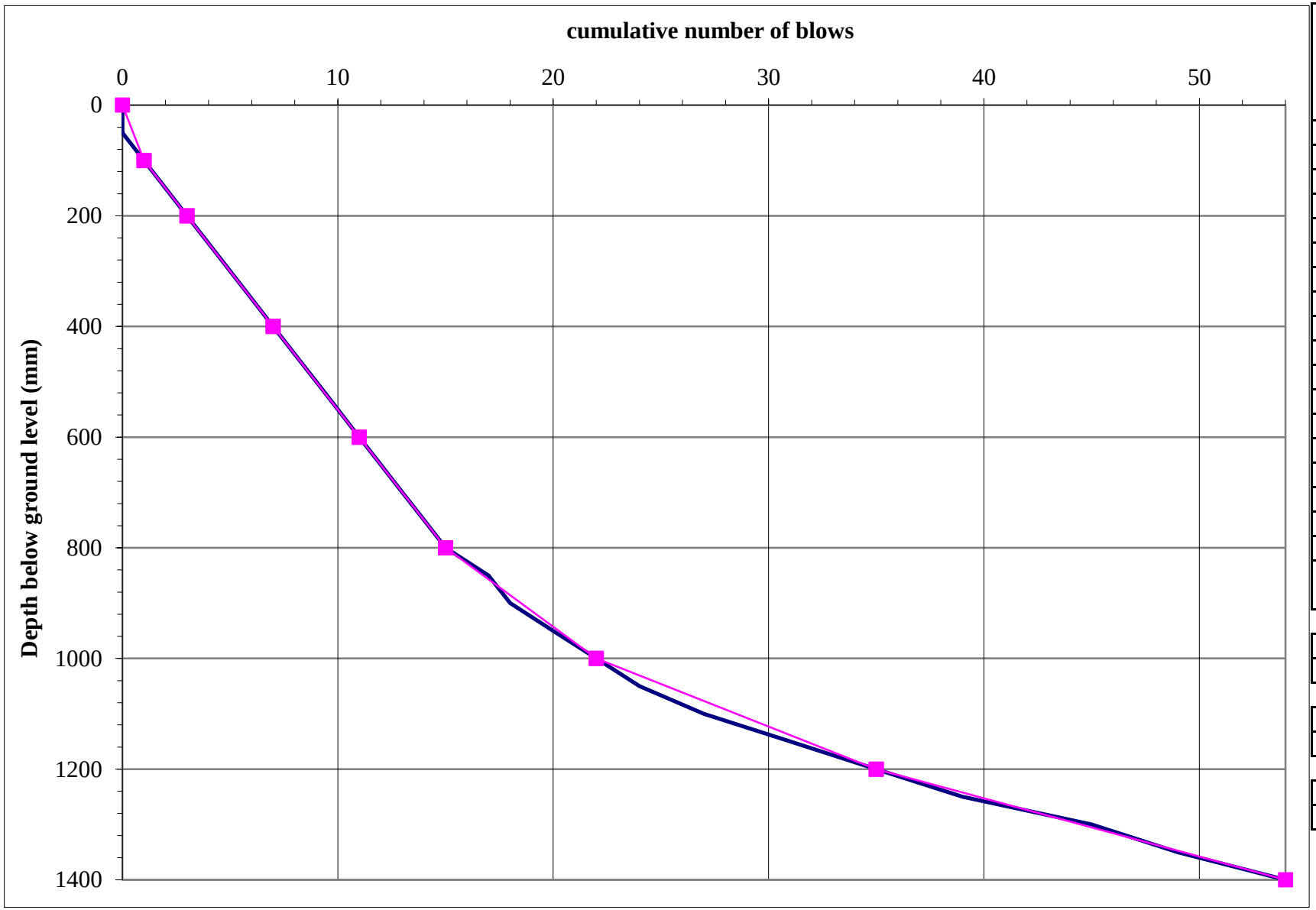
Test Number: TP232

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	100	1.2
100 200	50	2.9
200 400	50	2.9
400 600	50	2.9
600 800	50	2.9
800 1000	29	5.9
1000 1200	15	13.0
1200 1400	11	21

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

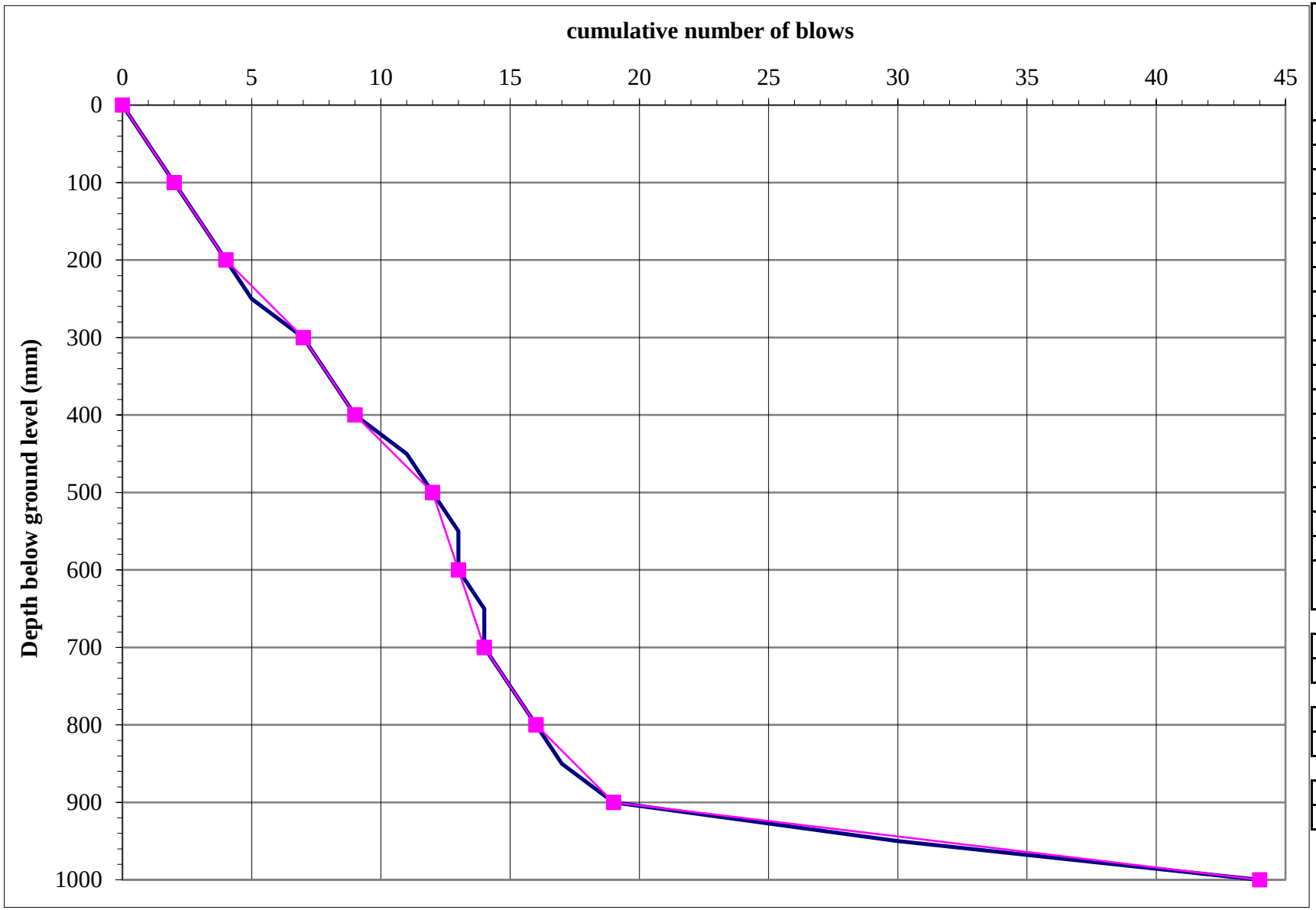
Test Number: TP234

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	50	2.9
100 200	50	2.9
200 300	33	4.8
300 400	50	2.9
400 500	33	4.8
500 600	100	1.2
600 700	100	1.2
700 800	50	3
800 900	33	4.8
900 1000	4	72.7

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

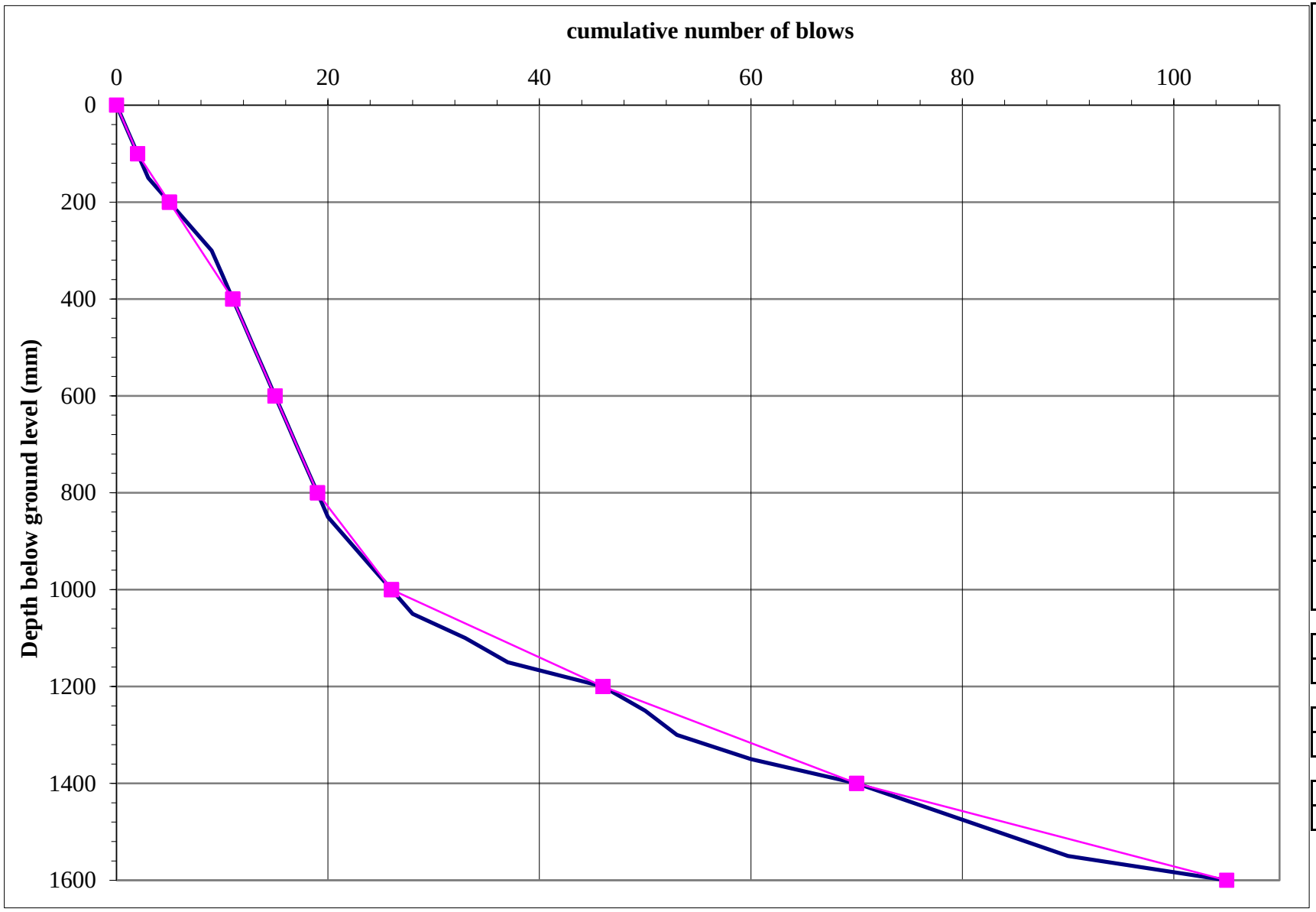
Test Number: TP235

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	50	2.9
100 200	33	4.8
200 400	33	4.8
400 600	50	2.9
600 800	50	2.9
800 1000	29	5.9
1000 1200	10	22.5
1200 1400	8	28
1400 1600	6	46.0

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

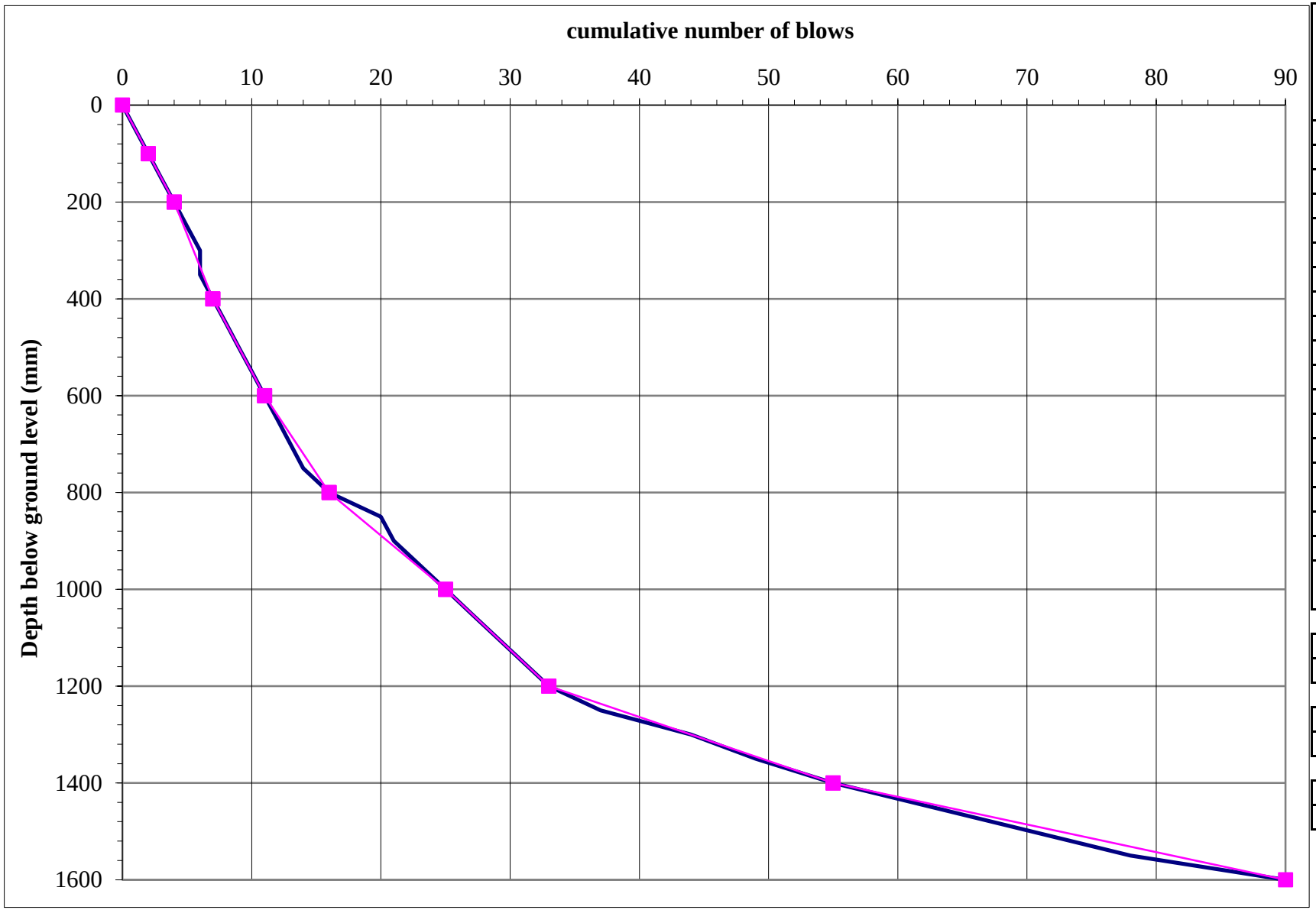
Test Number: TP236

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	50	2.9
100 200	50	2.9
200 400	67	2.0
400 600	50	2.9
600 800	40	3.8
800 1000	22	8.1
1000 1200	25	7.0
1200 1400	9	25
1400 1600	6	46.0

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

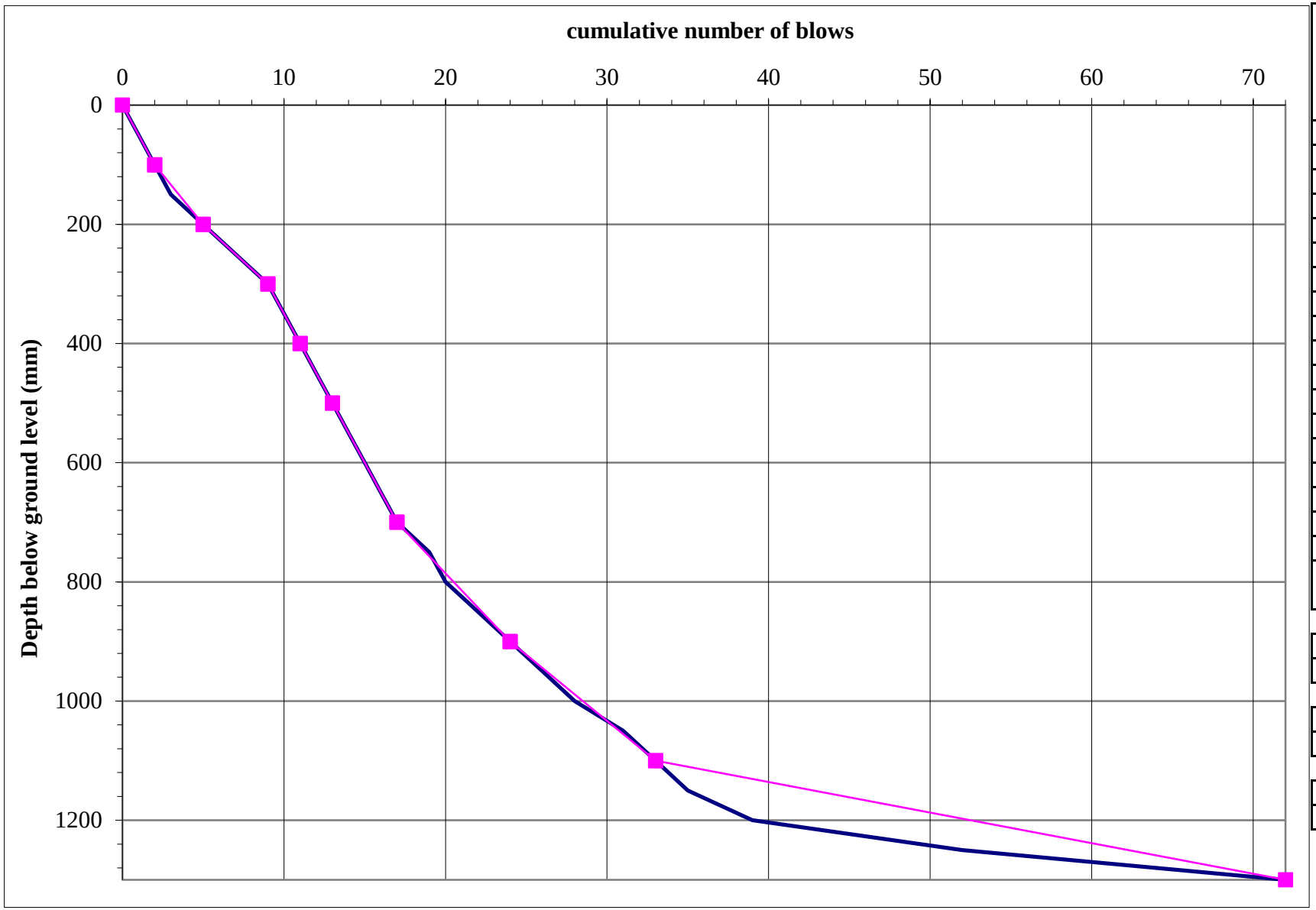
Test Number: TP237

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	50	2.9
100 200	33	4.8
200 300	25	7.0
300 400	50	2.9
400 500	50	2.9
500 700	50	2.9
700 900	29	5.9
900 1100	22	8
1100 1300	5	52.9

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

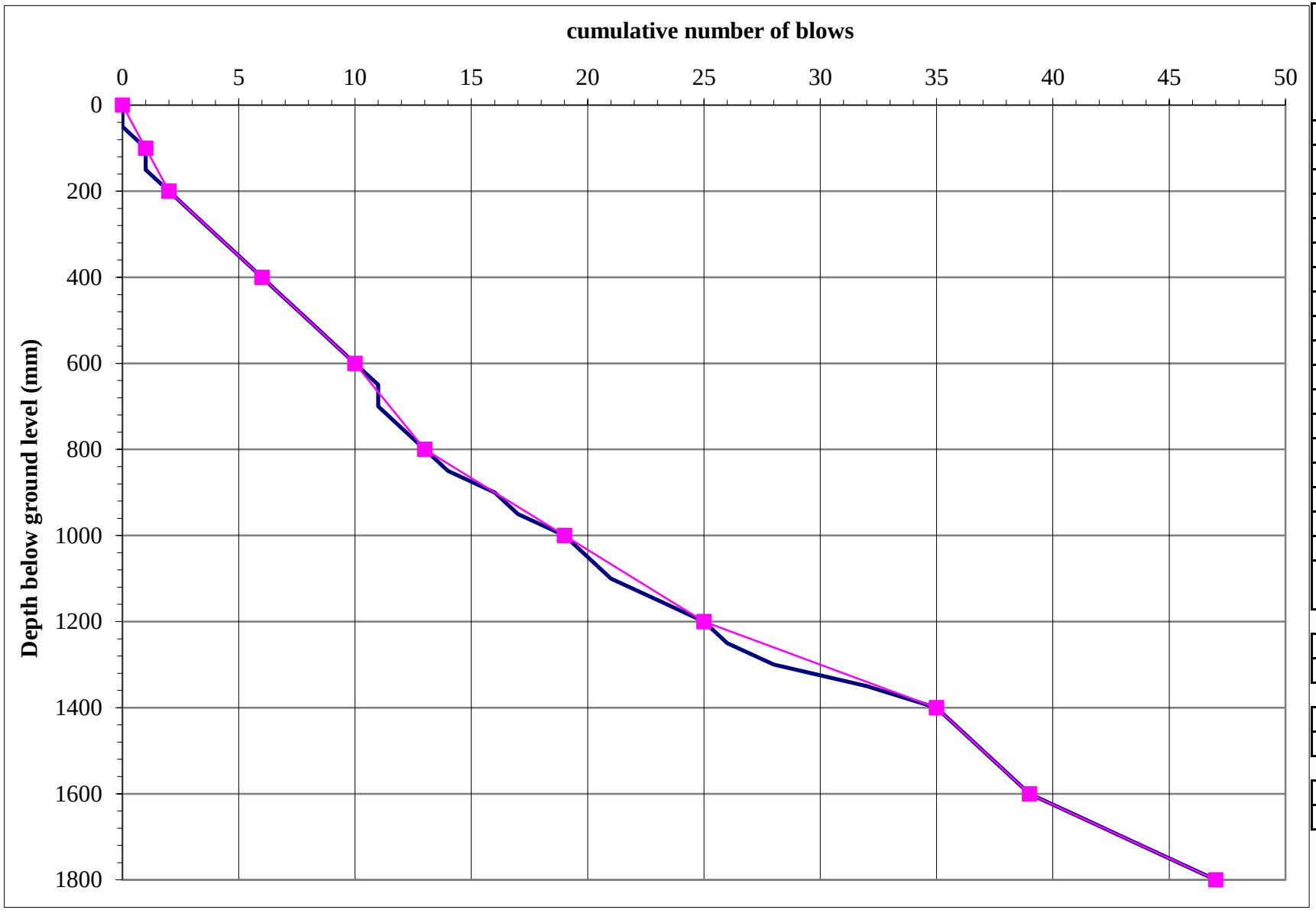
Test Number: TP238

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	100	1.2
100 200	100	1.2
200 400	50	2.9
400 600	50	2.9
600 800	67	2.0
800 1000	33	4.8
1000 1200	33	4.8
1200 1400	20	9
1400 1600	50	2.9
1600 1800	25	7.0

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

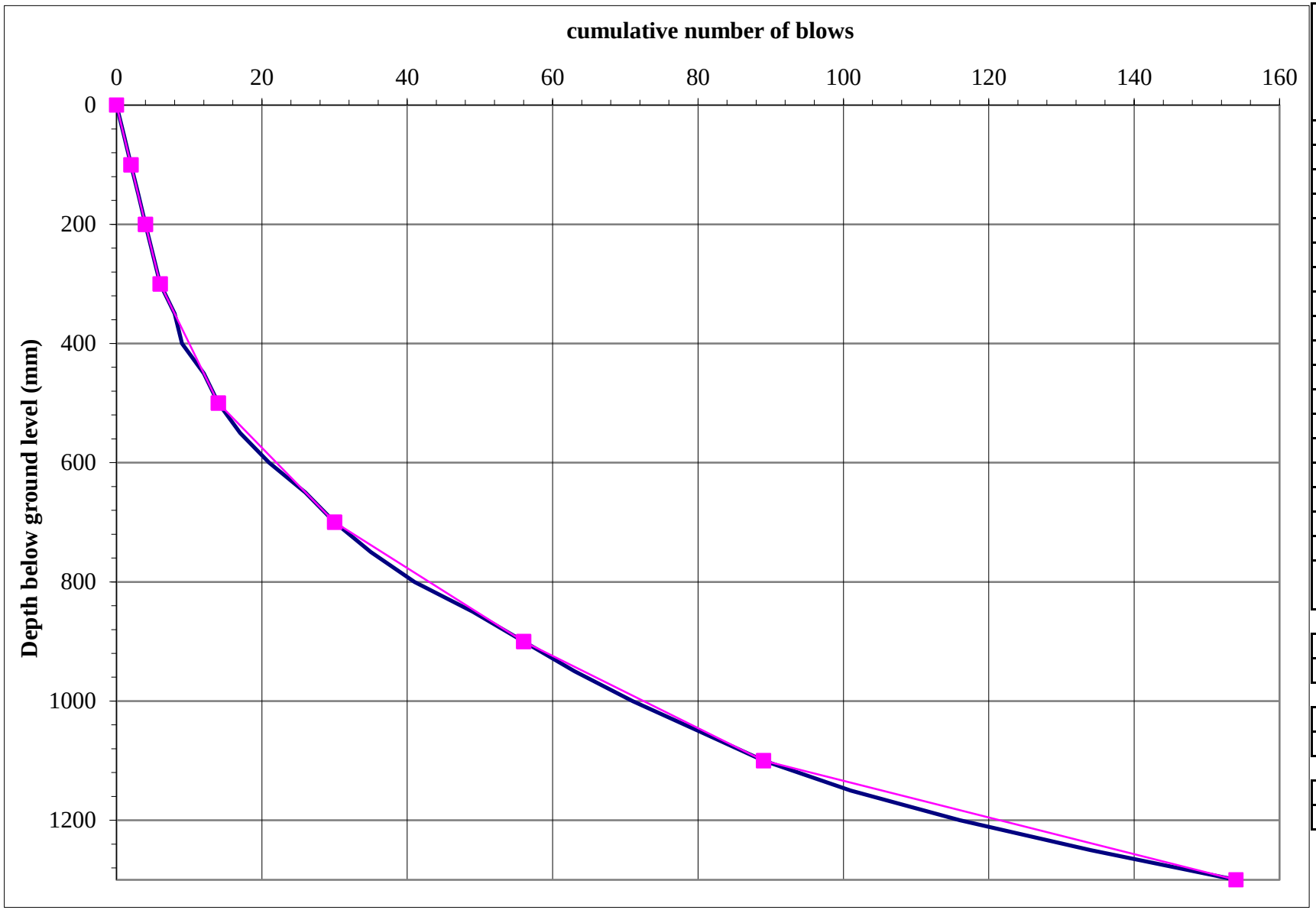
Test Number: TP239

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	50	2.9
100 200	50	2.9
200 300	50	2.9
300 500	25	7.0
500 700	13	16.9
700 900	8	31.5
900 1100	6	42.7
1100 1300	3	102
0 0		
0 0		

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

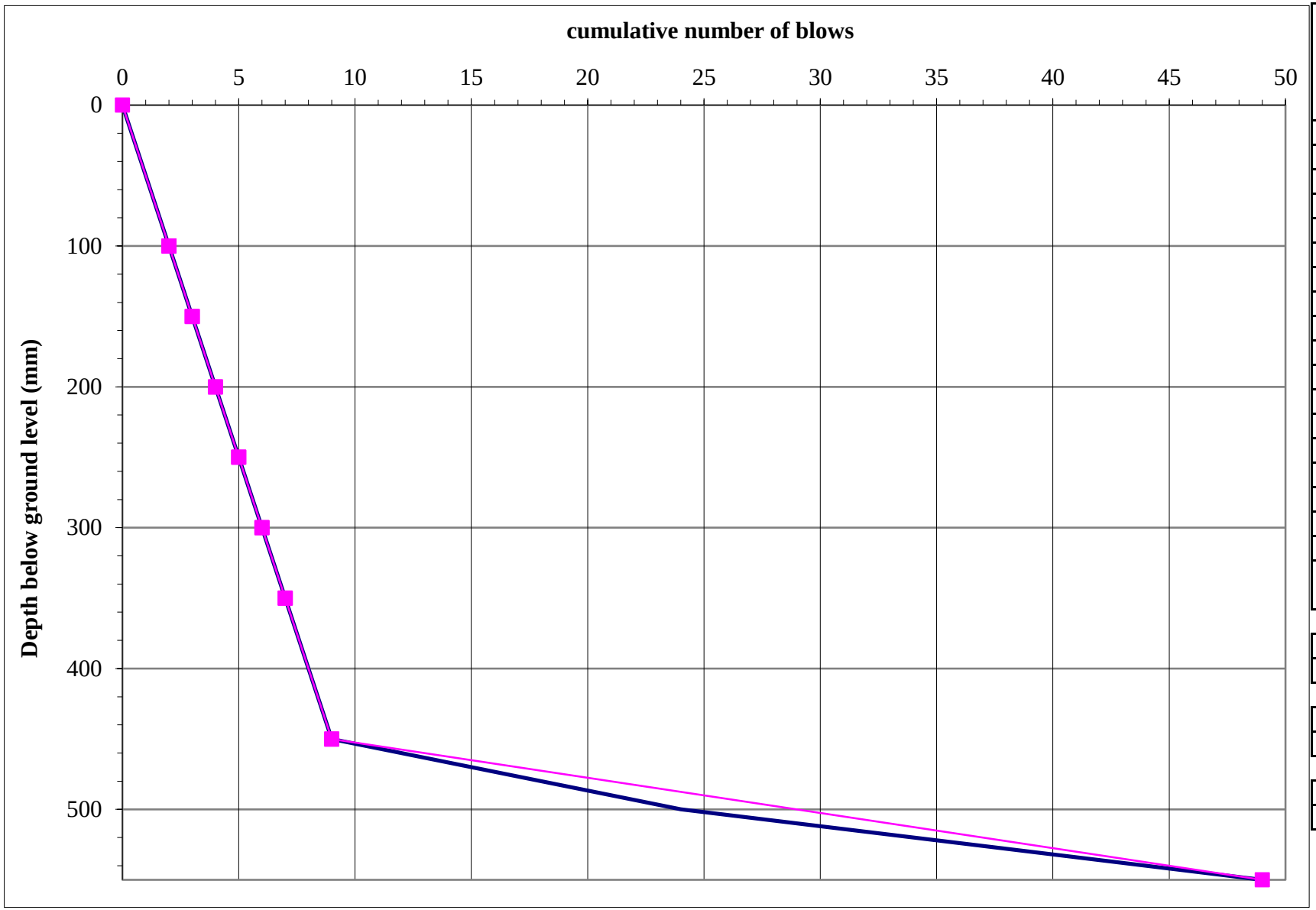
Test Number: TP240

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	50	2.9
100 150	50	2.9
150 200	50	2.9
200 250	50	2.9
250 300	50	2.9
300 350	50	2.9
350 450	50	2.9
450 550	3	133

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

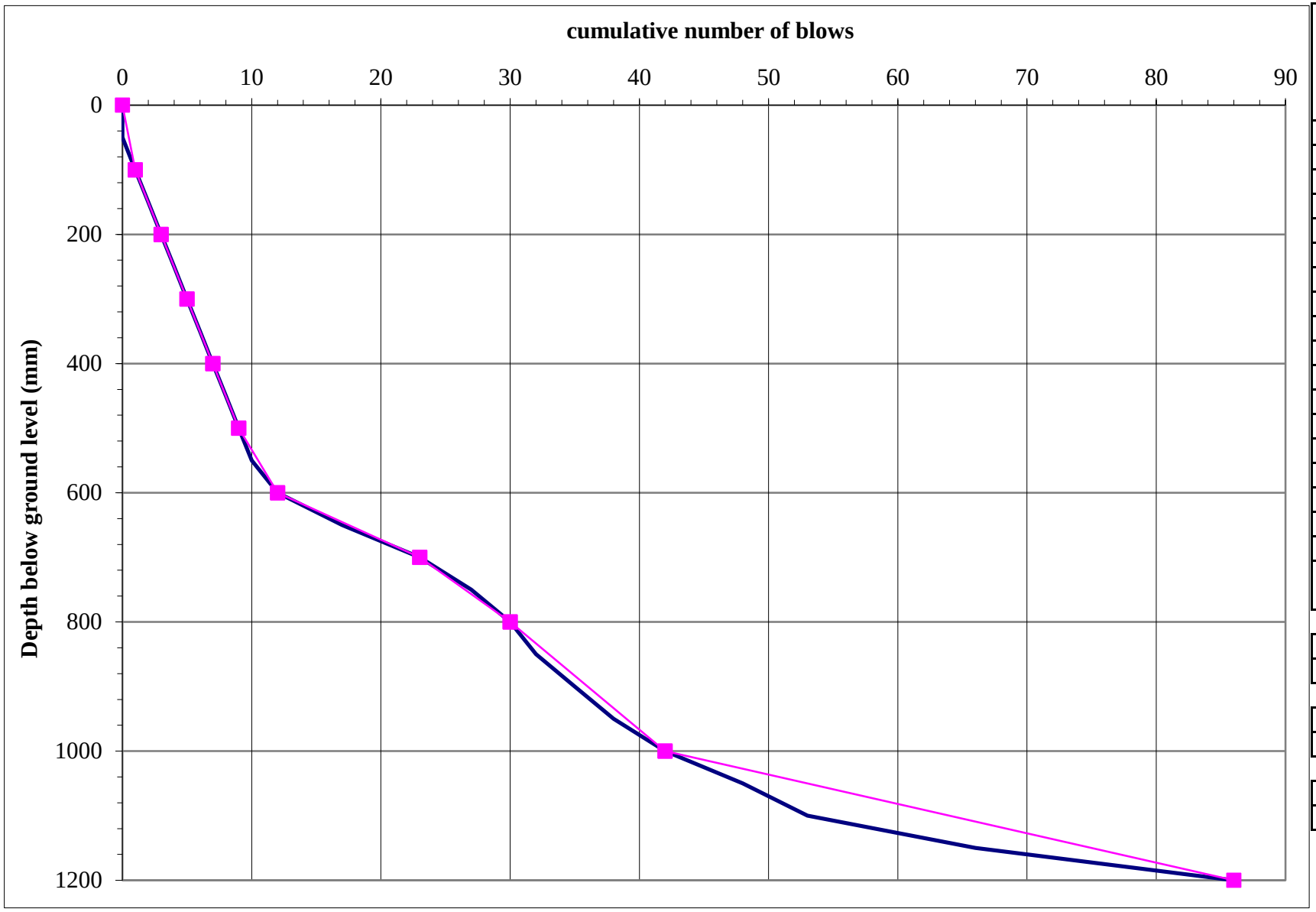
Test Number: TP205

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0	100	1.2
100		
100	50	2.9
200		
200	50	2.9
300		
300	50	2.9
400		
400	50	2.9
500		
500	33	4.8
600		
600	9	25.4
700		
700	14	14
800		
800	17	11.7
1000		
1000	5	61.7
1200		

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

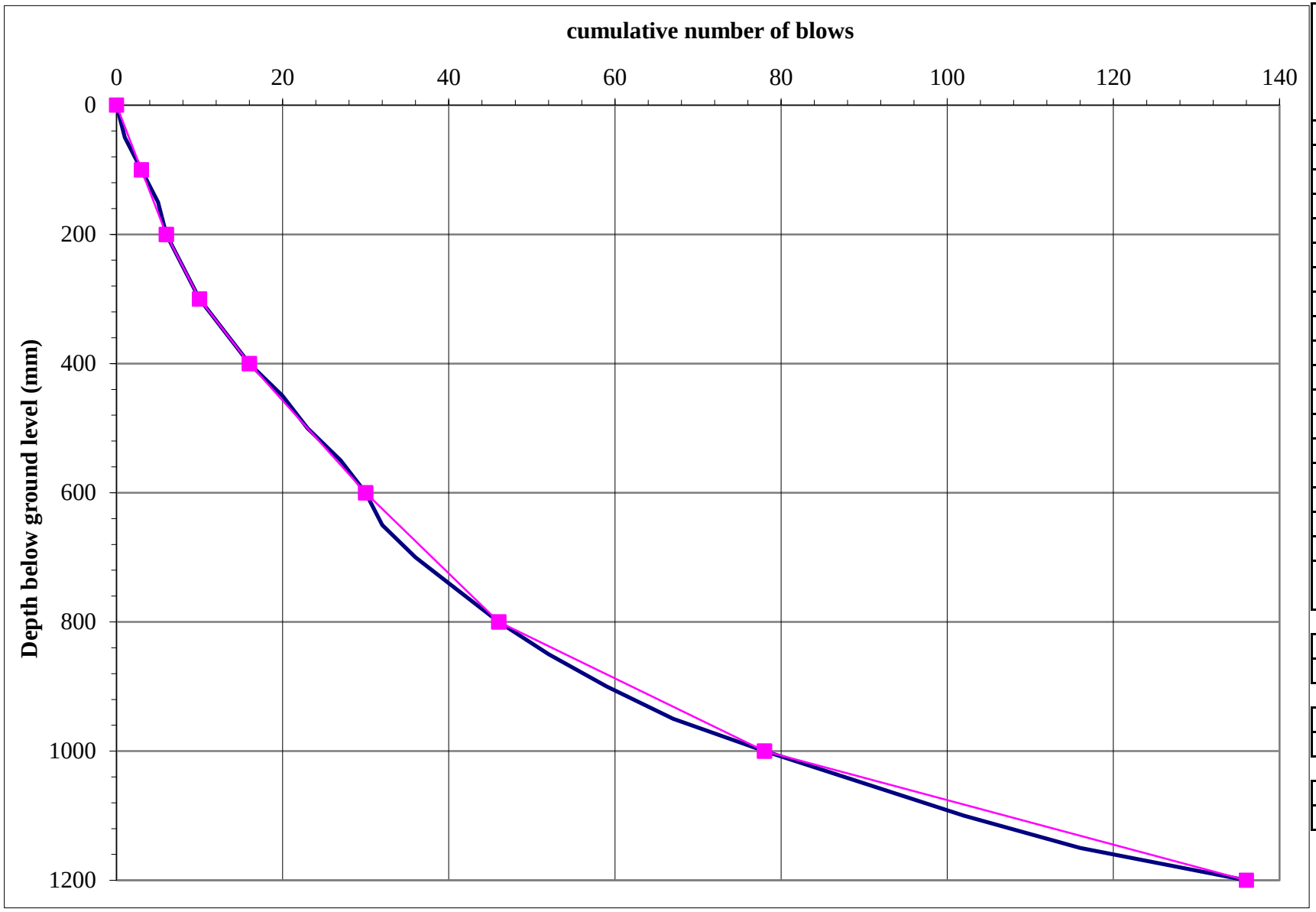
Test Number: TP242

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	33	4.8
100 200	33	4.8
200 300	25	7.0
300 400	17	11.7
400 600	14	14.2
600 800	13	16.9
800 1000	6	41.0
1000 1200	3	88
0 0		
0 0		

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

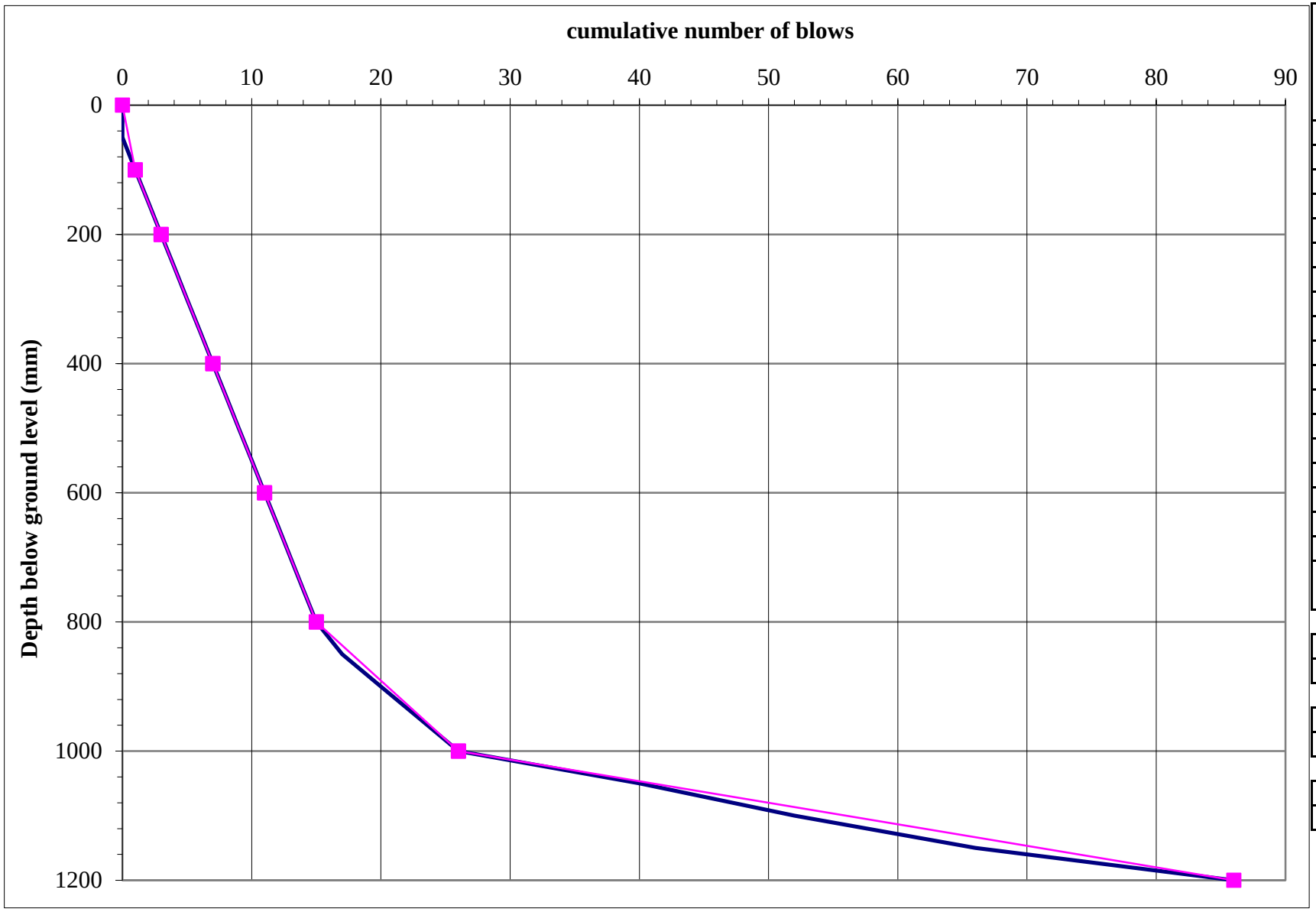
Test Number: TP243

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	100	1.2
100 200	50	2.9
200 400	50	2.9
400 600	50	2.9
600 800	50	2.9
800 1000	18	10.5
1000 1200	3	91.8

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

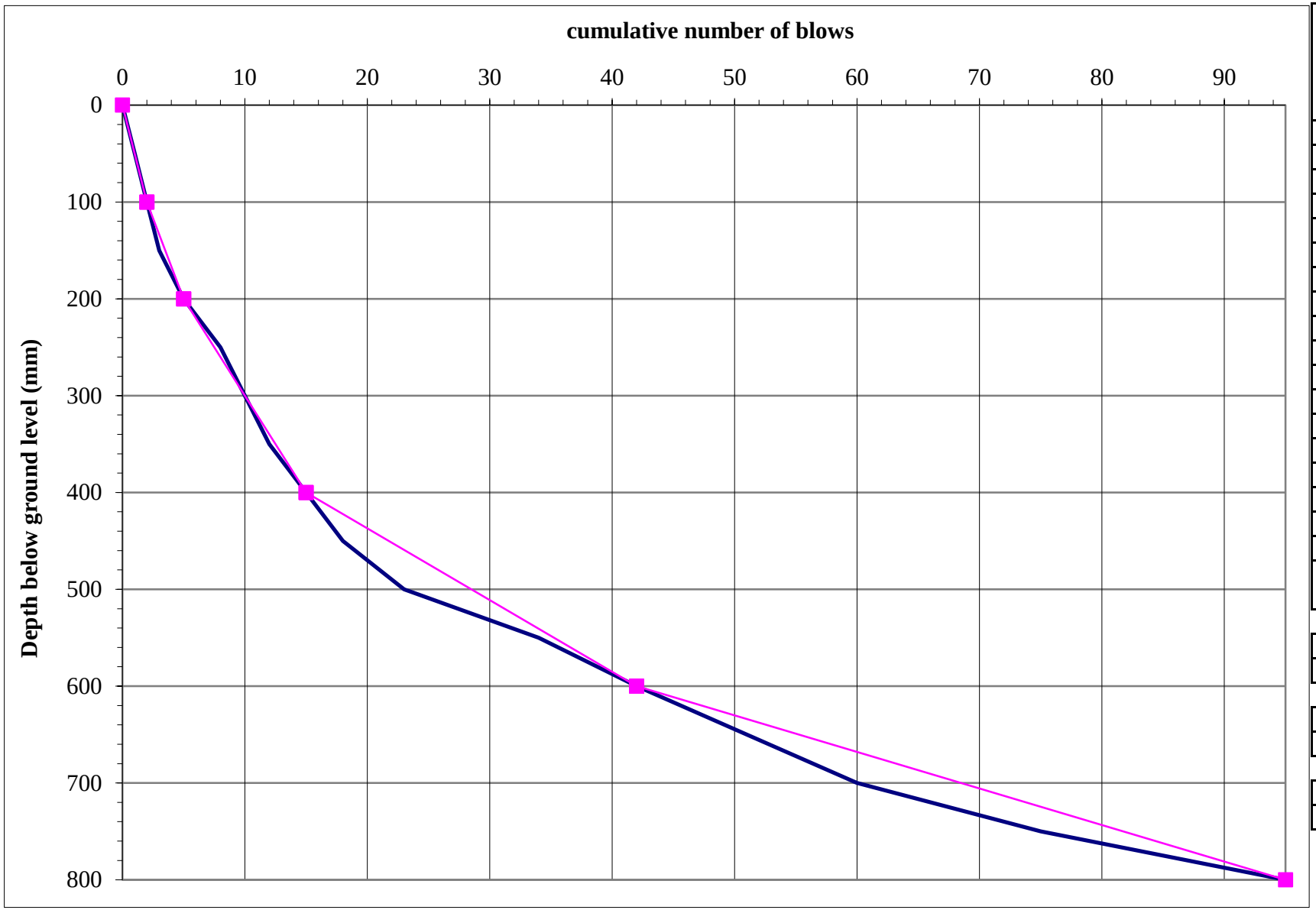
Test Number: TP244

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0	50	2.9
100		
100	33	4.8
200		
200	20	9.3
400		
400	7	33.0
600		
600	4	78.3
800		

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

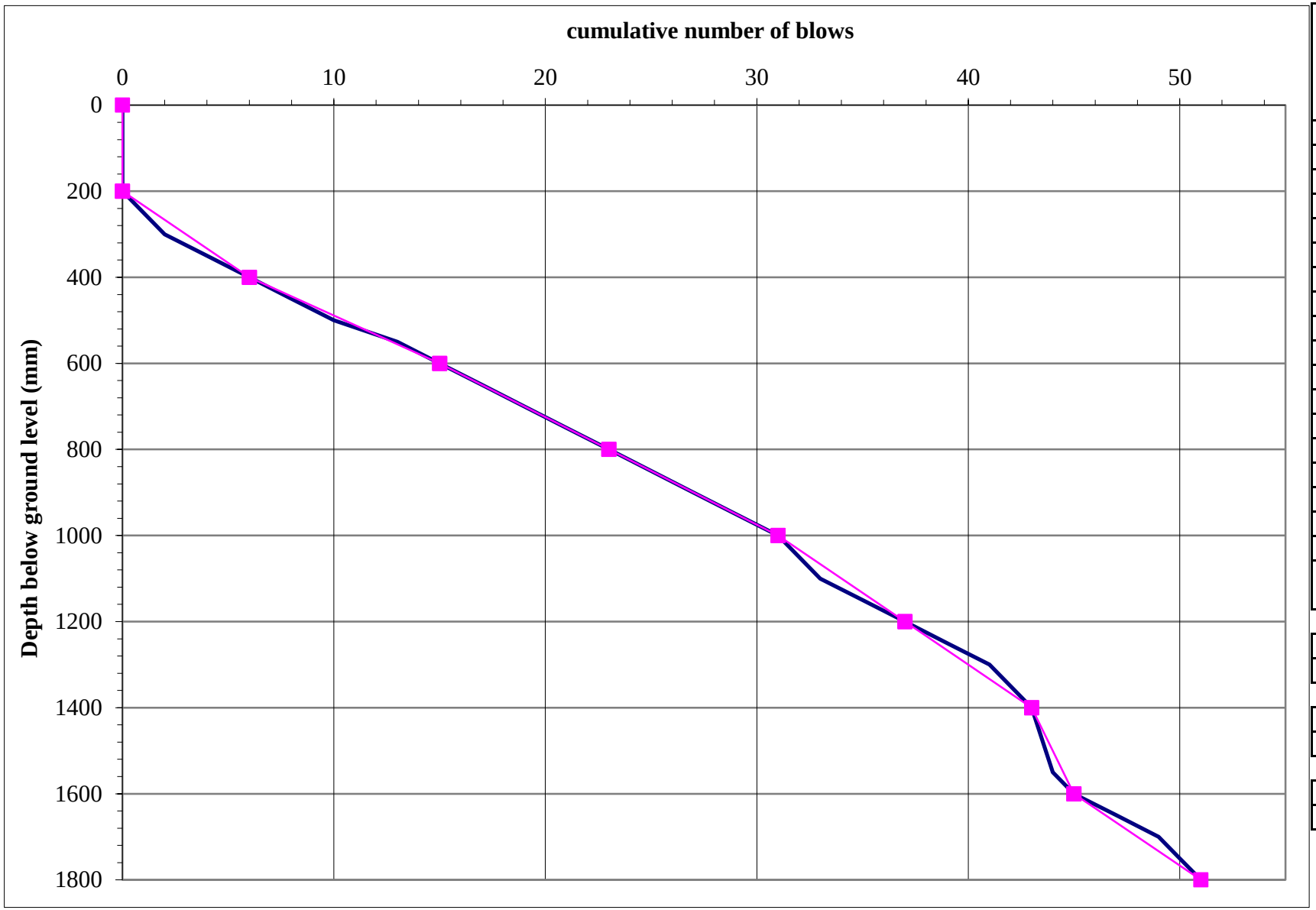
Test Number: TP245

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	#DIV/0!	#DIV/0!
100 400	33	4.8
400 600	22	8.1
600 800	25	7.0
800 1000	25	7.0
1000 1200	33	4.8
1200 1400	33	4.8
1400 1600	100	1
1600 1800	33	4.8

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

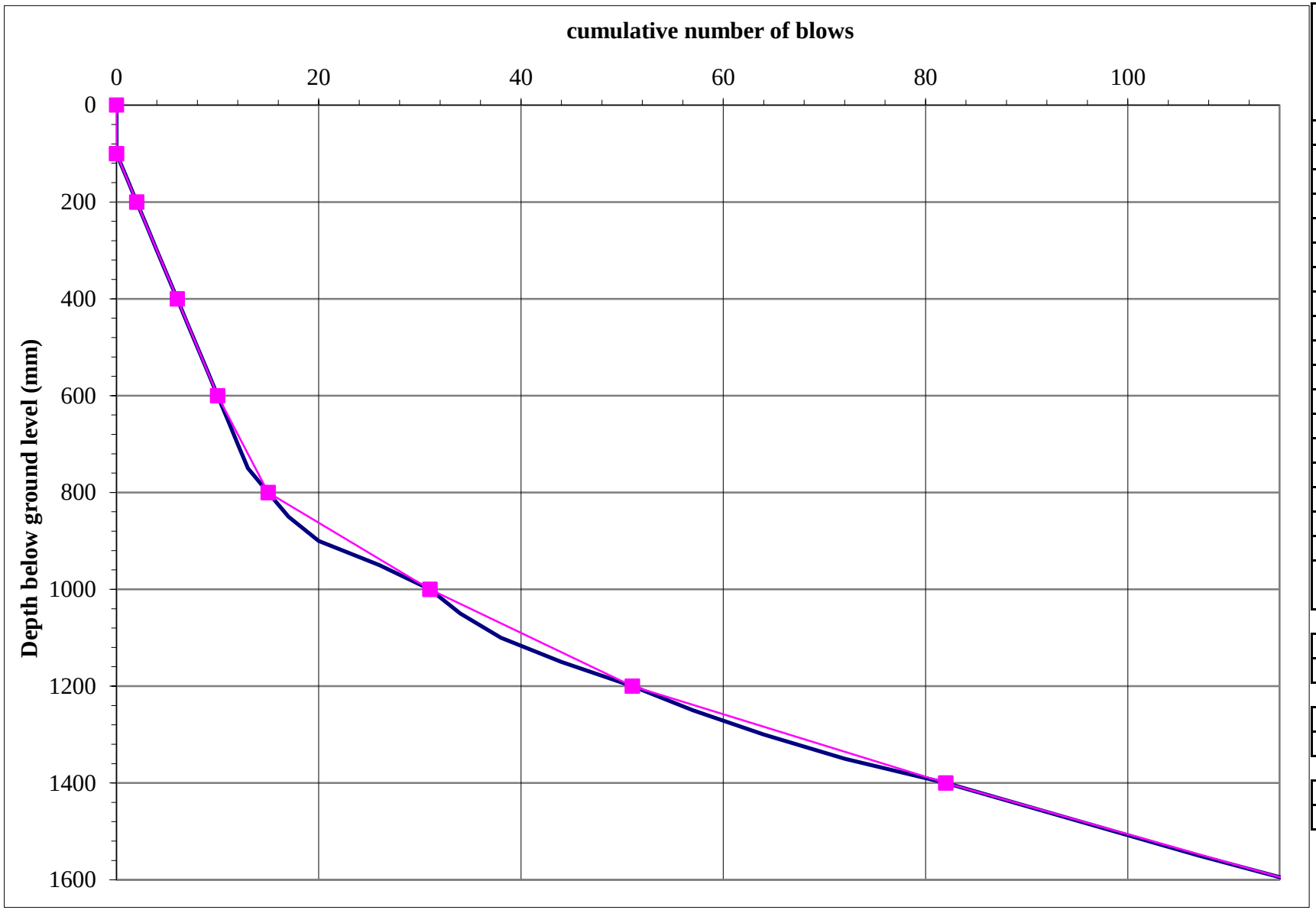
Test Number: TP246

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	#DIV/0!	#DIV/0!
100 200	50	2.9
200 400	50	2.9
400 600	50	2.9
600 800	40	3.8
800 1000	13	16.9
1000 1200	10	22.5
1200 1400	6	39
1400 1600	6	44.4

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

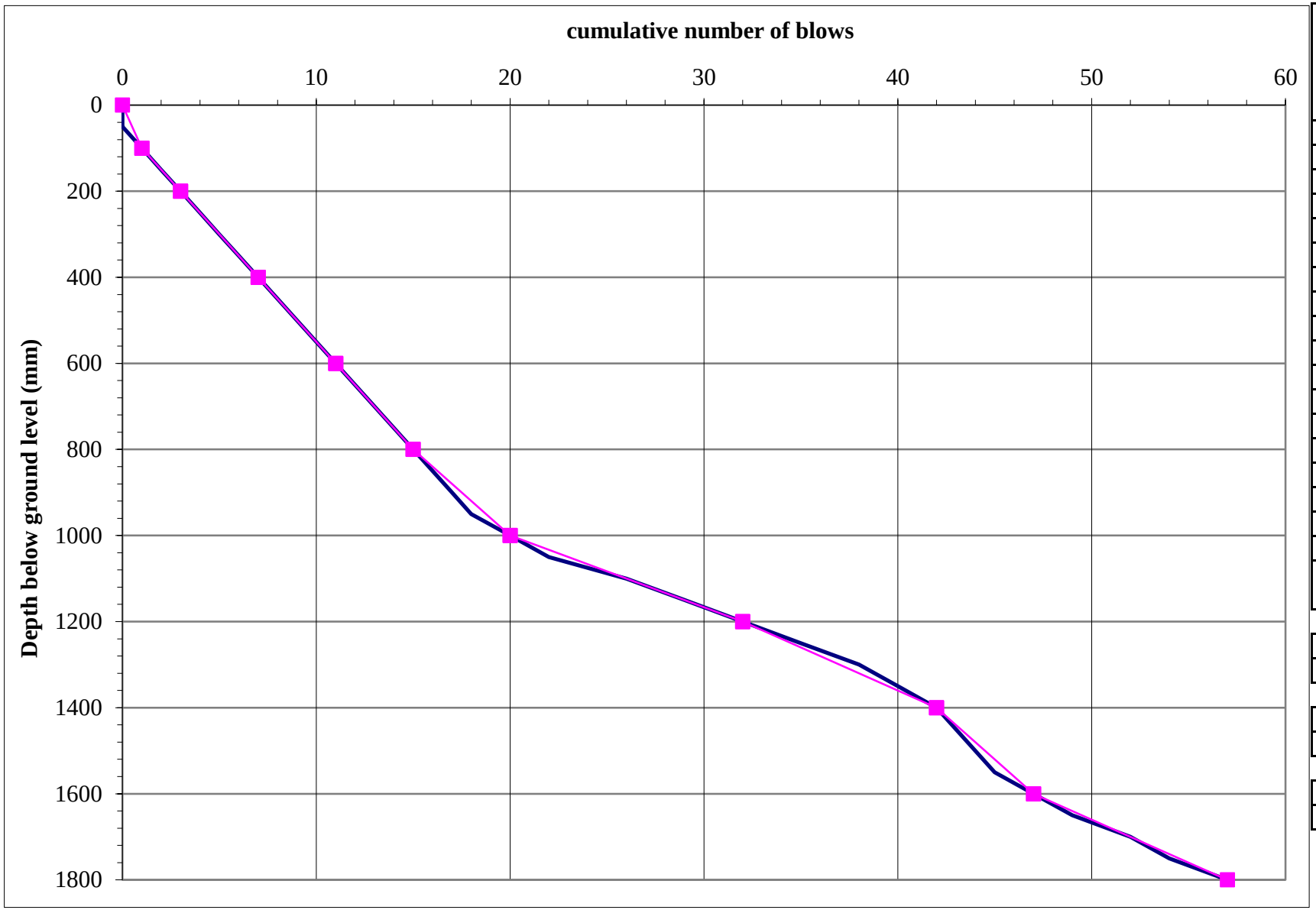
Test Number: TP247

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	100	1.2
100 200	50	2.9
200 400	50	2.9
400 600	50	2.9
600 800	50	2.9
800 1000	40	3.8
1000 1200	17	11.7
1200 1400	20	9
1400 1600	40	3.8
1600 1800	20	9.3

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

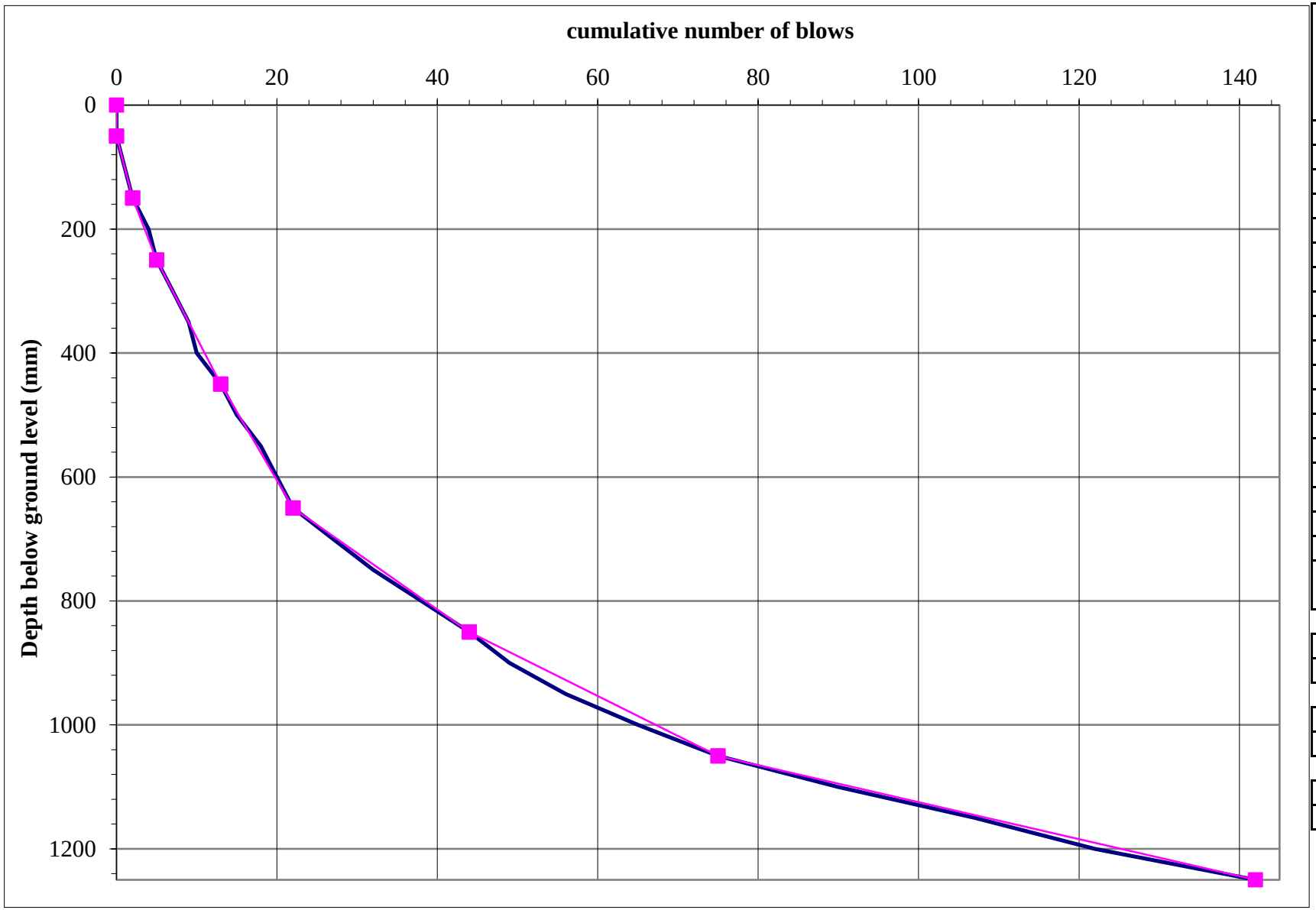
Test Number: TP248

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	0	0.0
100 150	50	2.9
150 250	33	4.8
250 450	25	7.0
450 650	22	8.1
650 850	9	25.4
850 1050	6	39.4
1050 1250	3	106
0 0		
0 0		

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

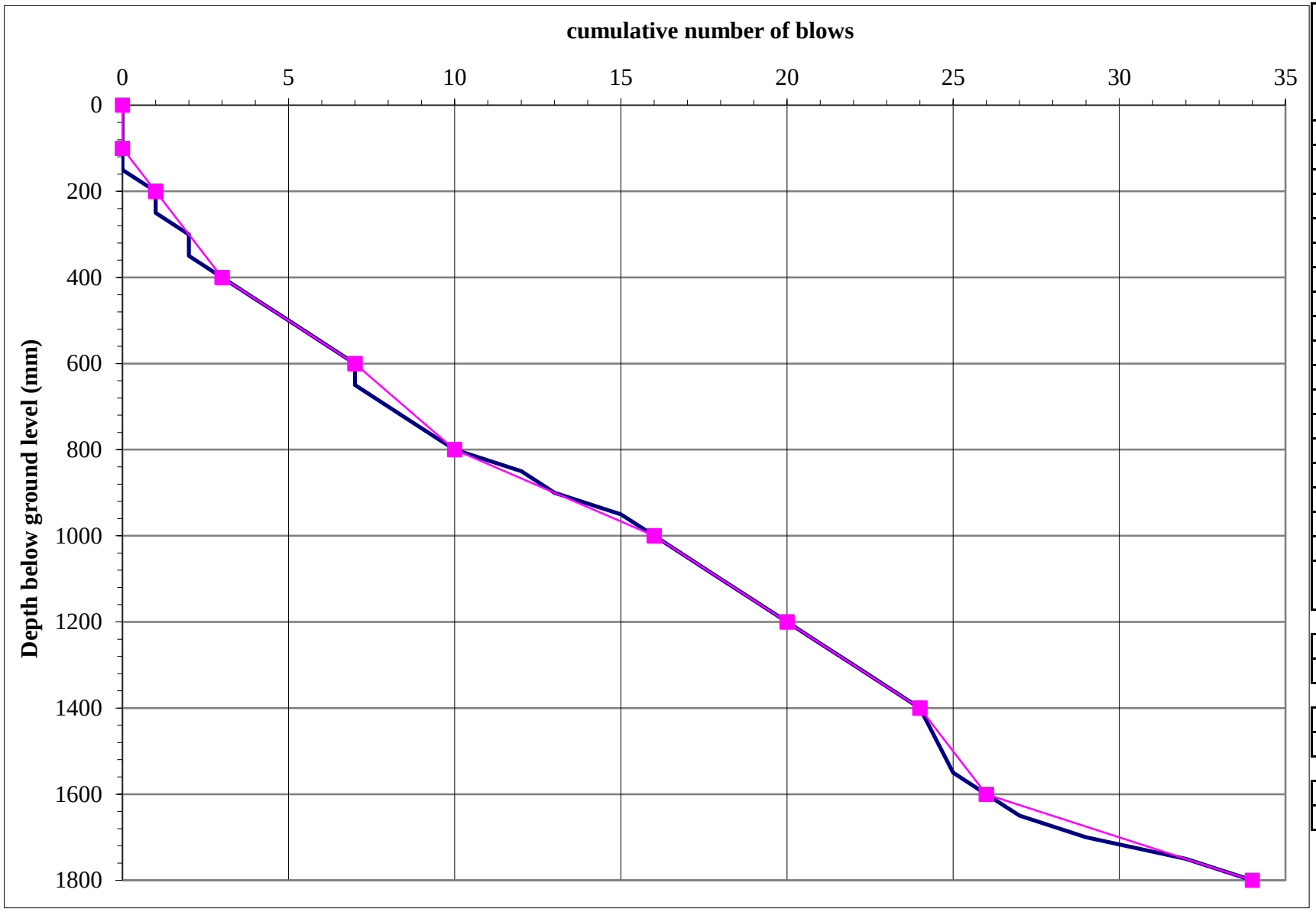
Test Number: TP249

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	#DIV/0!	#DIV/0!
100 200	100	1.2
200 400	100	1.2
400 600	50	2.9
600 800	67	2.0
800 1000	33	4.8
1000 1200	50	2.9
1200 1400	50	3
1400 1600	100	1.2
1600 1800	25	7.0

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

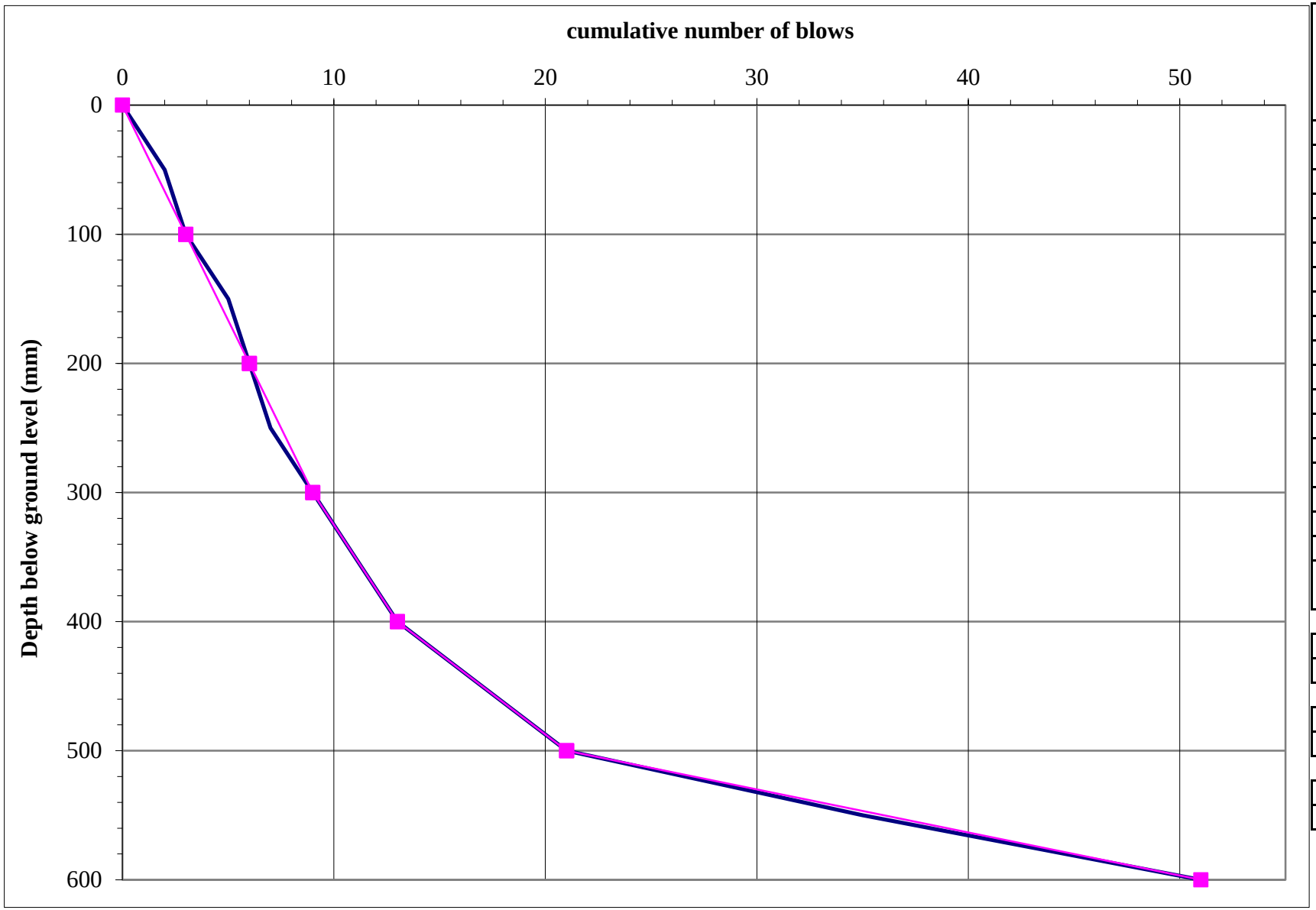
Test Number: TP250

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	33	4.8
100 200	33	4.8
200 300	33	4.8
300 400	25	7.0
400 500	13	16.9
500 600	3	91.8

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

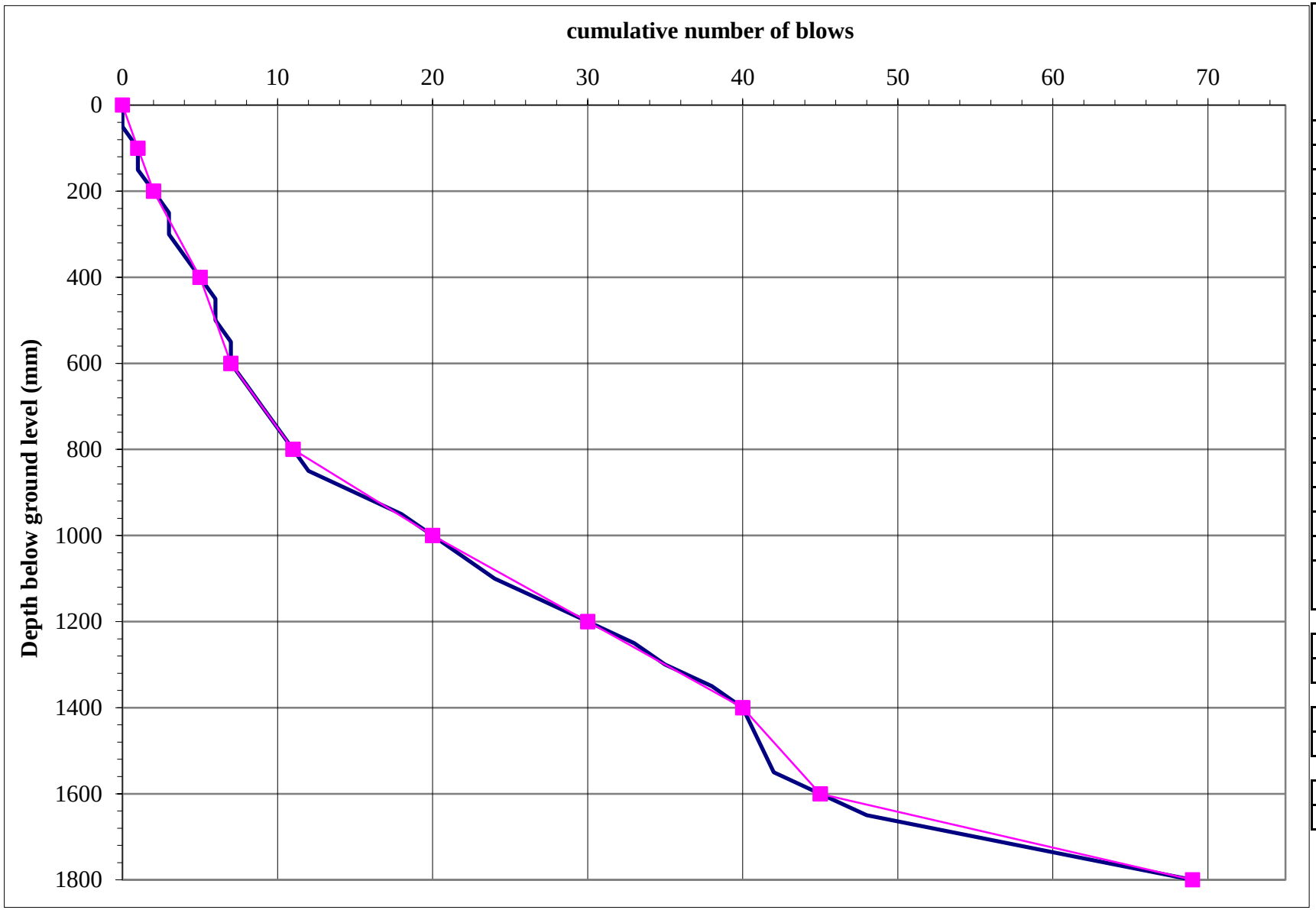
Test Number: TP251

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	100	1.2
100 200	100	1.2
200 400	67	2.0
400 600	100	1.2
600 800	50	2.9
800 1000	22	8.1
1000 1200	20	9.3
1200 1400	20	9
1400 1600	40	3.8
1600 1800	8	28.4

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

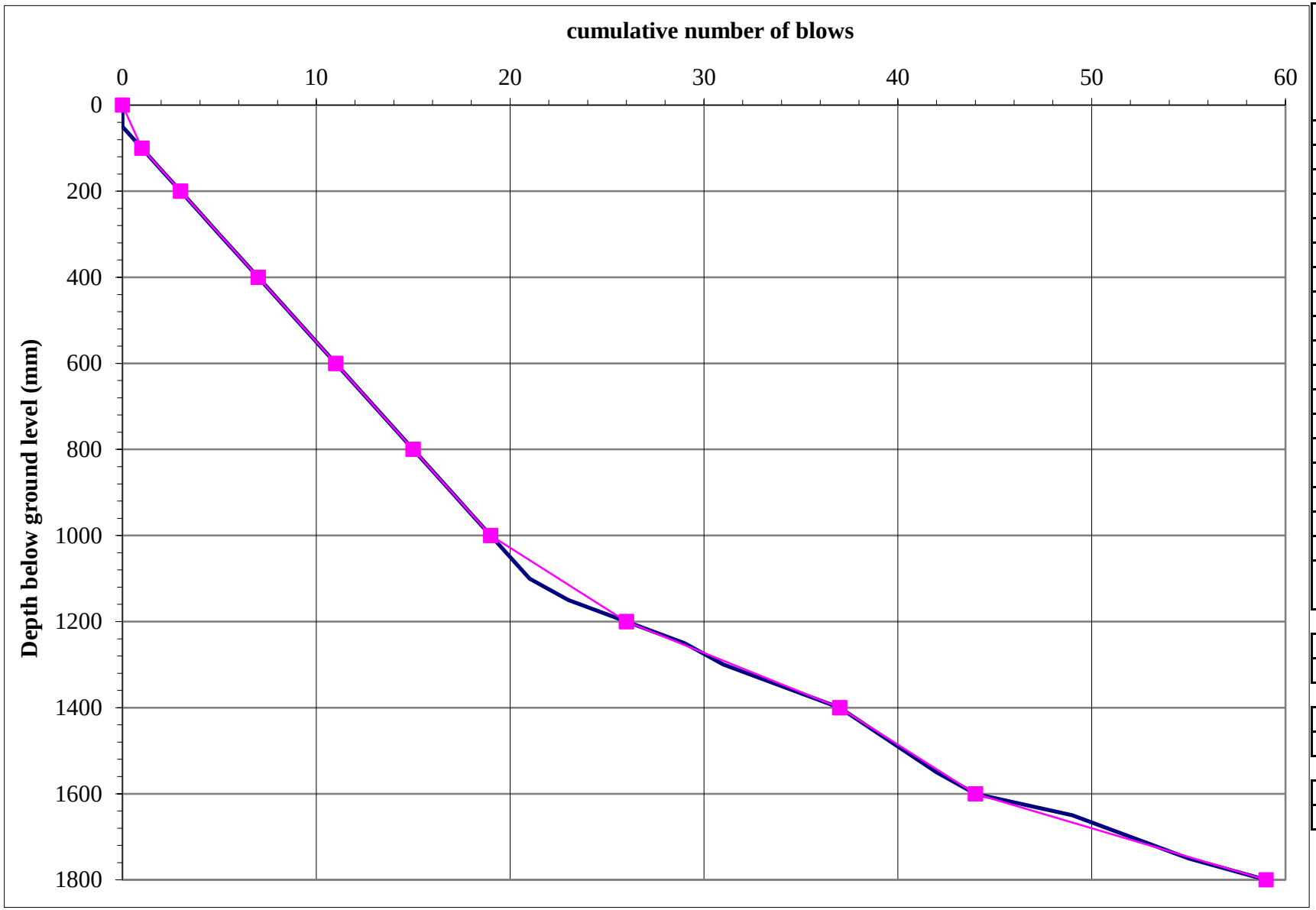
Test Number: TP252

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0	100	1.2
100		
100	50	2.9
200		
200	50	2.9
400		
400	50	2.9
600		
600	50	2.9
800		
800	50	2.9
1000		
1000	29	5.9
1200		
1200	18	10
1400		
1400	29	5.9
1600		
1600	13	15.6
1800		

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

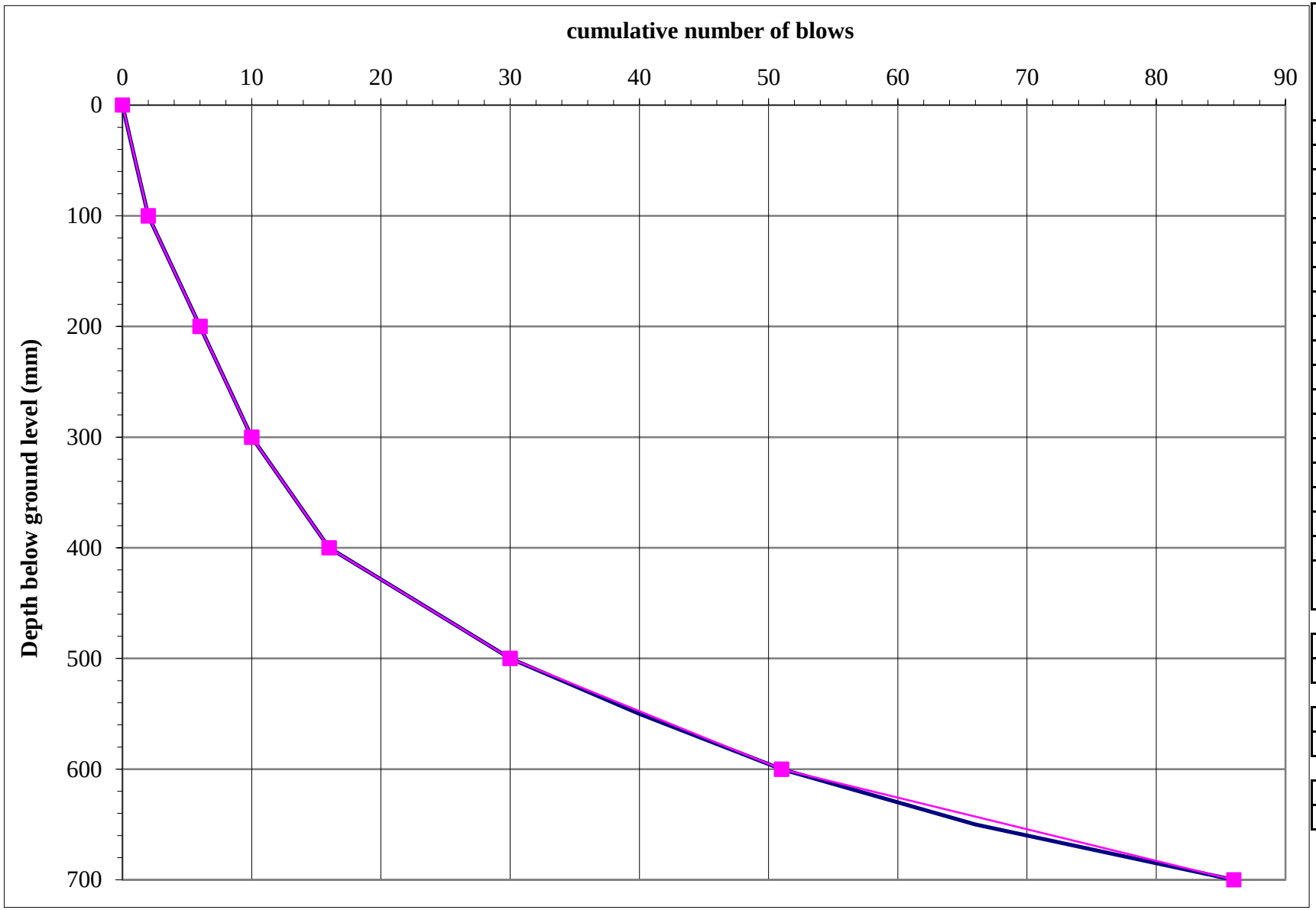
Test Number: TP253

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	50	2.9
100 200	25	7.0
200 300	25	7.0
300 400	17	11.7
400 500	7	34.6
500 600	5	58.1
600 700	3	111.8

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

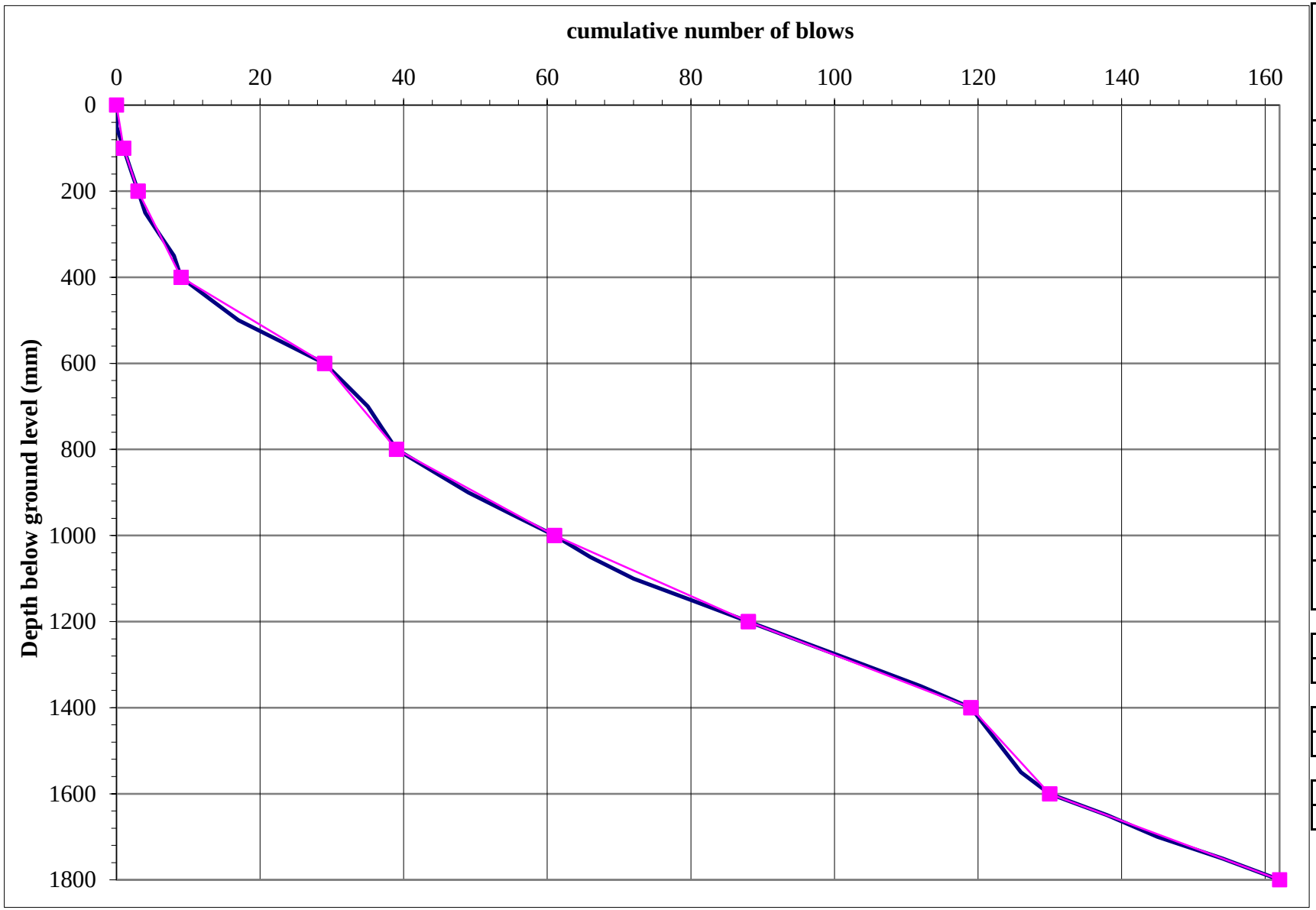
Test Number: TP254

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0	100	1.2
100		
100	50	2.9
200		
200	33	4.8
400		
400	10	22.5
600		
600	20	9.3
800		
800	9	25.4
1000		
1000	7	33.0
1200		
1200	6	39
1400		
1400	18	10.5
1600		
1600	6	41.0
1800		

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

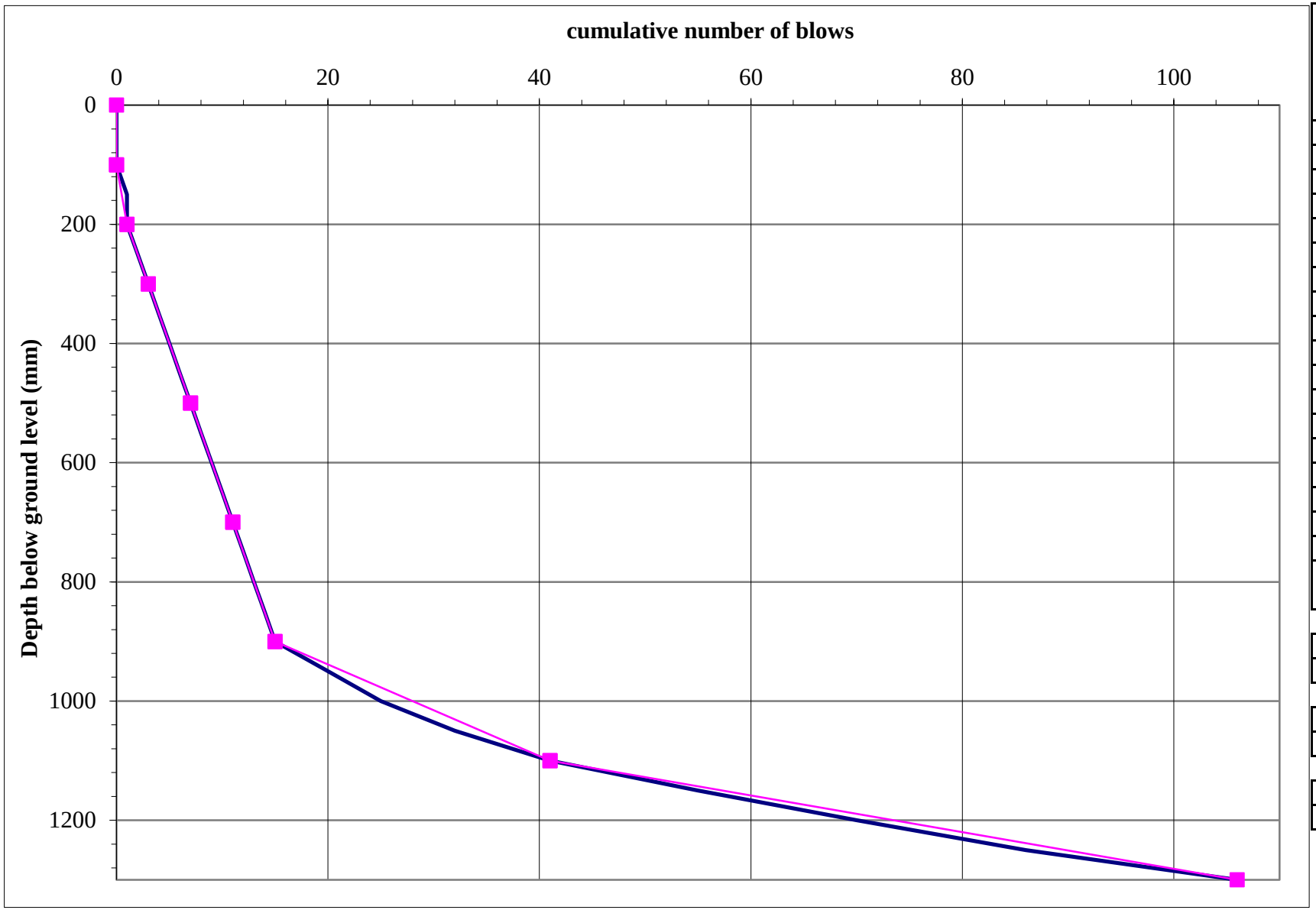
Test Number: TP255

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	#DIV/0!	#DIV/0!
100 200	100	1.2
200 300	50	2.9
300 500	50	2.9
500 700	50	2.9
700 900	50	2.9
900 1100	8	31.5
1100 1300	3	102

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

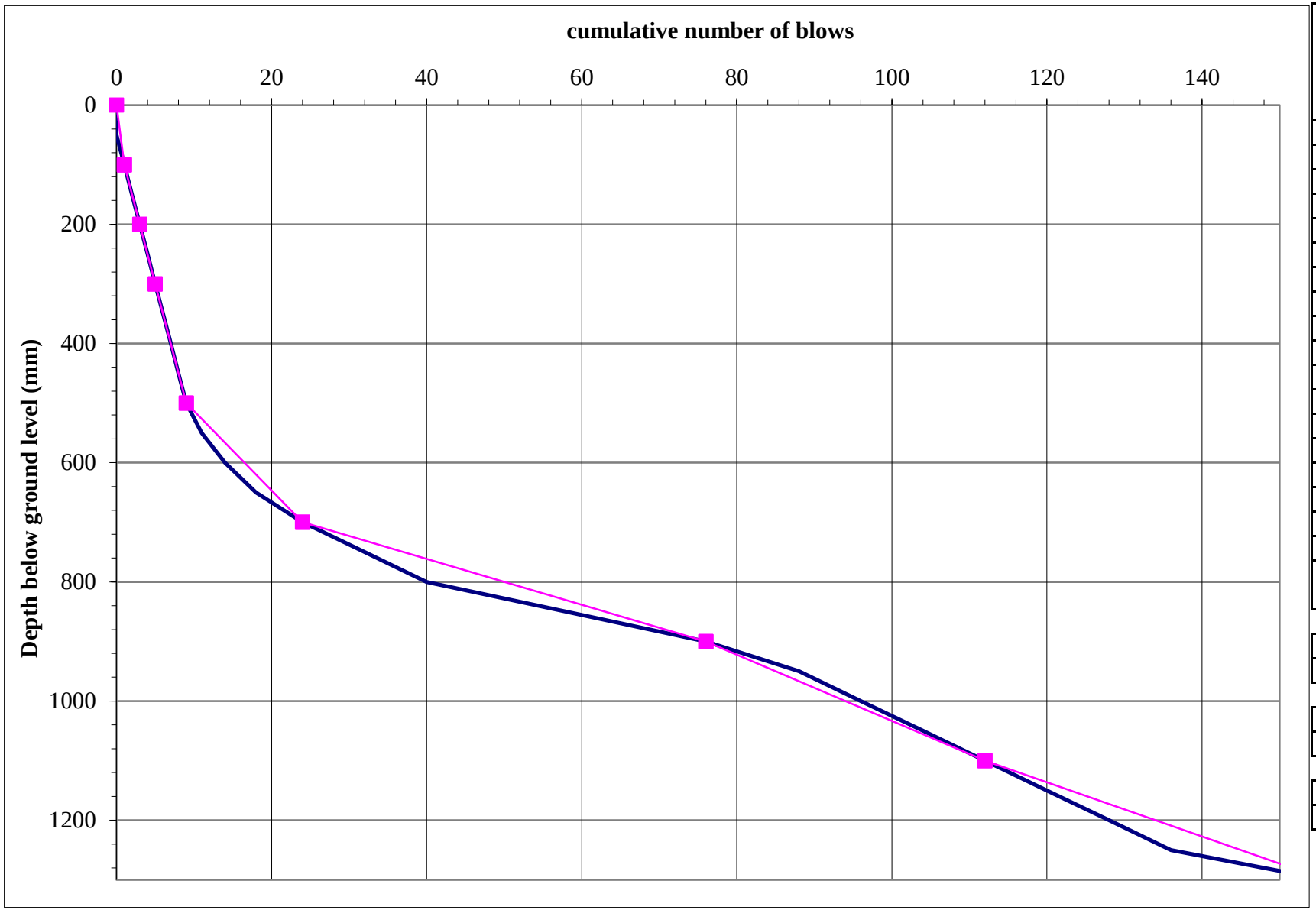
Test Number: TP256

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0 100	100	1.2
100 200	50	2.9
200 300	50	2.9
300 500	50	2.9
500 700	13	15.6
700 900	4	76.4
900 1100	6	47.7
1100 1300	5	62

Endeavour Drilling Ltd.

Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project: Land North of Horsham

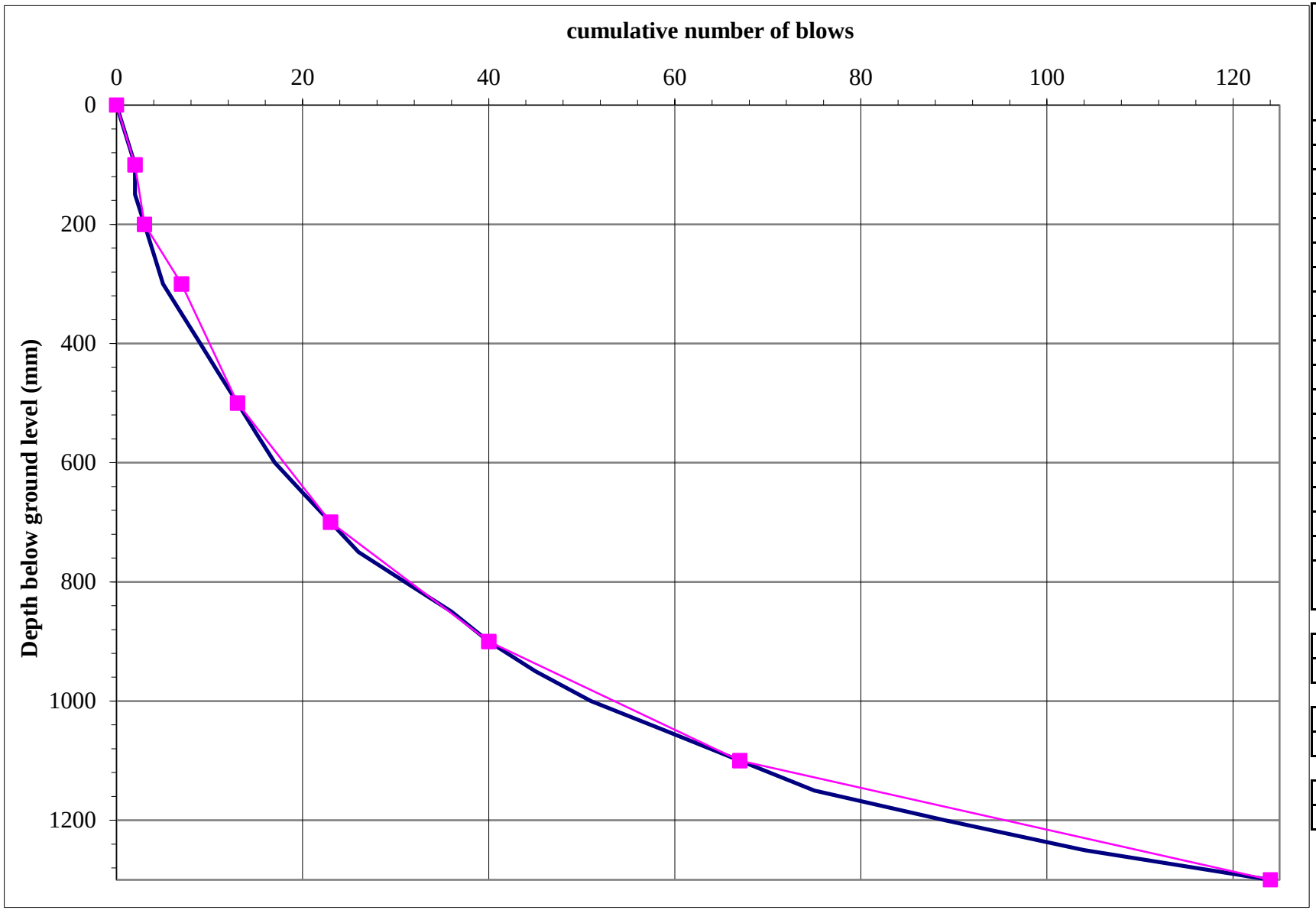
Test Number: TP257

CBR estimated using Kleyn & Van Heerden (1983):

Log CBR = 2.632-1.28 Log (mm/blow)

Report No: J4175

Date: 30.01.2020



depth from to (mm)	mm/blow	CBR (%)
0	50	2.9
100		
100	100	1.2
200		
200	25	7.0
300		
300	33	4.8
500		
500	20	9.3
700		
700	12	18.3
900		
900	7	33.0
1100		
1100	4	86
1300		

APPENDIX G

Soakaway Test Results

SOAKAWAY TEST IN TRIAL PIT

PROJECT	J4175 Land North of Horsham		DATE	04.12.19	
CLIENT	PBA/Stantec		TRIAL PIT NO.	TP202	Test 1
PIT DETAILS					
Sidewall Stability	Unstable	Pit infilled Y/N	Yes 20mm gravel to 0.6m		
Depth:	3.0m	Width	0.7m	Length	2.4m
WATER LEVEL BEFORE TEST		Dry	START TIME	10:22:00	

ELAPSED TIME (min:sec)	WATER LEVEL BELOW GROUND LEVEL (m)	ELAPSED TIME (min:sec)	WATER LEVEL BELOW GROUND LEVEL (m)	ELAPSED TIME (min:sec)	WATER LEVEL BELOW GROUND LEVEL (m)
0	1.650	120	1.655	960	1.545
0.5	1.680	180	1.635	1020	1.545
1	1.680	240	1.620	1080	1.540
2	1.685	300	1.610	1140	1.540
3	1.690	360	1.600	1200	1.535
4	1.690	420	1.595	1260	1.535
5	1.690	480	1.585	1320	1.530
10	1.690	540	1.580	1380	1.530
15	1.690	600	1.570	1440	1.525
20	1.690	660	1.565		
30	1.685	720	1.565		
45	1.680	780	1.560		
60	1.680	840	1.555		
90.0	1.665	900	1.550		

TEST CARRIED OUT BY: RAF	REMARKS: Water level rose due to groundwater ingress

APPENDIX H

Hand Excavated Trial Pit Records

endeavour drilling

Contract Name:		Client:			Trial Pit ID:
Land North of Horsham		Legal & General			HP101
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	17/12/2019	JJW	MJS	PRELIM	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed: / Scale:
				Hand Tools	17/01/2020 / 1:30

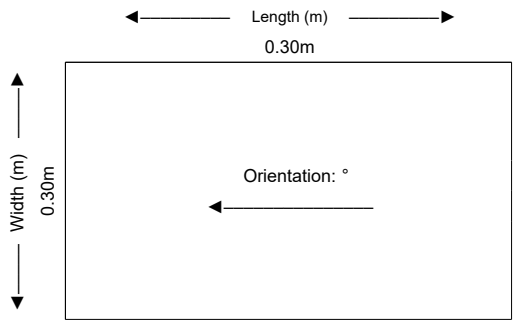
Weather: Occasional showers | Termination: Reached target depth. | Stability: Good

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.10	ES1			(0.30)		TOP SOIL - Dark brown slightly gravelly silty sandy CLAY. Gravel is fine to coarse sub-angular to sub-rounded of brick.		
				0.30				
0.50	ES2			(0.90)		Firm dark brown mottled black and orange slightly silty slightly sandy slightly gravelly CLAY. Gravel is fine to medium sub-angular of extremely weak mudstone. (RESIDUAL WEALD CLAY FORMATION)		
				1.20		End of Trial Pit at 1.20m		

1 2 3 4

Dimensions:

Final Depth: 1.20m



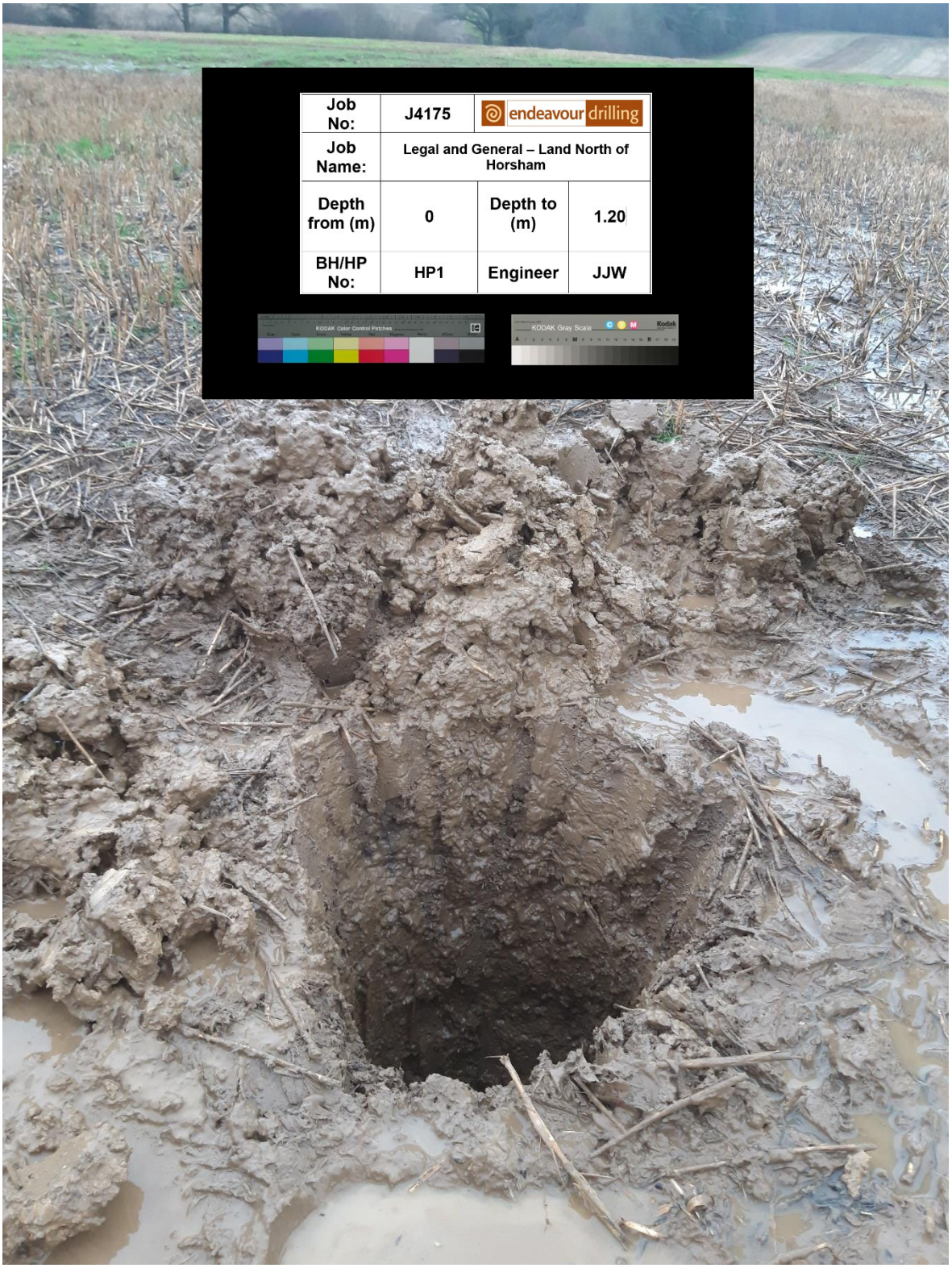
Inclination: °

General Remarks:

1. Inspection pit hand excavated to 1.20mbgl. 2. No groundwater encountered. 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks



HP1 – 0.0mbgl – 1.20mbgl



HP1 – 0.0mbgl – 1.20mbgl

endeavour drilling

Contract Name:		Client:			Trial Pit ID:
Land North of Horsham		Legal & General			HP102
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	17/12/2019	JJW	MJS	PRELIM	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed: / Scale:
				Hand Tools	17/01/2020 / 1:30

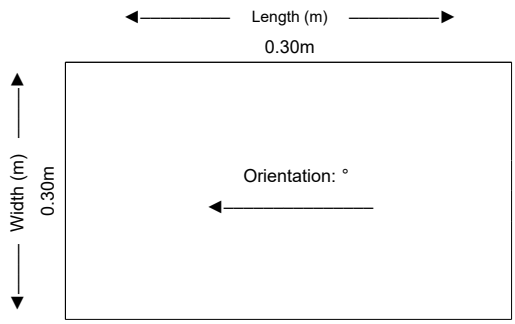
Weather: Occasional showers | Termination: Reached target depth. | Stability: Good

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.10	ES1			(0.30)		TOP SOIL - Dark brown silty sandy slightly gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded of brick.		
				0.30				
0.50	ES2			(0.90)		Firm to stiff dark brown slightly gravelly silty sandy CLAY. Gravel is fine to medium sub-angular of extremely weak mudstone. (RESIDUAL WEALD CLAY FORMATION)		
				1.20		End of Trial Pit at 1.20m		

1 2 3 4

Dimensions:

Final Depth: 1.20m



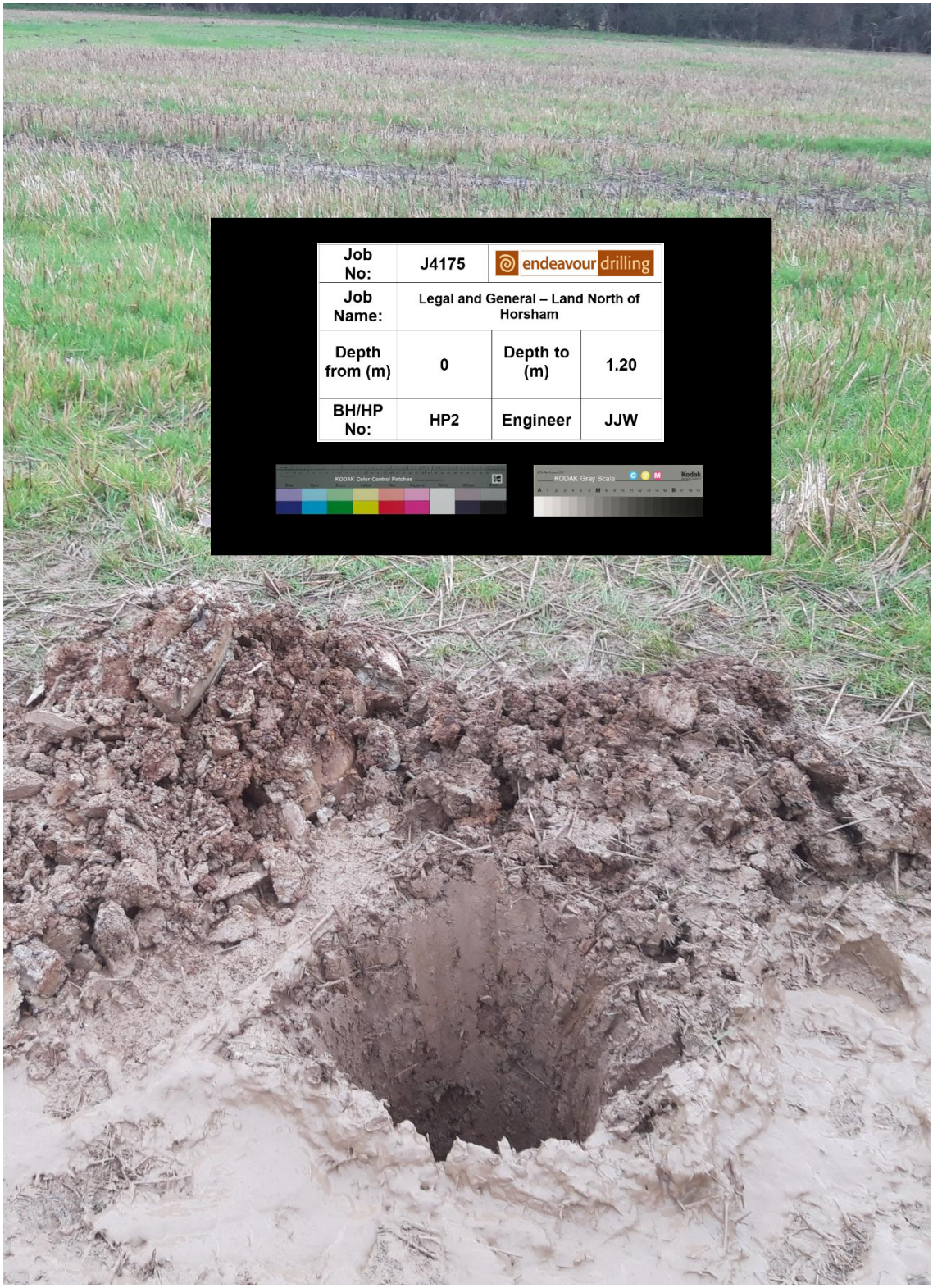
Inclination: °

General Remarks:

1. Inspection pit hand excavated to 1.20mbgl. 2. Ground water encountered at 0.50mbgl (slow inflow) 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
0.50			0		Perched, slow inflow.



HP2 – 0.0mbgl – 1.20mbgl



HP2 – 0.0mbgl – 1.20mbgl

endeavour drilling

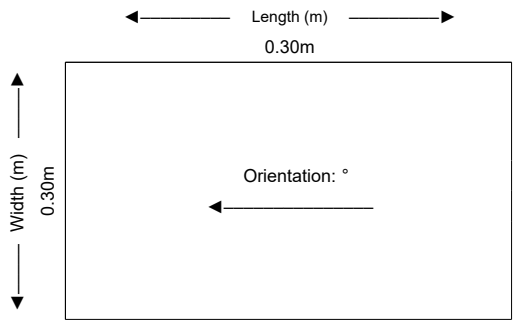
Contract Name:		Client:			Trial Pit ID:
Land North of Horsham		Legal & General			HP103
Contract Number:	Date Started:	Logged By:	Checked By:	Status:	Sheet 1 of 1
J4175	17/12/2019	JJW	MJS	PRELIM	
Trial Pit Log	Easting:	Northing:	Ground Level:	Plant Used:	Date Printed: / Scale:
				Hand Tools	17/01/2020 / 1:30
Weather: Occasional showers		Termination: Reached target depth.		Stability: Good	

Samples & In Situ Testing			Strata Details				Water	Backfill
Depths	Sample ID	Test Result	Reduced Level	Depth (m) (Thickness)	Legend	Strata Description		
0.10	ES1			(0.30)		TOP SOIL - Dark brown silty sandy slightly gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded of brick.		
				0.30				
0.50	ES2			(0.90)		Stiff dark reddish brown mottled grey and orange slightly silty slightly sandy slightly gravelly CLAY. Gravel is fine to medium sub-angular of extremely weak mudstone. (RESIDUAL WEALD CLAY FORMATION)		
				1.20		End of Trial Pit at 1.20m		

1 2 3 4

Dimensions:

Final Depth: 1.20m



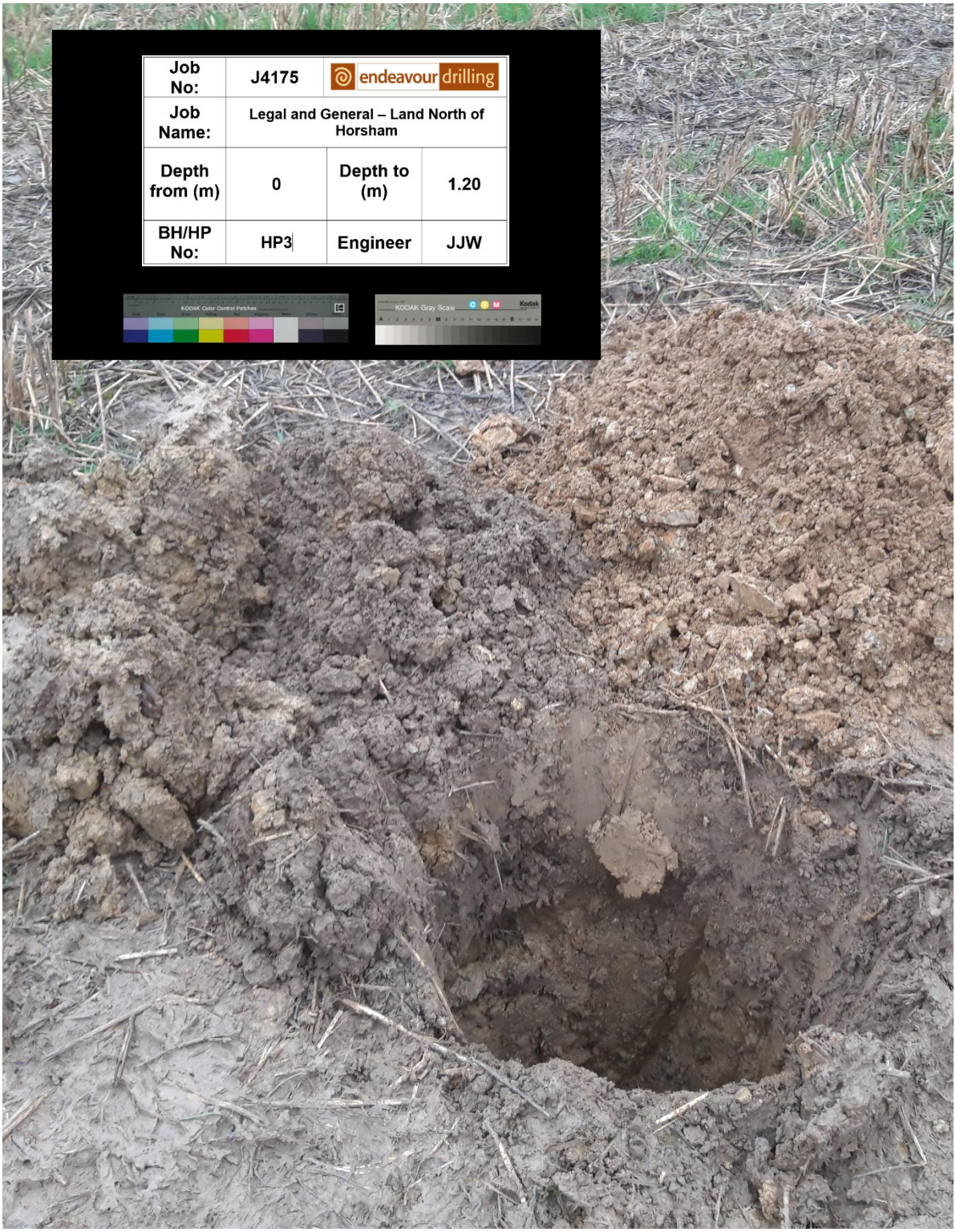
Inclination: °

General Remarks:

1. Inspection pit hand excavated to 1.20mbgl. 2. No groundwater encountered. 3. Backfilled with arisings on completion.

Water Strikes

Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks



HP1 – 0.0mbgl – 1.20mbgl



HP1 – 0.0mbgl – 1.20mbgl

APPENDIX I

Monitoring Records

endeavour drilling

Gas and Water Level Readings

Client: PBA / STANTEC

Site: HORSHAM

Date: 03/01/20

Remarks:

It should be noted it was not possible to get a reliable flow reading within some window samples/boreholes due to the water level being above the responsive zone.

Window Sample No.	Round	Date monitored	Install depth (mbgl)	Depth dipped (mbgl)	CH4 % Peak/stable	CO2 % Peak/Stable	O2 %	mB	H2S ppm	LEL	CO ppm	Flow l/h peak/stable	Water Level (mbgl)	Water samples taken	PID Reading (ppm)	Gas Analyser	Any Colouration / Odour noted / Comments
BH201	1	03/01/2020	6.00	6.00	0	3.1	11.4	1018	0	0	0	0.10	2.68	NO	0	GA2000	-
BH202	1	03/01/2020	7.00	7.00	0	0.1	19.9	1018	0	0	4	0.10	3.2	NO	0	GA2000	-
BH203	1	03/01/2020	6.00	5.50	0	1.0	10.7	1017	0	0	0	2.80	1.55	NO	0	GA2000	-
BH204	1	03/01/2020	6.00	3.40	0.0	0.8	17.2	1016	0	0	0	0	2	NO	0	GA2000	-
BH205	1	03/01/2020	6.00	5.93	0	1.8	15.4	1017	0	0	0	0	2.5	NO	0	GA2000	-
BH206	1	03/01/2020	6.00	6.00	0	0	20.3	1018	0	0	0	0	1.24	NO	0	GA2000	-
BH207	1	03/01/2020	7.00	5.20	0	0.2	20.4	1018	0	0	1	0	2.48	NO	0	GA2000	-
BH208	1	03/01/2020	6.00	5.87	0	0.6	19.2	1017	0	0	3	0.3	1.12	NO	0	GA2000	Fast Inflow
WS201	1	03/01/2020	2.00	1.90	0	5.9	13	1018	0	0	4	0.3	Ground Level	NO	0	GA2000	-
WS202A	1	03/01/2020	1.80	1.72	9	2.1	18.2	1008	0	0	6	-	0.73	NO	0	GA2000	No flow recorded
WS204A	1	03/01/2020	2.00	1.89	2	14.8	11.5	1018	0	3	48	-	0.9	NO	0.80	GA2000	No flow recorded
WS205A	1	03/01/2020	1.60	1.55	0.2	1.7	12.4	1018	0	4	1	0.2	0.59	NO	0	GA2000	Fast inflow
WS206	1	03/01/2020	2.00	1.95	0.5	20.4	13	1017	0	8	6	0.3	0.58	NO	12	GA2000	-
WS207A	1	03/01/2020	4.50	4.31	0	0.7	15.6	1008	0	0	0	0	1.76	NO	1	GA2000	-

endeavour drilling

Gas and Water Level Readings

Client: PBA / STANTEC

Site: HORSHAM

Date: 17/01/20

Remarks:

It should be noted it was not possible to get a reliable flow reading within some window samples/boreholes due to the water level being above the responsive zone.

Window Sample No.	Round	Date monitored	Install depth (mbgl)	Depth dipped (mbgl)	CH4 % Peak/stable	CO2 % Peak/Stable	O2 %	mB	H2S ppm	LEL	CO ppm	Flow l/h peak/stable	Water Level (mbgl)	Water samples taken	PID Reading (ppm)	Gas Analyser	Any Colouration / Odour noted / Comments
BH201	2	17.01.2020	6.00	6.00	0	3.0	0.9	1009	0	0	0	-0.20	2.61	NO	-	GA2000	-
BH202	2	17.01.2020	7.00	7.00	0	0.1	18.6	1008	0	0	6	0	3.1	NO	-	GA2000	-
BH203	2	17.01.2020	6.00	5.50	0	1.9	17.7	1009	0	0	0	-0.10	2.01	NO	-	GA2000	-
BH204	2	17.01.2020	6.00	3.40	0.0	1.1	15.3	1009	0	0	1	-1.50	1.56	NO	-	GA2000	-
BH205	2	17.01.2020	6.00	5.93	0	2.1	15.4	1009	0	0	0	1.1	0.94	NO	-	GA2000	-
BH206	2	17.01.2020	6.00	6.00	0	0	16.2	1007	0	0	1	1	0.43	NO	-	GA2000	-
BH207	2	17.01.2020	7.00	5.20	0	0.2	20.2	1008	0	0	0	0.3	2.40	NO	-	GA2000	-
BH208	2	17.01.2020	6.00	5.87	0	2.5	17	1007	0	0	3	-1.4	0.5	NO	-	GA2000	Fast Inflow
WS201	2	17.01.2020	2.00	1.90	0	0.3	3.3	1008	0	0	0	-	0.75	NO	-	GA2000	No flow recorded
WS202A	2	17.01.2020	1.80	1.72	0	3	15.2	1005	0	0	0	-	0.20	NO	-	GA2000	No flow recorded
WS204A	2	17.01.2020	2.00	1.89	0.1	16	4.2	1004	0	2	1	-	1.04	NO	-	GA2000	No flow recorded
WS205A	2	17.01.2020	1.60	1.55	0	6.5	16.1	1004	0	0	0	-	0.84	NO	-	GA2000	Fast inflow & No flow recorded
WS206	2	17.01.2020	2.00	1.95	0.3	13.6	14.5	1003	0	5	1	-	1.04	NO	-	GA2000	No flow recorded
WS207A	2	17.01.2020	4.50	4.31	0	1.1	14.1	1008	0	0	0	0	1.45	NO	-	GA2000	-

endeavour drilling

Gas and Water Level Readings

Client: PBA / STANTEC

Site: HORSHAM

Date: 29/01/20

Remarks:

It should be noted it was not possible to get a reliable flow reading within some window samples/boreholes due to the water level being above the responsive zone.

Window Sample No.	Round	Date monitored	Install depth (mbgl)	Depth dipped (mbgl)	CH4 % Peak/stable	CO2 % Peak/Stable	O2 %	mB	H2S ppm	LEL	CO ppm	Flow l/h peak/stable	Water Level (mbgl)	Water samples taken	PID Reading (ppm)	Gas Analyser	Any Colouration / Odour noted / Comments
BH201	3	29.01.2020	6.00	6.00	0.0	2.9	2.7	1007	0	0	0	0.0	2.45	NO	-	GA2000	
BH202	3	29.01.2020	7.00	7.00	0.0	0.2	18.5	1007	0	0	4	0.0	2.80	NO	-	GA2000	
BH203	3	29.01.2020	6.00	5.50	0.0	0.4	19.2	1006	0	0	0	-0.1	1.90	NO	-	GA2000	
BH204	3	29.01.2020	6.00	3.40	0.0	0.5	18	1006	0	0	0	0.0	2.11	NO	-	GA2000	
BH205	3	29.01.2020	6.00	5.93	0.0	1.2	18.2	1006	0	0	0	0	1.57	NO	-	GA2000	
BH206	3	29.01.2020	6.00	6.00	0.0	0.3	19.7	1007	0	0	0	0.8	1.07	NO	-	GA2000	
BH207	3	29.01.2020	7.00	5.20	0.0	6.2	20	1007	0	0	0	0	2.45	NO	-	GA2000	
BH208	3	29.01.2020	6.00	5.87	0.0	0.1	20.1	1007	0	0	0	0	1.06	NO	-	GA2000	
WS201	3	29.01.2020	2.00	1.90	0.0	3.4	16.9	1007	0	0	0	-	1.00	NO	-	GA2000	No flow recorded
WS202A	3	29.01.2020	1.80	1.72	0.0	2.8	19	1007	0	0	1	-	0.72	NO	-	GA2000	No flow recorded
WS204A	3	29.01.2020	2.00	1.89	0.0	6.5	14.6	1007	0	1	1	-0.3	0.78	NO	-	GA2000	
WS205A	3	29.01.2020	1.60	1.55	0.0	5	16.2	1006	0	0	6	0.6	0.55	NO	-	GA2000	
WS206	3	29.01.2020	2.00	1.95	0.0	14.9	12.6	1006	0	0	5	-1.3	0.94	NO	-	GA2000	
WS207A	3	29.01.2020	4.50	4.31	0.0	0.9	16.1	1007	0	0	0	0	1.68	NO	-	GA2000	

endeavour drilling

Gas and Water Level Readings

Client: PBA / STANTEC

Site: HORSHAM

Date: 13/02/20

Remarks:

It should be noted it was not possible to get a reliable flow reading within some window samples/boreholes due to the water level being above the responsive zone.

Window Sample No.	Round	Date monitored	Install depth (mbgl)	Depth dipped (mbgl)	CH4 % Peak/stable	CO2 % Peak/Stable	O2 %	mB	H2S ppm	LEL	CO ppm	Flow l/h peak/stable	Water Level (mbgl)	Water samples taken	PID Reading (ppm)	Gas Analyser	Any Colouration / Odour noted / Comments
BH201	4	13.02.2020	6.00	6.00	0.1	2.7	7.9	1004	0	1	0	0.0	1.80	NO	-	GA2000	
BH202	4	13.02.2020	7.00	7.00	0.0	0.3	18.9	1004	0	0	0	0.0	2.76	NO	-	GA2000	
BH203	4	13.02.2020	6.00	5.50	0.0	0.4	19.7	1014	0	0	0	0.0	1.92	NO	-	GA2000	
BH204	4	13.02.2020	6.00	3.40	0.0	0.7	17.6	1014	0	0	0	-4.0 / -3.0	2.28	NO	-	GA2000	
BH205	4	13.02.2020	6.00	5.93	0.0	1.1	17.9	1014	0	0	0	0.0	0.95	NO	-	GA2000	
BH206	4	13.02.2020	6.00	6.00	0.0	0.5	19.8	1016	0	0	0	0.0	0.57	NO	-	GA2000	
BH207	4	13.02.2020	7.00	5.20	0.0	0.3	18.4	1016	0	0	0	-0.1	2.30	NO	-	GA2000	
BH208	4	13.02.2020	6.00	5.87	0.0	1.9	18.8	989	0	0	0	0.0	0.79	NO	-	GA2000	
WS201	4	13.02.2020	2.00	1.90	0.0	4.4	15.1	1004	0	0	0	-	0.76	NO	-	GA2000	No flow recorded
WS202A	4	13.02.2020	1.80	1.72	0.0	3.5	17.9	991	0	0	0	-	0.64	NO	-	GA2000	No flow recorded
WS204A	4	13.02.2020	2.00	1.89	0.0	11.5	15	991	0	1	0	-	0.76	NO	-	GA2000	No flow recorded
WS205A	4	13.02.2020	1.60	1.55	0.0	2.9	17	991	0	0	2	-0.9	0.43	NO	-	GA2000	
WS206	4	13.02.2020	2.00	1.95	0.0	15.8	13	991	0	0	0	-3.0	0.82	NO	-	GA2000	
WS207A	4	13.02.2020	4.50	4.31	0.0	1.5	13.8	1016	0	0	0	-0.1	1.35	NO	-	GA2000	

endeavour drilling

Gas and Water Level Readings

Client: PBA / STANTEC

Site: HORSHAM

Date: 28/02/2020

Remarks:

It should be noted it was not possible to get a reliable flow reading within some window samples/boreholes due to the water level being above the responsive zone.

Window Sample No.	Round	Date monitored	Install depth (mbgl)	Depth dipped (mbgl)	CH4 % Peak/stable	CO2 % Peak/Stable	O2 %	mB	H2S ppm	LEL	CO ppm	Flow l/h peak/stable	Water Level (mbgl)	Water samples taken	PID Reading (ppm)	Gas Analyser	Any Colouration / Odour noted / Comments
BH201	5	28/02/2020	6.00	6.00	0	2.7	18	1005	0	0	0	0	1.40	NO	-	GA2000	
BH202	5	28/02/2020	7.00	7.00	0	0.3	18.7	1005	0	0	0	0.1	2.70	NO	-	GA2000	
BH203	5	28/02/2020	6.00	5.50	0	0.7	19.5	1004	0	0	0	0	4.50	NO	-	GA2000	
BH204	5	28/02/2020	6.00	3.40	0	0.8	13	1004	0	0	1	+0.8/+0.4	Dry?	NO	-	GA2000	
BH205	5	28/02/2020	6.00	5.93	0	0.1	20.9	1004	0	0	0	0	1.40	NO	-	GA2000	
BH206	5	28/02/2020	6.00	6.00	0	0.1	21.2	1004	0	0	0	0	0.55	NO	-	GA2000	
BH207	5	28/02/2020	7.00	5.20	0	0.2	20.2	1004	0	0	0	0	2.25	NO	-	GA2000	
BH208	5	28/02/2020	6.00	5.87	0	0.3	20.1	1005	0	0	0	+0.7/+0.1	0.9	NO	-	GA2000	
WS201	5	28/02/2020	2.00	1.90	0	3.2	16.8	1006	0	0	0	-	0.8	NO	-	GA2000	
WS202A	5	28/02/2020	1.80	1.72	0	2.7	19	1006	0	0	0	-	0.71	NO	-	GA2000	
WS204A	5	28/02/2020	2.00	1.89	0	11.5	14.8	1006	0	1	0	-0.1	0.79	NO	-	GA2000	
WS205A	5	28/02/2020	1.60	1.55	0	3	16.1	1006	0	0	0	+0.2	0.50	NO	-	GA2000	
WS206	5	28/02/2020	2.00	1.95	0	16	12.8	1006	0	0	0	+1.3	0.88	NO	-	GA2000	
WS207A	5	28/02/2020	4.50	4.31	0	0.9	14	1005	0	0	0	0	1.40	NO	-	GA2000	

endeavour drilling

Gas and Water Level Readings

Client: PBA / STANTEC

Site: HORSHAM

Date: 13/03/2020

Remarks:

It should be noted it was not possible to get a reliable flow reading within some window samples/boreholes due to the water level being above the responsive zone.

Window Sample No.	Round	Date monitored	Install depth (mbgl)	Depth dipped (mbgl)	CH4 % Peak/stable	CO2 % Peak/Stable	O2 %	mB	H2S ppm	LEL	CO ppm	Flow l/h peak/stable	Water Level (mbgl)	Water samples taken	PID Reading (ppm)	Gas Analyser	Any Colouration / Odour noted / Comments
BH201	6	13/03/2020	6.00	6.00	0.1	2.5	16.2	1016	0	1	0	0.0	1.32	NO	-	GA2000	
BH202	6	13/03/2020	7.00	7.00	0.0	0.7	20.8	1016	0	0	0	+0.1	2.85	NO	-	GA2000	
BH203	6	13/03/2020	6.00	5.50	0.0	0.8	19.9	1017	0	0	0	0.0	1.95	NO	-	GA2000	
BH204	6	13/03/2020	6.00	3.40	0.0	0.9	13.2	1017	0	0	0	0.0	2.25	NO	-	GA2000	
BH205	6	13/03/2020	6.00	5.93	0.0	1.3	16.4	1017	0	0	0	0.0	1.32	NO	-	GA2000	
BH206	6	13/03/2020	6.00	6.00	0.0	0.6	21.1	1017	0	0	0	0.0	1.23	NO	-	GA2000	
BH207	6	13/03/2020	7.00	5.20	0.0	0.1	21.1	1017	0	0	0	0.0	2.42	NO	-	GA2000	
BH208	6	13/03/2020	6.00	5.87	0.0	1.4	21.1	1017	0	0	0	0.0	1.10	NO	-	GA2000	
WS201	6	13/03/2020	2.00	1.90	0.0	4.6	16.3	1016	0	1	1	+12.0	0.62	NO	-	GA2000	
WS202A	6	13/03/2020	1.80	1.72	0.0	2.9	18.2	1015	0	0	4	+0.6	0.59	NO	-	GA2000	
WS204A	6	13/03/2020	2.00	1.89	0.0	15.5	6.7	1015	0	0	2	-3.0/-1.2	1.00	NO	-	GA2000	
WS205A	6	13/03/2020	1.60	1.55	0.0	7	16.2	1015	0	0	1	+1.5/1.0	0.50	NO	-	GA2000	
WS206	6	13/03/2020	2.00	1.95	0.0	14	11.6	1015	0	0	5	+0.6	0.65	NO	-	GA2000	
WS207A	6	13/03/2020	4.50	4.31	0.0	2	15.6	1017	0	0	0	-0.2/0.0	1.73	NO	-	GA2000	

APPENDIX J

Geotechnical Laboratory Results

TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79307
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	09/01/2020
Site Address:	L& G - LNO Horsham	Sampled By:	Not Given

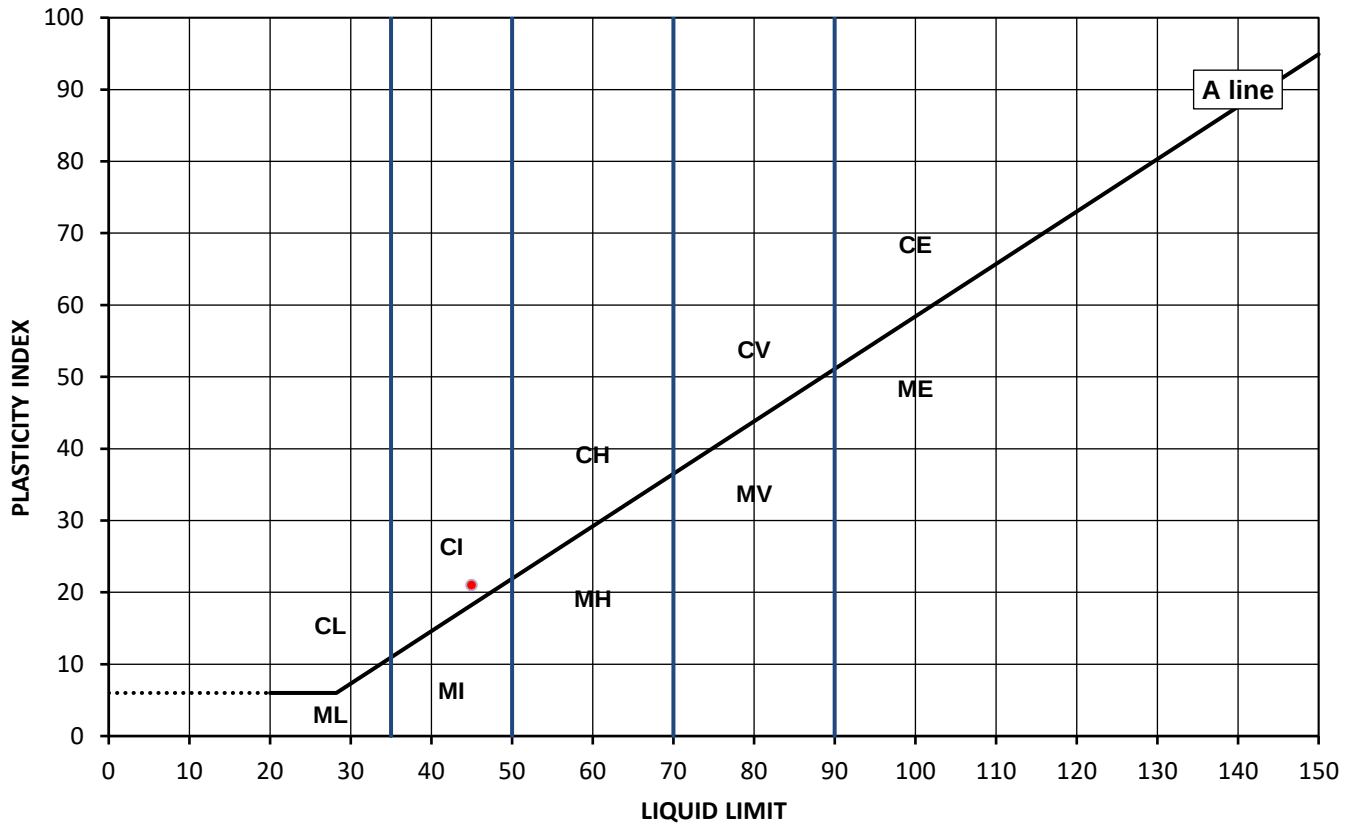
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403208	Depth Top [m]:	2.00
Hole No.:	BH201	Depth Base [m]:	2.45
Sample Reference:	Not Given	Sample Type:	UT1
Soil Description:	Brown to grey clayey SHALE		

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
15	45	24	21	78



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report are representative of the samples submitted for analysis. Any assessment of compliance with specifications based ttical results in a report take in to account no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request."

Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 10/01/2020

GF 236.6

SUMMARY REPORT

Summary of Classification Test Results

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

Tested in Accordance with:

MC by BS 1377-2: 1990: Clause 3.2; WC by BS EN 17892-1: 2014; Atterberg by BS 1377-2: 1990: Clause 4.3, Clause 4.4 and 5; PD by BS 1377-2: 1990: Clause 8.2

Client: Endeavour Drilling

Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland

Site Address: L& G - LNO Horsham

Client Reference: J4175
Job Number: 20-79307
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 09/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	MC	WC	Atterberg				Density			Total Porosity#		
		Reference	Depth Top	Depth Base	Type					% Passing 425um	LL	PL	PI	bulk	dry	PD			
			m	m				%	%	%	%	%	%	Mg/m3	Mg/m3	Mg/m3	%		
1403208	BH201	Not Given	2.00	2.45	UT1	Brown to grey clayey SHALE	Atterberg 4 Point	15		78	45	24	21						
1403222	BH206	Not Given	3.00	3.45	UT1	Brownish grey sandy CLAY	Atterberg 4 Point	20		100	36	19	17						

Note: # Non accredited; NP - Non plastic

Comments:

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report are representative of the samples submitted for analysis. Any assessment of compliance with specifications based ttical results in a report take in to account no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request."

Signed:

Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 10/01/2020

GF 238.8

SUMMARY REPORT

Summary of Point Load Strength Index Tests Results

Tested in Accordance with: ISRM: 2007, pages 125-132

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

Client: Endeavour Drilling

Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD

Contact: Oliver Wendland

Site Address: L& G - LNO Horsham

Client Reference: J4175
Job Number: 20-79307
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 09/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks # (including water content if measured)	Specimen Reference	Test Type see ISRM		Failure Valid (Y/N)	Dimensions				Force P	Equivalent diameter, De	Point Load Strength Index	
		Reference	Depth Top	Depth Base	Type				Type (D, A, I, B)	Direction (L, P or U)		Lne	W	Dps	Dps'			Is	Is(50)
			m	m								mm	mm	mm	mm	kN	mm	MPa	MPa
1403209	BH201	Not Given	3.10	3.42	C2	Mottled grey CLAY	w = 17.1%	1	A	U	YES	-	87.0	60.0	31.0	0.6	58.6	0.17	0.18
1403210	BH201	Not Given	6.40	6.75	C5	Grey SILTSTONE	w = 8.5%	1	A	U	YES	-	85.0	48.0	40.0	1.2	65.8	0.27	0.31
1403211	BH201	Not Given	10.68	11.10	C8	Grey SILTSTONE	w = 7.3%	1	A	U	YES	-	86.0	48.0	41.0	1.4	67.0	0.31	0.36
1403212	BH202	Not Given	2.40	2.49	C2	Light brown mottled light grey SILTSTONE	w = 11.5%, wet	1	A	P	YES	-	86.0	3.0	54.0	0.3	76.9	0.04	0.05
1403213	BH202	Not Given	8.40	8.74	C6	Grey SILTSTONE	w = 8.9%	1	A	U	YES	-	86.0	47.0	40.0	1.3	66.2	0.31	0.35
1403214	BH202	Not Given	11.00	11.43	C8	Grey SILTSTONE	w = 7.5%	1	A	U	YES	-	86.0	50.0	47.0	1.6	71.7	0.32	0.37
1403215	BH202	Not Given	14.67	14.93	C10	Grey SILTSTONE	w = 6.9%	1	A	U	YES	-	85.0	51.0	45.0	2.4	69.8	0.49	0.57
1403216	BH202	Not Given	16.74	17.04	C12	Grey SILTSTONE	w = 7.5%	1	A	U	YES	-	85.0	54.0	51.0	1.0	74.3	0.19	0.23
1403217	BH203	Not Given	4.70	4.76	C4	Mottled grey vey silty CLAY	w = 13.8%	1	A	P	YES	-	80.0	48.0	32.0	0.3	57.1	0.08	0.08
1403218	BH203	Not Given	8.72	9.00	C7	Grey SILTSTONE	w = 8.8%	1	A	U	YES	-	76.0	53.0	48.0	1.3	68.2	0.28	0.33

Note: # non accredited; Test Type: D - Diametral, A - Axial, I - Irregular Lump, B - Block; Direction: L - parallel to planes of weakness, P - perpendicular to planes of weakness, U - unknown or random;
Dimensions: Dps - Distance between platens (platen separation), Dps' - at failure (see ISRM note 6), Lne - Length from platens to nearest free end W - Width of shortest dimension perpendicular to load, P;
Detailed legend for test and dimensions, based on ISRM, is shown above; Size factor, F = (De/50)0.45 for all tests

Comments:

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report are representative of the samples submitted for analysis. Any assessment of compliance with specifications based ttical results in a report take in to account no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request."

Signed:

Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 10/01/2020

GF 134.9

SUMMARY REPORT

Summary of Point Load Strength Index Tests Results

Tested in Accordance with: ISRM: 2007, pages 125-132

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

Client: Endeavour Drilling

Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD

Contact: Oliver Wendland

Site Address: L& G - LNO Horsham

Client Reference: J4175
Job Number: 20-79307
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 09/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks # (including water content if measured)	Specimen Reference	Test Type see ISRM		Failure Valid (Y/N)	Dimensions				Force P	Equivalent diameter, De	Point Load Strength Index	
		Reference	Depth Top	Depth Base	Type				Type (D, A, I, B)	Direction (L, P or U)		Lne	W	Dps	Dps'			Is	Is(50)
			m	m								mm	mm	mm	mm	kN	mm	MPa	MPa
1403219	BH204	Not Given	3.90	4.00	C3	Mottled brown SHALE	w = 10.5%, wet	1	D	L	YES	45.0	77.0	77.0	70.0	0.1	73.4	0.02	0.02
1403220	BH204	Not Given	4.50	4.58	C4	Brown mottled grey CLAY	w = 17.3%	1	D	U	YES	43.0	81.0	82.0	53.0	0.3	65.5	0.06	0.07
1403221	BH204	Not Given	7.20	7.29	C6	Grey SILTSTONE	w = 10.7%	1	D	U	YES	42.0	72.0	72.0	61.0	0.8	66.3	0.19	0.21
1403225	BH205	Not Given	5.67	5.79	C5	Grey mottled light brown very silty CLAY	w = 15.8%	1	D	L	YES	80.0	76.0	74.0	66.0	0.2	70.8	0.03	0.04
1403226	BH205	Not Given	7.81	7.90	C7	Grey SILTSTONE	w = 10.5%	1	D	U	YES	50.0	78.0	77.0	75.0	0.1	76.5	0.02	0.02
1403223	BH208	Not Given	4.70	4.79	C2	Grey SILTSTONE	w = 10.8%, wet	1	D	L	YES	60.0	79.0	79.0	72.0	0.3	75.4	0.05	0.06
1403224	BH208	Not Given	6.49	6.58	C4	Grey very silty CLAY	w = 11.5%	1	D	U	YES	80.0	84.0	83.0	73.0	0.5	78.3	0.08	0.09

Note: # non accredited; Test Type: D - Diametral, A - Axial, I - Irregular Lump, B - Block; Direction: L - parallel to planes of weakness, P - perpendicular to planes of weakness, U - unknown or random;
Dimensions: Dps - Distance between platens (platen separation), Dps' - at failure (see ISRM note 6), Lne - Length from platens to nearest free end W - Width of shortest dimension perpendicular to load, P;
Detailed legend for test and dimensions, based on ISRM, is shown above; Size factor, F = (De/50)0.45 for all tests

Comments:

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Signed:

Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 10/01/2020

GF 134.9

SUMMARY REPORT

Summary of Uniaxial Compression Test on Rock Test Results

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

Tested in Accordance with: ISRM, 2007, p153, part 1

Client: Endeavour Drilling

Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD

Contact: Oliver Wendland

Site Address: L& G - LNO Horsham

Client Reference: J4175
Job Number: 20-79307
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 09/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Specimen Dimensions (2)				Bulk density (2)	Water Content (1)	Uniaxial Compression (3)			
		Reference	Depth Top m	Depth Base m	Type			Diameter mm	Length mm	H/D	Orientation of sample	Mg/m3	%	Condition	Stress Rate Mpa/s	Mode of failure	UCS Mpa
1403210	BH201	Not Given	6.40	6.75	C5	Grey SILTSTONE	Sample is below recommended length:diameter ratio. *	85.4	188.5	2.2	Vertical	2.38	8.5	as received	0.0350	S + AC	6.0
1403211	BH201	Not Given	10.68	11.10	C8	Grey SILTSTONE	Sample is below recommended length:diameter ratio.	84.3	162.9	1.9	Vertical	2.39	7.3	as received	0.0179	S + AC	5.8
1403213	BH202	Not Given	8.40	8.74	C6	Grey SILTSTONE	Sample is below recommended length:diameter ratio.	86.5	156.7	1.8	Vertical	2.41	8.9	as received	0.0170	S + AC	5.9
1403214	BH202	Not Given	11.00	11.43	C8	Grey SILTSTONE	Sample is below recommended length:diameter ratio.	86.6	155.8	1.8	Vertical	2.40	7.5	as received	0.0170	S + AC	7.8
1403215	BH202	Not Given	14.67	14.93	C10	Grey SILTSTONE	Sample is below recommended length:diameter ratio. *	86.3	161.1	1.9	Vertical	2.41	7.0	as received	0.0513	MS + AC	8.4
1403216	BH202	Not Given	16.74	17.04	C12	Grey SILTSTONE	Sample is below recommended length:diameter ratio.*	85.7	152.1	1.8	Vertical	2.37	7.5	as received	0.0173	MS + AC	12.5
1403218	BH203	Not Given	8.72	9.00	C7	Grey SILTSTONE	Sample is below recommended length:diameter ratio. *	78.7	174.4	2.2	Vertical	2.35	8.8	as received	0.0206	F	2.1

Note: 1 - ISRM p87 test 1, water content at 105 ± 3 oC, specimen as tested for UCS, 2 - ISRM p86 clause (vii), Caliper method used for determination of bulk volume and derivation of bulk density, 3 - ISRM p153 part 1, determination of Uniaxial Compressive Strength (UCS) of Rock Materials, above notes apply unless annotated otherwise in the remarks. Compaction machine: VJ Tech AUTOCON - VJT 51-3011; Mode of failure legend: S - Single shear, MS - multiple shear, AC - Axial cleavage, F - Fragmented

Comments: *Testing completed below time specified in ISRM method, 2007, p153, part1.

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 10/01/2020

GF 223.9

TEST CERTIFICATE

Unconfined Compressive Strength of soil

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Tested in Accordance with: BS 1377-7: 1990: Clause 7.2

Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79307
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	10/01/2020
Site Address:	L& G - LNO Horsham	Sampled By:	Not Given

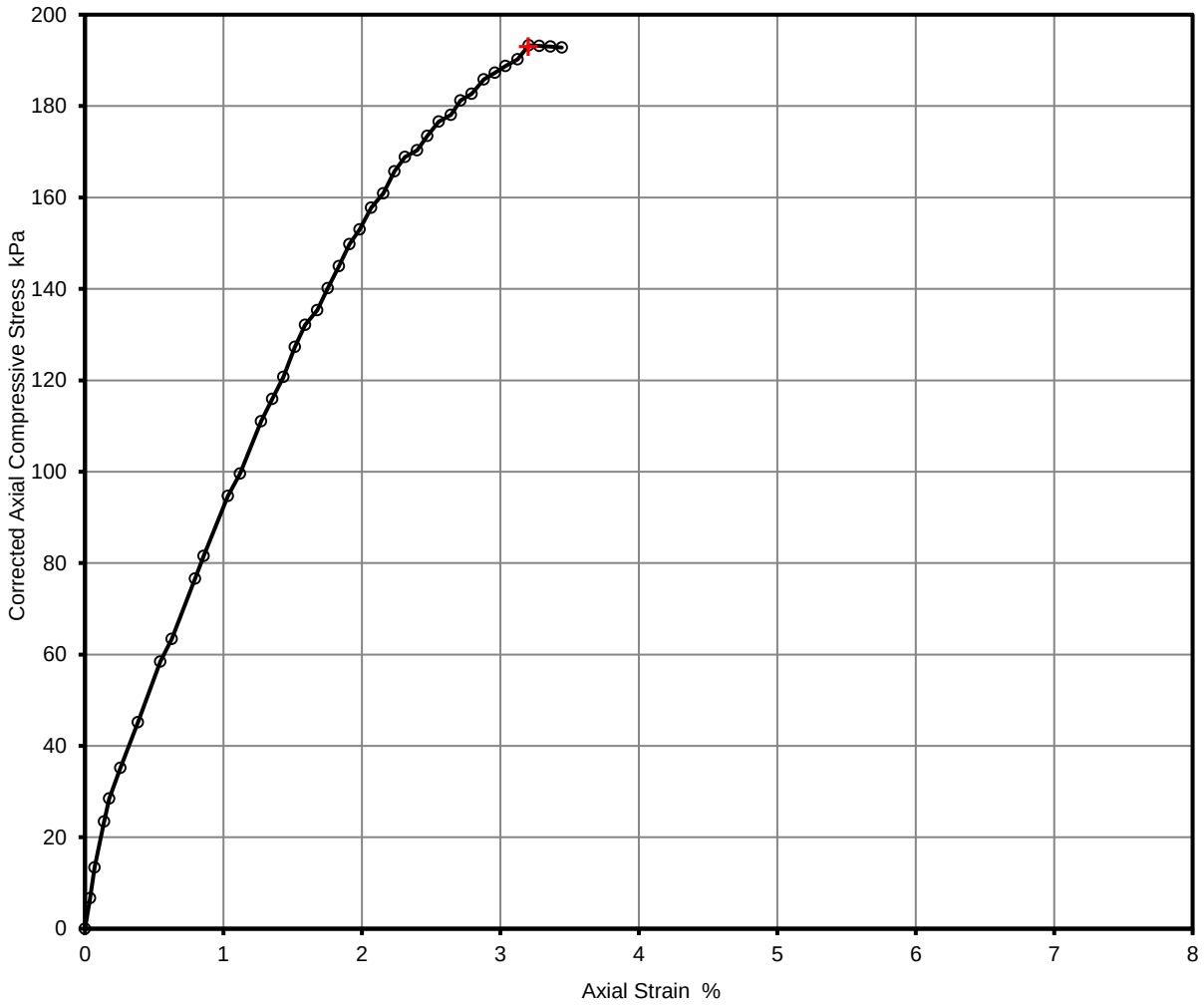
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

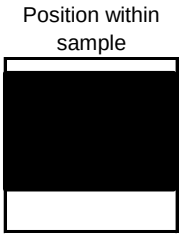
Laboratory Reference:	1403209	Depth Top [m]:	3.10
Hole No.:	BH201	Depth Base [m]:	3.42
Sample Reference:	Not Given	Sample Type:	C2
Sample Description:	Mottled grey CLAY		

Test Number	1		Rate of Strain		0.5	%/min
Length	159.7	mm	At failure	Axial Strain	3.2	%
Diameter	87.1	mm		Unconfined Compressive Strength	193	kPa
Bulk Density	2.25	Mg/m3		Mode of Failure	Brittle	
Moisture Content	17.0	%				
Dry Density	1.92	Mg/m3				

Axial Compressive Stress v Axial Strain



Position within sample





Note: Axial compressive stress corrected for area change, and membrane effects (if used)

Remarks: Sample is below recommended length:diameter ratio.

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 10/01/2020

GF 243.5

TEST CERTIFICATE

Unconsolidated Undrained

Triaxial Compression

Tested in Accordance with:
BS 1377-7: 1990: Clause 8

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79307
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L& G - LNO Horsham	Sampled By:	Not Given

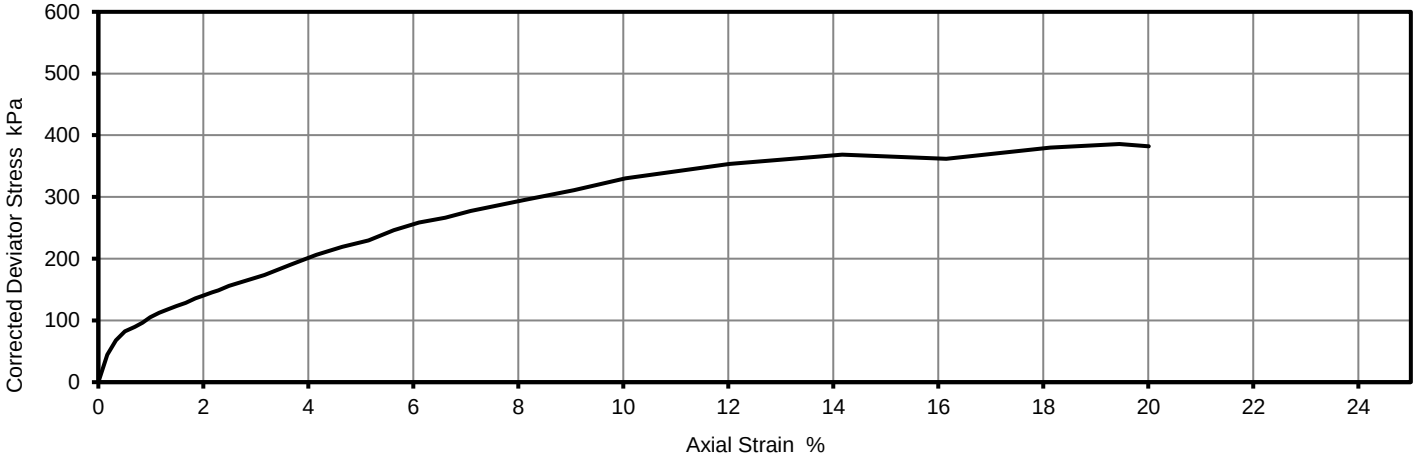
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

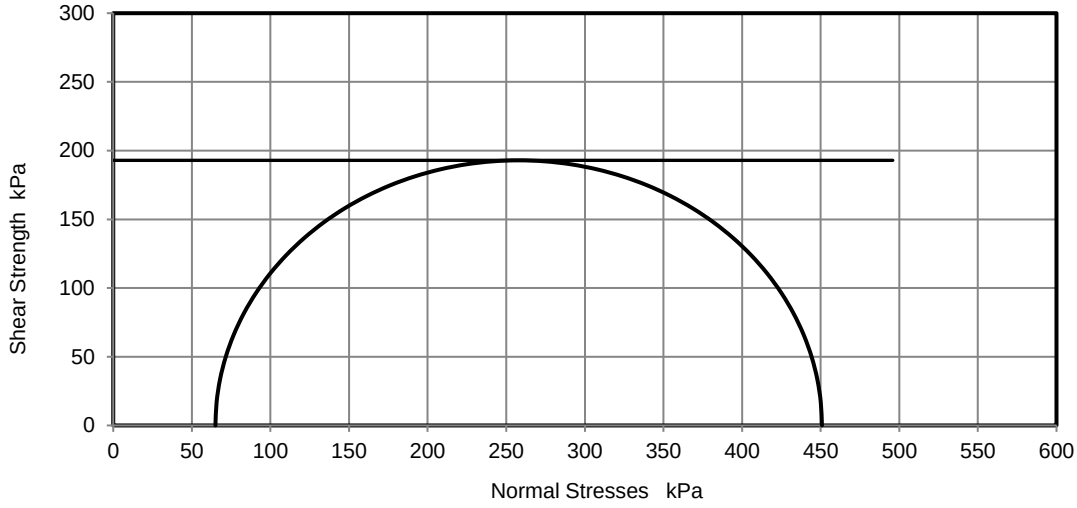
Laboratory Reference:	1403222	Depth Top [m]:	3.00
Hole No.:	BH206	Depth Base [m]:	3.45
Sample Reference:	Not Given	Sample Type:	UT1
Sample Description:	Brownish grey sandy CLAY		

Test Number	1		Rate of Strain	2.00	%/min	
Length	75.17	mm	Cell Pressure	65	kPa	
Diameter	36.75	mm	Axial Strain at failure	19.4	%	
Bulk Density	2.28	Mg/m3	Deviator Stress, (σ1 - σ3)f	386	kPa	
Moisture Content	21	%	Undrained Shear Strength, cu	193	kPa	½(σ1 - σ3)f
Dry Density	1.89	Mg/m3	Mode of Failure	Compound		
Membrane Correction	2.25	kPa	Membrane thickness	0.22	mm	

Deviator Stress v Axial Strain

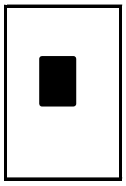


Mohr Circles





Position within sample



Note: Deviator stress corrected for area change and membrane effects. Mohr circles and their interpretation is not covered by BS1377. This is provided for information only.

Remarks:

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 10/01/2020

GF 184.8

TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

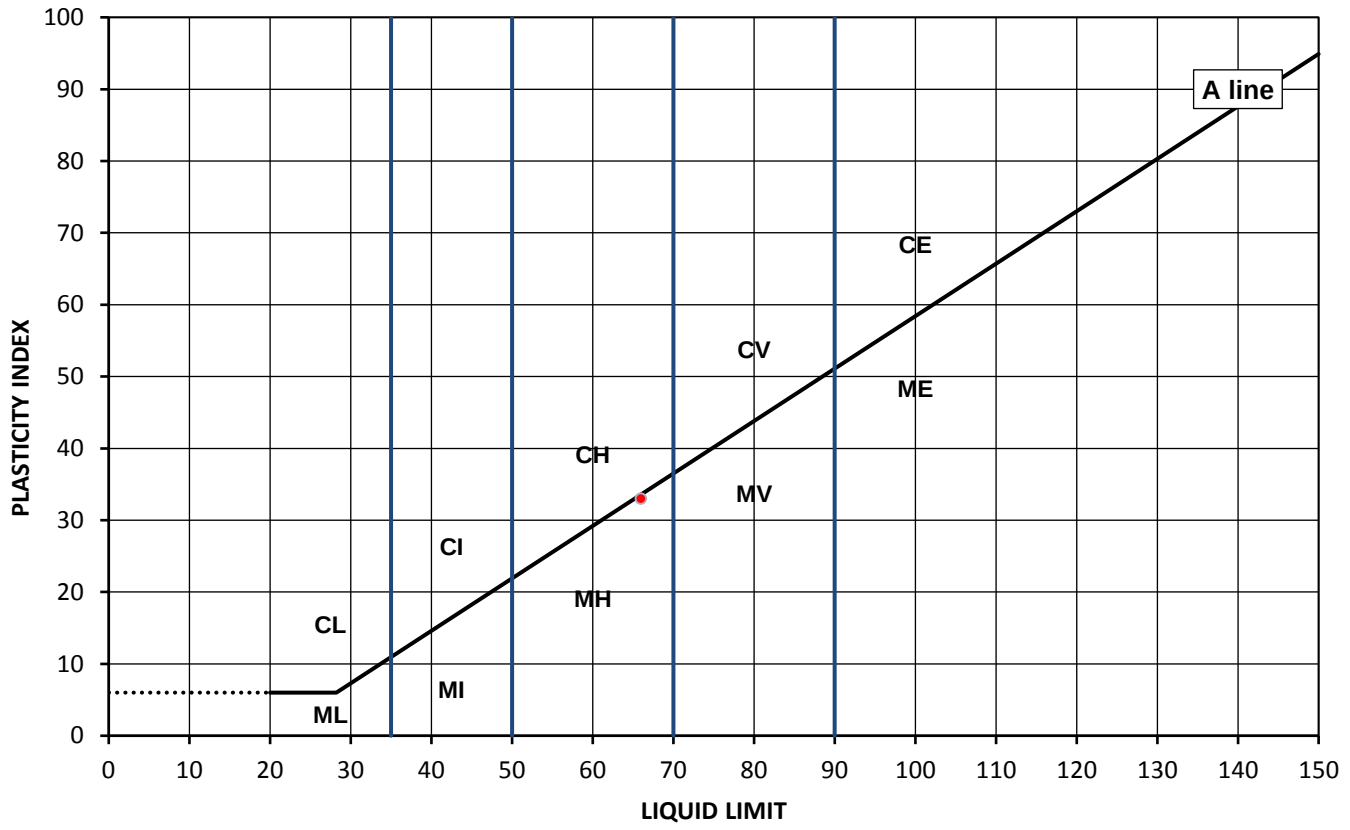
Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403227	Depth Top [m]:	0.60
Hole No.:	TP220	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Soil Description:	Orangish brown slightly gravelly very silty CLAY		
Sample Preparation:	Tested after >425um removed by hand		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
31	66	33	33	99



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

GF 236.6

TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

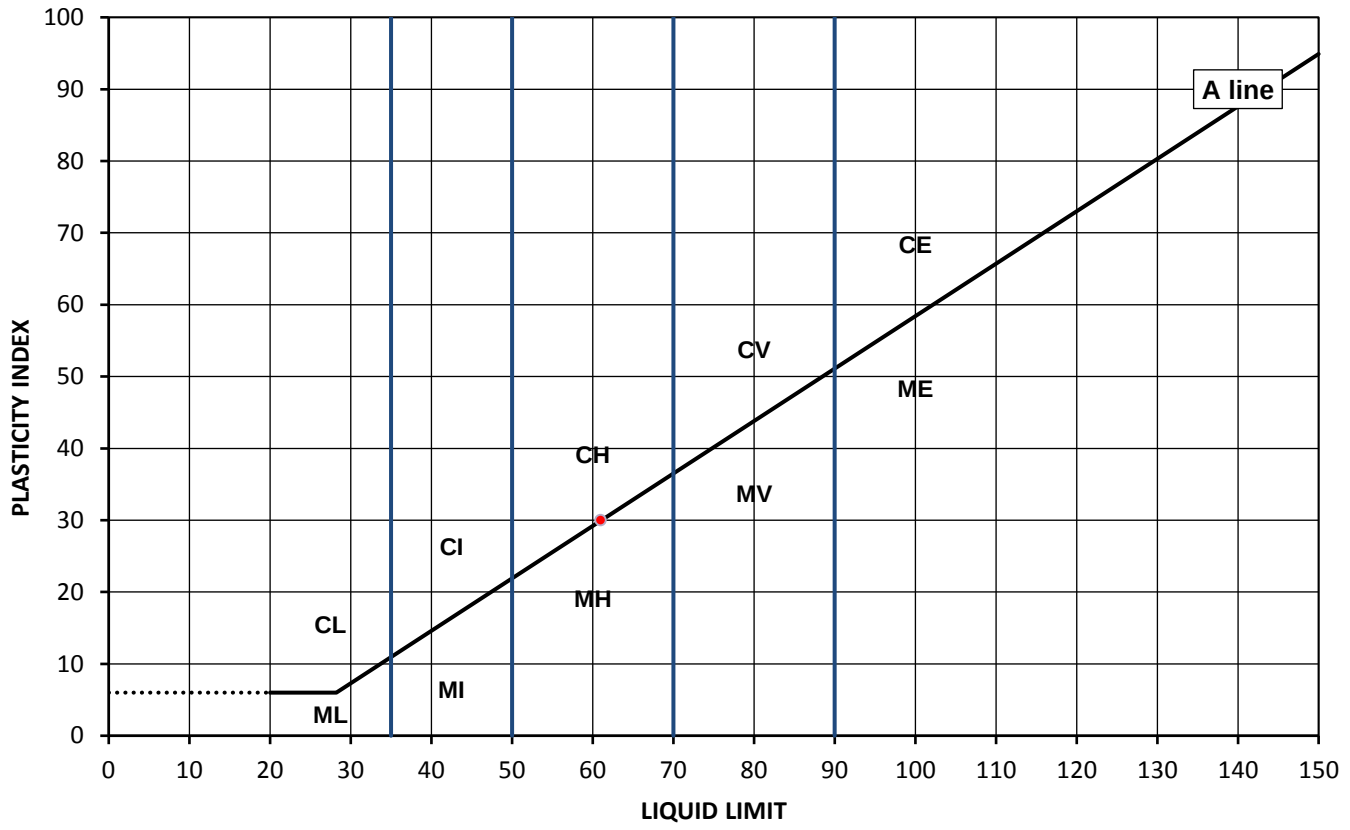
Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403228	Depth Top [m]:	0.60
Hole No.:	TP225	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Soil Description:	Brown slightly gravelly slightly sandy clayey SILT		
Sample Preparation:	Tested after >425um removed by hand		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
29	61	31	30	89



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

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TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

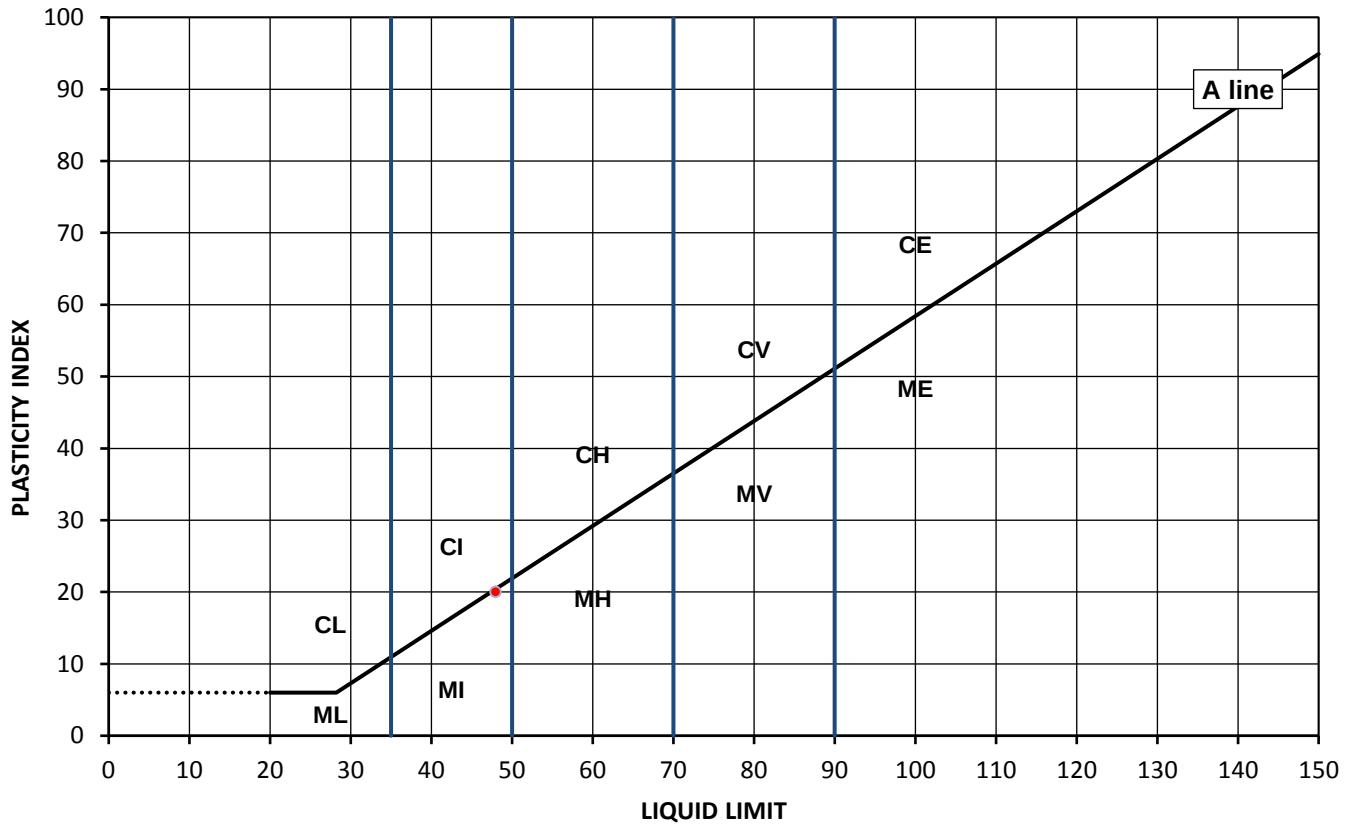
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Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403229	Depth Top [m]:	1.50
Hole No.:	TP237	Depth Base [m]:	Not Given
Sample Reference:	2	Sample Type:	B
Soil Description:	Brown slightly sandy very gravelly CLAY with mudstones		
Sample Preparation:	Tested after washing to remove >425um		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
18	48	28	20	58



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

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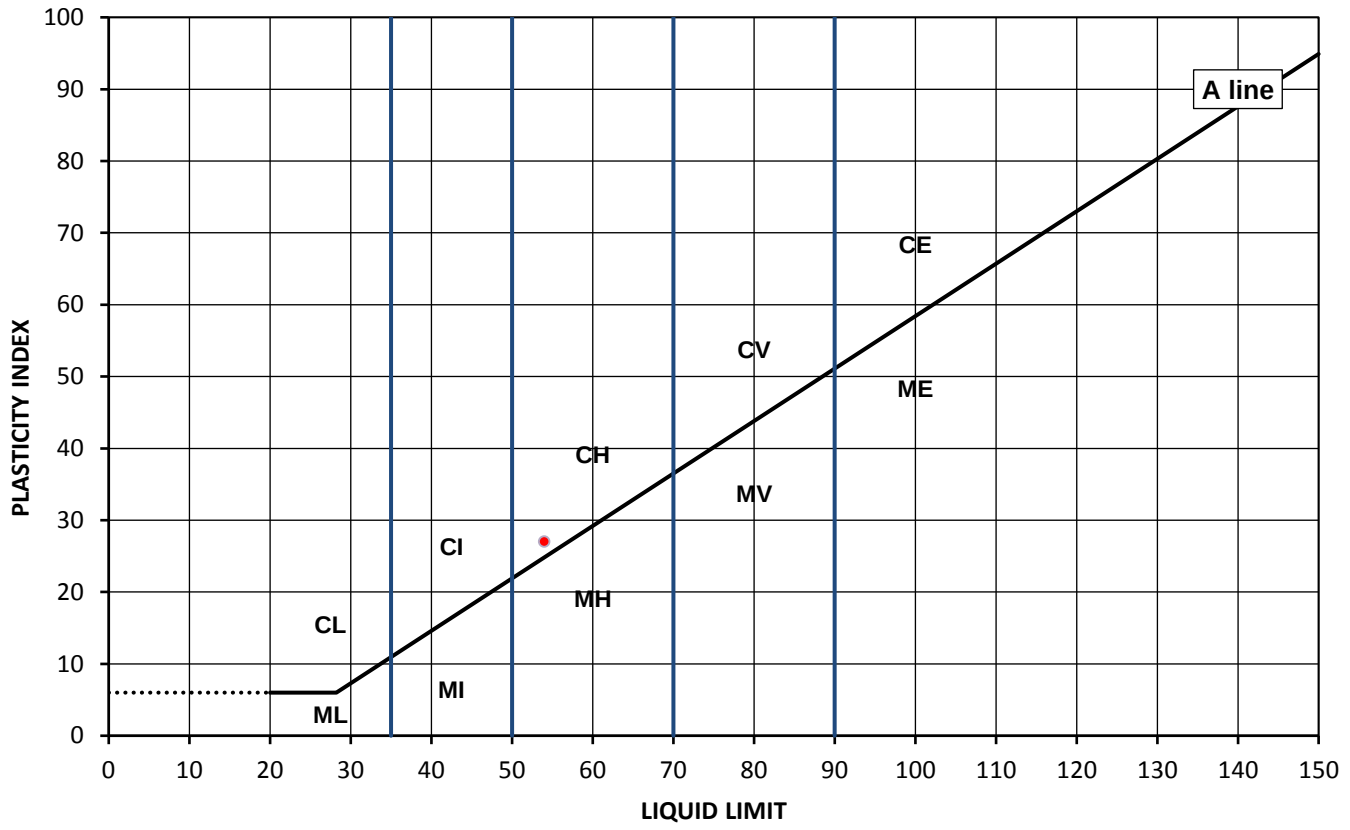
Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403230	Depth Top [m]:	0.50
Hole No.:	TP205	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Soil Description:	Brownish grey CLAY		
Sample Preparation:	Tested in natural condition		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
29	54	27	27	100



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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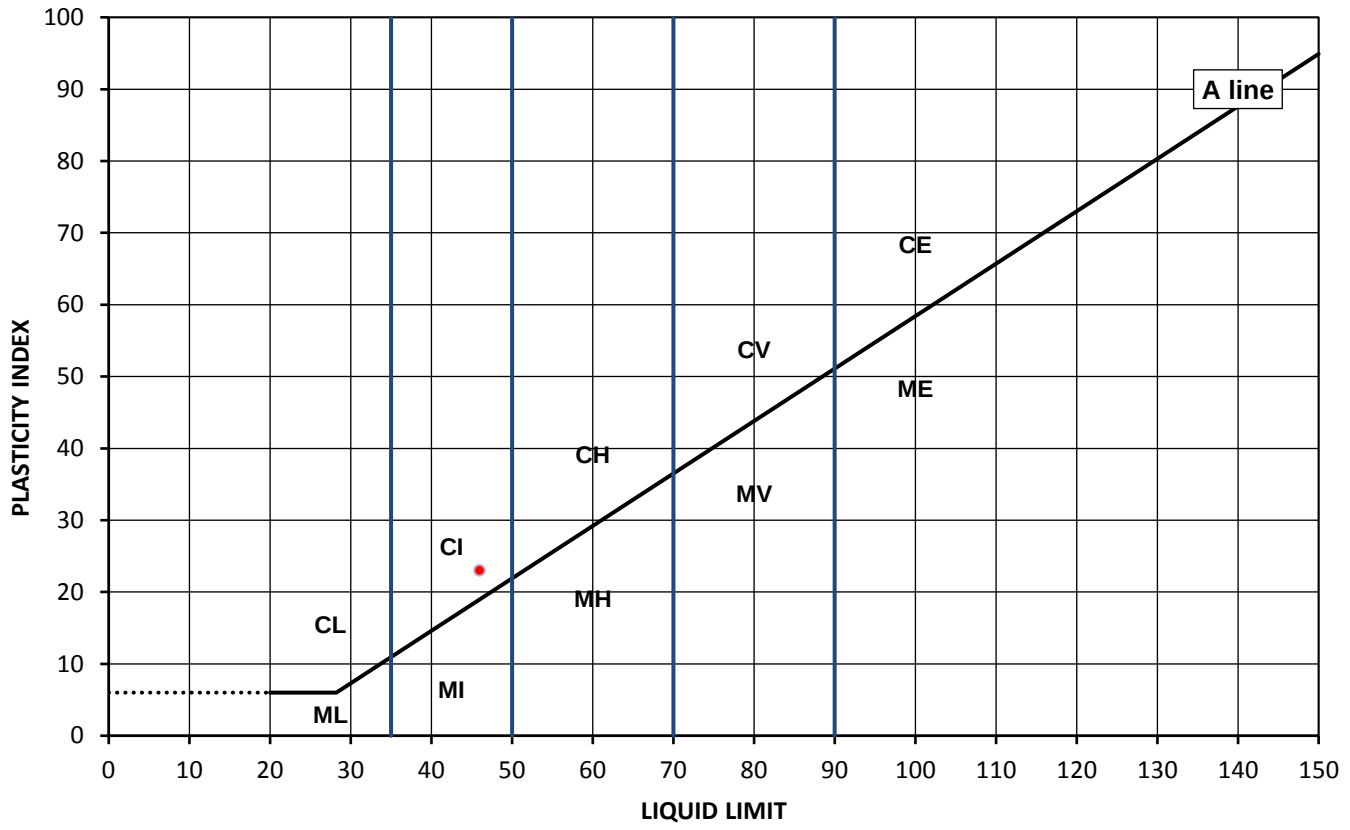
Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403231	Depth Top [m]:	0.60
Hole No.:	TP207	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Soil Description:	Brown to grey clayey SILT		
Sample Preparation:	Tested in natural condition		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
27	46	23	23	100



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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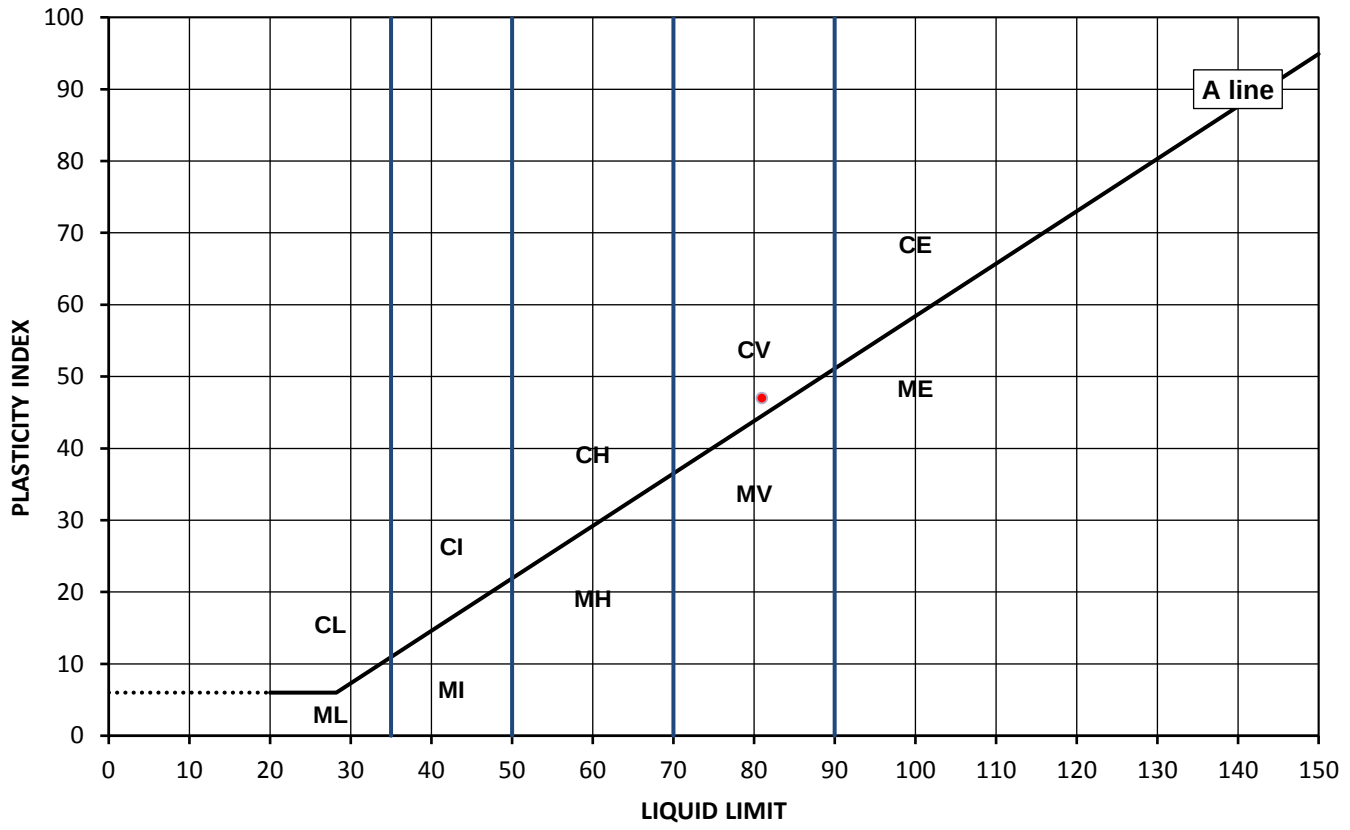
Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

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Test Results:

Laboratory Reference:	1403232	Depth Top [m]:	0.50
Hole No.:	TP212	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Soil Description:	Light brown very silty CLAY		
Sample Preparation:	Tested in natural condition		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
40	81	34	47	100



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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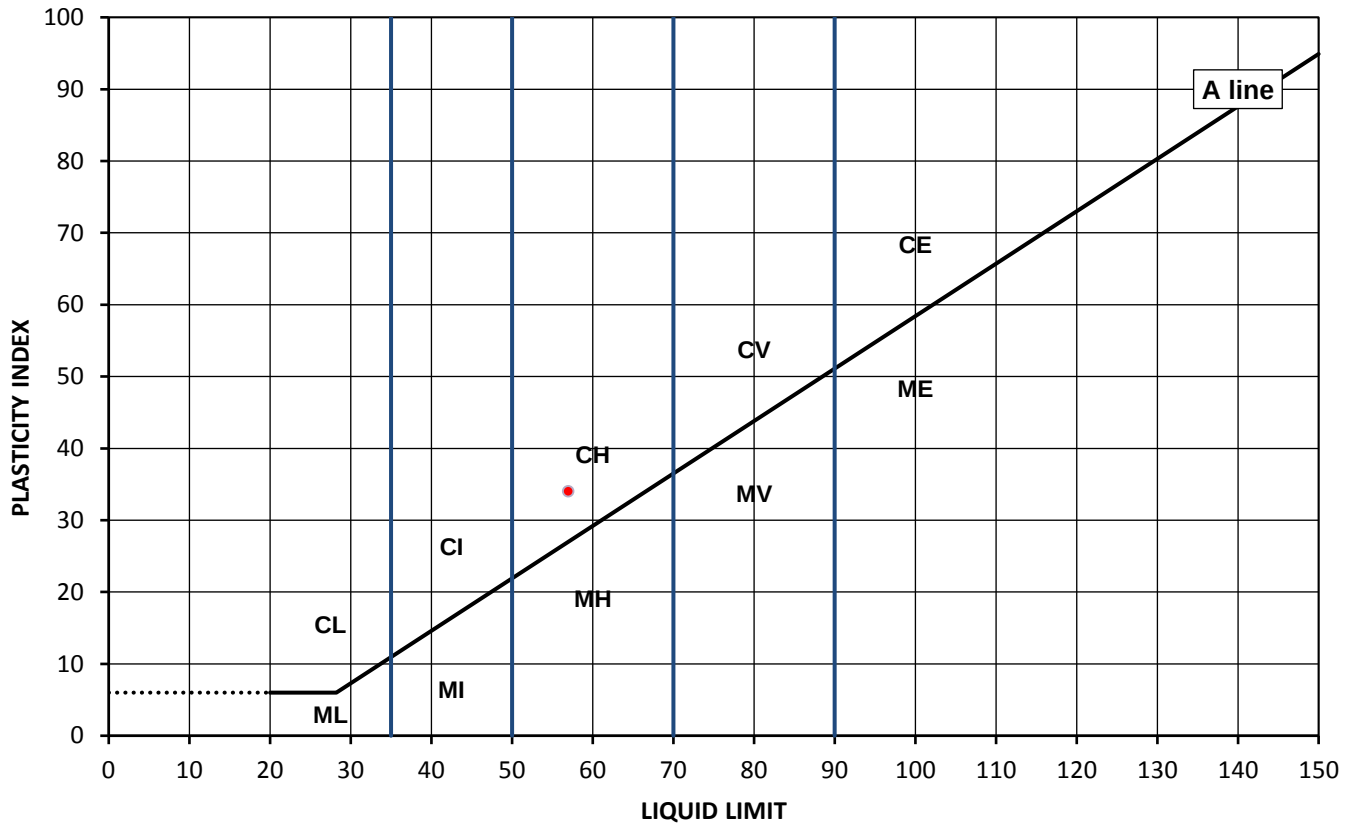
Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403233	Depth Top [m]:	0.50
Hole No.:	TP203	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Soil Description:	Brown slightly gravelly slightly sandy very silty CLAY		
Sample Preparation:	Tested after >425um removed by hand		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
27	57	23	34	95



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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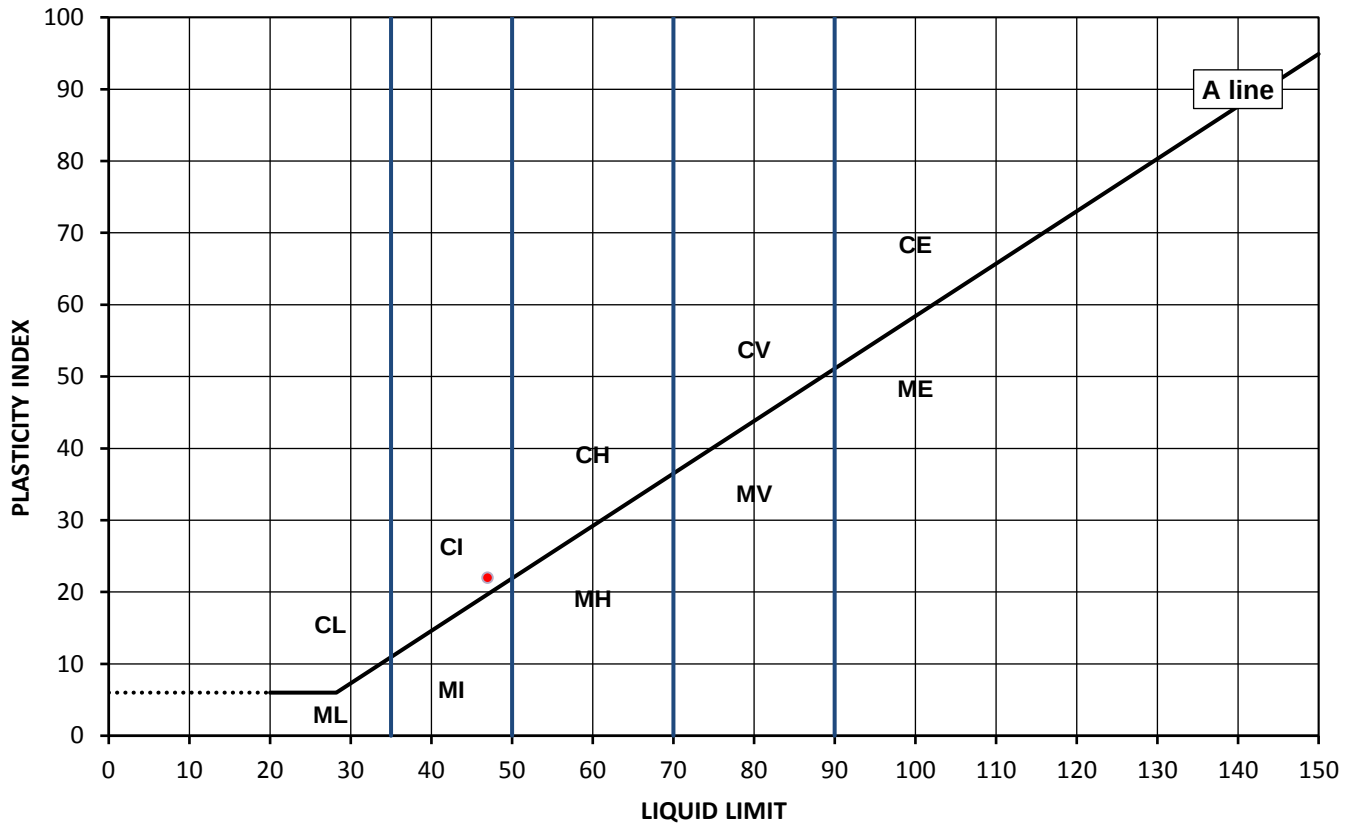
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Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403234	Depth Top [m]:	0.60
Hole No.:	TP204	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Soil Description:	Brownish grey slightly sandy slightly gravelly clayey SILT		
Sample Preparation:	Tested after >425um removed by hand		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
26	47	25	22	90



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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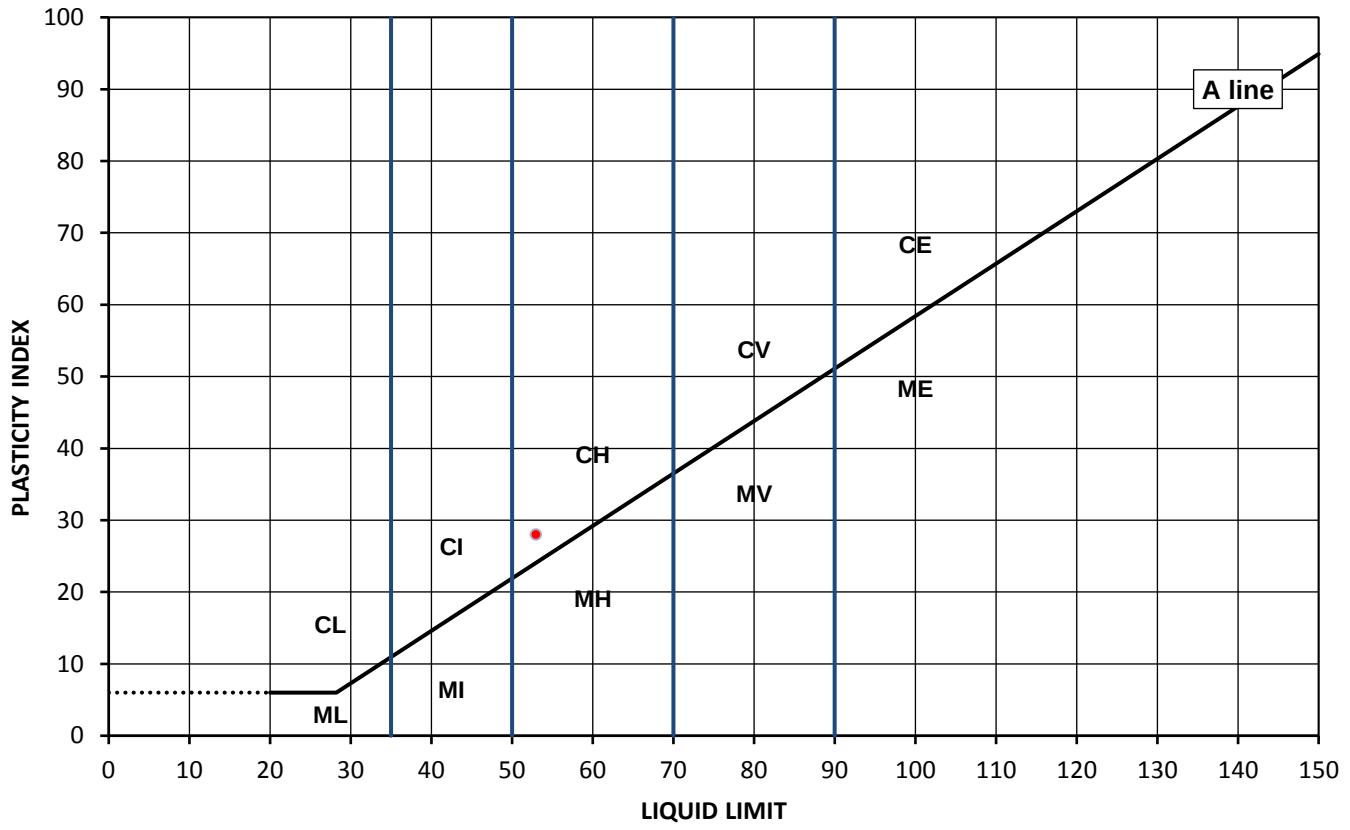
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403235	Depth Top [m]:	0.50
Hole No.:	TP208	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Soil Description:	Brown CLAY		

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
27	53	25	28	100



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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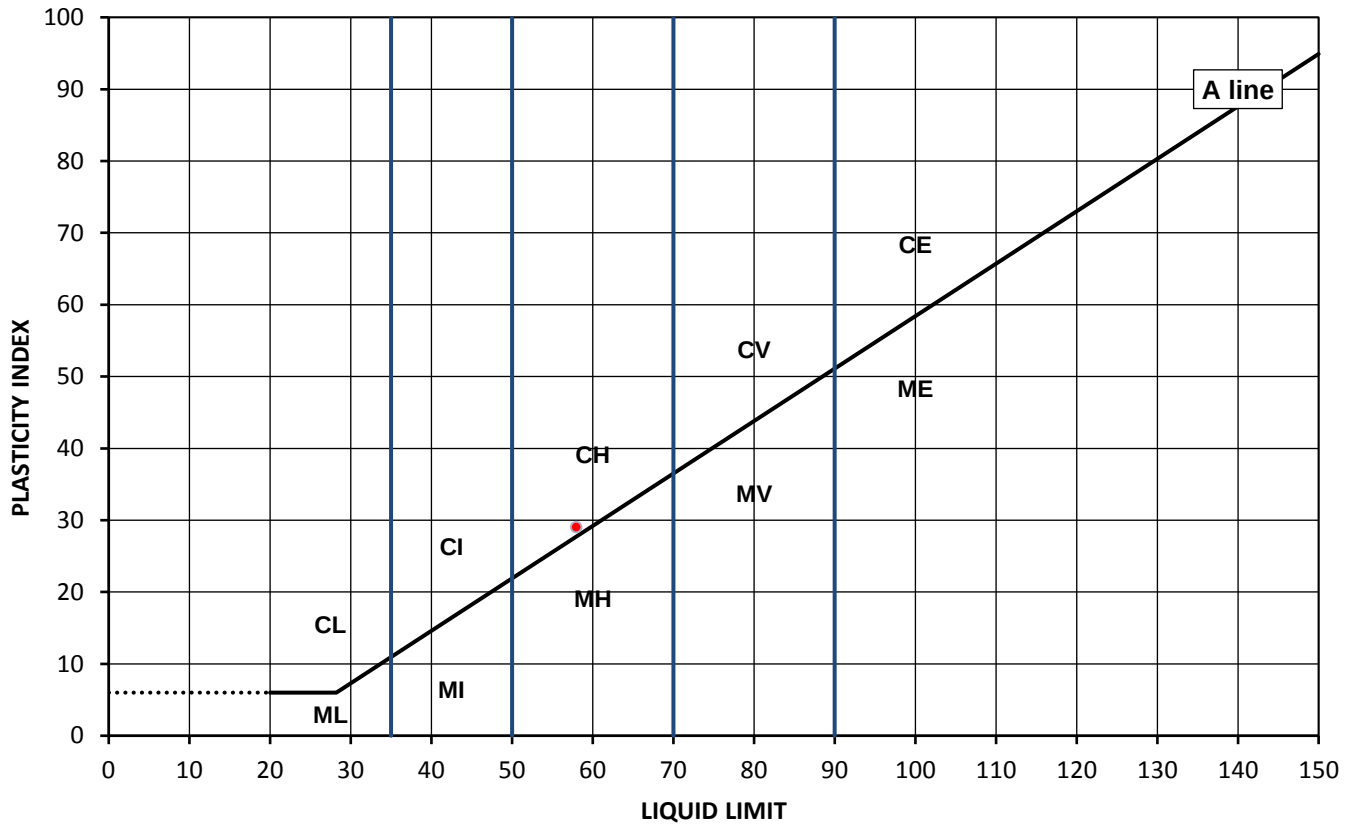
Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403236	Depth Top [m]:	0.50
Hole No.:	TP211	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Soil Description:	Brown to grey slightly sandy very clayey SILT		
Sample Preparation:	Tested in natural condition		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
35	58	29	29	100



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

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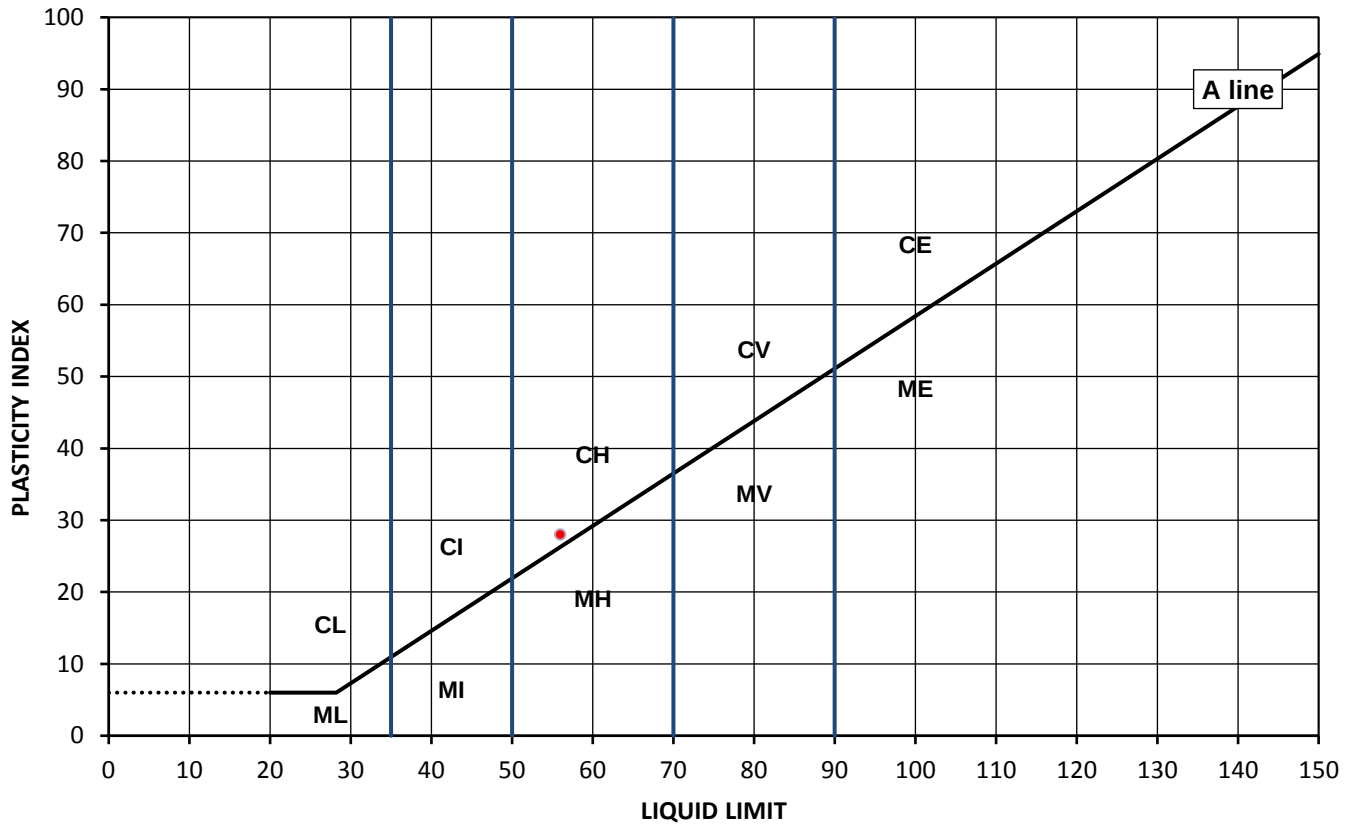
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Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403237	Depth Top [m]:	0.50
Hole No.:	TP221	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Soil Description:	Light brown very clayey SILT		
Sample Preparation:	Tested in natural condition		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
30	56	28	28	100



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

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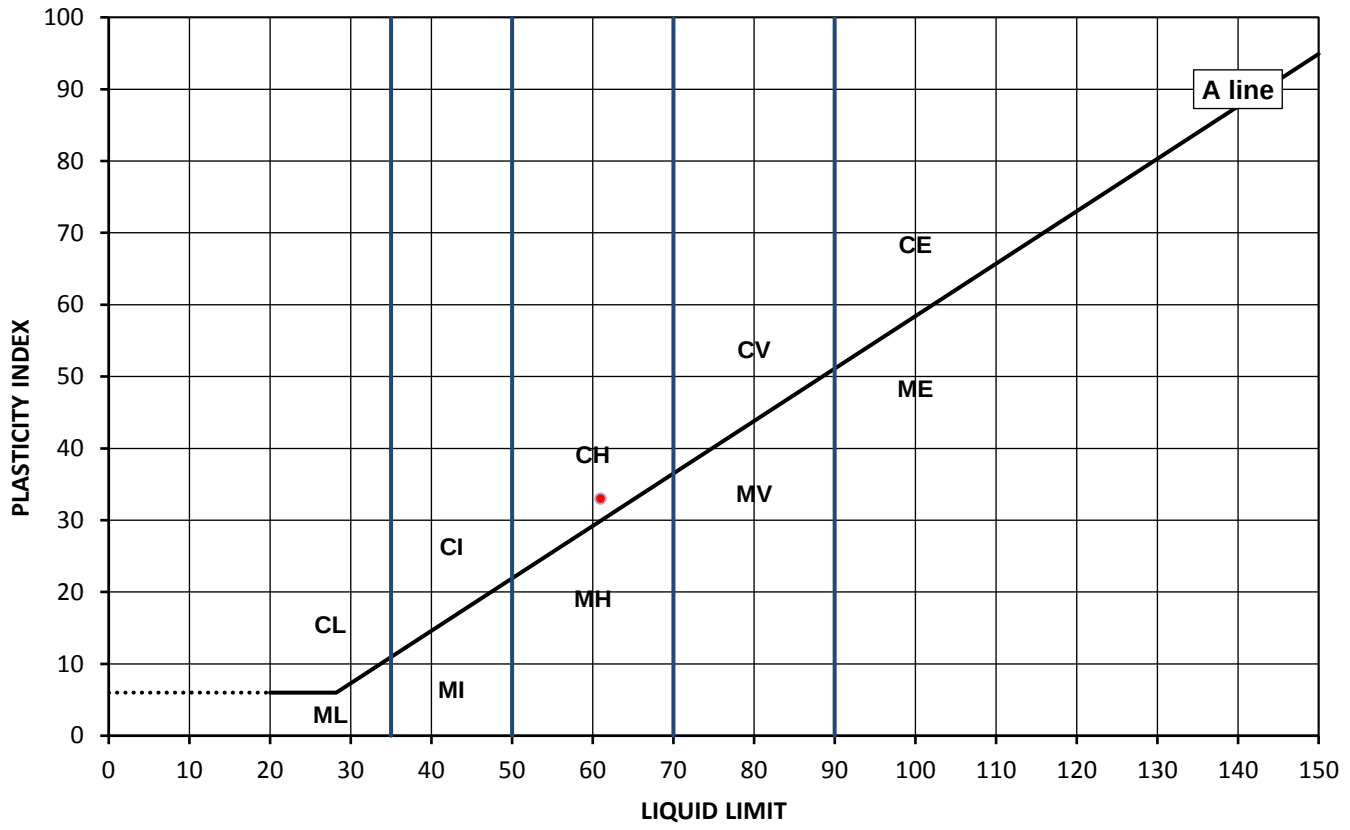
Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403238	Depth Top [m]:	0.60
Hole No.:	TP217	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Soil Description:	Brown SILT and CLAY		
Sample Preparation:	Tested in natural condition		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
27	61	28	33	100



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

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TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

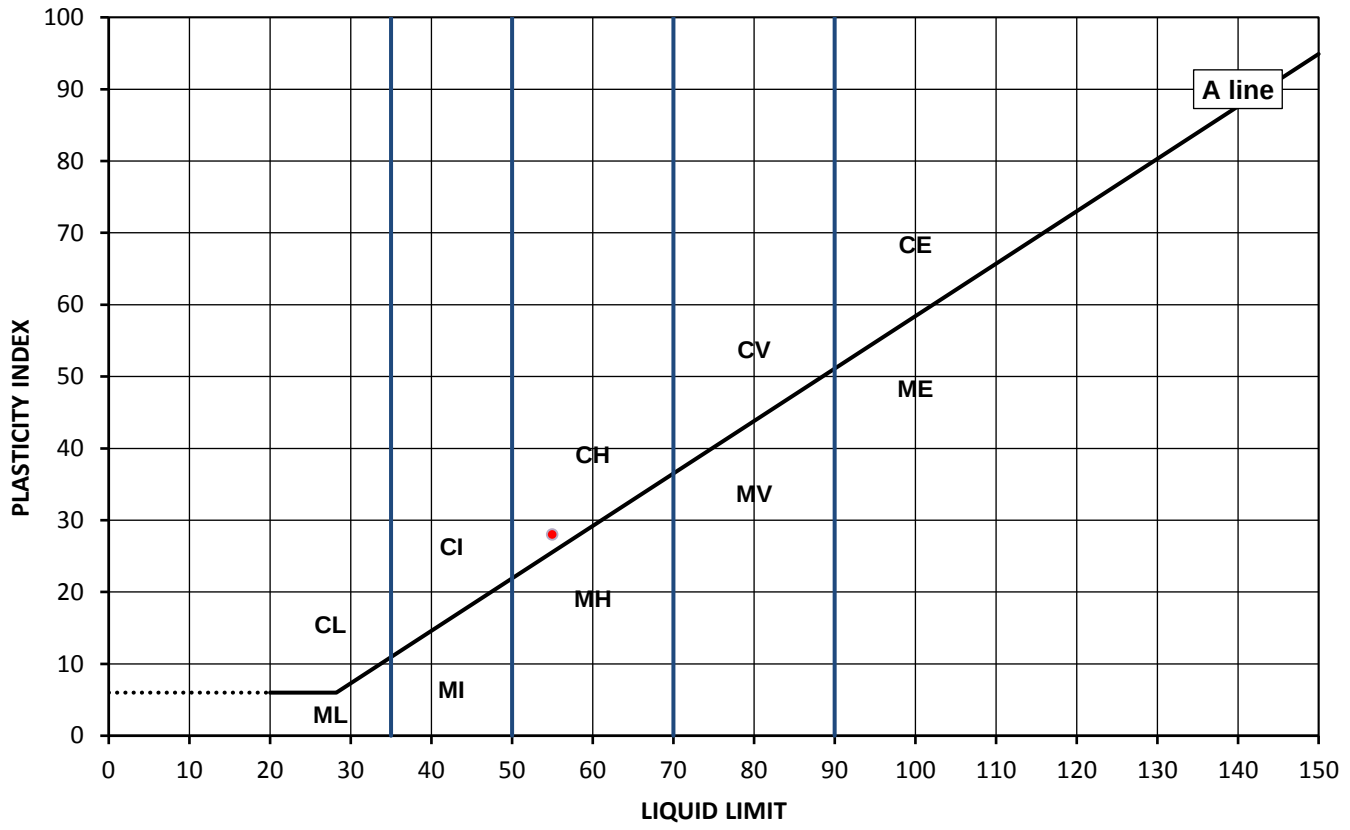
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Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403239	Depth Top [m]:	0.50
Hole No.:	TP229	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Soil Description:	Brown to grey slightly sandy very clayey SILT		
Sample Preparation:	Tested in natural condition		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
29	55	27	28	100



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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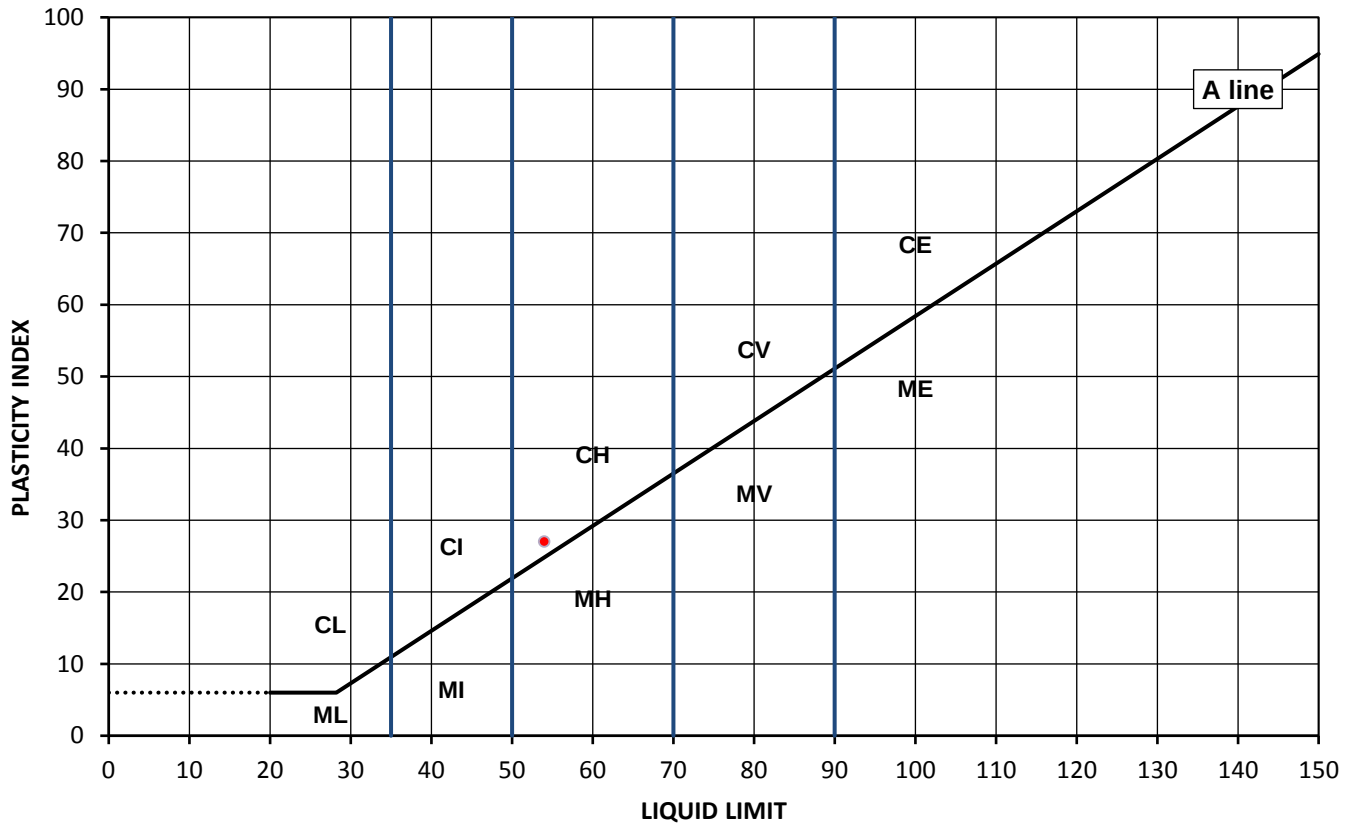
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Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403240	Depth Top [m]:	0.80
Hole No.:	TP235	Depth Base [m]:	Not Given
Sample Reference:	2	Sample Type:	B
Soil Description:	Orangish brown slightly gravelly slightly sandy clayey SILT		
Sample Preparation:	Tested after >425um removed by hand		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
29	54	27	27	96



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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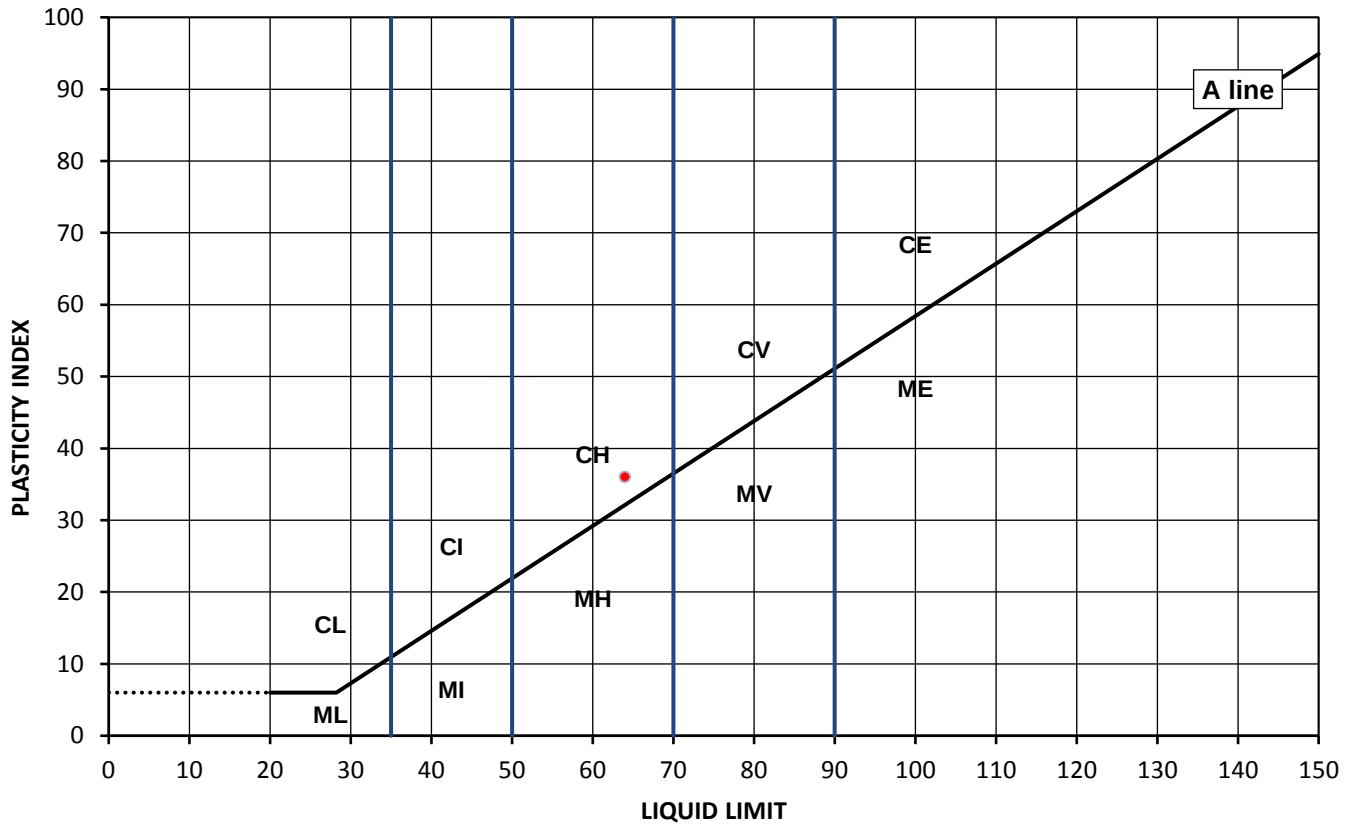
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Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403241	Depth Top [m]:	0.50
Hole No.:	TP247	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Soil Description:	Light brown slightly sandy CLAY		
Sample Preparation:	Tested in natural condition		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
32	64	28	36	100



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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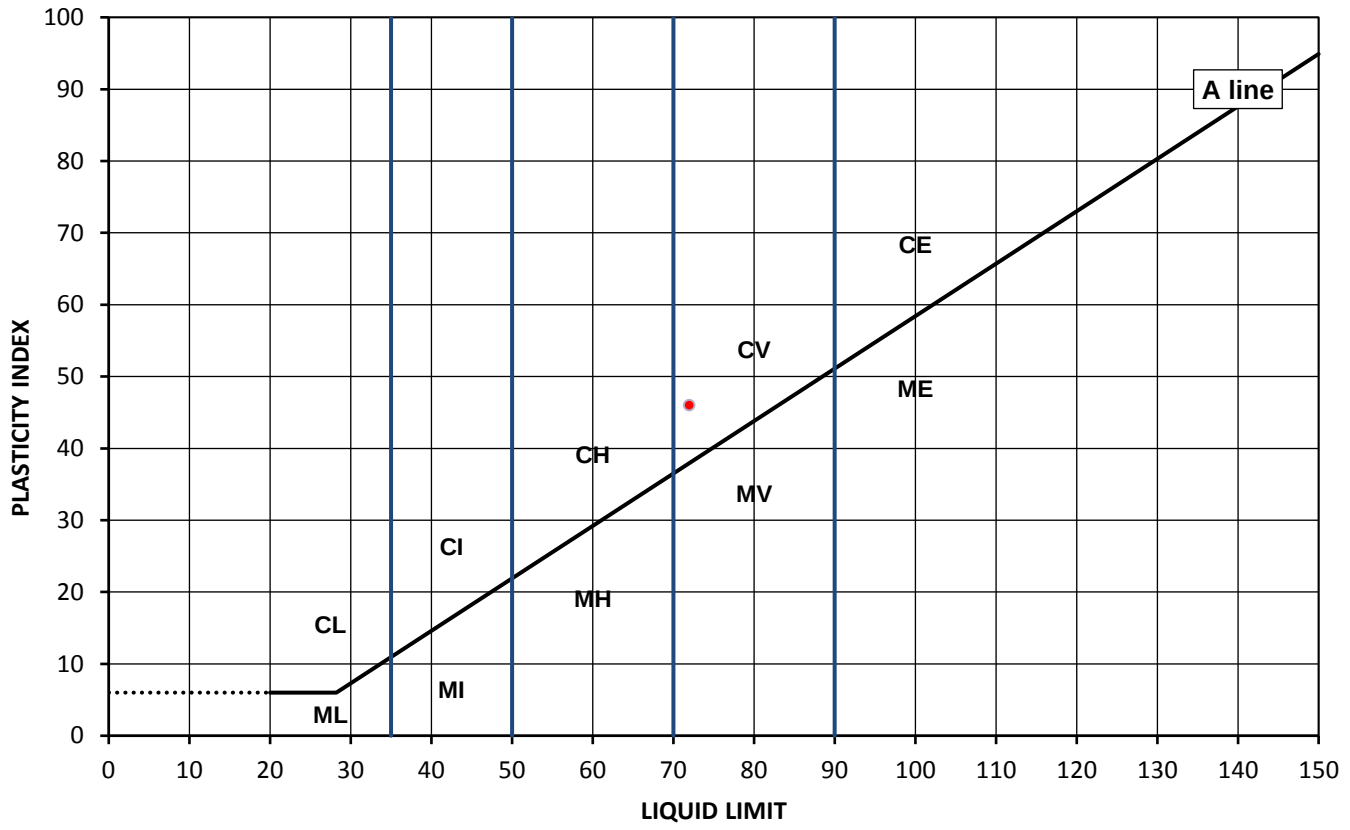
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Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403242	Depth Top [m]:	0.60
Hole No.:	TP231	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Soil Description:	Light brown slightly sandy very silty CLAY		
Sample Preparation:	Tested in natural condition		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
32	72	26	46	100



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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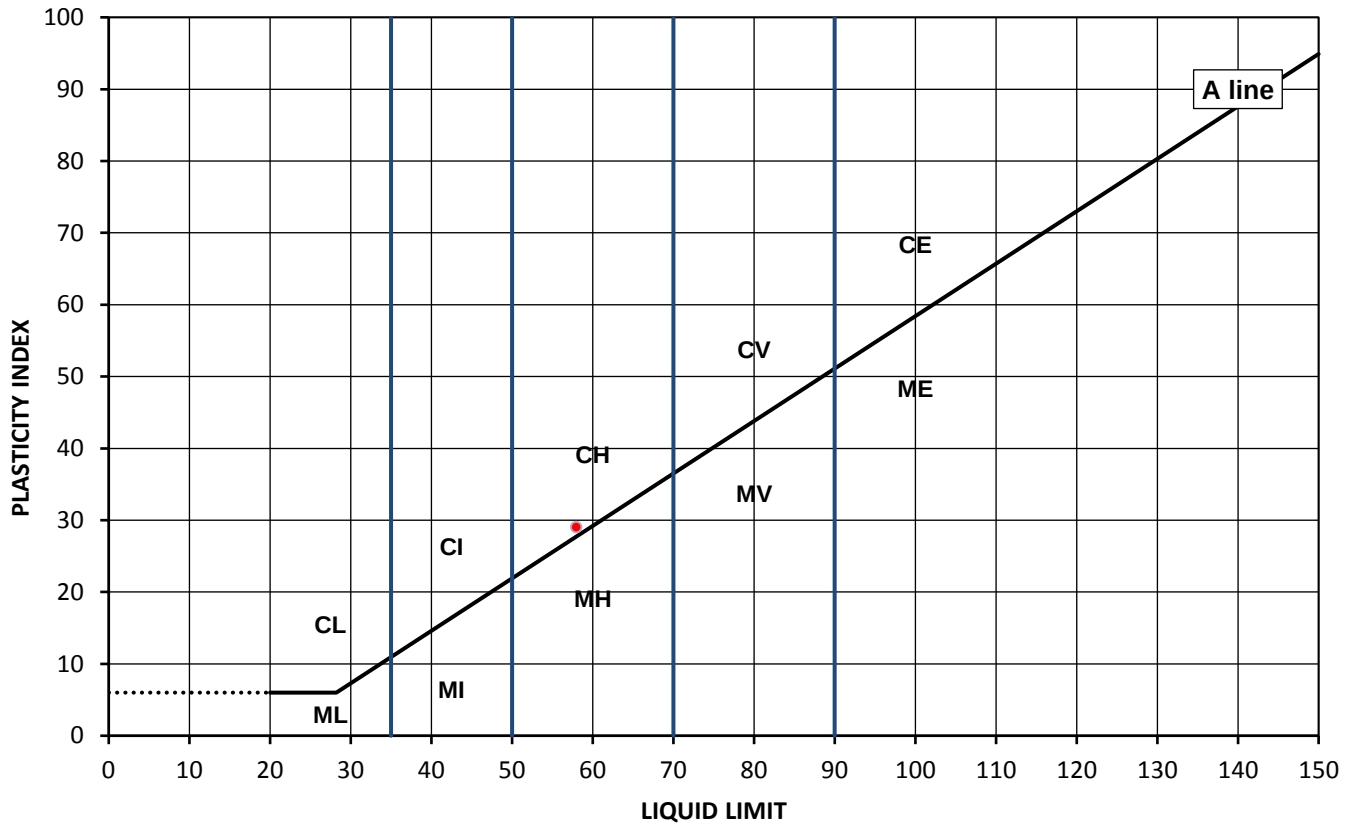
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Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403243	Depth Top [m]:	0.40
Hole No.:	TP240	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Soil Description:	Yellowish brown slightly gravelly slightly sandy very clayey SILT		
Sample Preparation:	Tested after >425um removed by hand		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
30	58	29	29	99



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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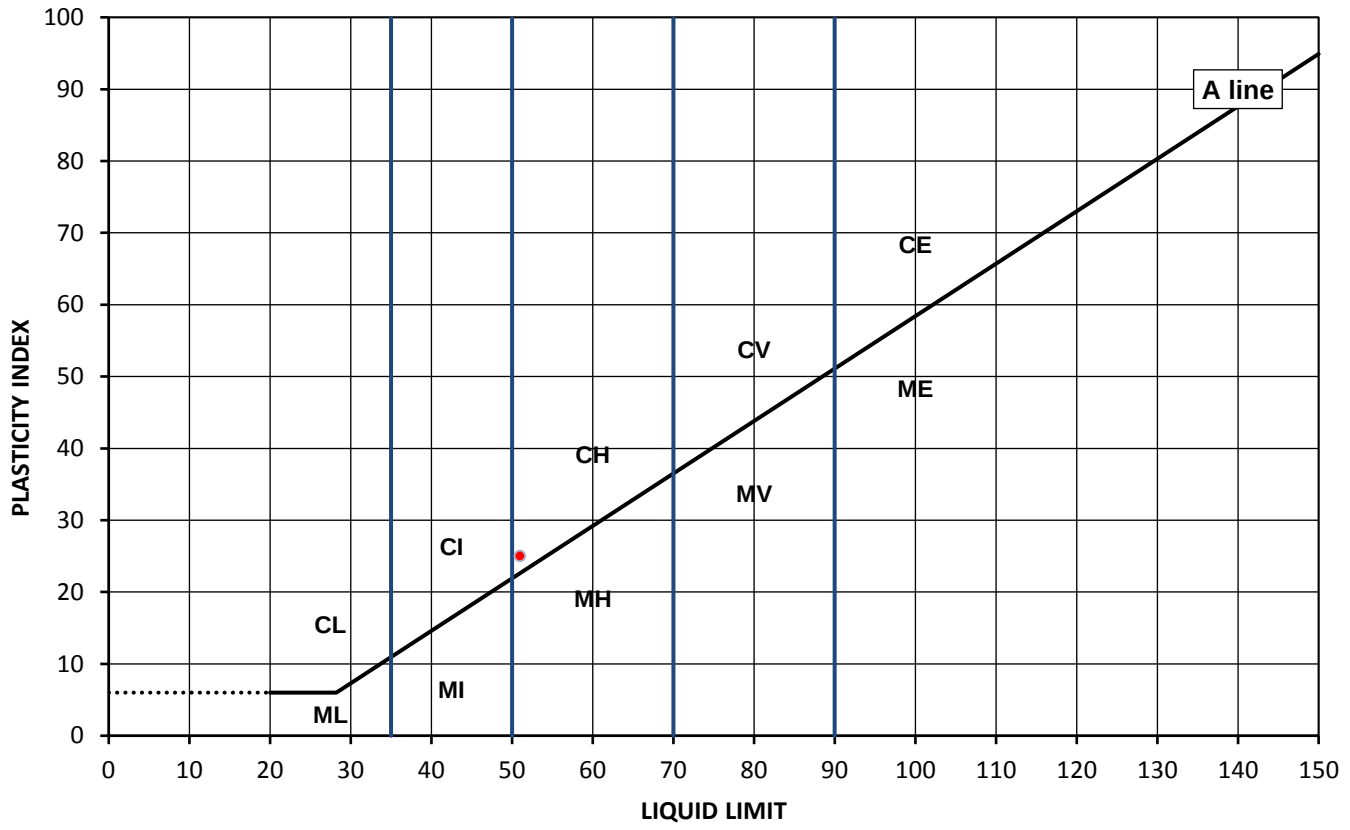
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Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403244	Depth Top [m]:	1.50
Hole No.:	TP243	Depth Base [m]:	Not Given
Sample Reference:	2	Sample Type:	B
Soil Description:	Brown to grey slightly gravelly slightly sandy very clayey SILT		
Sample Preparation:	Tested after washing to remove >425um		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
26	51	26	25	96



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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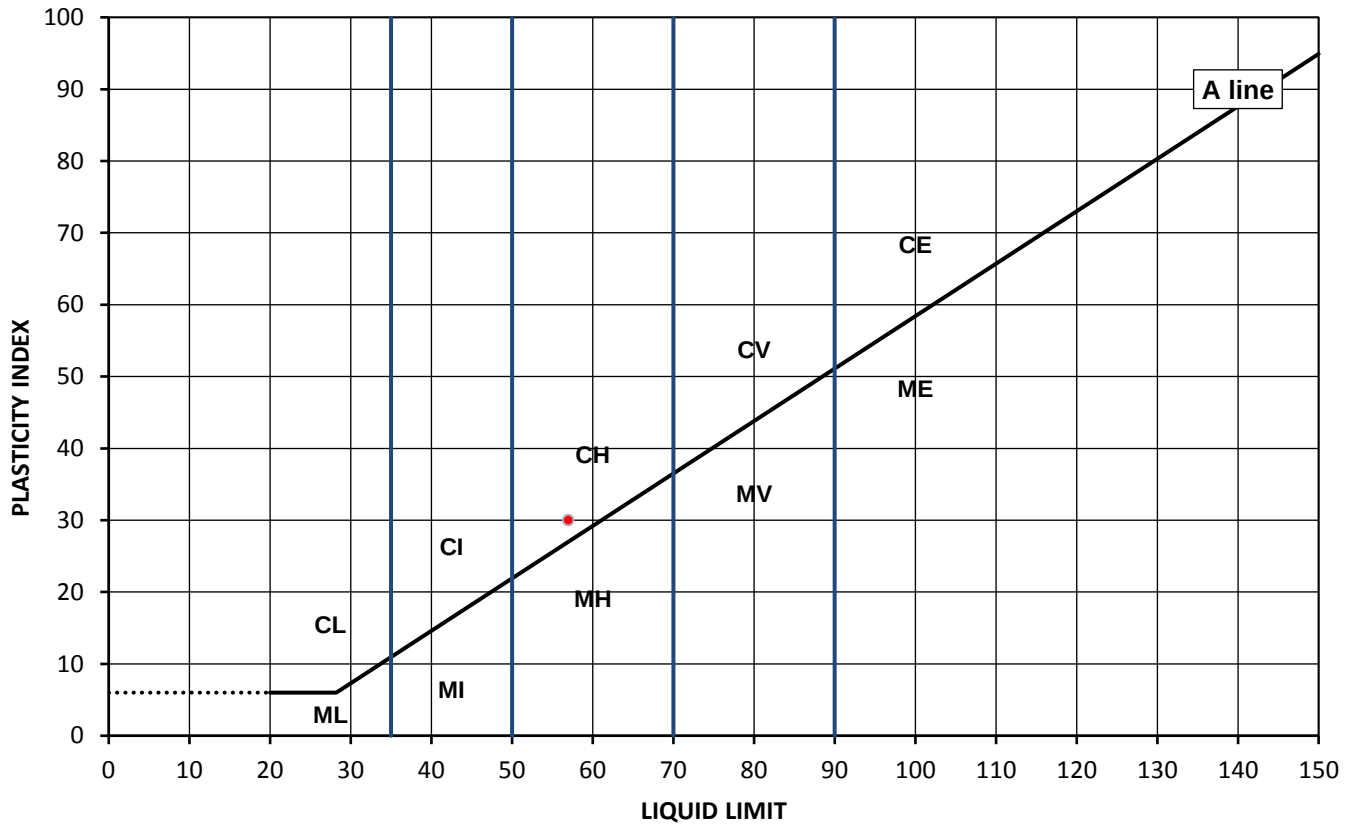
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		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403245	Depth Top [m]:	1.20
Hole No.:	TP248	Depth Base [m]:	Not Given
Sample Reference:	2	Sample Type:	B
Soil Description:	Light brown slightly sandy CLAY		
Sample Preparation:	Tested in natural condition		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
37	57	27	30	100



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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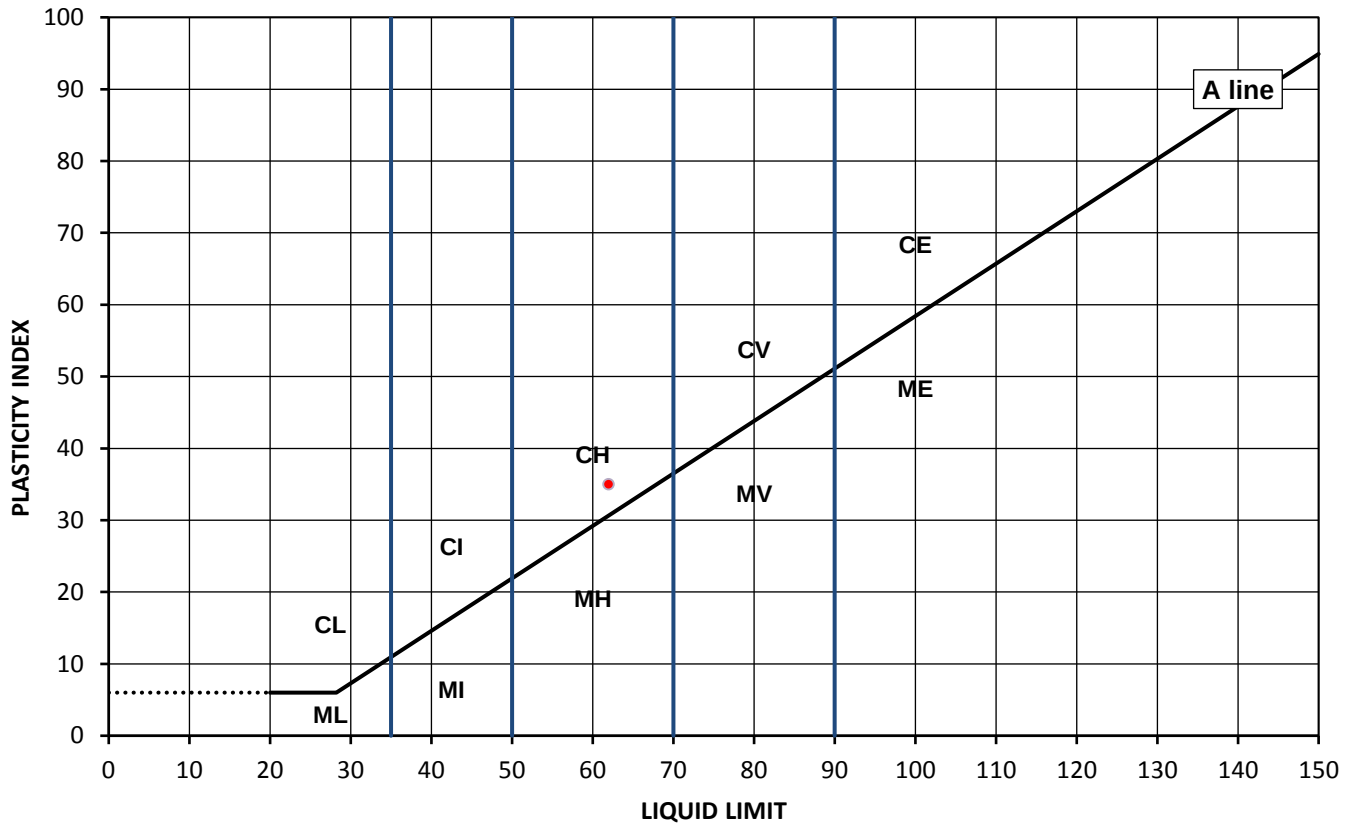
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		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403246	Depth Top [m]:	1.25
Hole No.:	WS202A	Depth Base [m]:	1.70
Sample Reference:	3	Sample Type:	B
Soil Description:	Brown slightly gravelly sandy CLAY		
Sample Preparation:	Tested after washing to remove >425um		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
16	62	27	35	89



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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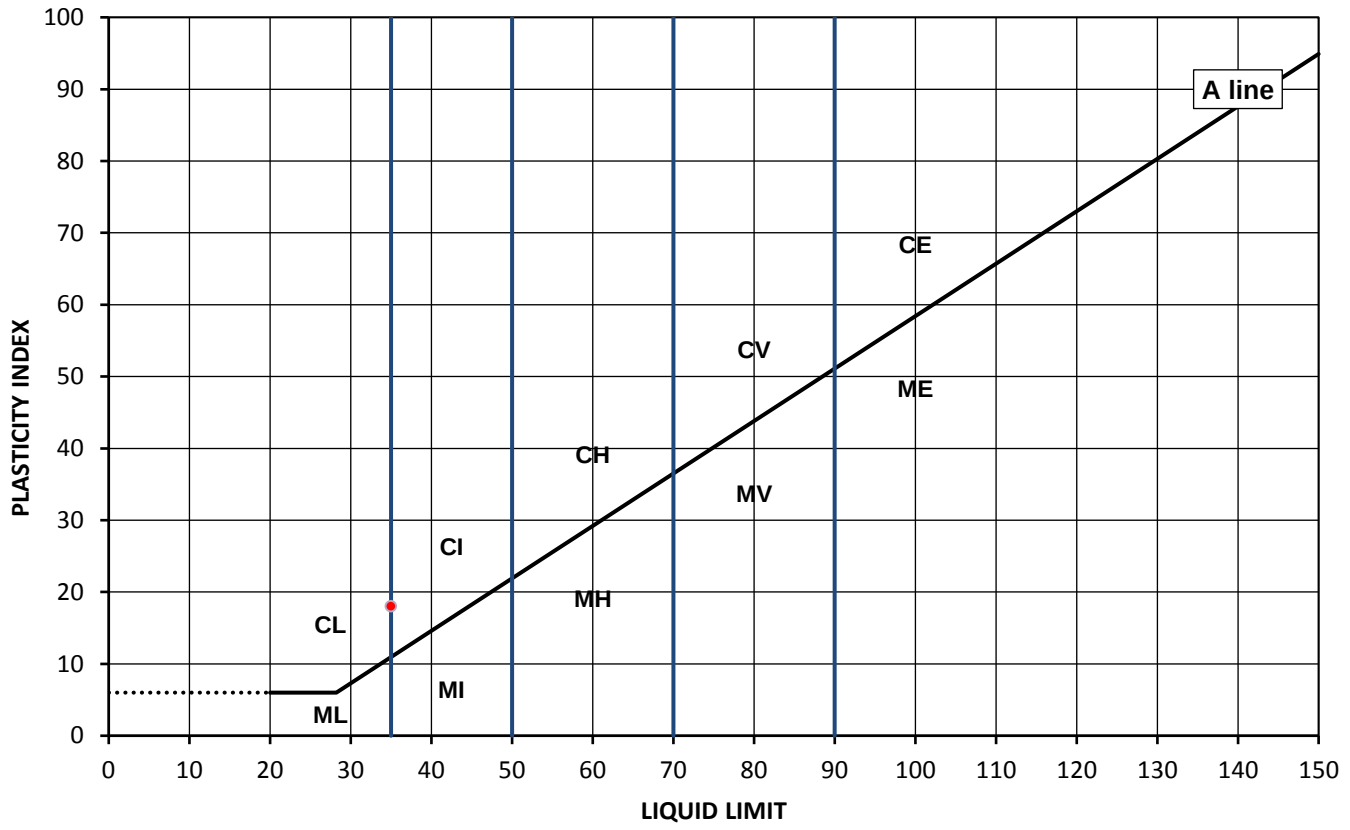
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Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403247	Depth Top [m]:	1.50
Hole No.:	TP244	Depth Base [m]:	Not Given
Sample Reference:	2	Sample Type:	B
Soil Description:	Light brown slightly sandy clayey gravelly SILT		
Sample Preparation:	Tested after washing to remove >425um		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
16	35	17	18	70



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

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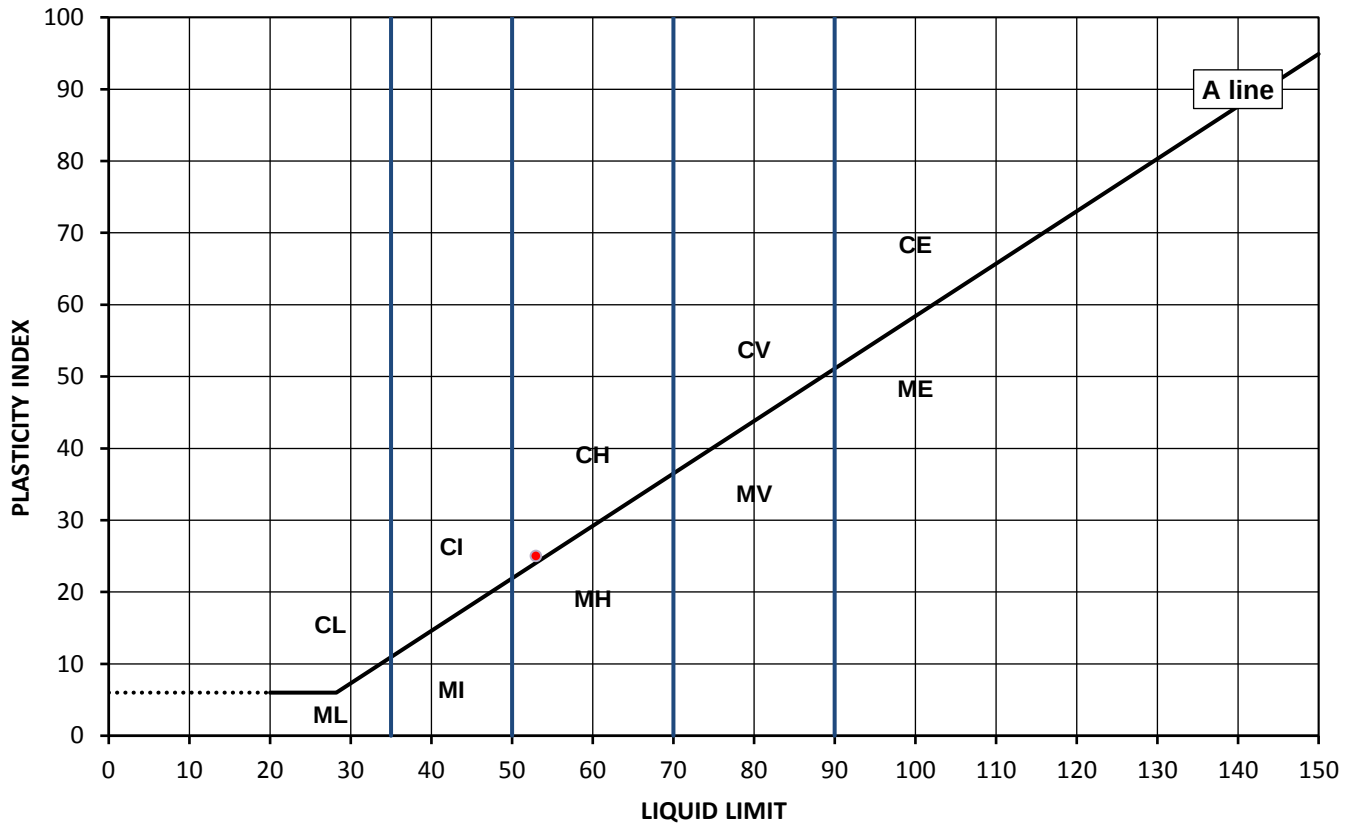
Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403248	Depth Top [m]:	0.50
Hole No.:	TP253	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Soil Description:	Brown slightly gravelly slightly sandy CLAY		
Sample Preparation:	Tested after >425um removed by hand		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
30	53	28	25	99



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

GF 236.6

TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

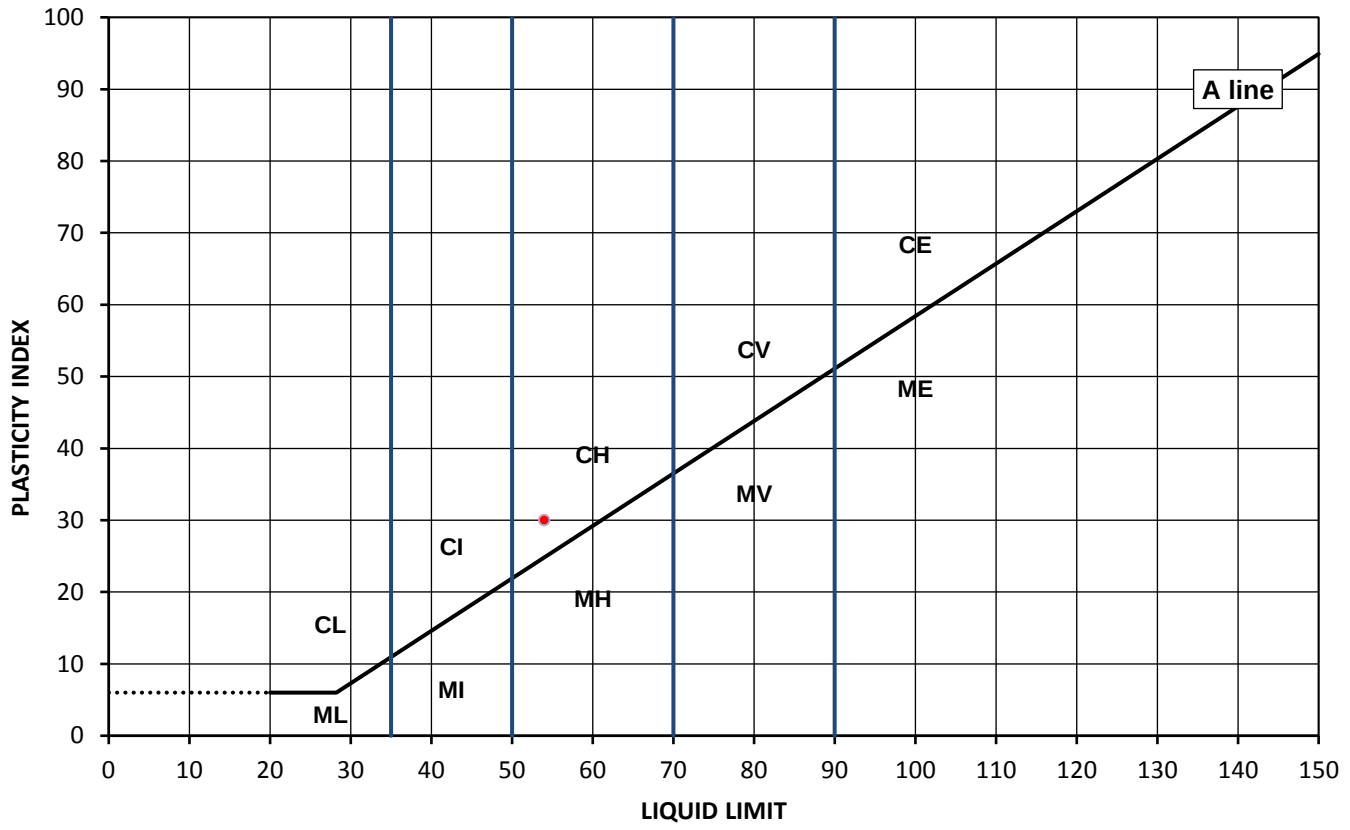
Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403249	Depth Top [m]:	0.40
Hole No.:	TP255	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Soil Description:	Brown very clayey SILT		
Sample Preparation:	Tested in natural condition		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
27	54	24	30	100



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

GF 236.6

TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

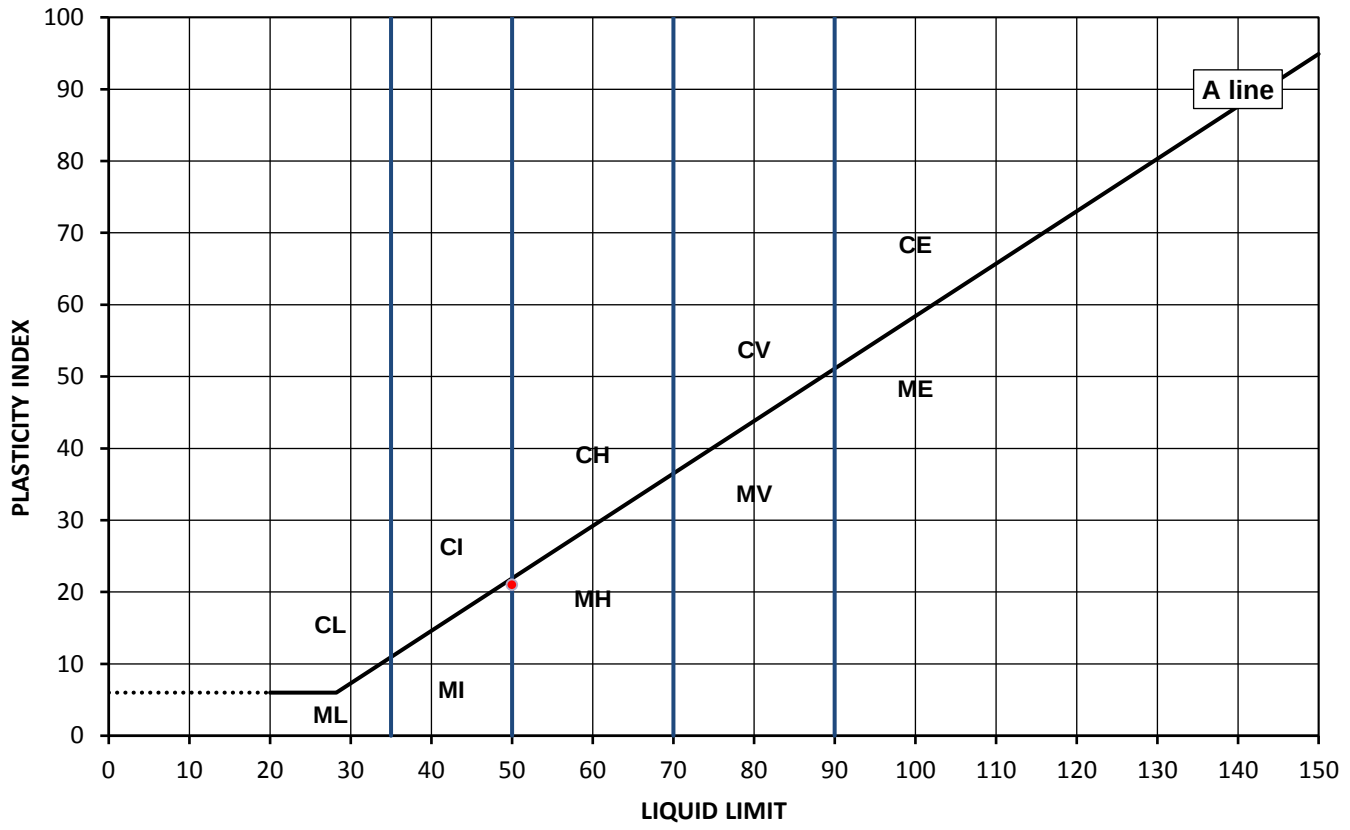
Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403250	Depth Top [m]:	0.30
Hole No.:	TP256	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Soil Description:	Light brown slightly gravelly slightly sandy very clayey SILT		
Sample Preparation:	Tested after washing to remove >425um		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
31	50	29	21	94



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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Date Reported: 17/01/2020

GF 236.6

TEST CERTIFICATE

Liquid and Plastic Limits

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Brackmills Industrial Estate
Northampton NN4 7EB

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

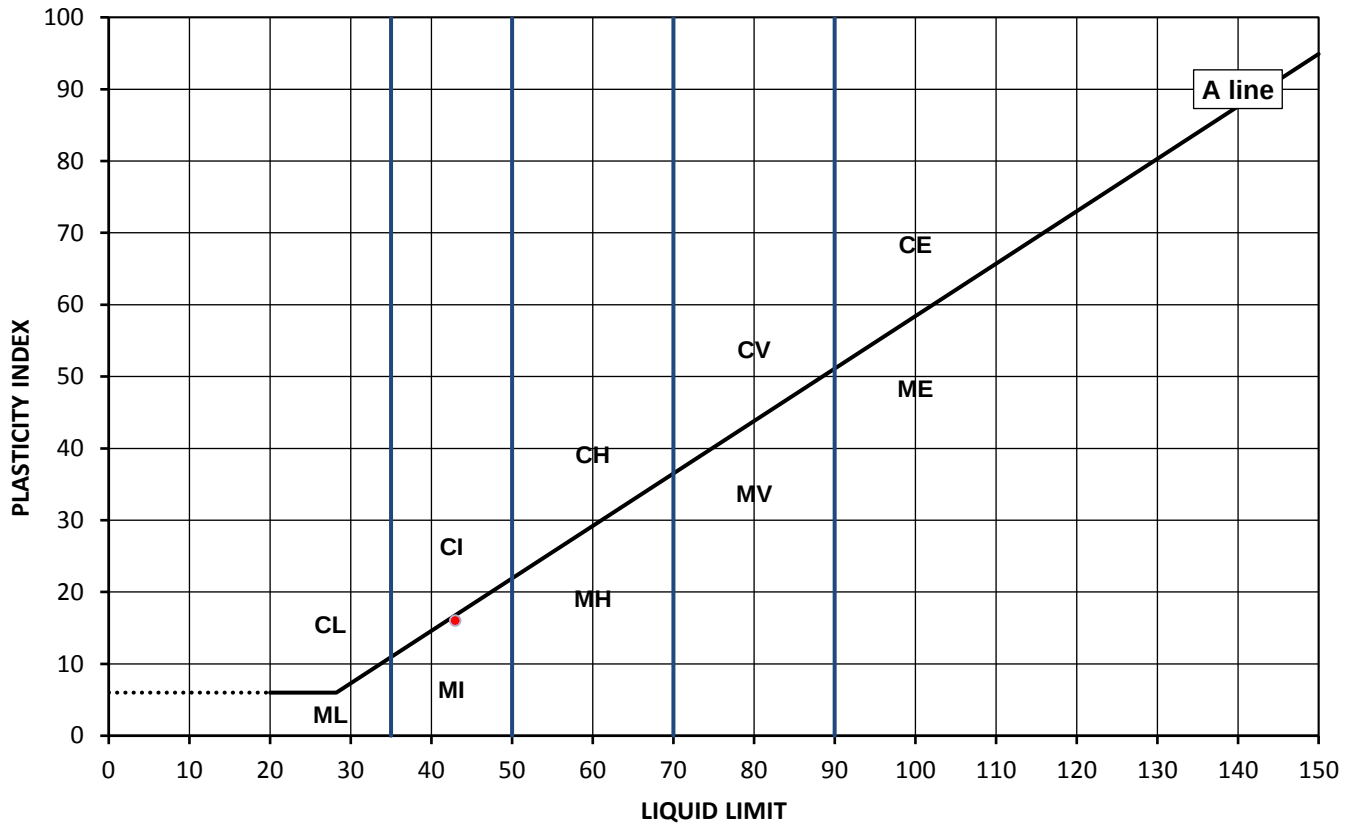
Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403251	Depth Top [m]:	1.00
Hole No.:	WS207A	Depth Base [m]:	1.20
Sample Reference:	1	Sample Type:	B
Soil Description:	Brown gravelly sandy clayey SILT		
Sample Preparation:	Tested after >425um removed by hand		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
22	43	27	16	81



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

GF 236.6

SUMMARY REPORT

Summary of Classification Test Results

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

Tested in Accordance with:

MC by BS 1377-2: 1990: Clause 3.2; WC by BS EN 17892-1: 2014; Atterberg by BS 1377-2: 1990: Clause 4.3, Clause 4.4 and 5; PD by BS 1377-2: 1990: Clause 8.2

Client: Endeavour Drilling

Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland

Site Address: L&G - LNO Horsham

Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 08/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	MC	WC	Atterberg				Density			Total Porosity#		
		Reference	Depth Top	Depth Base	Type					% Passing 425um	LL	PL	PI	bulk	dry	PD			
			m	m				%	%	%	%	%	%	Mg/m3	Mg/m3	Mg/m3	%		
1403233	TP203	1	0.50	Not Given	B	Brown slightly gravelly slightly sandy very silty CLAY	Atterberg 4 Point	27		95	57	23	34						
1403234	TP204	1	0.60	Not Given	B	Brownish grey slightly sandy slightly gravelly clayey SILT	Atterberg 4 Point	26		90	47	25	22						
1403230	TP205	1	0.50	Not Given	B	Brownish grey CLAY	Atterberg 4 Point	29		100	54	27	27						
1403231	TP207	1	0.60	Not Given	B	Brown to grey clayey SILT	Atterberg 4 Point	27		100	46	23	23						
1403235	TP208	1	0.50	Not Given	B	Brown CLAY	Atterberg 4 Point	27		100	53	25	28						
1403236	TP211	1	0.50	Not Given	B	Brown to grey slightly sandy very clayey SILT	Atterberg 4 Point	35		100	58	29	29						
1403232	TP212	1	0.50	Not Given	B	Light brown very silty CLAY	Atterberg 4 Point	40		100	81	34	47						
1403238	TP217	1	0.60	Not Given	B	Brown slightly gravelly slightly sandy very clayey SILT	Atterberg 4 Point	27		100	61	28	33						
1403227	TP220	1	0.60	Not Given	B	Orangish brown slightly gravelly very silty CLAY	Atterberg 4 Point	31		99	66	33	33						
1403237	TP221	1	0.50	Not Given	B	Light brown very clayey SILT	Atterberg 4 Point	30		100	56	28	28						

Note: # Non accredited; NP - Non plastic

Comments:

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Signed:

Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

GF 238.8

SUMMARY REPORT

Summary of Classification Test Results

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

Tested in Accordance with:

MC by BS 1377-2: 1990: Clause 3.2; WC by BS EN 17892-1: 2014; Atterberg by BS 1377-2: 1990: Clause 4.3, Clause 4.4 and 5; PD by BS 1377-2: 1990: Clause 8.2

Client: Endeavour Drilling

Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland

Site Address: L&G - LNO Horsham

Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 08/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	MC	WC	Atterberg				Density			Total Porosity#		
		Reference	Depth Top m	Depth Base m	Type			%	%	% Passing 425um %	LL %	PL %	PI %	bulk Mg/m3	dry Mg/m3	PD Mg/m3	%		
1403228	TP225	1	0.60	Not Given	B	Brown SILT and CLAY	Atterberg 4 Point	29		89	61	31	30						
1403239	TP229	1	0.50	Not Given	B	Brown to grey slightly sandy very clayey SILT	Atterberg 4 Point	29		100	55	27	28						
1403242	TP231	1	0.60	Not Given	B	Light brown slightly sandy very silty CLAY	Atterberg 4 Point	32		100	72	26	46						
1403240	TP235	2	0.80	Not Given	B	Orangish brown slightly gravelly slightly sandy clayey SILT	Atterberg 4 Point	29		96	54	27	27						
1403229	TP237	2	1.50	Not Given	B	Brown slightly sandy very gravelly CLAY with mudstones	Atterberg 4 Point	18		58	48	28	20						
1403243	TP240	1	0.40	Not Given	B	Yellowish brown slightly gravelly slightly sandy very clayey SILT	Atterberg 4 Point	30		99	58	29	29						
1403244	TP243	2	1.50	Not Given	B	Brown to grey slightly gravelly slightly sandy very clayey SILT	Atterberg 4 Point	26		96	51	26	25						
1403247	TP244	2	1.50	Not Given	B	Light brown slightly sandy clayey gravelly SILT	Atterberg 4 Point	16		70	35	17	18						
1403241	TP247	1	0.50	Not Given	B	Light brown slightly sandy CLAY	Atterberg 4 Point	32		100	64	28	36						
1403245	TP248	2	1.20	Not Given	B	Light brown slightly sandy CLAY	Atterberg 4 Point	37		100	57	27	30						

Note: # Non accredited; NP - Non plastic

Comments:

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

GF 238.8

SUMMARY REPORT

Summary of Classification Test Results

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

Tested in Accordance with:

MC by BS 1377-2: 1990: Clause 3.2; WC by BS EN 17892-1: 2014; Atterberg by BS 1377-2: 1990: Clause 4.3, Clause 4.4 and 5; PD by BS 1377-2: 1990: Clause 8.2

Client: Endeavour Drilling

Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland

Site Address: L&G - LNO Horsham

Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 08/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	MC	WC	Atterberg				Density			Total Porosity#		
		Reference	Depth Top	Depth Base	Type					% Passing 425um	LL	PL	PI	bulk	dry	PD			
			m	m				%	%	%	%	%	%	Mg/m3	Mg/m3	Mg/m3	%		
1403248	TP253	1	0.50	Not Given	B	Brown slightly gravelly slightly sandy CLAY	Atterberg 4 Point	30		99	53	28	25						
1403249	TP255	1	0.40	Not Given	B	Brown very clayey SILT	Atterberg 4 Point	27		100	54	24	30						
1403250	TP256	1	0.30	Not Given	B	Light brown slightly gravelly slightly sandy very clayey SILT	Atterberg 4 Point	31		94	50	29	21						
1403246	WS202A	3	1.25	1.70	B	Brown slightly gravelly sandy CLAY	Atterberg 4 Point	16		89	62	27	35						
1403251	WS207A	1	1.00	1.20	B	Brown gravelly sandy clayey SILT	Atterberg 4 Point	22		81	43	27	16						

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Signed:

Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

GF 238.8

TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

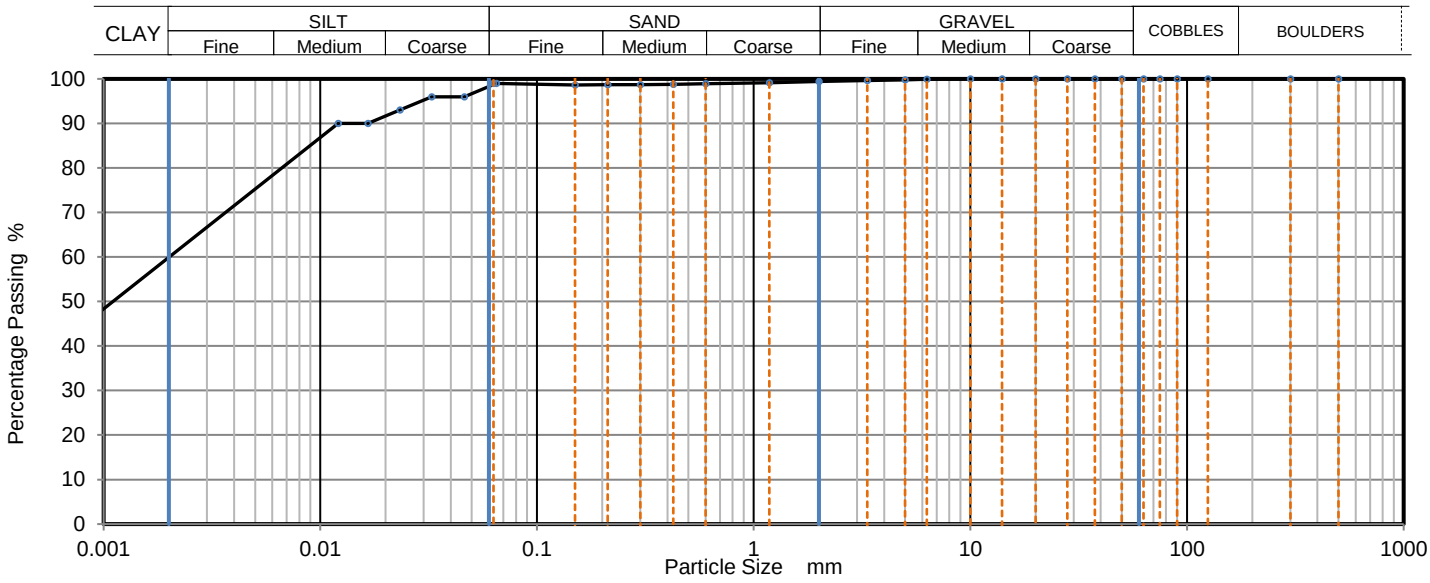
4041

Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403227	Depth Top [m]:	0.60
Hole No.:	TP220	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Sample Description:	Orangish brown slightly gravelly very silty CLAY		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0648	99
300	100	0.0462	96
125	100	0.0327	96
90	100	0.0233	93
75	100	0.0166	90
63	100	0.0121	90
50	100	0.0008	45
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99	Particle density	(assumed)
1.18	99	2.65	Mg/m3
0.6	99		
0.425	99		
0.3	99		
0.212	99		
0.15	99		
0.063	99		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.60
Sand	0.80
Silt	38.60
Clay	60.00

Grading Analysis		
D100	mm	10
D60	mm	0.002
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

Remarks:

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

GF 100.14

TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

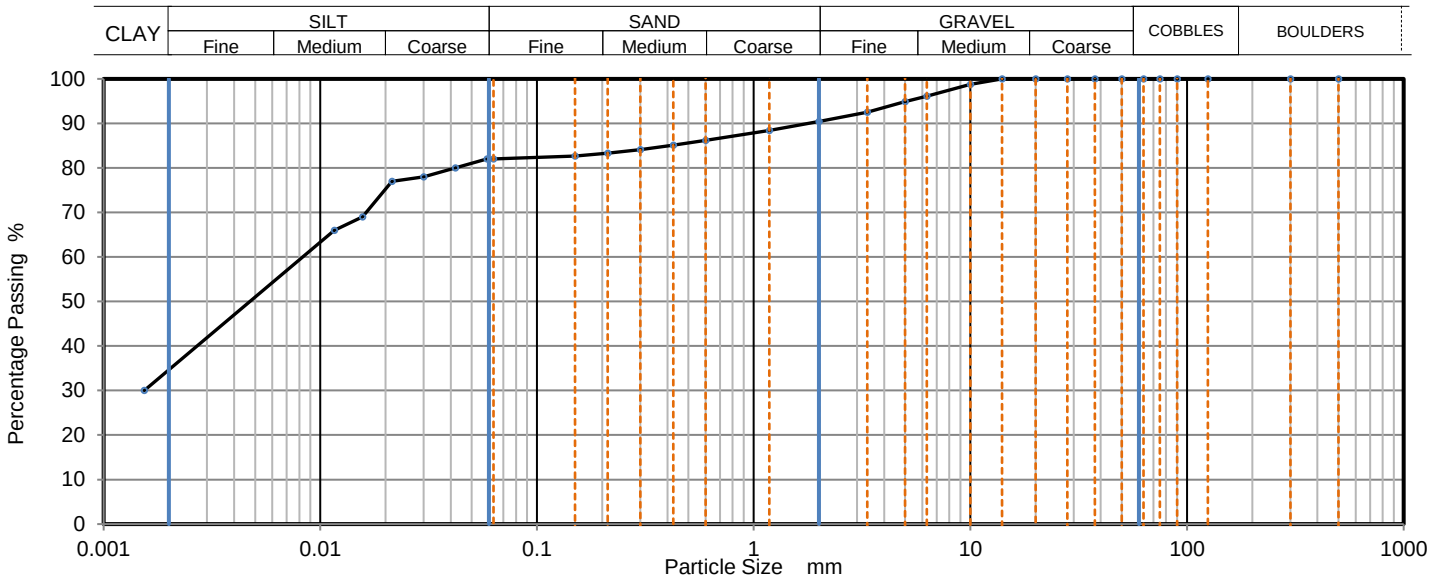
4041

Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	10/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403228	Depth Top [m]:	0.60
Hole No.:	TP225	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Sample Description:	Brown slightly gravelly slightly sandy clayey SILT		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0588	82
300	100	0.0420	80
125	100	0.0300	78
90	100	0.0214	77
75	100	0.0156	69
63	100	0.0116	66
50	100	0.0015	30
37.5	100		
28	100		
20	100		
14	100		
10	99		
6.3	96		
5	95		
3.35	93		
2	90	Particle density	(assumed)
1.18	88	2.65	Mg/m3
0.6	86		
0.425	85		
0.3	84		
0.212	83		
0.15	83		
0.063	82		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	9.60
Sand	8.50
Silt	47.00
Clay	34.90

Grading Analysis		
D100	mm	14
D60	mm	0.00831
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

Remarks:

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PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

GF 100.14

TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD
Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

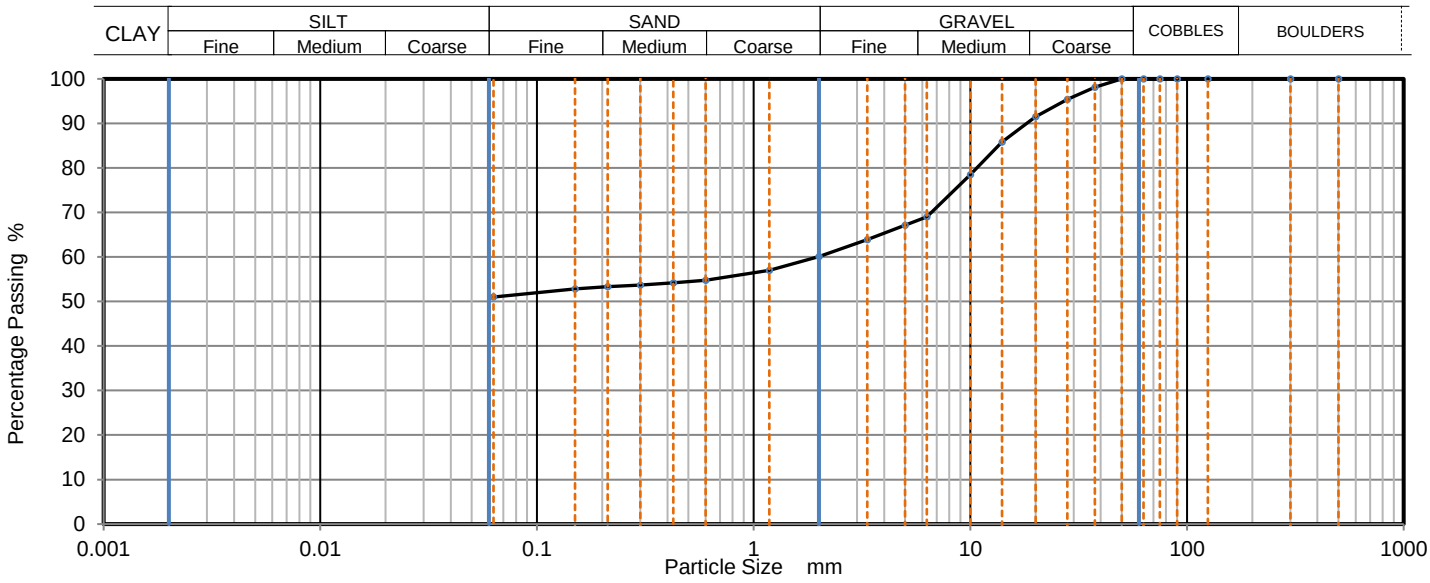
Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 08/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403229
Hole No.: TP237
Sample Reference: 2
Sample Description: Brown slightly sandy very gravelly CLAY with mudstones

Depth Top [m]: 1.50
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	98		
28	95		
20	92		
14	86		
10	79		
6.3	69		
5	67		
3.35	64		
2	60		
1.18	57		
0.6	55		
0.425	54		
0.3	54		
0.212	53		
0.15	53		
0.063	51		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	39.90
Sand	8.80
Fines <0.063mm	51.30

Grading Analysis		
D100	mm	50
D60	mm	1.97
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

GF 100.14

TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

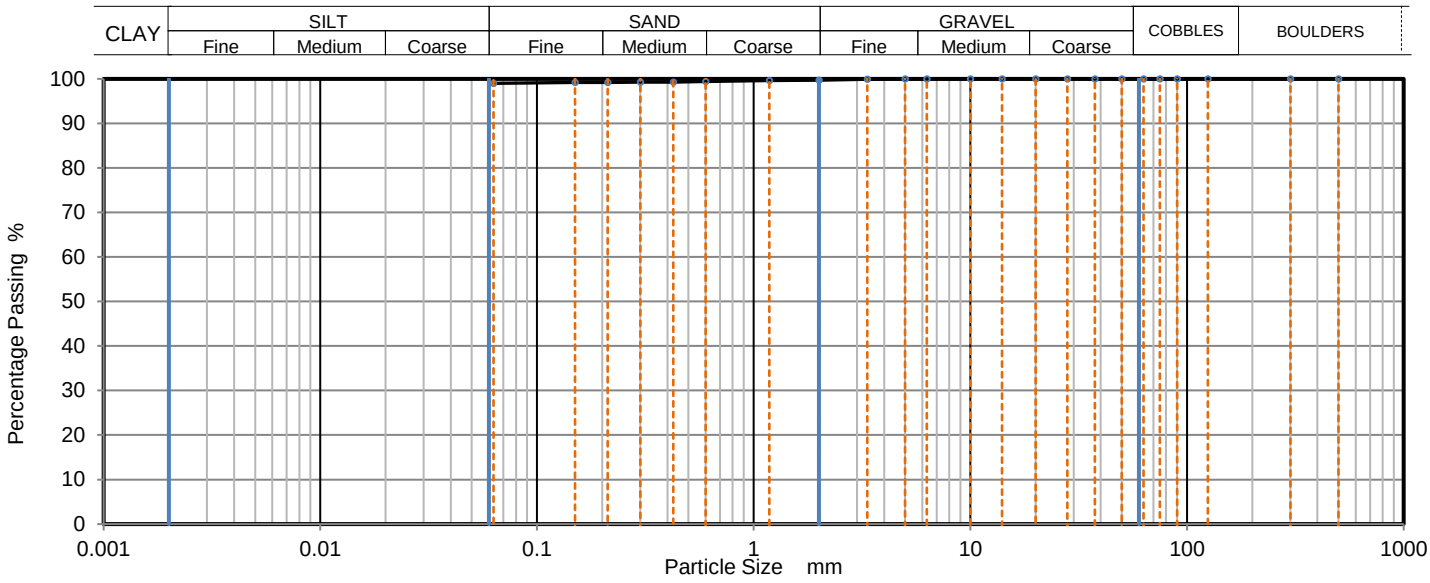
4041

Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403230	Depth Top [m]:	0.50
Hole No.:	TP205	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Sample Description:	Brownish grey CLAY		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	99		
0.3	99		
0.212	99		
0.15	99		
0.063	99		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.30
Sand	0.70
Fines <0.063mm	99.10

Grading Analysis		
D100	mm	6.3
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

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TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

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Brackmills Industrial Estate
Northampton NN4 7EB

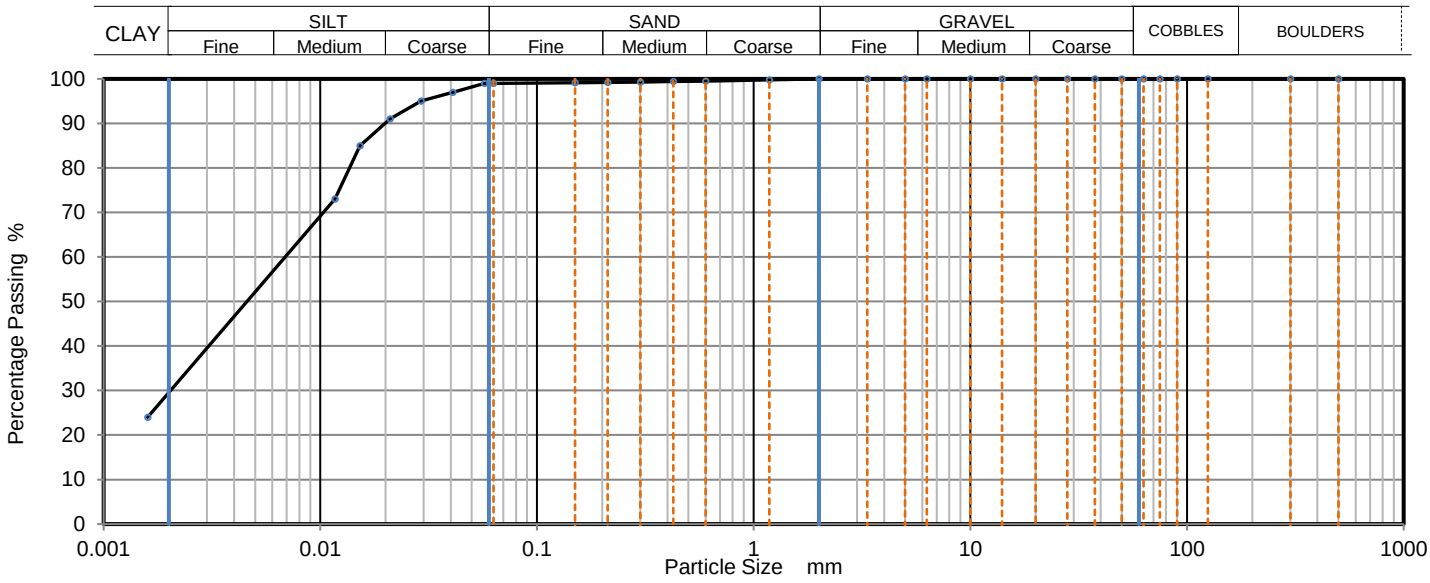
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Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	10/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403231	Depth Top [m]:	0.60
Hole No.:	TP207	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Sample Description:	Brown to grey clayey SILT		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0572	99
300	100	0.0408	97
125	100	0.0291	95
90	100	0.0210	91
75	100	0.0152	85
63	100	0.0117	73
50	100	0.0016	24
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100	Particle density	(assumed)
1.18	100	2.65	Mg/m3
0.6	100		
0.425	99		
0.3	99		
0.212	99		
0.15	99		
0.063	99		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.00
Sand	1.20
Silt	69.50
Clay	29.30

Grading Analysis		
D100	mm	5
D60	mm	0.00689
D30	mm	0.00206
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

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TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

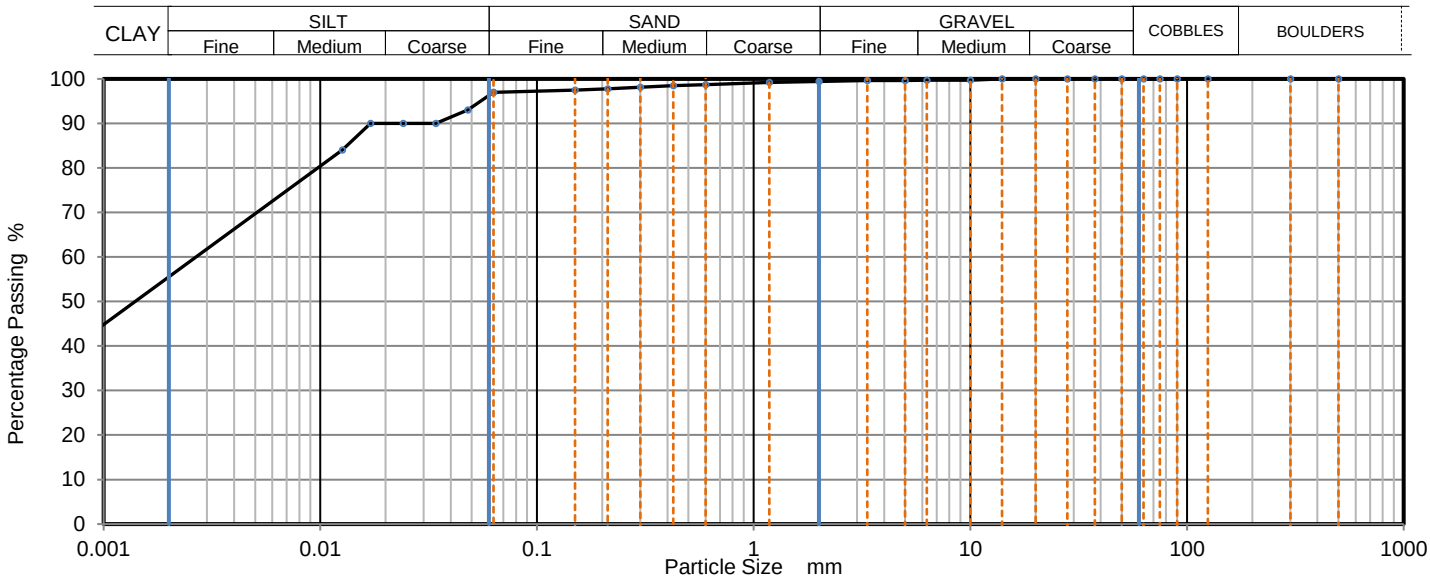
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Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	09/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403232	Depth Top [m]:	0.50
Hole No.:	TP212	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Sample Description:	Light brown very silty CLAY		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0630	97
300	100	0.0479	93
125	100	0.0341	90
90	100	0.0241	90
75	100	0.0170	90
63	100	0.0126	84
50	100	0.0008	42
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99	Particle density	(assumed)
1.18	99	2.65	Mg/m3
0.6	99		
0.425	99		
0.3	98		
0.212	98		
0.15	98		
0.063	97		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.60
Sand	2.70
Silt	41.30
Clay	55.40

Grading Analysis		
D100	mm	14
D60	mm	0.00269
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

Remarks:

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

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TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

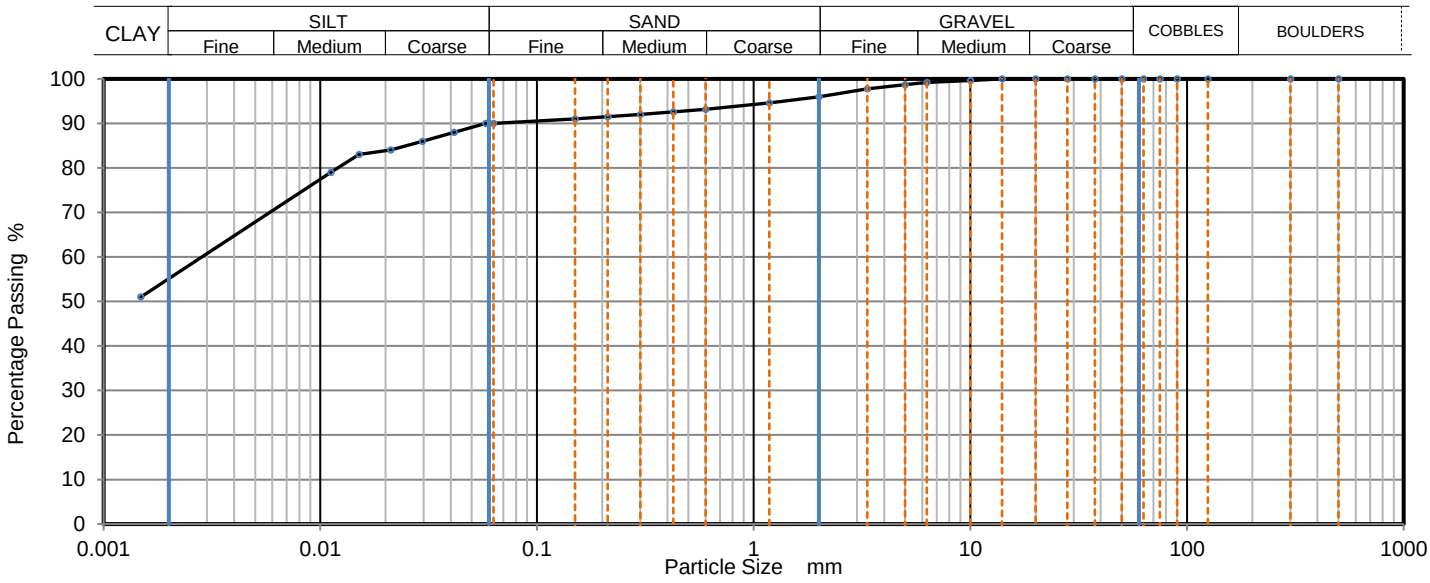
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Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403233	Depth Top [m]:	0.50
Hole No.:	TP203	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Sample Description:	Brown slightly gravelly slightly sandy very silty CLAY		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0581	90
300	100	0.0415	88
125	100	0.0296	86
90	100	0.0211	84
75	100	0.0151	83
63	100	0.0112	79
50	100	0.0015	51
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	99		
5	99		
3.35	98		
2	96	Particle density	(assumed)
1.18	95	2.65	Mg/m3
0.6	93		
0.425	93		
0.3	92		
0.212	92		
0.15	91		
0.063	90		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	4.00
Sand	5.90
Silt	35.30
Clay	54.80

Grading Analysis		
D100	mm	14
D60	mm	0.0029
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

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TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

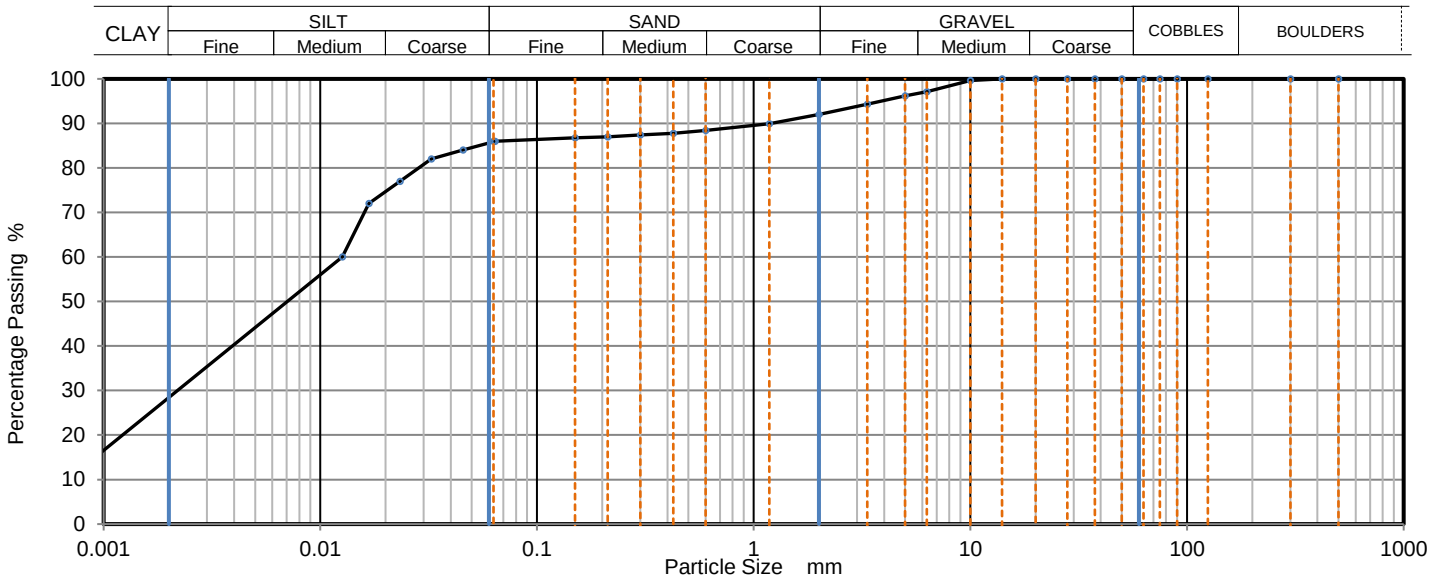
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Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403234	Depth Top [m]:	0.60
Hole No.:	TP204	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Sample Description:	Brownish grey slightly sandy slightly gravelly clayey SILT		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0640	86
300	100	0.0456	84
125	100	0.0325	82
90	100	0.0233	77
75	100	0.0167	72
63	100	0.0126	60
50	100	0.0009	14
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	97		
5	96		
3.35	94		
2	92	Particle density	(assumed)
1.18	90	2.65	Mg/m3
0.6	88		
0.425	88		
0.3	87		
0.212	87		
0.15	87		
0.063	86		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	8.00
Sand	5.70
Silt	57.60
Clay	28.70

Grading Analysis		
D100	mm	14
D60	mm	0.0126
D30	mm	0.00216
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

GF 100.14

TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

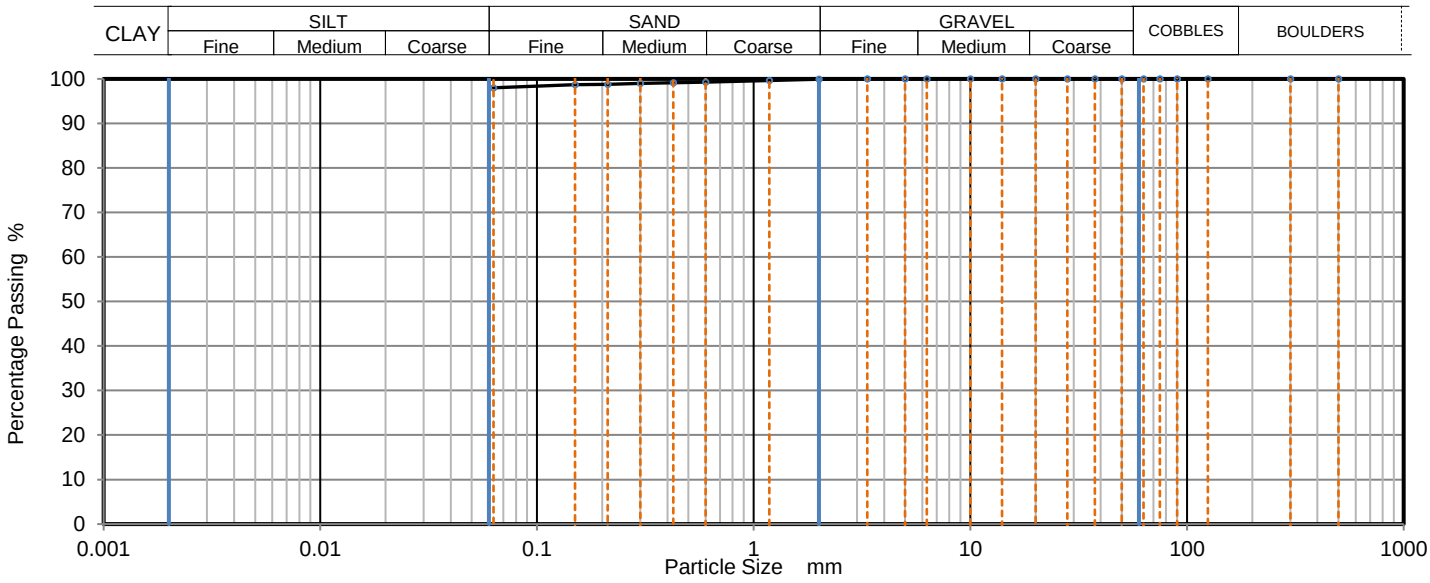
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Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403235	Depth Top [m]:	0.50
Hole No.:	TP208	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Sample Description:	Brown CLAY		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	99		
0.3	99		
0.212	99		
0.15	99		
0.063	98		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.10
Sand	1.60
Fines <0.063mm	98.30

Grading Analysis		
D100	mm	5
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

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TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

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Brackmills Industrial Estate
Northampton NN4 7EB

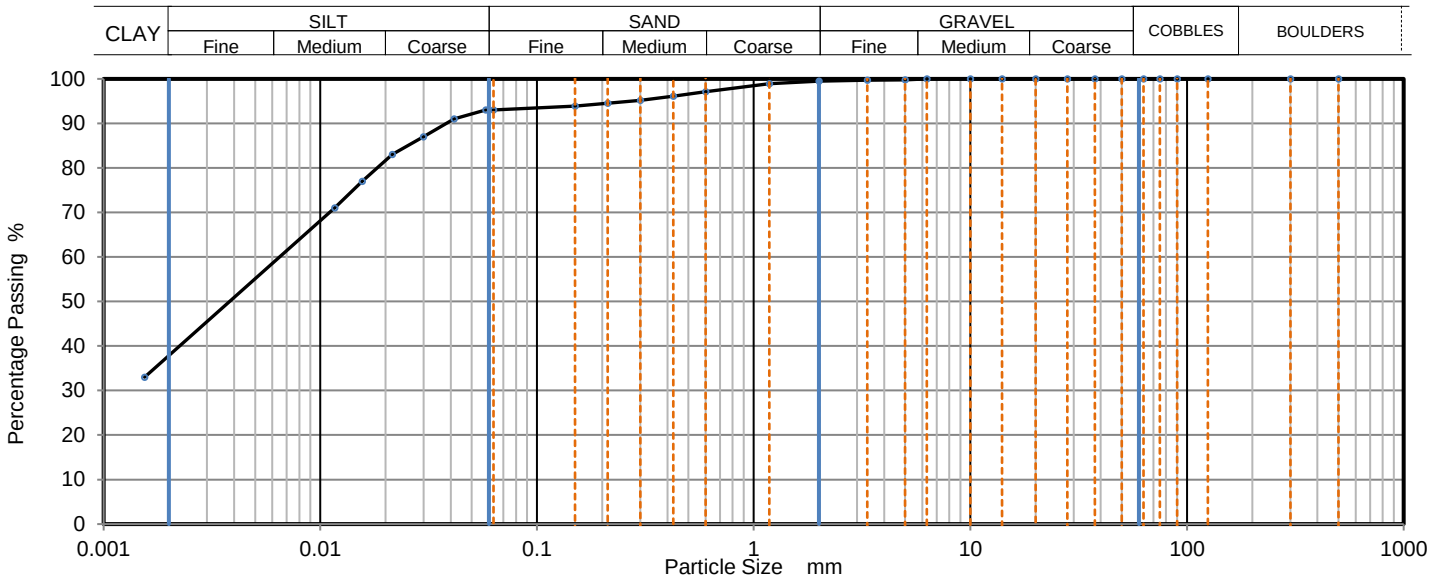
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Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	10/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403236	Depth Top [m]:	0.50
Hole No.:	TP211	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Sample Description:	Brown to grey slightly sandy very clayey SILT		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0581	93
300	100	0.0415	91
125	100	0.0299	87
90	100	0.0215	83
75	100	0.0156	77
63	100	0.0117	71
50	100	0.0015	33
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100	Particle density	(assumed)
1.18	99	2.65	Mg/m3
0.6	97		
0.425	96		
0.3	95		
0.212	95		
0.15	94		
0.063	93		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.50
Sand	6.80
Silt	55.00
Clay	37.70

Grading Analysis		
D100	mm	6.3
D60	mm	0.00642
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

GF 100.14

TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

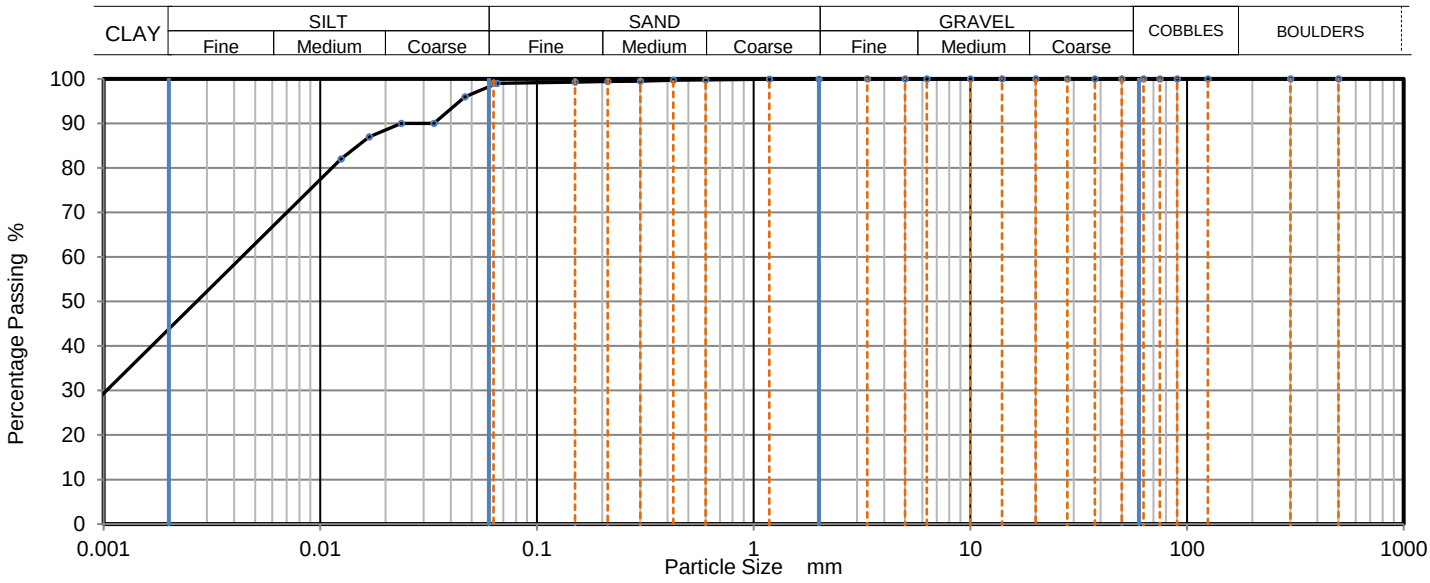
4041

Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403237	Depth Top [m]:	0.50
Hole No.:	TP221	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Sample Description:	Light brown very clayey SILT		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0654	99
300	100	0.0466	96
125	100	0.0334	90
90	100	0.0236	90
75	100	0.0168	87
63	100	0.0125	82
50	100	0.0009	26
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100	Particle density	(assumed)
1.18	100	2.65	Mg/m3
0.6	100		
0.425	100		
0.3	100		
0.212	99		
0.15	99		
0.063	99		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.10
Sand	0.80
Silt	55.20
Clay	43.90

Grading Analysis		
D100	mm	5
D60	mm	0.00437
D30	mm	0.00102
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

Remarks:

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

GF 100.14

TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

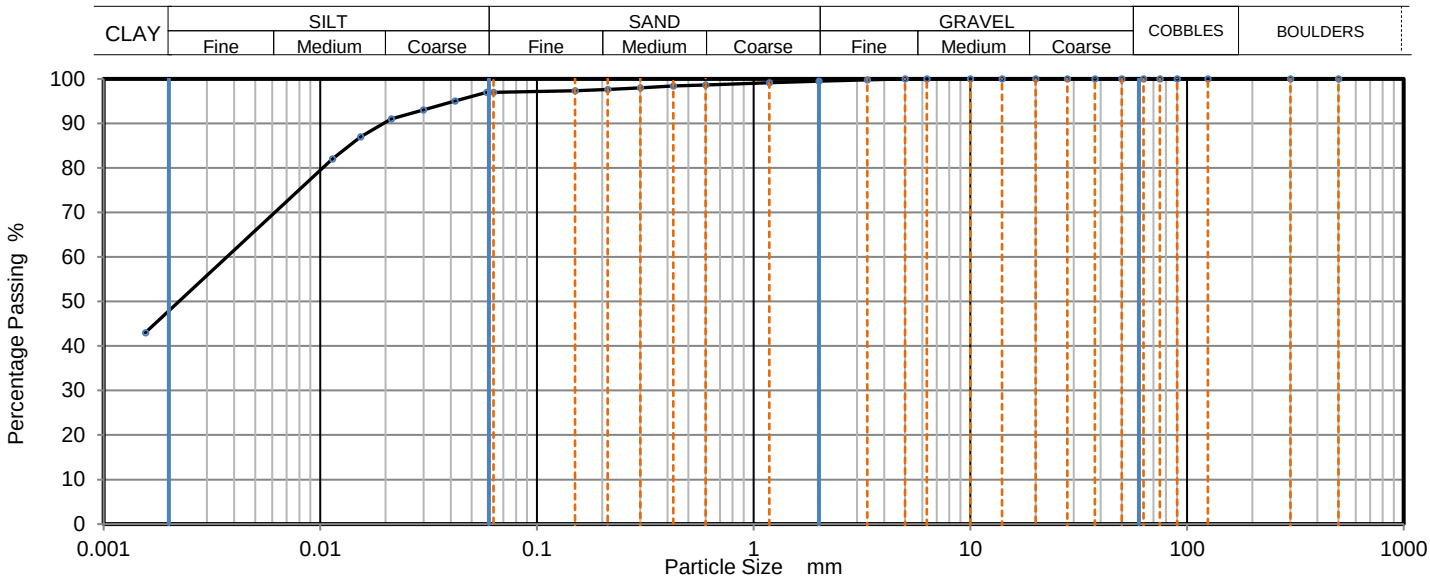
4041

Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403238	Depth Top [m]:	0.60
Hole No.:	TP217	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Sample Description:	Brown SILT and CLAY		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0586	97
300	100	0.0418	95
125	100	0.0298	93
90	100	0.0213	91
75	100	0.0153	87
63	100	0.0114	82
50	100	0.0016	43
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100	Particle density	(assumed)
1.18	99	2.65	Mg/m3
0.6	99		
0.425	98		
0.3	98		
0.212	98		
0.15	97		
0.063	97		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.50
Sand	2.60
Silt	48.70
Clay	48.20

Grading Analysis		
D100	mm	5
D60	mm	0.00364
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

GF 100.14

TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

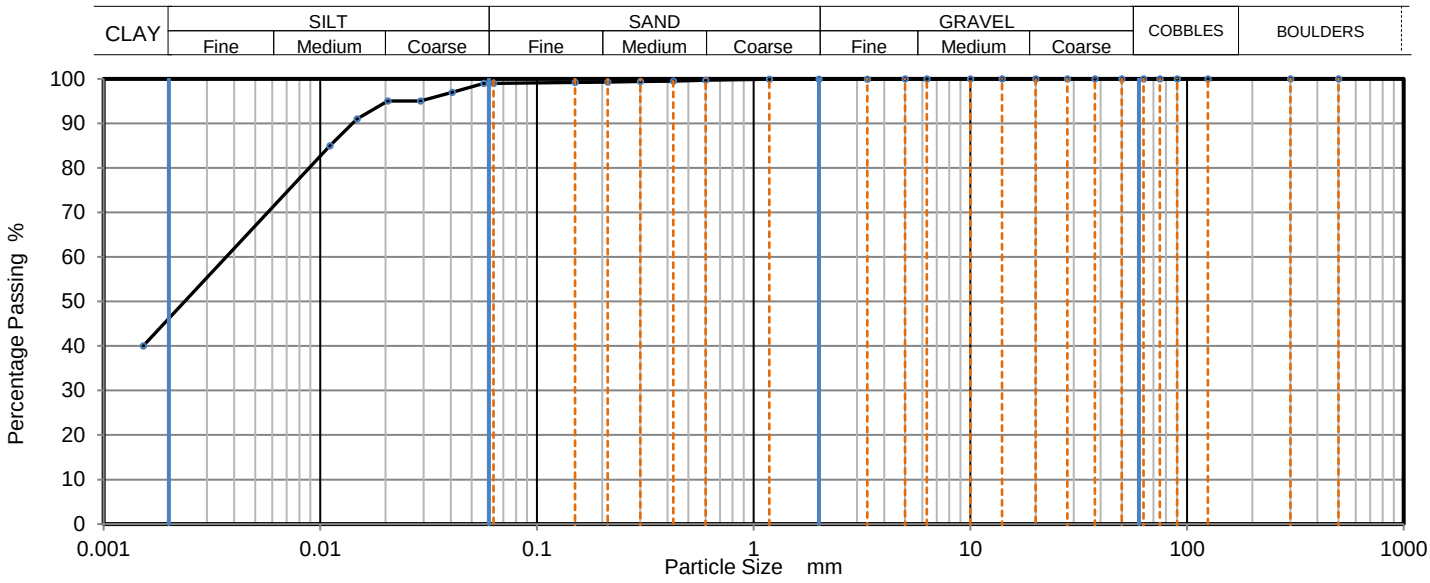
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Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	10/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403239	Depth Top [m]:	0.50
Hole No.:	TP229	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Sample Description:	Brown to grey slightly sandy very clayey SILT		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0568	99
300	100	0.0405	97
125	100	0.0289	95
90	100	0.0205	95
75	100	0.0148	91
63	100	0.0111	85
50	100	0.0015	40
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100	Particle density	(assumed)
1.18	100	2.65	Mg/m3
0.6	100		
0.425	100		
0.3	99		
0.212	99		
0.15	99		
0.063	99		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.10
Sand	1.10
Silt	53.00
Clay	45.80

Grading Analysis		
D100	mm	5
D60	mm	0.00372
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

GF 100.14

TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

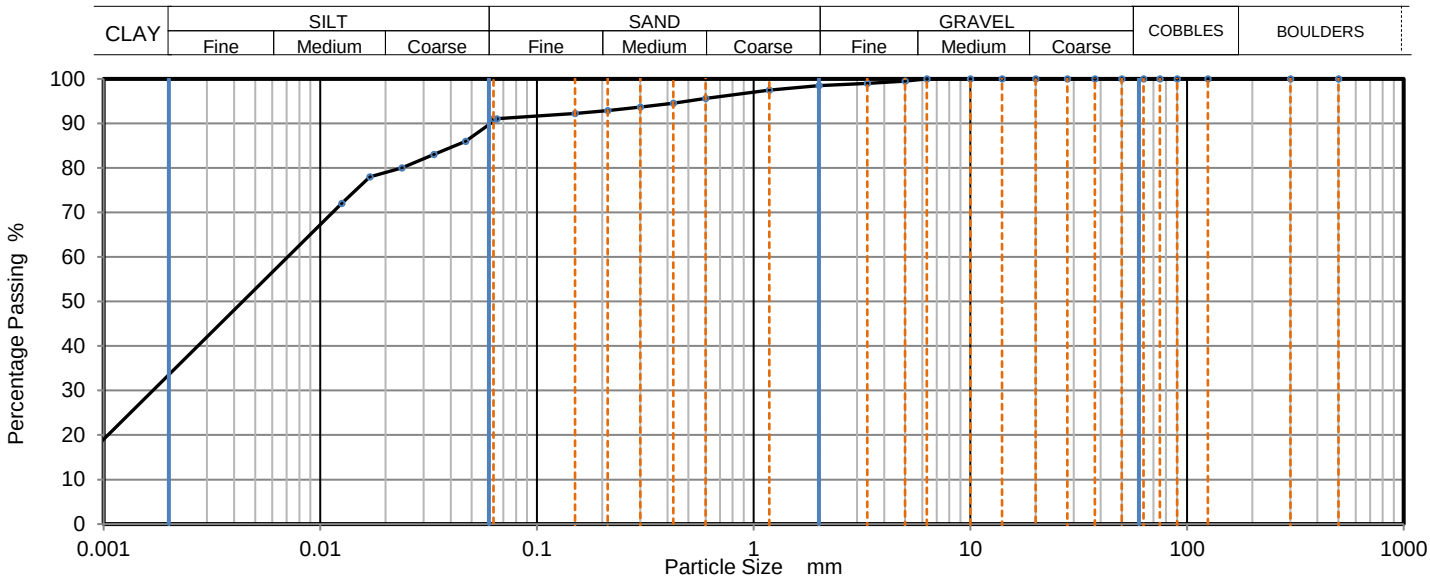
4041

Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	09/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403240	Depth Top [m]:	0.80
Hole No.:	TP235	Depth Base [m]:	Not Given
Sample Reference:	2	Sample Type:	B
Sample Description:	Orangish brown slightly gravelly slightly sandy clayey SILT		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0653	91
300	100	0.0469	86
125	100	0.0334	83
90	100	0.0238	80
75	100	0.0169	78
63	100	0.0125	72
50	100	0.0009	16
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	99	Particle density	(assumed)
1.18	98	2.65	Mg/m3
0.6	96		
0.425	95		
0.3	94		
0.212	93		
0.15	92		
0.063	91		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	1.50
Sand	7.50
Silt	57.30
Clay	33.70

Grading Analysis		
D100	mm	6.3
D60	mm	0.00699
D30	mm	0.00168
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

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TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

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Brackmills Industrial Estate
Northampton NN4 7EB

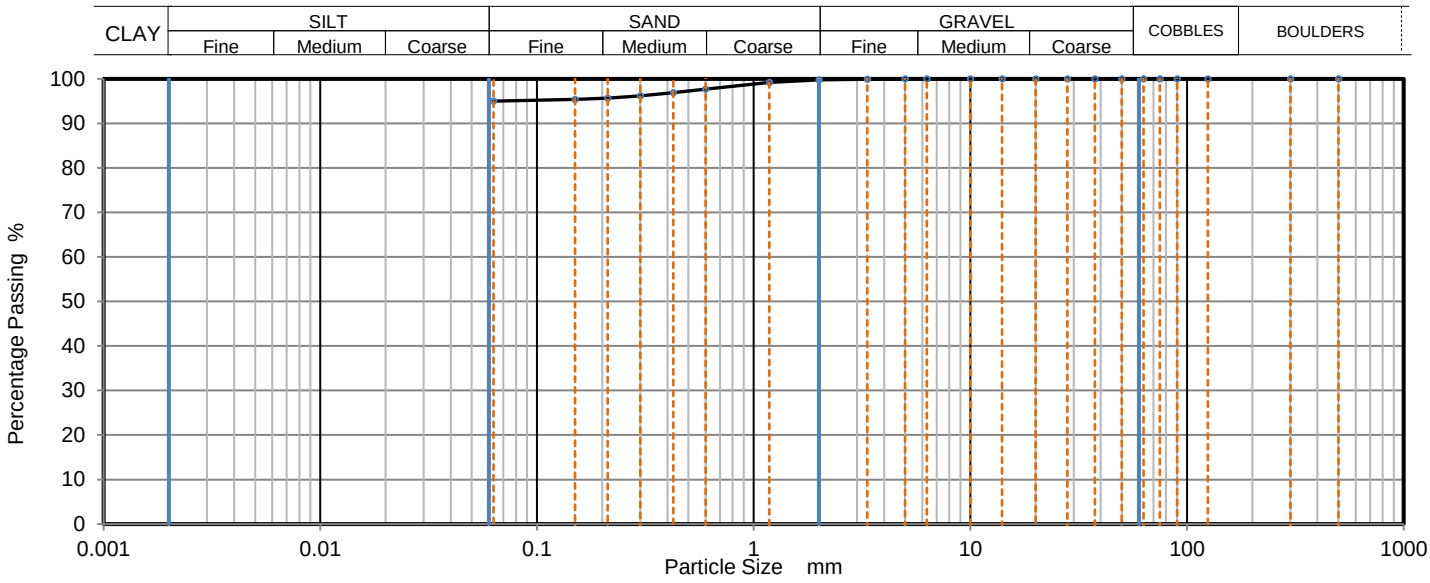
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Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403241	Depth Top [m]:	0.50
Hole No.:	TP247	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Sample Description:	Light brown slightly sandy CLAY		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	98		
0.425	97		
0.3	96		
0.212	96		
0.15	95		
0.063	95		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.20
Sand	4.70
Fines <0.063mm	95.00

Grading Analysis		
D100	mm	6.3
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

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Date Reported: 17/01/2020

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Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

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Northampton NN4 7EB

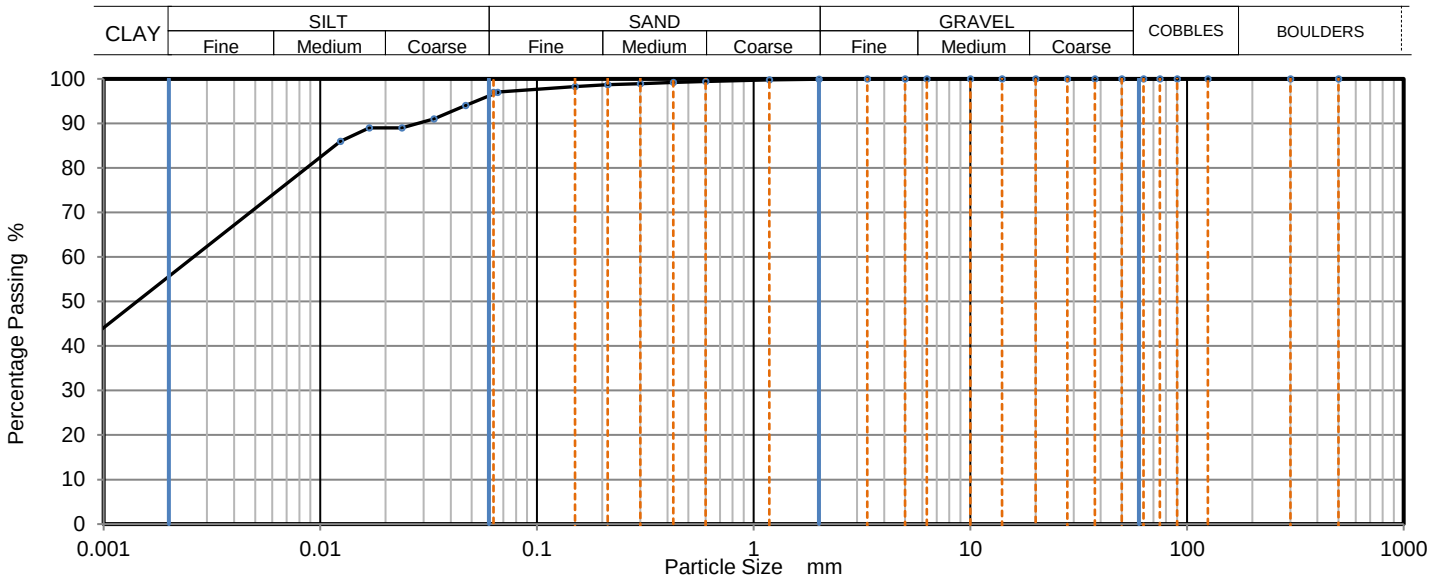
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Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	09/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403242	Depth Top [m]:	0.60
Hole No.:	TP231	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Sample Description:	Light brown slightly sandy very silty CLAY		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0658	97
300	100	0.0469	94
125	100	0.0334	91
90	100	0.0238	89
75	100	0.0168	89
63	100	0.0124	86
50	100	0.0008	41
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100	Particle density	(assumed)
1.18	100	2.65	Mg/m3
0.6	99		
0.425	99		
0.3	99		
0.212	99		
0.15	98		
0.063	97		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.10
Sand	2.60
Silt	41.60
Clay	55.70

Grading Analysis		
D100	mm	3.35
D60	mm	0.00259
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

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TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

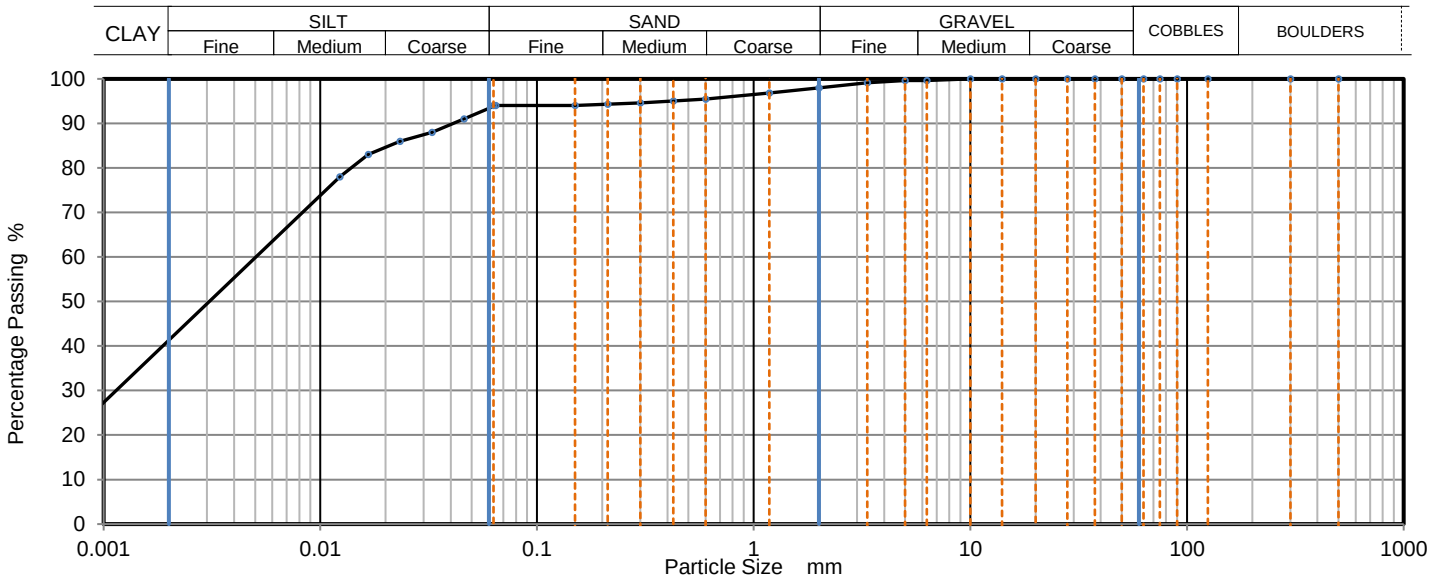
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Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403243	Depth Top [m]:	0.40
Hole No.:	TP240	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Sample Description:	Yellowish brown slightly gravelly slightly sandy very clayey SILT		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0645	94
300	100	0.0460	91
125	100	0.0328	88
90	100	0.0233	86
75	100	0.0166	83
63	100	0.0123	78
50	100	0.0008	24
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	98	Particle density	(assumed)
1.18	97	2.65	Mg/m3
0.6	96		
0.425	95		
0.3	95		
0.212	94		
0.15	94		
0.063	94		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	2.00
Sand	4.40
Silt	52.40
Clay	41.20

Grading Analysis		
D100	mm	10
D60	mm	0.00512
D30	mm	0.00114
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

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TEST CERTIFICATE

Particle Size Distribution

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Brackmills Industrial Estate
Northampton NN4 7EB

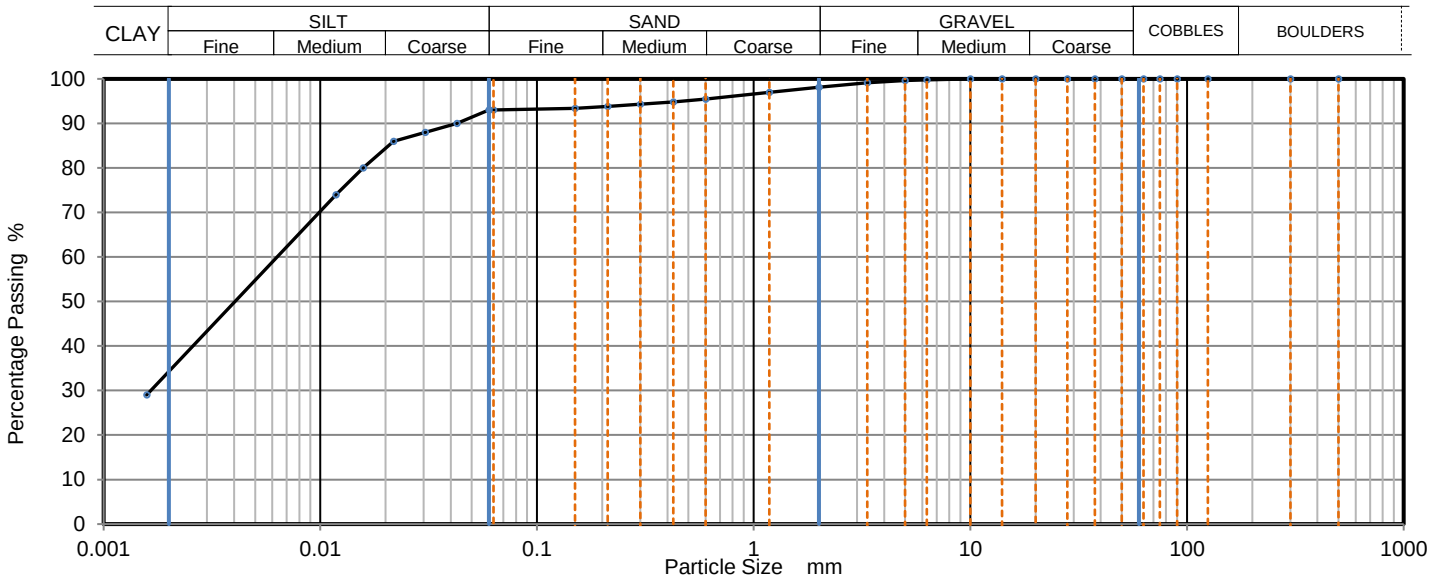
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Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	10/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403244	Depth Top [m]:	1.50
Hole No.:	TP243	Depth Base [m]:	Not Given
Sample Reference:	2	Sample Type:	B
Sample Description:	Brown to grey slightly gravelly slightly sandy very clayey SILT		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0600	93
300	100	0.0428	90
125	100	0.0305	88
90	100	0.0218	86
75	100	0.0158	80
63	100	0.0118	74
50	100	0.0016	29
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	98	Particle density	(assumed)
1.18	97	2.65	Mg/m3
0.6	96		
0.425	95		
0.3	94		
0.212	94		
0.15	93		
0.063	93		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	1.90
Sand	5.60
Silt	58.40
Clay	34.10

Grading Analysis		
D100	mm	10
D60	mm	0.00633
D30	mm	0.00167
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

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Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

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Northampton NN4 7EB

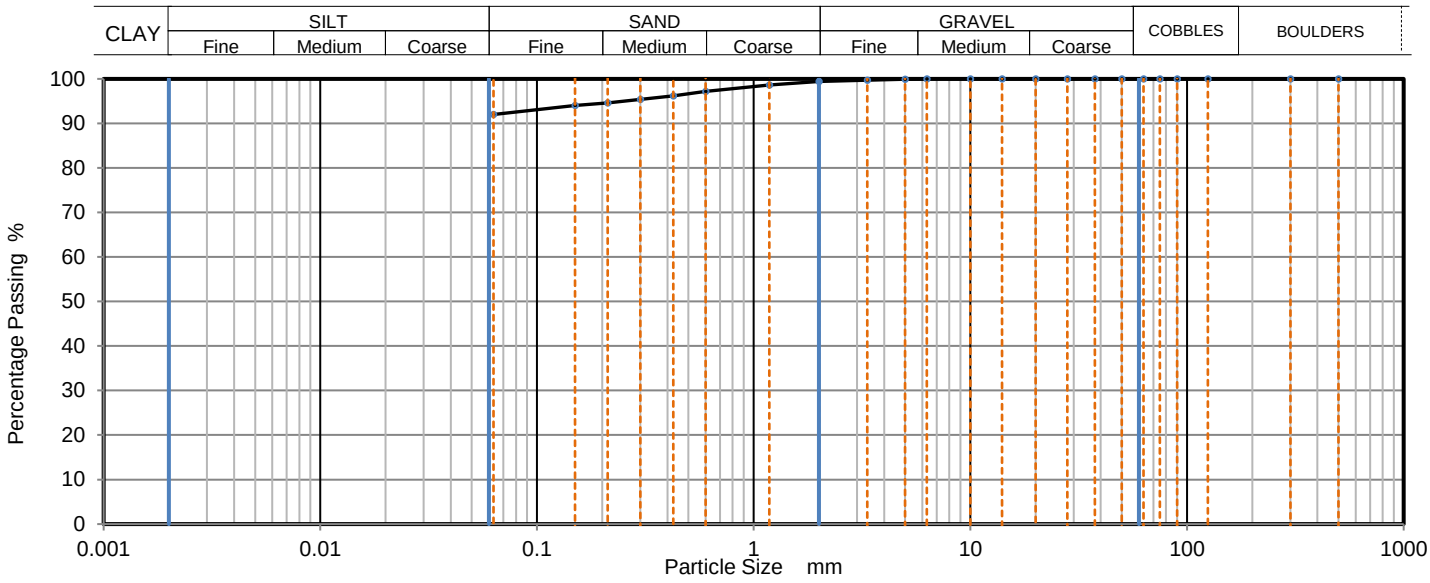
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Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403245	Depth Top [m]:	1.20
Hole No.:	TP248	Depth Base [m]:	Not Given
Sample Reference:	2	Sample Type:	B
Sample Description:	Light brown slightly sandy CLAY		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	99		
0.6	97		
0.425	96		
0.3	95		
0.212	95		
0.15	94		
0.063	93		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.60
Sand	6.50
Fines <0.063mm	92.90

Grading Analysis		
D100	mm	6.3
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

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for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

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TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

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Brackmills Industrial Estate
Northampton NN4 7EB

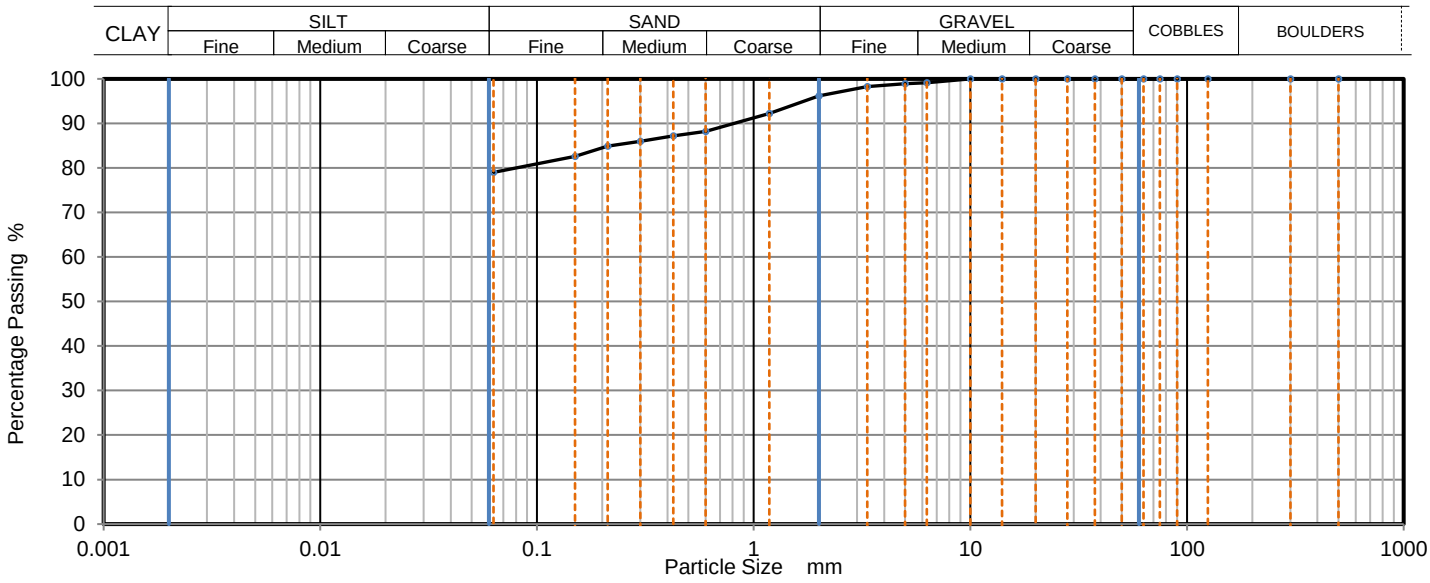
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Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	10/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403246	Depth Top [m]:	1.25
Hole No.:	WS202A	Depth Base [m]:	1.70
Sample Reference:	3	Sample Type:	B
Sample Description:	Brown slightly gravelly sandy CLAY		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	99		
5	99		
3.35	98		
2	96		
1.18	92		
0.6	88		
0.425	87		
0.3	86		
0.212	85		
0.15	83		
0.063	80		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	3.80
Sand	16.40
Fines <0.063mm	79.80

Grading Analysis		
D100	mm	10
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

GF 100.14

TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

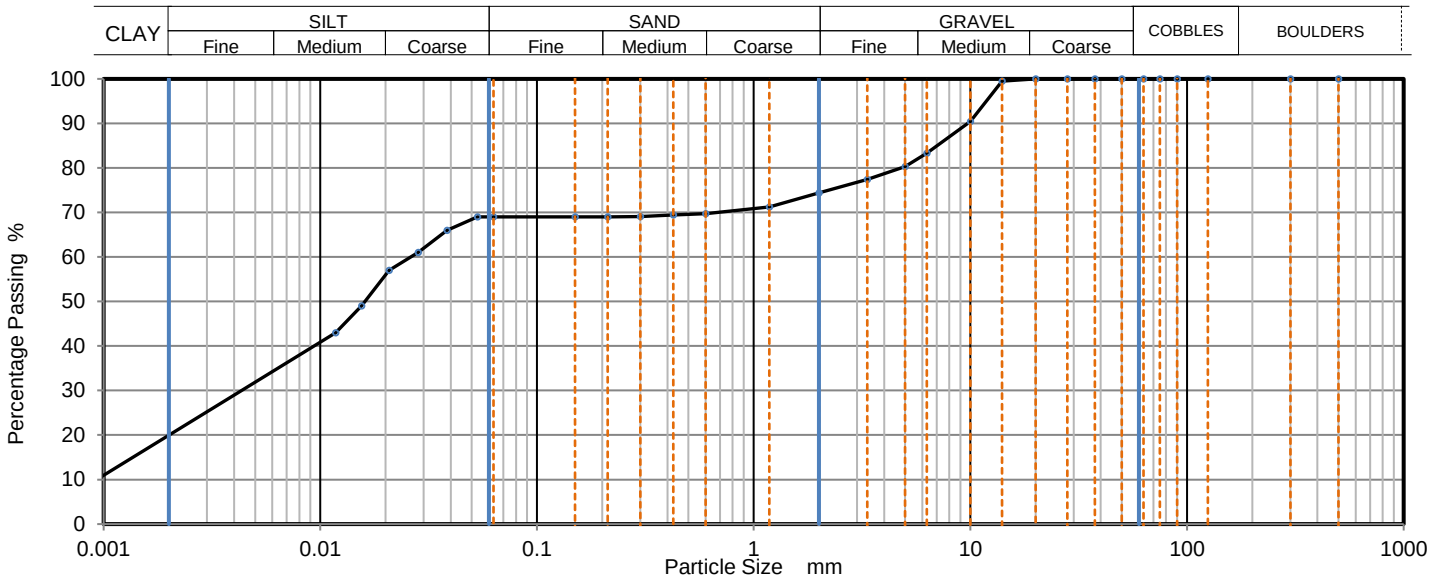
4041

Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	09/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403247	Depth Top [m]:	1.50
Hole No.:	TP244	Depth Base [m]:	Not Given
Sample Reference:	2	Sample Type:	B
Sample Description:	Light brown slightly sandy clayey gravelly SILT		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0531	69
300	100	0.0384	66
125	100	0.0283	61
90	100	0.0208	57
75	100	0.0155	49
63	100	0.0118	43
50	100	0.0009	9
37.5	100		
28	100		
20	100		
14	100		
10	90		
6.3	83		
5	80		
3.35	77		
2	74	Particle density	(assumed)
1.18	71	2.65	Mg/m3
0.6	70		
0.425	69		
0.3	69		
0.212	69		
0.15	69		
0.063	69		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	25.60
Sand	5.60
Silt	49.10
Clay	19.70

Grading Analysis		
D100	mm	20
D60	mm	0.0259
D30	mm	0.00438
D10	mm	0.000956
Uniformity Coefficient		27
Curvature Coefficient		0.78

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

GF 100.14

TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD
Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

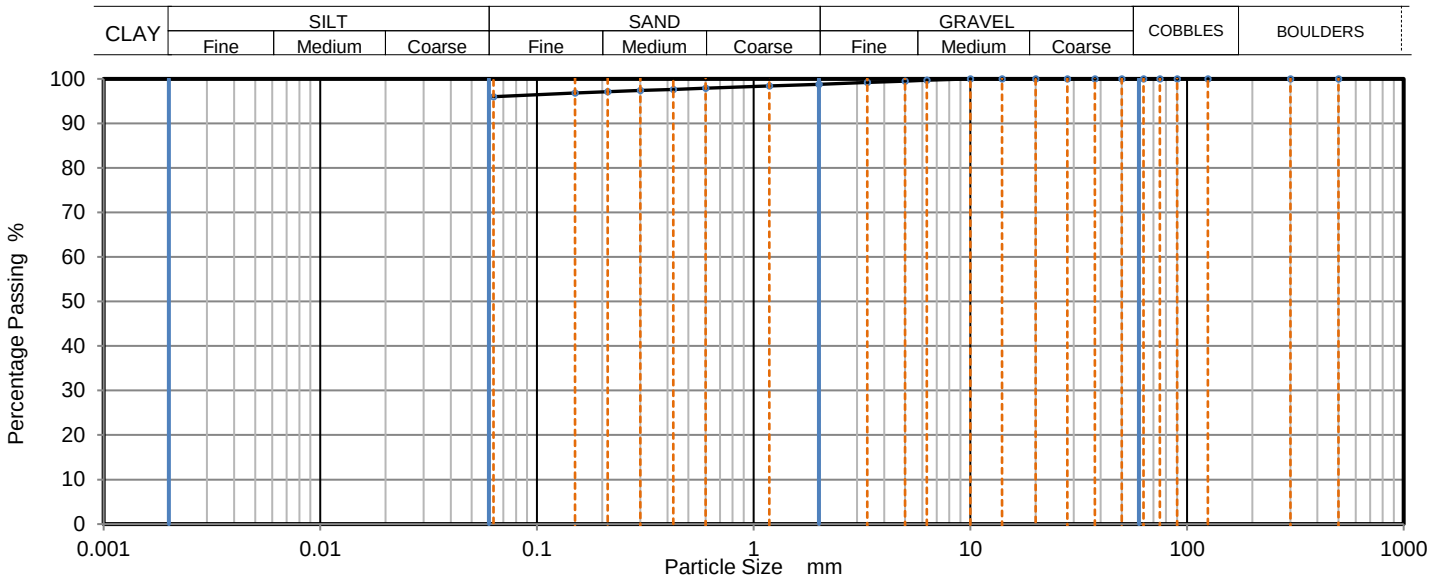
Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 08/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403248
Hole No.: TP253
Sample Reference: 1
Sample Description: Brown slightly gravelly slightly sandy CLAY

Depth Top [m]: 0.50
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	99		
1.18	98		
0.6	98		
0.425	98		
0.3	97		
0.212	97		
0.15	97		
0.063	96		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	1.20
Sand	2.40
Fines <0.063mm	96.40

Grading Analysis		
D100	mm	10
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

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TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

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Northampton NN4 7EB

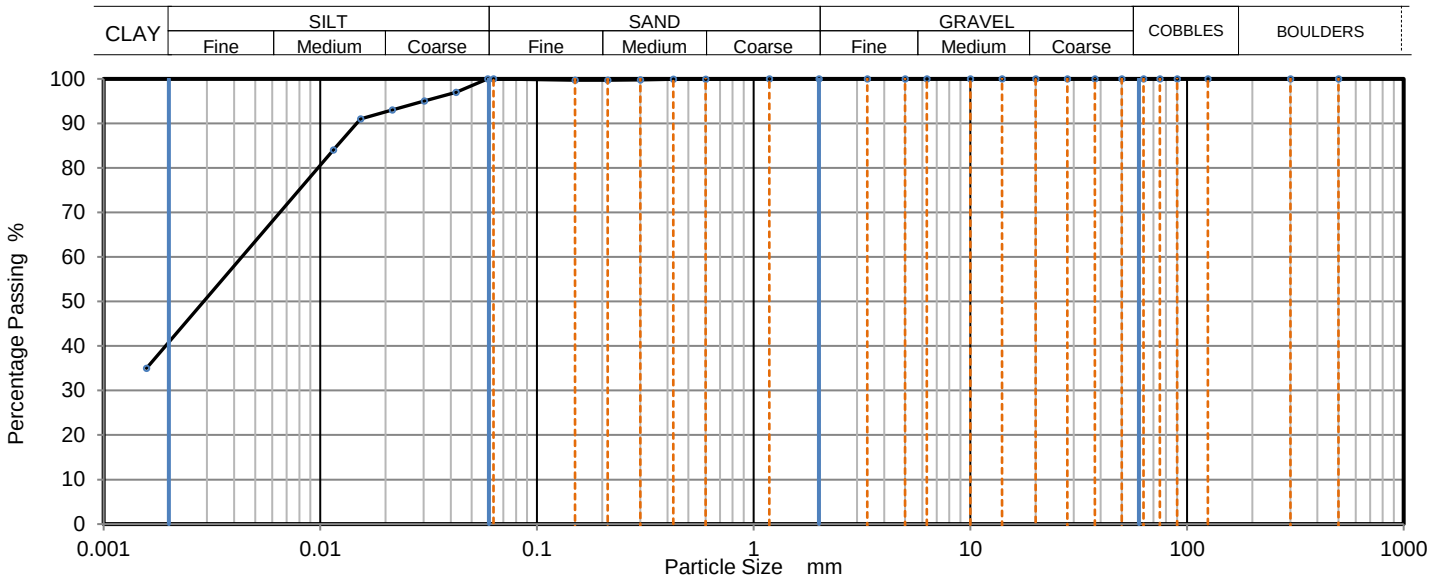
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Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	10/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403249	Depth Top [m]:	0.40
Hole No.:	TP255	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Sample Description:	Brown very clayey SILT		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0592	100
300	100	0.0422	97
125	100	0.0301	95
90	100	0.0215	93
75	100	0.0153	91
63	100	0.0115	84
50	100	0.0016	35
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100	Particle density	(assumed)
1.18	100	2.65	Mg/m3
0.6	100		
0.425	100		
0.3	100		
0.212	100		
0.15	100		
0.063	100		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.00
Sand	0.40
Silt	59.00
Clay	40.60

Grading Analysis		
D100	mm	5
D60	mm	0.00433
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

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TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

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Brackmills Industrial Estate
Northampton NN4 7EB

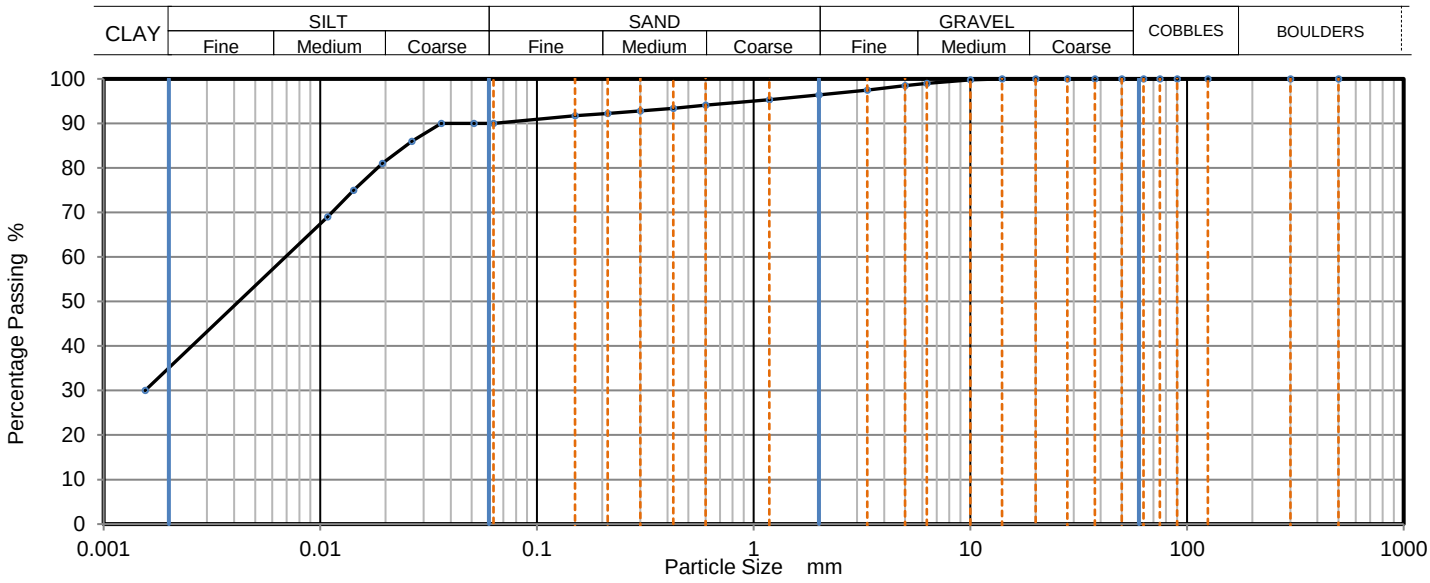
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Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403250	Depth Top [m]:	0.30
Hole No.:	TP256	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Sample Description:	Light brown slightly gravelly slightly sandy very clayey SILT		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0511	90
300	100	0.0361	90
125	100	0.0265	86
90	100	0.0193	81
75	100	0.0142	75
63	100	0.0108	69
50	100	0.0016	30
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	99		
5	99		
3.35	98		
2	96	Particle density	(assumed)
1.18	95	2.65	Mg/m3
0.6	94		
0.425	93		
0.3	93		
0.212	92		
0.15	92		
0.063	90		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	3.60
Sand	6.00
Silt	55.20
Clay	35.20

Grading Analysis		
D100	mm	14
D60	mm	0.00681
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

GF 100.14

TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

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Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

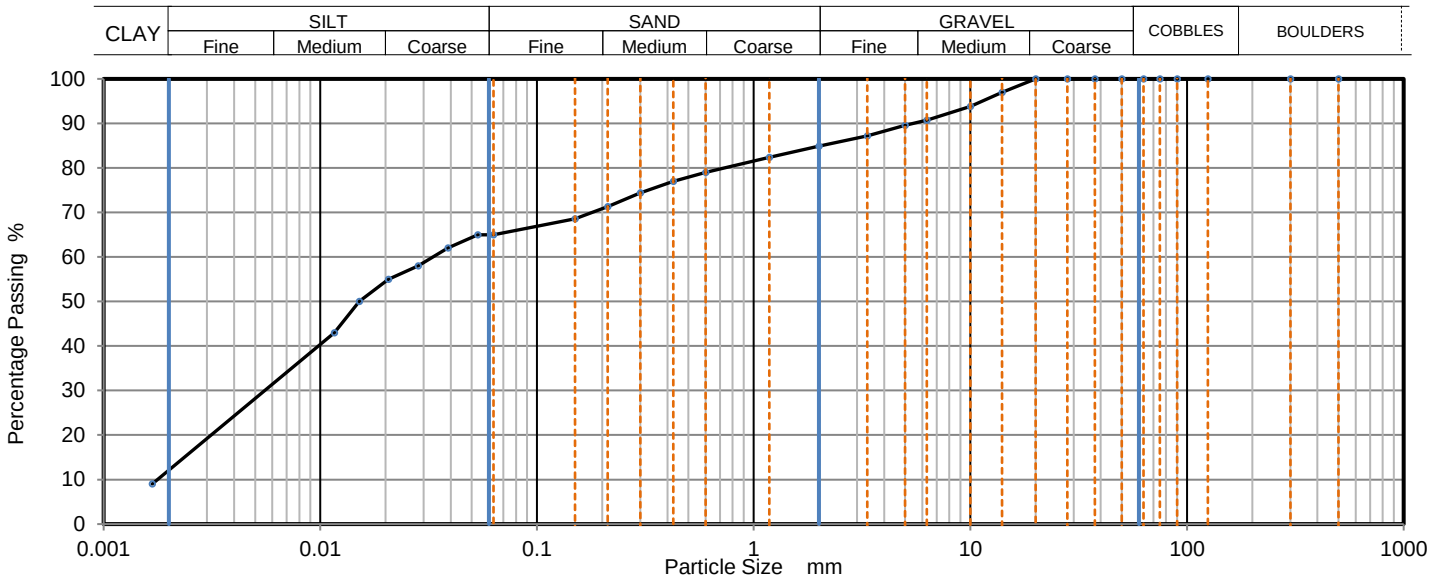
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Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	08/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403251	Depth Top [m]:	1.00
Hole No.:	WS207A	Depth Base [m]:	1.20
Sample Reference:	1	Sample Type:	B
Sample Description:	Brown gravelly sandy clayey SILT		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0532	65
300	100	0.0389	62
125	100	0.0283	58
90	100	0.0206	55
75	100	0.0151	50
63	100	0.0116	43
50	100	0.0017	9
37.5	100		
28	100		
20	100		
14	97		
10	94		
6.3	91		
5	90		
3.35	87		
2	85	Particle density	(assumed)
1.18	82	2.65	Mg/m3
0.6	79		
0.425	77		
0.3	74		
0.212	71		
0.15	69		
0.063	65		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	15.10
Sand	19.50
Silt	52.90
Clay	12.50

Grading Analysis		
D100	mm	20
D60	mm	0.0327
D30	mm	0.00545
D10	mm	0.00174
Uniformity Coefficient		19
Curvature Coefficient		0.52

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

Remarks:

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

GF 100.14

TEST CERTIFICATE

Dry Density / Moisture Content

Relationship Light Compaction

Tested in Accordance with:
BS 1377-4: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

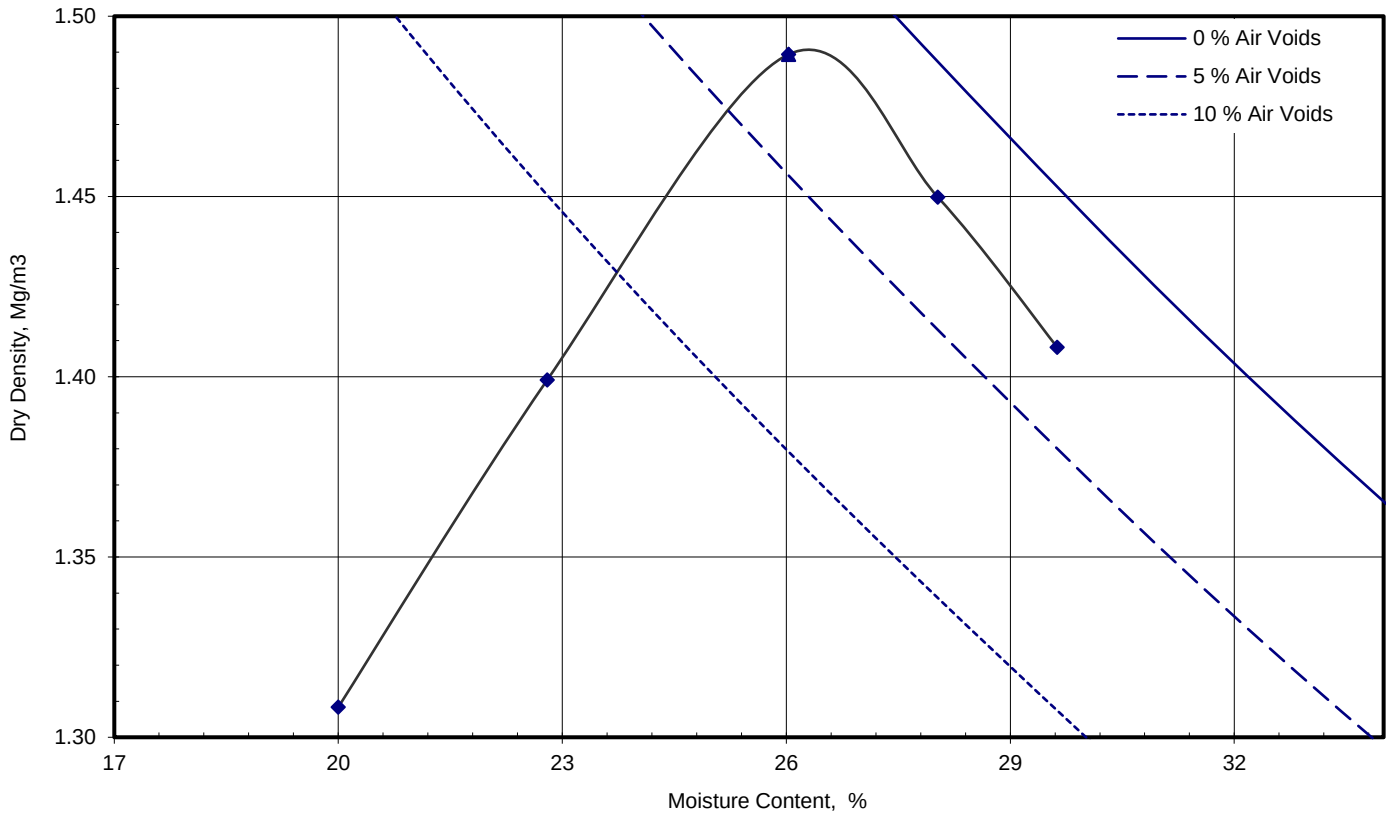
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Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	09/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403232	Depth Top [m]:	0.50
Hole No.:	TP212	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Sample Description:	Light brown very silty CLAY		



Preparation		Material used was natural
Mould Type		1 Litre
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Assumed	Mg/m³	2.55
As received Moisture Content	%	40
Maximum Dry Density	Mg/m³	**1.49**

Optimum Moisture Content	%	**26**

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.3 using 2.5kg [light] Rammer

Remarks:

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Signed:

Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

GF 109.16

TEST CERTIFICATE

Dry Density / Moisture Content

Relationship Light Compaction

Tested in Accordance with:
BS 1377-4: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

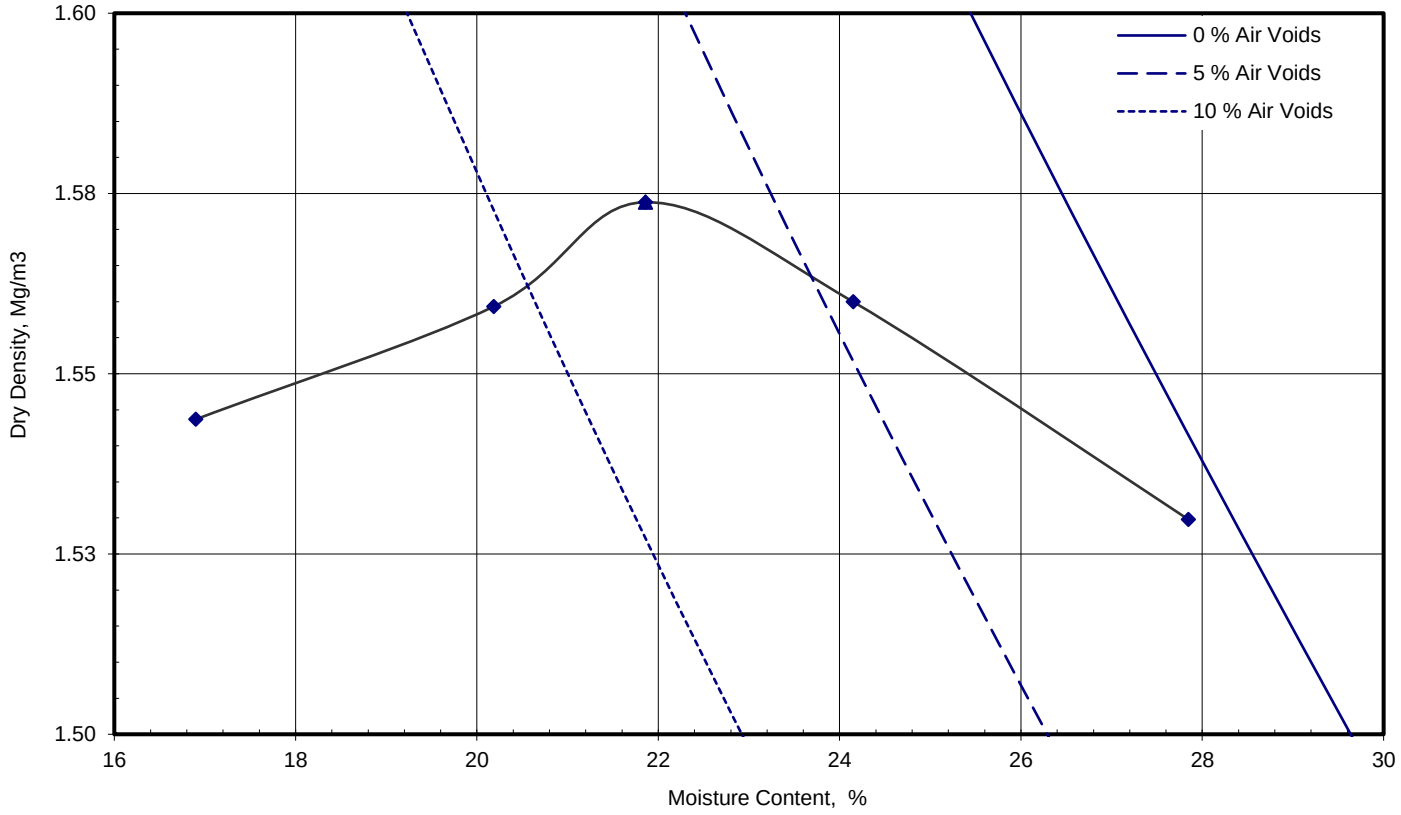
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Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	10/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403233	Depth Top [m]:	0.50
Hole No.:	TP203	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Sample Description:	Brown slightly gravelly slightly sandy very silty CLAY		



Preparation		Material used was natural
Mould Type		1 Litre
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Assumed	Mg/m³	2.70
As received Moisture Content	%	21
Maximum Dry Density	Mg/m³	**1.57**

Optimum Moisture Content	%	**22**

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.3 using 2.5kg [light] Rammer

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Signed:

Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

GF 109.16

TEST CERTIFICATE

Dry Density / Moisture Content

Relationship Light Compaction

Tested in Accordance with:
BS 1377-4: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

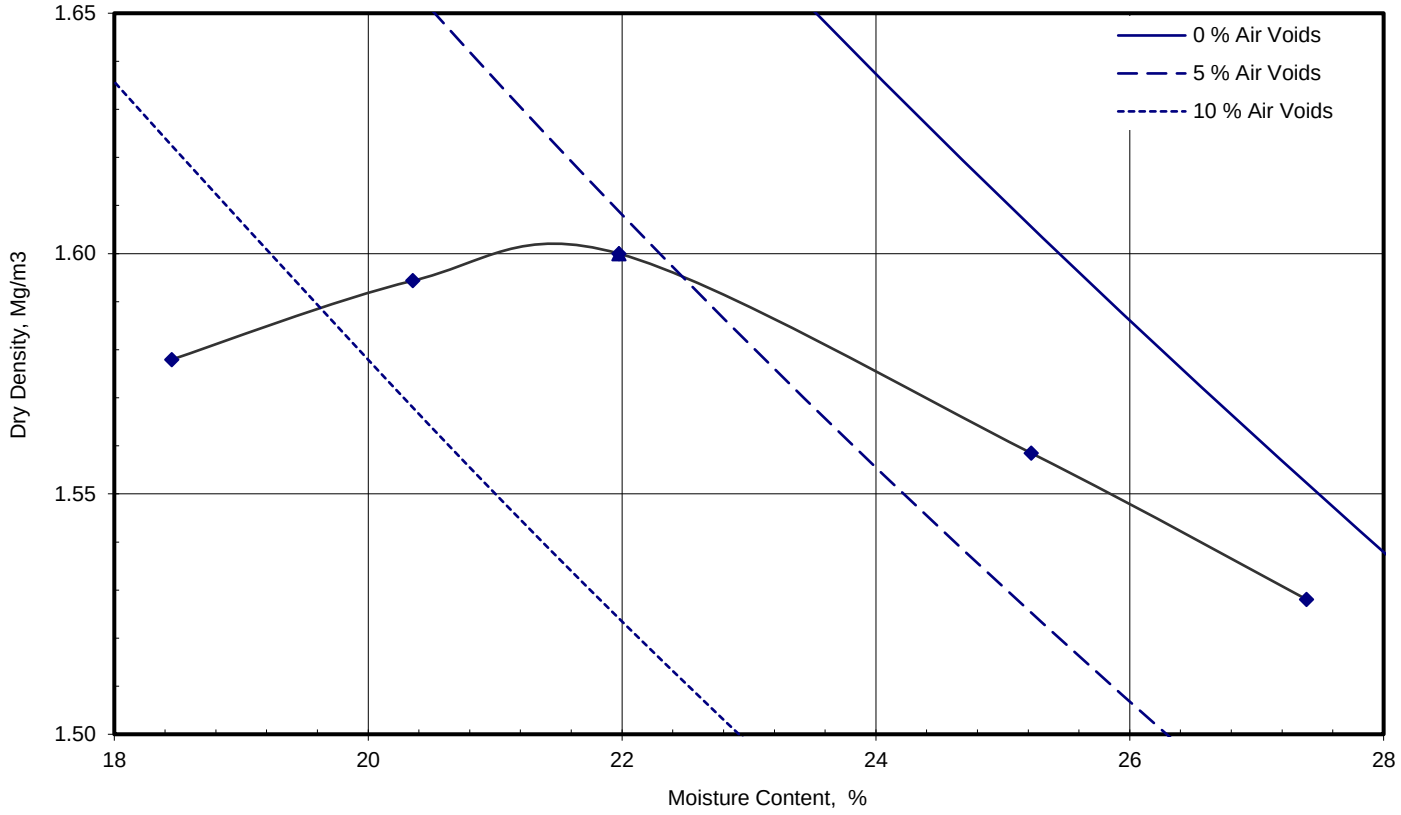
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Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	09/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403240	Depth Top [m]:	0.80
Hole No.:	TP235	Depth Base [m]:	Not Given
Sample Reference:	2	Sample Type:	B
Sample Description:	Orangish brown slightly gravelly slightly sandy clayey SILT		



Preparation		Material used was natural
Mould Type		1 Litre
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Assumed	Mg/m³	2.70
As received Moisture Content	%	29
Maximum Dry Density	Mg/m³	**1.60**

Optimum Moisture Content	%	**22**

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.3 using 2.5kg [light] Rammer

Remarks:

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Signed:

Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

GF 109.16

TEST CERTIFICATE

Dry Density / Moisture Content

Relationship Light Compaction

Tested in Accordance with:
BS 1377-4: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

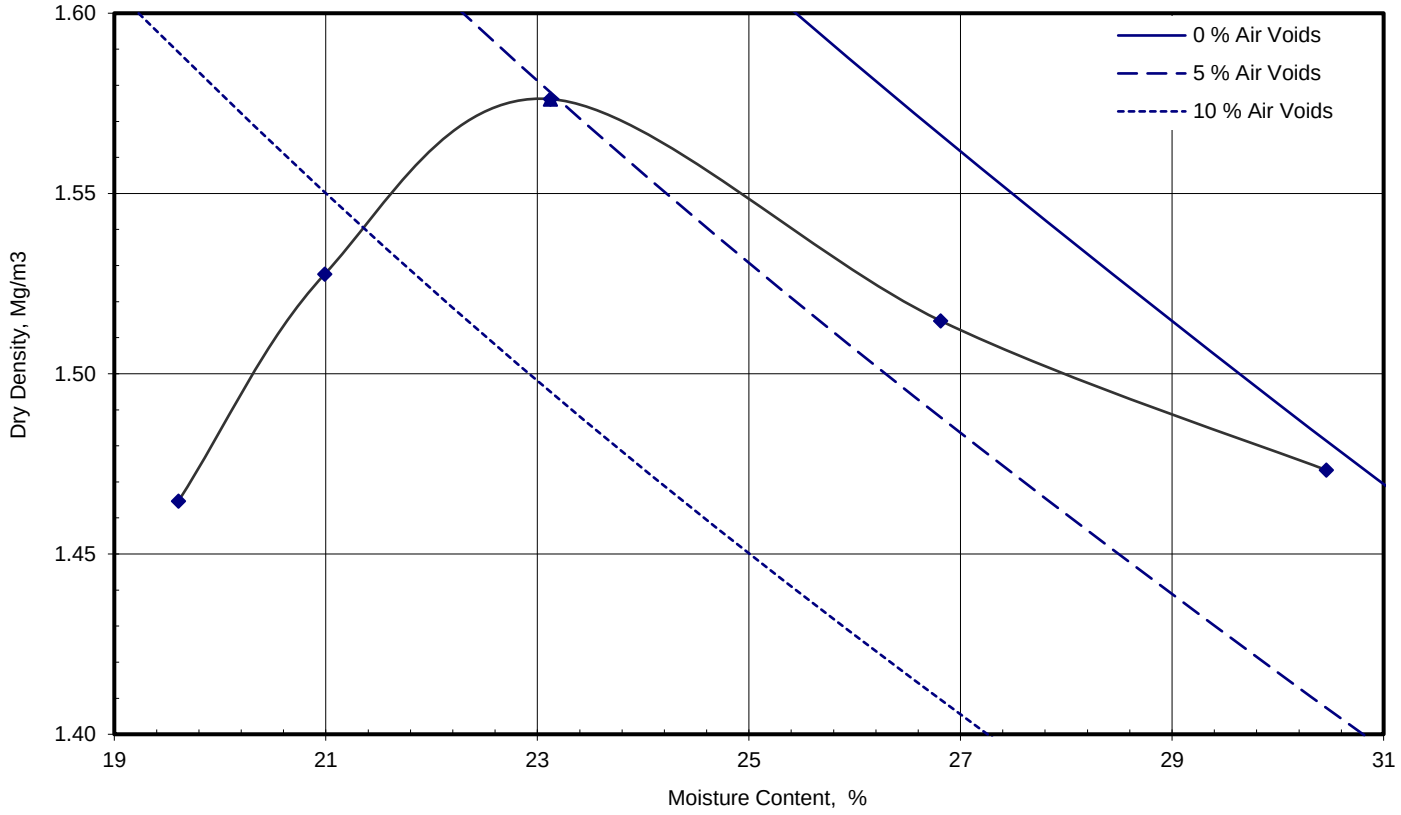
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Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	09/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403242	Depth Top [m]:	0.60
Hole No.:	TP231	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Sample Description:	Light brown slightly sandy very silty CLAY		



Preparation		Material used was natural
Mould Type		1 Litre
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Assumed	Mg/m³	2.70
As received Moisture Content	%	32
Maximum Dry Density	Mg/m³	**1.58**

Optimum Moisture Content	%	**23**

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.3 using 2.5kg [light] Rammer

Remarks:

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report are representative of the samples submitted for analysis. Any assessment of compliance with specifications based ttical results in a report take in to account no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request."

Signed:

Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

GF 109.16

TEST CERTIFICATE

Dry Density / Moisture Content

Relationship Light Compaction

Tested in Accordance with:
BS 1377-4: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

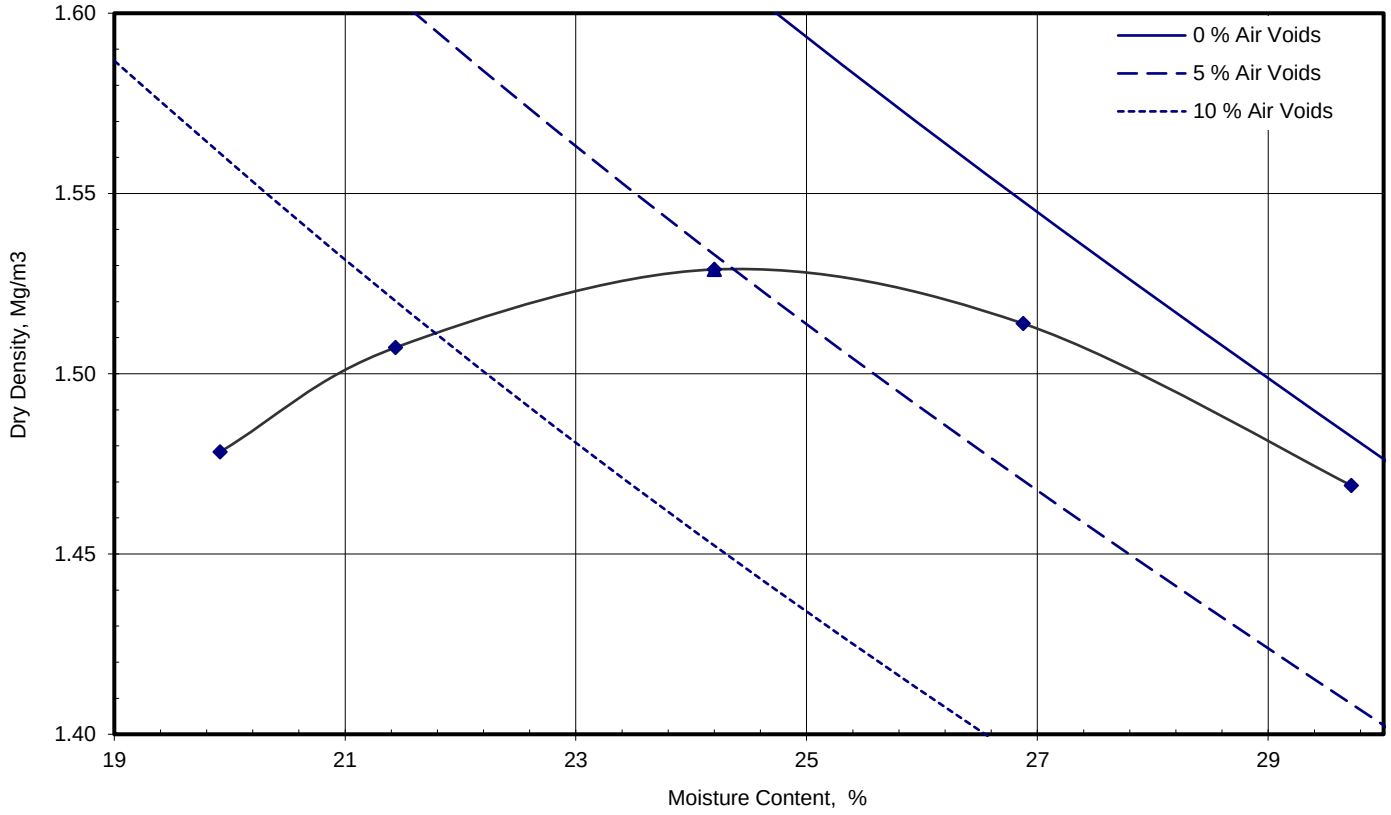
4041

Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	10/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403243	Depth Top [m]:	0.40
Hole No.:	TP240	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Sample Description:	Yellowish brown slightly gravelly slightly sandy very clayey SILT		



Preparation		Material used was natural
Mould Type		1 Litre
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Assumed	Mg/m³	2.65
As received Moisture Content	%	27
Maximum Dry Density	Mg/m³	**1.53**

Optimum Moisture Content	%	**24**

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.3 using 2.5kg [light] Rammer

Remarks:

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Signed:

Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

GF 109.16

TEST CERTIFICATE

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Environmental Science

Hand Shear Vane at each compaction point

Tested in Accordance with: Guideline for Hand Shear Vane Test*

Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	09/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403232	Depth Top [m]:	0.50
Hole No.:	TP212	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Soil Description:	Light brown very silty CLAY		

Moisture Content	Shear Vane Reading					
	1	2	3	4	Average	Tv
%	kPa	kPa	kPa	kPa	kPa	kPa
20	UTP	UTP	UTP	UTP	UTP	
23	UTP	UTP	UTP	UTP	UTP	
26	56	72	64	66	65	
28	102	118	92	110	106	
30	94	102	94	104	99	

Note: UTP - Unable To Penetrate; * - Guideline for Hand Held Shear Vane Test, New Zealand Geotechnical Society INC, August 2001

Remarks: Compacted by: Light Compaction 2.5kg (BS1377:Part 4:1990).

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

GF 275.8

TEST CERTIFICATE

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Hand Shear Vane at each compaction point

Tested in Accordance with: Guideline for Hand Shear Vane Test*

Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	10/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403233	Depth Top [m]:	0.50
Hole No.:	TP203	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Soil Description:	Brown slightly gravelly slightly sandy very silty CLAY		

Moisture Content	Shear Vane Reading					
	1	2	3	4	Average	Tv
%	kPa	kPa	kPa	kPa	kPa	kPa
17	UTP	UTP	UTP	UTP	UTP	
20	UTP	UTP	UTP	UTP	UTP	
22	130	130	130	130	130	
24	96	86	110	104	99	
28	62	60	56	58	59	

Note: UTP - Unable To Penetrate; * - Guideline for Hand Held Shear Vane Test, New Zealand Geotechnical Society INC, August 2001

Remarks: Compacted by: Light Compaction 2.5kg (BS1377:Part 4:1990).

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

GF 275.8

TEST CERTIFICATE

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Environmental Science

Hand Shear Vane at each compaction point

Tested in Accordance with: Guideline for Hand Shear Vane Test*

Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	09/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403240	Depth Top [m]:	0.80
Hole No.:	TP235	Depth Base [m]:	Not Given
Sample Reference:	2	Sample Type:	B
Soil Description:	Orangish brown slightly gravelly slightly sandy clayey SILT		

Moisture Content	Shear Vane Reading					
	1	2	3	4	Average	Tv
%	kPa	kPa	kPa	kPa	kPa	kPa
18	UTP	UTP	UTP	UTP	UTP	
20	UTP	UTP	UTP	UTP	UTP	
22	64	>130	82	130	102	
25	42	40	36	38	39	
27	52	56	54	62	56	

Note: UTP - Unable To Penetrate; * - Guideline for Hand Held Shear Vane Test, New Zealand Geotechnical Society INC, August 2001

Remarks: Compacted by: Light Compaction 2.5kg (BS1377:Part 4:1990).

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

GF 275.8

TEST CERTIFICATE

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Environmental Science

Hand Shear Vane at each compaction point

Tested in Accordance with: Guideline for Hand Shear Vane Test*

Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	09/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403242	Depth Top [m]:	0.60
Hole No.:	TP231	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Soil Description:	Light brown slightly sandy very silty CLAY		

Moisture Content	Shear Vane Reading					
	1	2	3	4	Average	Tv
%	kPa	kPa	kPa	kPa	kPa	kPa
20	UTP	UTP	UTP	UTP	UTP	
21	UTP	UTP	UTP	UTP	UTP	
23	UTP	UTP	UTP	UTP	UTP	
27	76	82	88	80	82	
30	52	50	50	50	51	

Note: UTP - Unable To Penetrate; * - Guideline for Hand Held Shear Vane Test, New Zealand Geotechnical Society INC, August 2001

Remarks: Compacted by: Light Compaction 2.5kg (BS1377:Part 4:1990).

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Signed:

Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

GF 275.8

TEST CERTIFICATE

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Environmental Science

Hand Shear Vane at each compaction point

Tested in Accordance with: Guideline for Hand Shear Vane Test*

Client:	Endeavour Drilling	Client Reference:	J4175
Client Address:	Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD	Job Number:	20-79308
		Date Sampled:	Not Given
		Date Received:	23/12/2019
Contact:	Oliver Wendland	Date Tested:	10/01/2020
Site Address:	L&G - LNO Horsham	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1403243	Depth Top [m]:	0.40
Hole No.:	TP240	Depth Base [m]:	Not Given
Sample Reference:	1	Sample Type:	B
Soil Description:	Yellowish brown slightly gravelly slightly sandy very clayey SILT		

Moisture Content	Shear Vane Reading					
	1	2	3	4	Average	Tv
%	kPa	kPa	kPa	kPa	kPa	kPa
20	130	130	130	130	130	
21	130	130	130	130	130	
24	108	120	118	130	119	
27	102	78	108	90	95	
30	48	44	42	50	46	

Note: UTP - Unable To Penetrate; * - Guideline for Hand Held Shear Vane Test, New Zealand Geotechnical Society INC, August 2001

Remarks: Compacted by: Light Compaction 2.5kg (BS1377:Part 4:1990).

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

GF 275.8

SUMMARY REPORT

Summary of Point Load Strength Index Tests Results

Tested in Accordance with: ISRM: 2007, pages 125-132

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

Client: Endeavour Drilling

Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD

Contact: Oliver Wendland

Site Address: L&G - LNO Horsham

Client Reference: J4175
Job Number: 20-80136
Date Sampled: Not Given
Date Received: 08/01/2020
Date Tested: 21/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks # (including water content if measured)	Specimen Reference	Test Type see ISRM		Failure Valid (Y/N)	Dimensions				Force P	Equivalent diameter, De	Point Load Strength Index	
		Reference	Depth Top	Depth Base	Type				Type (D, A, I, B)	Direction (L, P or U)		Lne	W	Dps	Dps'			Is	Is(50)
			m	m								mm	mm	mm	mm	kN	mm	MPa	MPa
1407332	BH207	Not Given	7.61	7.89	C	Grey MUDSTONE	w = 9.5%	1	A	U	YES	-	85.3	52.0	48.0	1.4	72.2	0.28	0.33
1407333	BH207	Not Given	12.84	13.32	C	Grey MUDSTONE	w = 6.0%	1	A	U	YES	-	86.4	36.0	32.0	2.3	59.3	0.66	0.71
1407334	BH207	Not Given	17.54	17.80	C	Brownish grey MUDSTONE	w = 8.2%	1	A	U	YES	-	86.9	31.0	28.0	0.5	55.7	0.15	0.15
1407335	BH207	Not Given	18.79	19.26	C	Mottled grey MUDSTONE	w = 8.4%	1	A	P	YES	-	84.9	52.0	48.0	1.9	72.0	0.36	0.43

Note: # non accredited; Test Type: D - Diametral, A - Axial, I - Irregular Lump, B - Block; Direction: L - parallel to planes of weakness, P - perpendicular to planes of weakness, U - unknown or random;
Dimensions: Dps - Distance between platens (platen separation), Dps' - at failure (see ISRM note 6), Lne - Length from platens to nearest free end W - Width of shortest dimension perpendicular to load, P;
Detailed legend for test and dimensions, based on ISRM, is shown above; Size factor, F = (De/50)0.45 for all tests

Comments:

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Signed:

Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 22/01/2020

GF 134.9

SUMMARY REPORT

Summary of Uniaxial Compression Test on Rock Test Results

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Tested in Accordance with: ISRM, 2007, p153, part 1

Client: Endeavour Drilling

Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road, Chelmsford, CM3 6LD

Contact: Oliver Wendland

Site Address: L&G - LNO Horsham

Client Reference: J4175
Job Number: 20-80136
Date Sampled: Not Given
Date Received: 08/01/2020
Date Tested: 21/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Specimen Dimensions (2)				Bulk density (2)	Water Content (1)	Uniaxial Compression (3)			
		Reference	Depth Top m	Depth Base m	Type			Diameter mm	Length mm	H/D	Orientation of sample	Mg/m3	%	Condition	Stress Rate Mpa/s	Mode of failure	UCS Mpa
1407332*	BH207	Not Given	7.61	7.89	C	Grey MUDSTONE	Sample is below recommended length:diameter ratio.	84.0	78.3	0.9	Vertical	2.36	9.5	as received	0.0180	MS + AC	5.1
1407333*	BH207	Not Given	12.84	13.32	C	Grey MUDSTONE	Sample is below recommended length:diameter ratio.	86.2	127.4	1.5	Vertical	2.42	6.0	as received	0.0514	MS + AC	6.9
1407334	BH207	Not Given	17.54	17.80	C	Brownish grey MUDSTONE	Sample is below recommended length:diameter ratio.	86.6	128.3	1.5	Vertical	2.37	8.2	as received	0.0170	MS + AC	8.0
1407335*	BH207	Not Given	18.79	19.26	C	Mottled grey MUDSTONE	Sample is below recommended length:diameter ratio.	85.6	153.0	1.8	Vertical	2.45	8.4	as received	0.0521	MS + AC	32.8

Note: 1 - ISRM p87 test 1, water content at 105 ± 3 oC, specimen as tested for UCS, 2 - ISRM p86 clause (vii), Caliper method used for determination of bulk volume and derivation of bulk density, 3 - ISRM p153 part 1, determination of Uniaxial Compressive Strength (UCS) of Rock Materials, above notes apply unless annotated otherwise in the remarks. Compaction machine: VJ Tech AUTOCON - VJT 51-3011; Mode of failure legend: S - Single shear, MS - multiple shear, AC - Axial cleavage, F - Fragmented

Comments: * Testing completed above time specified in ISRM method, 2007, p153, part1.

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Signed: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 22/01/2020

GF 223.9

APPENDIX K

Chemical Analysis Results

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Endeavour Drilling
Aldgate Tower
2 Leman Street
London
E1 8FA

Attention: Oliver Wendland

CERTIFICATE OF ANALYSIS

Date of report Generation:	31 December 2019
Customer:	Endeavour Drilling
Sample Delivery Group (SDG):	191203-105
Your Reference:	J4175
Location:	Moathouse Farm, Rusper Rd, Horsham
Report No:	535816

This report has been revised and directly supersedes 535459 in its entirety.

We received 22 samples on Tuesday December 03, 2019 and 7 of these samples were scheduled for analysis which was completed on Tuesday December 31, 2019. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	191203-105	**Client Reference:**	J4175	**Report Number:**	535816
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535459

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
21282346	BH207	E1	0.30	29/11/2019
21282347	BH207	E2	0.80	29/11/2019
21282348	TP202	E1	0.10	29/11/2019
21282349	TP202	E2	0.50	29/11/2019
21282350	TP203	E1	0.10	29/11/2019
21282351	TP203	E2	0.50	29/11/2019
21282352	TP238	E1	0.10	29/11/2019
21282353	TP238	E2	0.50	29/11/2019
21282355	TP252	E1	0.10	29/11/2019
21282356	TP252	E2	0.50	29/11/2019
21282342	WS201	E1	0.50	29/11/2019
21282343	WS201	E2	1.00	29/11/2019
21282357	WS206	E1	0.26	28/11/2019
21282358	WS206	E2	1.20	28/11/2019
21282361	WS202A	E1	0.30	28/11/2019
21282362	WS202A	E2	0.90	28/11/2019
21282340	WS204A	E1	0.45	29/11/2019
21282341	WS204A	E2	1.00	29/11/2019
21282359	WS205A	E1	0.17	28/11/2019
21282360	WS205A	E2	1.10	28/11/2019
21282344	WS207A	E1	0.35	29/11/2019
21282345	WS207A	E2	0.90	29/11/2019

Maximum Sample/Coolbox Temperature (°C) : **7.8**

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	191203-105	**Client Reference:**	J4175
Location:	Moathouse Farm, Rusper Rc	**Order Number:**	
Report Number:	535816	**Superseded Report:**	535459

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			21282348			21282352			21282343			21282357			21282361			21282340			21282360
Customer Sample Reference			TP202			TP238			WS201			WS206			WS202A			WS204A			WS205A
AGS Reference			E1			E1			E2			E1			E1			E1			E2
Depth (m)			0.10			0.10			1.00			0.26			0.30			0.45			1.10
Container			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Acid herbicides*	All	NDPs: 0 Tests: 2		X			X														
Anions by Kone (soil)	All	NDPs: 0 Tests: 7		X			X			X			X			X			X		
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 7	X			X			X			X			X			X			X
EPH CWG GC (S)	All	NDPs: 0 Tests: 7		X			X			X			X			X			X		
GRO by GC-FID (S)	All	NDPs: 0 Tests: 7			X			X			X			X			X			X	
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 7		X			X			X			X			X			X		
Metals in solid samples by OES	All	NDPs: 0 Tests: 7		X			X			X			X			X			X		
OC OP Pesticides and Triazine Herb	All	NDPs: 0 Tests: 2		X			X														
PAH by GCMS	All	NDPs: 0 Tests: 7		X			X			X			X			X			X		
pH	All	NDPs: 0 Tests: 7		X			X			X			X			X			X		
Phenols by HPLC (S)	All	NDPs: 0 Tests: 7		X			X			X			X			X			X		
Sample description	All	NDPs: 0 Tests: 7		X			X			X			X			X			X		
Total Organic Carbon	All	NDPs: 0 Tests: 7		X			X			X			X			X			X		
TPH CWG GC (S)	All	NDPs: 0 Tests: 7		X			X			X			X			X			X		
Triazine Herbicides (S)*	All	NDPs: 0 Tests: 2	X				X														

10:06:39 31/12/2019

21282360	WS205A	E2	1.10	60g VOC (ALE215)	S										X																				
				250g Amber Jar (ALE210)	S				X				X				X		X				X		X		X		X		X		X		

Validated

CERTIFICATE OF ANALYSIS

SDG:	191203-105	**Client Reference:**	J4175	**Report Number:**	535816
Location:	Moathouse Farm, Rusper Rd	**Order Number:**		**Superseded Report:**	535459

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)	21282348			21282352			21282343			21282357			21282361			21282340			21282360
Customer Sample Reference	TP202			TP238			WS201			WS206			WS202A			WS204A			WS205A
AGS Reference	E1			E1			E2			E1			E1			E1			E2
Depth (m)	0.10			0.10			1.00			0.26			0.30			0.45			1.10
Container	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)
Sample Type	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
VOC MS (S)			X			X			X			X			X			X	

All — NDPs: 0, Tests: 7

21282360	WS205A	E2	1.10	60g VOC (ALE215)	S		x
				250g Amber Jar (ALE210)	S		

CERTIFICATE OF ANALYSIS

SDG:	191203-105	**Client Reference:**	J4175	**Report Number:**	535816
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535459

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
21282348	TP202	0.10	Light Brown	Clay	None	None
21282352	TP238	0.10	Light Brown	Clay Loam	Stones	Vegetation
21282343	WS201	1.00	Red	Silty Clay Loam	Stones	None
21282357	WS206	0.26	Dark Brown	Sandy Loam	Stones	Brick
21282361	WS202A	0.30	Light Brown	Clay	None	None
21282340	WS204A	0.45	Dark Brown	Loamy Sand	Stones	Brick
21282360	WS205A	1.10	Light Brown	Sandy Clay Loam	Stones	None

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

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG: 191203-105 **Client Reference:** J4175 **Report Number:** 535816
Location: Moathouse Farm, Rusper Ro **Order Number:** **Superseded Report:** 535459

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	TP202	TP238	WS201	WS206	WS202A	WS204A
Customer Sample Ref.			TP202	TP238	WS201	WS206	WS202A	WS204A
Depth (m)			0.10	0.10	1.00	0.26	0.30	0.45
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			29/11/2019	29/11/2019	29/11/2019	28/11/2019	28/11/2019	29/11/2019
Sample Time			.	.	.	.	.	.
Date Received			03/12/2019	03/12/2019	03/12/2019	03/12/2019	03/12/2019	03/12/2019
SDG Ref			191203-105	191203-105	191203-105	191203-105	191203-105	191203-105
Lab Sample No.(s)			21282348	21282352	21282343	21282357	21282361	21282340
AGS Reference			E1	E1	E2	E1	E1	E1
Moisture Content Ratio (% of as received sample)	%	PM024	21	22	19	14	17	12
2,4,5-Trichlorophenol (2,4,5-T)*	<0.01 mg/kg	SUB	<0.01	<0.01				
2,4,5-TP (Fenoprop)*	<0.01 mg/kg	SUB	<0.01	<0.01				
2,4-D*	<0.01 mg/kg	SUB	<0.01	<0.01				
2,4-DB*	<0.01 mg/kg	SUB	<0.01	<0.01				
2,4-Dichloroprop (2,4 DP)*	<0.01 mg/kg	SUB	<0.01	<0.01				
4-Chlorophenoxyacetic acid (4-CPA)*	<0.01 mg/kg	SUB	<0.01	<0.01				
Acifluorfen*	<0.01 mg/kg	SUB	<0.01	<0.01				
Bentazone*	<0.01 mg/kg	SUB	<0.01	<0.01				
Bromoxynil*	<0.01 mg/kg	SUB	<0.01	<0.01				
Dicamba*	<0.01 mg/kg	SUB	<0.01	<0.01				
Diclofop*	<0.01 mg/kg	SUB	<0.01	<0.01				
Dinoseb*	<0.01 mg/kg	SUB	<0.01	<0.01				
DNOC*	<0.01 mg/kg	SUB	<0.01	<0.01				
Fluroxypyr*	<0.01 mg/kg	SUB	<0.01	<0.01				
Ioxynil*	<0.01 mg/kg	SUB	<0.01	<0.01				
2-methyl-4-Chlorophenoxyacetic acid (MCPA)*	<0.01 mg/kg	SUB	<0.01	<0.01				
4-(4-Chloro-o-tolyloxy) butyric acid (MCPB)*	<0.01 mg/kg	SUB	<0.01	<0.01				
Mecoprop (MCPP)*	<0.01 mg/kg	SUB	<0.01	<0.01				
Propoxycarbazone-sodium*	<0.01 mg/kg	SUB	<0.01	<0.01				
Triclopyr*	<0.01 mg/kg	SUB	<0.01	<0.01				
Triclosan*	<0.01 mg/kg	SUB	<0.01	<0.01				
Phenol	<0.01 mg/kg	TM062 (S)	<0.01 M	<0.01 M	<0.01 @ M	<0.01 @ M	<0.01 @ M	<0.01 @ M
Cresols	<0.01 mg/kg	TM062 (S)	<0.01 M	<0.01 M	<0.01 @ M	<0.01 @ M	<0.01 @ M	<0.01 @ M
Xylenols	<0.015 mg/kg	TM062 (S)	<0.015 M	<0.015 M	<0.015 @ M	<0.015 @ M	<0.015 @ M	<0.015 @ M
2,3,5-Trimethylphenol	<0.01 mg/kg	TM062 (S)	<0.01 M	<0.01 M	<0.01 @ M	<0.01 @ M	<0.01 @ M	<0.01 @ M
2-Isopropylphenol	<0.015 mg/kg	TM062 (S)	<0.015 M	<0.015 M	<0.015 @ M	<0.015 @ M	<0.015 @ M	<0.015 @ M
Phenols, Total Detected 5 speciated	<0.06 mg/kg	TM062 (S)	<0.06 M	<0.06 M	<0.06 @ M	<0.06 @ M	<0.06 @ M	<0.06 @ M
Soil Organic Matter (SOM)	<0.35 %	TM132	2.84 #	3.22 #	<0.35 #	3.84 #	1.06 #	1.07 #
pH	1 pH Units	TM133	8.01 M	8.08 M	5.28 M	8.1 M	8.15 M	8.74 M
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #
Arsenic	<0.6 mg/kg	TM181	10.8 M	8.4 M	11.2 M	8.87 M	8.66 M	11.9 M
Cadmium	<0.02 mg/kg	TM181	0.688 M	0.447 M	0.547 M	0.269 M	0.44 M	0.411 M

Validated

CERTIFICATE OF ANALYSIS

SDG: 191203-105 **Client Reference:** J4175 **Report Number:** 535816
Location: Moathouse Farm, Rusper Ro **Order Number:** **Superseded Report:** 535459

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP202	TP238	WS201	WS206	WS202A	WS204A
			Depth (m)	0.10	0.10	1.00	0.26	0.30	0.45
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/11/2019	29/11/2019	29/11/2019	28/11/2019	28/11/2019	29/11/2019
			Sample Time	.	.	.	.	.	.
			Date Received	03/12/2019	03/12/2019	03/12/2019	03/12/2019	03/12/2019	03/12/2019
			SDG Ref	191203-105	191203-105	191203-105	191203-105	191203-105	191203-105
			Lab Sample No.(s)	21282348	21282352	21282343	21282357	21282361	21282340
			AGS Reference	E1	E1	E2	E1	E1	E1
Chromium	<0.9 mg/kg	TM181		19.9 M	13.6 M	30.3 M	15.5 M	17.4 M	15.8 M
Copper	<1.4 mg/kg	TM181		23.7 M	28.8 M	34.2 M	11.6 M	13.8 M	18 M
Lead	<0.7 mg/kg	TM181		41.5 M	37 M	21.1 M	153 M	23.9 M	84 M
Mercury	<0.14 mg/kg	TM181		<0.14 M	<0.14 M	<0.14 M	0.946 M	<0.14 M	<0.14 M
Nickel	<0.2 mg/kg	TM181		19.1 M	20.1 M	27.4 M	11.6 M	16.9 M	14.6 M
Selenium	<1 mg/kg	TM181		1.17 #	1.15 #	<1 #	<1 #	1.09 #	<1 #
Zinc	<1.9 mg/kg	TM181		78.9 M	67.3 M	41.7 M	105 M	66.3 M	141 M
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243		0.0168 M	0.0143 M	0.0271 M	0.425 M	0.0309 M	0.109 M

Validated

CERTIFICATE OF ANALYSIS

SDG: 191203-105 **Client Reference:** J4175 **Report Number:** 535816
Location: Moathouse Farm, Rusper Ro **Order Number:** **Superseded Report:** 535459

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	WS205A
			Depth (m)	1.10
			Sample Type	Soil/Solid (S)
			Date Sampled	28/11/2019
			Sample Time	.
			Date Received	03/12/2019
			SDG Ref	191203-105
			Lab Sample No.(s)	21282360
			AGS Reference	E2
Moisture Content Ratio (% of as received sample)	%	PM024		14
Phenol	<0.01 mg/kg	TM062 (S)		<0.01 @ M
Cresols	<0.01 mg/kg	TM062 (S)		<0.01 @ M
Xylenols	<0.015 mg/kg	TM062 (S)		<0.015 @ M
2,3,5-Trimethylphenol	<0.01 mg/kg	TM062 (S)		<0.01 @ M
2-Isopropylphenol	<0.015 mg/kg	TM062 (S)		<0.015 @ M
Phenols, Total Detected 5 speciated	<0.06 mg/kg	TM062 (S)		<0.06 @ M
Soil Organic Matter (SOM)	<0.35 %	TM132		<0.35 #
pH	1 pH Units	TM133		6.12 M
Chromium, Hexavalent	<0.6 mg/kg	TM151		<0.6 #
Arsenic	<0.6 mg/kg	TM181		5.62 M
Cadmium	<0.02 mg/kg	TM181		<0.02 M
Chromium	<0.9 mg/kg	TM181		14.8 M
Copper	<1.4 mg/kg	TM181		12.3 M
Lead	<0.7 mg/kg	TM181		12.8 M
Mercury	<0.14 mg/kg	TM181		<0.14 M
Nickel	<0.2 mg/kg	TM181		13.7 M
Selenium	<1 mg/kg	TM181		<1 #
Zinc	<1.9 mg/kg	TM181		43.2 M
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243		0.0343 M

CERTIFICATE OF ANALYSIS

SDG:	191203-105	**Client Reference:**	J4175	**Report Number:**	535816
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535459

OC OP Pesticides and Triazine Herb

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP202	TP238				
			Depth (m)	0.10	0.10				
			Sample Type	Soil/Solid (S)	Soil/Solid (S)				
			Date Sampled	29/11/2019	29/11/2019				
			Sample Time	.	.				
			Date Received	03/12/2019	03/12/2019				
			SDG Ref	191203-105	191203-105				
			Lab Sample No.(s)	21282348	21282352				
			AGS Reference	E1	E1				
Dichlorvos	<50 µg/kg	TM073		<50	<50				
Mevinphos	<50 µg/kg	TM073		<50	<100				
Tecnazene	<50 µg/kg	TM073		<50	<50				
Hexachlorobenzene	<50 µg/kg	TM073		<50	<50				
Trifluralin	<50 µg/kg	TM073		<50	<100				
Phorate	<50 µg/kg	TM073		<50	<50				
alpha-Hexachlorocyclohexane (HCH)	<50 µg/kg	TM073		<50	<50				
Quintozene (PCNB)	<50 µg/kg	TM073		<50	<50				
Diazinon	<50 µg/kg	TM073		<50	<50				
Triallate	<50 µg/kg	TM073		<50	<50				
Etrimphos	<50 µg/kg	TM073		<50	<50				
gamma-Hexachlorocyclohexane (HCH / Lindane)	<50 µg/kg	TM073		<50	<50				
Disulfoton	<50 µg/kg	TM073		<50	<50				
Propetamphos	<50 µg/kg	TM073		<50	<50				
Heptachlor	<50 µg/kg	TM073		<50	<50				
Chlorpyriphos methyl	<50 µg/kg	TM073		<50	<50				
Dimethoate	<50 µg/kg	TM073		<50	<50				
Aldrin	<50 µg/kg	TM073		<50	<50				
Chlorothalonil	<50 µg/kg	TM073		<50	<100				
Pirimiphos-methyl	<50 µg/kg	TM073		<50	<50				
Telodrin	<50 µg/kg	TM073		<50	<50				
beta-Hexachlorocyclohexane (HCH)	<50 µg/kg	TM073		<50	<50				
Chlorpyriphos	<50 µg/kg	TM073		<50	<50				
Methyl parathion	<50 µg/kg	TM073		<100	<100				
Isodrin	<50 µg/kg	TM073		<50	<50				
delta-Hexachlorocyclohexane (HCH)	<50 µg/kg	TM073		<50	<50				
Malathion	<50 µg/kg	TM073		<100	<100				
Fenthion	<50 µg/kg	TM073		<50	<50				
Fenitrothion	<50 µg/kg	TM073		<100	<100				
Heptachlor epoxide	<50 µg/kg	TM073		<50	<50				
Triadimefon	<50 µg/kg	TM073		<100	<100				
Pendimethalin	<50 µg/kg	TM073		<50	<100				
Parathion	<50 µg/kg	TM073		<50	<100				

CERTIFICATE OF ANALYSIS

SDG:	191203-105	**Client Reference:**	J4175	**Report Number:**	535816
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535459

OC OP Pesticides and Triazine Herb

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP202	TP238				
			Depth (m)	0.10	0.10				
			Sample Type	Soil/Solid (S)	Soil/Solid (S)				
			Date Sampled	29/11/2019	29/11/2019				
			Sample Time	-	-				
			Date Received	03/12/2019	03/12/2019				
			SDG Ref	191203-105	191203-105				
			Lab Sample No.(s)	21282348	21282352				
			AGS Reference	E1	E1				
o,p-DDE	<50 µg/kg	TM073		<50	<50				
Chlorfenvinphos	<50 µg/kg	TM073		<50	<100				
Endosulphan I	<50 µg/kg	TM073		<50	<50				
Trans-chlordane	<50 µg/kg	TM073		<50	<50				
cis-Chlordane	<50 µg/kg	TM073		<50	<50				
p,p-DDE	<50 µg/kg	TM073		<50	<50				
Dieldrin	<50 µg/kg	TM073		<50	<50				
o,p'-DDD (TDE)	<50 µg/kg	TM073		<50	<50				
Endrin	<50 µg/kg	TM073		<50	<50				
o,p-DDT	<50 µg/kg	TM073		<50	<50				
p,p-TDE (DDD)	<50 µg/kg	TM073		<50	<50				
Ethion	<50 µg/kg	TM073		<100	<100				
Endosulphan II	<50 µg/kg	TM073		<50	<50				
p,p-DDT	<50 µg/kg	TM073		<50	<50				
Carbophenothion	<50 µg/kg	TM073		<50	<50				
o,p-Methoxychlor	<50 µg/kg	TM073		<50	<50				
Triazophos	<50 µg/kg	TM073		<50	<50				
p,p-Methoxychlor	<50 µg/kg	TM073		<50	<50				
Endosulphan sulphate	<50 µg/kg	TM073		<50	<50				
Permethrin I	<50 µg/kg	TM073		<100	<100				
Phosalone	<50 µg/kg	TM073		<50	<50				
Permethrin II	<50 µg/kg	TM073		<100	<100				
Azinphos-methyl	<50 µg/kg	TM073		<50	<50				
Azinphos-ethyl	<50 µg/kg	TM073		<50	<50				

CERTIFICATE OF ANALYSIS

SDG:	191203-105	**Client Reference:**	J4175	**Report Number:**	535816
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535459

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP202	TP238	WS201	WS206	WS202A	WS204A
			Depth (m)	0.10	0.10	1.00	0.26	0.30	0.45
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/11/2019	29/11/2019	29/11/2019	28/11/2019	28/11/2019	29/11/2019
			Sample Time	.	.	.	.	.	.
			Date Received	03/12/2019	03/12/2019	03/12/2019	03/12/2019	03/12/2019	03/12/2019
			SDG Ref	191203-105	191203-105	191203-105	191203-105	191203-105	191203-105
			Lab Sample No.(s)	21282348	21282352	21282343	21282357	21282361	21282340
			AGS Reference	E1	E1	E2	E1	E1	E1
Naphthalene-d8 % recovery**	%	TM218		93.5	90	87.8	93.3	96.1	9.66
Acenaphthene-d10 % recovery**	%	TM218		93.7	91.2	86.8	84.1	94.3	9.42
Phenanthrene-d10 % recovery**	%	TM218		93.2	89.4	86.3	92.6	98.6	9.36
Chrysene-d12 % recovery**	%	TM218		71.3	70.9	75.5	75.6	85.5	7.54
Perylene-d12 % recovery**	%	TM218		73.7	71.3	70	83.9	90.5	8.21
Naphthalene	<9 µg/kg	TM218		<9 M	<9 M	<9 M	507 @ M	<9 @ M	<9 M
Acenaphthylene	<12 µg/kg	TM218		<12 M	<12 M	<12 M	1220 @ M	<12 @ M	32.8 M
Acenaphthene	<8 µg/kg	TM218		<8 M	<8 M	<8 M	6110 @ M	<8 @ M	19.4 M
Fluorene	<10 µg/kg	TM218		<10 M	<10 M	<10 M	7380 @ M	<10 @ M	21.1 M
Phenanthrene	<15 µg/kg	TM218		23.1 M	<15 M	<15 M	47000 @ M	<15 @ M	322 M
Anthracene	<16 µg/kg	TM218		<16 M	<16 M	<16 M	15800 @ M	<16 @ M	94.3 M
Fluoranthene	<17 µg/kg	TM218		61 M	<17 M	<17 M	83000 @ M	25.8 @ M	698 M
Pyrene	<15 µg/kg	TM218		49.6 M	<15 M	<15 M	69400 @ M	29.4 @ M	672 M
Benz(a)anthracene	<14 µg/kg	TM218		25.4 M	<14 M	<14 M	30700 @ M	<14 @ M	346 M
Chrysene	<10 µg/kg	TM218		22.4 M	<10 M	<10 M	26200 @ M	19.8 @ M	351 M
Benzo(b)fluoranthene	<15 µg/kg	TM218		34 M	<15 M	<15 M	35800 @ M	38.3 @ M	572 M
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 M	<14 M	<14 M	12100 @ M	<14 @ M	180 M
Benzo(a)pyrene	<15 µg/kg	TM218		24.4 M	<15 M	<15 M	27900 @ M	<15 @ M	417 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 M	<18 M	<18 M	18100 @ M	<18 @ M	334 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 M	<23 M	<23 M	2370 @ M	<23 @ M	43.3 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 M	<24 M	<24 M	15300 @ M	<24 @ M	291 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		240	<118	<118	399000	<118	4400

Validated

CERTIFICATE OF ANALYSIS

SDG:	191203-105	**Client Reference:**	J4175	**Report Number:**	535816
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535459

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	WS205A
			Depth (m)	1.10
			Sample Type	Soil/Solid (S)
			Date Sampled	28/11/2019
			Sample Time	.
			Date Received	03/12/2019
			SDG Ref	191203-105
			Lab Sample No.(s)	21282360
			AGS Reference	E2
Naphthalene-d8 % recovery**	%	TM218		95
Acenaphthene-d10 % recovery**	%	TM218		93.8
Phenanthrene-d10 % recovery**	%	TM218		91.5
Chrysene-d12 % recovery**	%	TM218		72.3
Perylene-d12 % recovery**	%	TM218		74.3
Naphthalene	<9 µg/kg	TM218		<9 @ M
Acenaphthylene	<12 µg/kg	TM218		<12 @ M
Acenaphthene	<8 µg/kg	TM218		<8 @ M
Fluorene	<10 µg/kg	TM218		<10 @ M
Phenanthrene	<15 µg/kg	TM218		<15 @ M
Anthracene	<16 µg/kg	TM218		<16 @ M
Fluoranthene	<17 µg/kg	TM218		<17 @ M
Pyrene	<15 µg/kg	TM218		<15 @ M
Benz(a)anthracene	<14 µg/kg	TM218		<14 @ M
Chrysene	<10 µg/kg	TM218		<10 @ M
Benzo(b)fluoranthene	<15 µg/kg	TM218		18 @ M
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 @ M
Benzo(a)pyrene	<15 µg/kg	TM218		<15 @ M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 @ M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 @ M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 @ M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118

Validated

CERTIFICATE OF ANALYSIS

SDG:	191203-105	**Client Reference:**	J4175	**Report Number:**	535816
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535459

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP202	TP238	WS201	WS206	WS202A	WS204A
			Depth (m)	0.10	0.10	1.00	0.26	0.30	0.45
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/11/2019	29/11/2019	29/11/2019	28/11/2019	28/11/2019	29/11/2019
			Sample Time	.	.	.	.	.	.
			Date Received	03/12/2019	03/12/2019	03/12/2019	03/12/2019	03/12/2019	03/12/2019
			SDG Ref	191203-105	191203-105	191203-105	191203-105	191203-105	191203-105
			Lab Sample No.(s)	21282348	21282352	21282343	21282357	21282361	21282340
			AGS Reference	E1	E1	E2	E1	E1	E1
GRO Surrogate % recovery**	%	TM089		92.6 @	100 @	96.5 @	98.2 @	97.1 @	77.1 @
Aliphatics >C5-C6	<10 µg/kg	TM089		<10 @	<10 @	<10 @	<10 @	<10 @	<10 @
Aliphatics >C6-C8	<10 µg/kg	TM089		<10 @	<10 @	<10 @	10.5 @	<10 @	<10 @
Aliphatics >C8-C10	<10 µg/kg	TM089		<10 @	<10 @	<10 @	10.5 @	<10 @	<10 @
Aliphatics >C10-C12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C12-C16	<1000 µg/kg	TM414		<1000	<1000	<1000	7520	<1000	2310
Aliphatics >C16-C21	<1000 µg/kg	TM414		<1000	1880	<1000	5140	<1000	8070
Aliphatics >C21-C35	<1000 µg/kg	TM414		7220	21200	<1000	6510	<1000	30900
Aliphatics >C35-C44	<1000 µg/kg	TM414		1480	1960	<1000	4040	<1000	2690
Total Aliphatics >C10-C44	<5000 µg/kg	TM414		8790	25000	<5000	23800	<5000	44600
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414		11700	31900	<10000	1060000	<10000	667000
Aromatics >EC5-EC7	<10 µg/kg	TM089		<10 @	<10 @	<10 @	<10 @	<10 @	<10 @
Aromatics >EC7-EC8	<10 µg/kg	TM089		<10 @	<10 @	<10 @	<10 @	<10 @	<10 @
Aromatics >EC8-EC10	<10 µg/kg	TM089		<10 @	<10 @	<10 @	<10 @	<10 @	<10 @
Aromatics > EC10-EC12	<1000 µg/kg	TM414		<1000	<1000	<1000	1150	<1000	<1000
Aromatics > EC12-EC16	<1000 µg/kg	TM414		<1000	<1000	<1000	21800	<1000	8390
Aromatics > EC16-EC21	<1000 µg/kg	TM414		<1000	<1000	<1000	265000	<1000	108000
Aromatics > EC21-EC35	<1000 µg/kg	TM414		1550	5410	<1000	659000	<1000	313000
Aromatics >EC35-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	90700	<1000	193000
Aromatics > EC40-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	17400	<1000	34900
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414		<5000	6850	<5000	1040000	<5000	622000
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414		<10000	31900	<10000	1060000	<10000	667000
Total Aliphatics >C5-C10	<50 µg/kg	TM089		<50 @	<50 @	<50 @	<50 @	<50 @	<50 @
Total Aromatics >EC5-EC10	<50 µg/kg	TM089		<50 @	<50 @	<50 @	<50 @	<50 @	<50 @
GRO >C5-C10	<20 µg/kg	TM089		<20 @	<20 @	<20 @	<20 @	<20 @	<20 @

CERTIFICATE OF ANALYSIS

SDG:	191203-105	**Client Reference:**	J4175	**Report Number:**	535816
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535459

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	Depth (m)	Sample Type	Date Sampled	Sample Time	Date Received	SDG Ref	Lab Sample No.(s)	AGS Reference
			WS205A	1.10	Soil/Solid (S)	28/11/2019	.	03/12/2019	191203-105	21282360	E2
GRO Surrogate % recovery**	%	TM089	104 @								
Aliphatics >C5-C6	<10 µg/kg	TM089	<10 @								
Aliphatics >C6-C8	<10 µg/kg	TM089	<10 @								
Aliphatics >C8-C10	<10 µg/kg	TM089	<10 @								
Aliphatics >C10-C12	<1000 µg/kg	TM414	<1000								
Aliphatics >C12-C16	<1000 µg/kg	TM414	<1000								
Aliphatics >C16-C21	<1000 µg/kg	TM414	<1000								
Aliphatics >C21-C35	<1000 µg/kg	TM414	<1000								
Aliphatics >C35-C44	<1000 µg/kg	TM414	<1000								
Total Aliphatics >C10-C44	<5000 µg/kg	TM414	<5000								
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414	<10000								
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10 @								
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10 @								
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10 @								
Aromatics > EC10-EC12	<1000 µg/kg	TM414	<1000								
Aromatics > EC12-EC16	<1000 µg/kg	TM414	<1000								
Aromatics > EC16-EC21	<1000 µg/kg	TM414	<1000								
Aromatics > EC21-EC35	<1000 µg/kg	TM414	<1000								
Aromatics >EC35-EC44	<1000 µg/kg	TM414	<1000								
Aromatics > EC40-EC44	<1000 µg/kg	TM414	<1000								
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414	<5000								
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414	<10000								
Total Aliphatics >C5-C10	<50 µg/kg	TM089	<50 @								
Total Aromatics >EC5-EC10	<50 µg/kg	TM089	<50 @								
GRO >C5-C10	<20 µg/kg	TM089	<20 @								

CERTIFICATE OF ANALYSIS

SDG:	191203-105	**Client Reference:**	J4175	**Report Number:**	535816
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535459

Triazine Herbicides (S)*

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP202	TP238				
			Depth (m)	0.10	0.10				
			Sample Type	Soil/Solid (S)	Soil/Solid (S)				
			Date Sampled	29/11/2019	29/11/2019				
			Sample Time	.	.				
			Date Received	03/12/2019	03/12/2019				
			SDG Ref	191203-105	191203-105				
			Lab Sample No.(s)	21282348	21282352				
			AGS Reference	E1	E1				
Atrazine*	<0.02 mg/kg	SUB		<0.02	<0.02				
Prometryne*	<0.02 mg/kg	SUB		<0.02	<0.02				
Propazine*	<0.02 mg/kg	SUB		<0.02	<0.02				
Simazine*	<0.02 mg/kg	SUB		<0.02	<0.02				
Terbuthylazine*	<0.02 mg/kg	SUB		<0.02	<0.02				
Terbutryne*	<0.02 mg/kg	SUB		<0.02	<0.02				
Trietazine*	<0.02 mg/kg	SUB		<0.02	<0.02				

Validated

CERTIFICATE OF ANALYSIS

SDG: 191203-105 **Client Reference:** J4175 **Report Number:** 535816
Location: Moathouse Farm, Rusper Ro **Order Number:** **Superseded Report:** 535459

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP202	TP238	WS201	WS206	WS202A	WS204A
			Depth (m)	0.10	0.10	1.00	0.26	0.30	0.45
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/11/2019	29/11/2019	29/11/2019	28/11/2019	28/11/2019	29/11/2019
			Sample Time	.	.	.	.	.	.
			Date Received	03/12/2019	03/12/2019	03/12/2019	03/12/2019	03/12/2019	03/12/2019
			SDG Ref	191203-105	191203-105	191203-105	191203-105	191203-105	191203-105
			Lab Sample No.(s)	21282348	21282352	21282343	21282357	21282361	21282340
			AGS Reference	E1	E1	E2	E1	E1	E1
Dibromofluoromethane**	%	TM116		102	115	104	114 @	115 @	109 @
Toluene-d8**	%	TM116		89.4	90.2	97.5	83.3 @	97.8 @	96.6 @
4-Bromofluorobenzene**	%	TM116		77.6	76.9	97.8	71.1 @	94.7 @	94.2 @
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 @ M	<10 @ M	<200 @ M
Benzene	<9 µg/kg	TM116		<9 M	<9 M	<9 M	<9 @ M	<9 @ M	<180 @ M
Toluene	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 @ M	<7 @ M	<140 @ M
Ethylbenzene	<4 µg/kg	TM116		<4 M	<4 M	<4 M	<4 @ M	<4 @ M	<80 @ M
p/m-Xylene	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 @ #	<10 @ #	<200 @ #
o-Xylene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 @ M	<10 @ M	<200 @ M
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.02	<0.02	<0.02	<0.02 @	<0.02 @	<0.4 @
Sum of BTEX	<40 µg/kg	TM116		<40	<40	<40	<40 @	<40 @	<800 @

CERTIFICATE OF ANALYSIS

SDG: 191203-105 **Client Reference:** J4175 **Report Number:** 535816
Location: Moathouse Farm, Rusper Ro **Order Number:** **Superseded Report:** 535459

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

		Customer Sample Ref.	WS205A
		Depth (m)	1.10
		Sample Type	Soil/Solid (S)
		Date Sampled	28/11/2019
		Sample Time	.
		Date Received	03/12/2019
		SDG Ref	191203-105
		Lab Sample No.(s)	21282360
		AGS Reference	E2
Component	**LOD/Units**	**Method**	
Dibromofluoromethane**	%	TM116	103 @
Toluene-d8**	%	TM116	97.7 @
4-Bromofluorobenzene**	%	TM116	98.7 @
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 @ M
Benzene	<9 µg/kg	TM116	<9 @ M
Toluene	<7 µg/kg	TM116	<7 @ M
Ethylbenzene	<4 µg/kg	TM116	<4 @ M
p/m-Xylene	<10 µg/kg	TM116	<10 @ #
o-Xylene	<10 µg/kg	TM116	<10 @ M
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.02 @
Sum of BTEX	<40 µg/kg	TM116	<40 @

CERTIFICATE OF ANALYSIS

SDG:	191203-105	**Client Reference:**	J4175	**Report Number:**	535816
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535459

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP202E1 0.10 SOLID 29/11/2019 00:00:00 03/12/2019 06:00:00 191203-105 21282348 TM048	12/12/2019	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP238E1 0.10 SOLID 29/11/2019 00:00:00 03/12/2019 06:00:00 191203-105 21282352 TM048	16/12/2019	Lucy Caroe	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS201E2 1.00 SOLID 29/11/2019 00:00:00 03/12/2019 06:00:00 191203-105 21282343 TM048	12/12/2019	Lucy Caroe	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS206E1 0.26 SOLID 28/11/2019 00:00:00 03/12/2019 06:00:00 191203-105 21282357 TM048	16/12/2019	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS202AE1 0.30 SOLID 28/11/2019 00:00:00 03/12/2019 06:00:00 191203-105 21282361 TM048	16/12/2019	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS204AE1 0.45 SOLID 29/11/2019 00:00:00 03/12/2019 06:00:00 191203-105 21282340 TM048	12/12/2019	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS205AE2 1.10 SOLID 28/11/2019 00:00:00 03/12/2019 06:00:00 191203-105 21282360 TM048	16/12/2019	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG:	191203-105	**Client Reference:**	J4175	**Report Number:**	535816
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535459

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
SUB		Subcontracted Test
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM073	MEWAM BOOK 60 1980,95 1985, HMSO / Modified: US EPA Method 8081A & 8141A	Determination of organochlorine and organophosphorous pesticides by GCMS
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM243		Mixed Anions In Soils By Kone
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	191203-105	**Client Reference:**	J4175	**Report Number:**	535816
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535459

Test Completion Dates

Lab Sample No(s)	21282348	21282352	21282343	21282357	21282361	21282340	21282360
Customer Sample Ref.	TP202	TP238	WS201	WS206	WS202A	WS204A	WS205A
AGS Ref.	E1	E1	E2	E1	E1	E1	E2
Depth	0.10	0.10	1.00	0.26	0.30	0.45	1.10
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Acid herbicides*	31-Dec-2019	31-Dec-2019					
Anions by Kone (soil)	17-Dec-2019	16-Dec-2019	16-Dec-2019	17-Dec-2019	17-Dec-2019	17-Dec-2019	17-Dec-2019
Asbestos ID in Solid Samples	12-Dec-2019	16-Dec-2019	12-Dec-2019	16-Dec-2019	16-Dec-2019	12-Dec-2019	16-Dec-2019
EPH CWG GC (S)	18-Dec-2019	18-Dec-2019	18-Dec-2019	18-Dec-2019	18-Dec-2019	18-Dec-2019	18-Dec-2019
GRO by GC-FID (S)	13-Dec-2019	13-Dec-2019	13-Dec-2019	13-Dec-2019	13-Dec-2019	13-Dec-2019	13-Dec-2019
Hexavalent Chromium (s)	16-Dec-2019	16-Dec-2019	16-Dec-2019	16-Dec-2019	16-Dec-2019	16-Dec-2019	16-Dec-2019
Metals in solid samples by OES	16-Dec-2019	16-Dec-2019	16-Dec-2019	16-Dec-2019	16-Dec-2019	16-Dec-2019	16-Dec-2019
OC OP Pesticides and Triazine Herb	17-Dec-2019	17-Dec-2019					
PAH by GCMS	17-Dec-2019	17-Dec-2019	13-Dec-2019	17-Dec-2019	17-Dec-2019	17-Dec-2019	17-Dec-2019
pH	17-Dec-2019	17-Dec-2019	17-Dec-2019	17-Dec-2019	17-Dec-2019	17-Dec-2019	17-Dec-2019
Phenols by HPLC (S)	13-Dec-2019	13-Dec-2019	17-Dec-2019	17-Dec-2019	17-Dec-2019	17-Dec-2019	17-Dec-2019
Sample description	11-Dec-2019	11-Dec-2019	11-Dec-2019	11-Dec-2019	11-Dec-2019	11-Dec-2019	11-Dec-2019
Total Organic Carbon	16-Dec-2019	16-Dec-2019	16-Dec-2019	16-Dec-2019	17-Dec-2019	16-Dec-2019	16-Dec-2019
TPH CWG GC (S)	18-Dec-2019	18-Dec-2019	18-Dec-2019	18-Dec-2019	18-Dec-2019	18-Dec-2019	18-Dec-2019
Triazine Herbicides (S)*	27-Dec-2019	27-Dec-2019					
VOC MS (S)	12-Dec-2019	12-Dec-2019	12-Dec-2019	12-Dec-2019	12-Dec-2019		12-Dec-2019

Certificate of Analysis

Report No.:	**19-89359-1**
Issue No.:	**1**
Date of Issue	**24/12/2019**
Customer Details:	ALS Life Sciences Limited, Unit7-8, Hawarden Business Park, Manor Road, Hawarden, Deeside, Flintshire, CH5 3US
Customer Contact:	Carrie Foster
Customer Order No.:	191203-105
Customer Reference:	191203-105
Quotation Reference:	191111/01
Description:	2 soil samples
Date Received:	12/12/2019
Date Started:	18/12/2019
Date Completed:	20/12/2019
Test Methods:	Details available on request (refer to SOP code against relevant result/s)
Notes:	None

Approved By: **Matthew Hickson, Laboratory Manager**

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service.
This certificate shall not be reproduced except in full without the prior written approval of the laboratory.
Observations and interpretations are outside of the scope of UKAS accreditation.
Results reported herein relate only to the items supplied to the laboratory for testing.
Results on an Interim Report are not dry-weight corrected.
Where the laboratory is not responsible for the sampling, results apply to the sample(s) as they were received.

Results Summary

Report No.: 19-89359-1

Customer Reference: 191203-105

Customer Order No: 191203-105

Customer Sample No	**21335532**	**21334469**
Customer Sample ID	TP202	TP238
RPS Sample No	424320	424321
Sample Type	**SOIL**	**SOIL**
Sample Depth (m)	0.1m	0.1m
Sampling Date	29/11/2019	29/11/2019

Determinand	CAS No	Codes	SOP	Units	RL		
atrazine	1912-24-9	N	in house	mg/kg	0.02	< 0.02	< 0.02
prometryn	7287-19-6	N	346	mg/kg	0.02	< 0.02	< 0.02
propazine	139-40-2	N	346	mg/kg	0.02	< 0.02	< 0.02
simazine	122-34-9	N	346	mg/kg	0.02	< 0.02	< 0.02
terbuthylazine	5915-41-3	N	346	mg/kg	0.02	< 0.02	< 0.02
terbutryn	886-50-0	N	346	mg/kg	0.02	< 0.02	< 0.02
trietazine	1912-26-1	N	346	mg/kg	0.02	< 0.02	< 0.02

Deviating Samples

Report No.: 19-89359-1

Customer Reference: 191203-105

Customer Order No: 191203-105

Our policy on Deviating Samples has been implemented in accordance with UKAS Policy on Deviating Samples (TPS63).
RPS is not responsible for the integrity of samples as received, unless RPS personnel performed the sampling. Samples submitted may be declared to be deviating.
Where applicable the analysis method remains UKAS accredited, however results reported for a deviating sample may be compromised.
Where no sampling date was supplied, samples have been declared to be deviating. If the date can be supplied, results may be reissued if assessed not deviating.
Where the sample container used was unsuitable or broken, the sample is flagged as deviating and re-sampling/re-submisson may be required.

RPS No.	Customer No.	Customer ID	Date Sampled	Containers Received	Deviating	Reason for Deviation
424320	21335532		29/11/2019	100ml clear glass bottle	No	
424321	21334469		29/11/2019	100ml clear glass bottle	No	

Key Code	Description
U	UKAS Accredited Test - UKAS accreditation is only implied if the report carries the UKAS logo
F	UKAS Flexible Scope Test
M	MCERTS Accredited Test - MCERTS accreditation is only implied if the report carries the MCERTS logo
N	Not Accredited Test
O	Marine Management Organisation (MMO) Validated
S	Subcontracted to approved laboratory
US	Subcontracted to approved laboratory UKAS Accredited for the test
MS	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
SI	Subcontracted to internal RPS Group laboratory
USI	Subcontracted to internal RPS Group laboratory UKAS Accredited for the test
MSI	Subcontracted to internal RPS Group laboratory MCERTS/UKAS Accredited for the test
I/S (in results)	Insufficient Sample
U/S (in results)	Unsuitable Sample
S/C (in results)	See Comments
ND (in results)	Not Detected
DW (in units)	Results are expressed on a dry weight basis

Sample Type	Sample Retention and Disposal Period
Foodstuff	1 month (if frozen) from the issue date of this report
Waters	2 weeks from the issue date of this report
Other Liquids	1 month from the issue date of this report
Solids / Soils	1 month from the issue date of this report
Sediments	1 month from the issue date of this report

Note: Sample retention may be subject to agreement with the customer for particular projects

Where the dry solids value of a sample is low (<50%), reporting limits are automatically raised for all determinants analysed on an as-received basis.

Soil Typing	Description
Type 1	Clay - Brown
Type 2	Clay - Grey/Black
Type 3	Sand
Type 4	Top Soil (Standard)
Type 5	Top Soil (High Peat)
Type 6	Made Ground (>50% Clay)
Type 7	Made Ground (>50% Sand)
Type 8	Made Ground (>50% Top Soil)
Type X	Other

CERTIFICATE OF ANALYSIS

Work Order	: **PR19D6396**	Issue Date	: 30-Dec-2019
Customer	: **ALS Life Sciences Ltd**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: ALS Hawarden Reporting	Contact	: Client Service
Address	: Unit 7-8 Hawarden Business Park Manor Road, Hawarden CH5 3US Deeside United Kingdom	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: euhdnsubconresults@ALSGlobal.com	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Project	: 191203-105	Page	: 1 of 2
Order number	: ----	Date Samples Received	: 12-Dec-2019
		Quote number	: PR2018ALSAL-GB0004 (CZ-256-18-0022)
Site	: ----	Date of test	: 18-Dec-2019 - 30-Dec-2019
Sampled by	: client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.

The laboratory declares that the test results relate only to the listed samples. If the section "Sampled by" of the Certificate of analysis states: "Sampled by Customer" then the results relate to the sample as received.

Responsible for accuracy

Testing Laboratory No. 1163
Accredited by CAI according to
CSN EN ISO/IEC 17025:2018

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

L 1163

Analytical Results

Sub-Matrix: SOIL	Client sample ID	21334895 TP202		21334440 TP238		----	
	Laboratory sample ID	PR19D6396-001		PR19D6396-002		----	
	Client sampling date / time	11-Dec-2019 00:00		11-Dec-2019 00:00		----	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU
Physical Parameters									
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	71.9	± 6.0%	71.2	± 6.0%	----	----
Pesticides									
2.4.5-T	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
2.4.5-TP	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
2.4-D	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
2.4-DB	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
2.4-DP (isomers)	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
4-CPP	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Bentazone	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Dinoseb	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Fluroxypyr	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
MCPA	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
MCPB	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
MCPP (isomers)	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Acifluorfen	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Bromoxynil	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
DNOC	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Dicamba	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Diclofop	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Ioxynil	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Propoxycarbazone-sodium	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Triclopyr	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Triclosan	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.
Key: LOR = Limit of reporting; MU = Measurement Uncertainty. The MU does not include sampling uncertainty.

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	Method Descriptions
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-PESLMSA1	CZ_SOP_D06_03_182.B (CSN EN 15637, US EPA 1694) Determination of acidic herbicides and drug residues by liquid chromatography method with MS/MS detection.

A `*` symbol preceding any method indicates laboratory or subcontractor non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information. If the report contains subcontracted analysis, those are made in a subcontracted laboratory outside the laboratories ALS Czech Republic, s.r.o.
The calculation methods of summation parameters are available on request in the client service.

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

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

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2107).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Endeavour Drilling
Aldgate Tower
2 Leman Street
London
E1 8FA

Attention: Oliver Wendland

CERTIFICATE OF ANALYSIS

Date of report Generation:	19 December 2019
Customer:	Endeavour Drilling
Sample Delivery Group (SDG):	191205-120
Your Reference:	J4175 Stantec/ L & G
Location:	Moathouse Farm, Rusper Rd, Horsham
Report No:	534746

We received 10 samples on Thursday December 05, 2019 and 2 of these samples were scheduled for analysis which was completed on Thursday December 19, 2019. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	191205-120	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	534746
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
21298389	TP201		0.10	03/12/2019
21298390	TP201		0.50	03/12/2019
21298387	TP204		0.10	03/12/2019
21298388	TP204		0.60	03/12/2019
21298395	TP226		0.10	03/12/2019
21298396	TP226		0.50	03/12/2019
21298393	TP228		0.10	03/12/2019
21298394	TP228		0.50	03/12/2019
21298391	TP229		0.10	03/12/2019
21298392	TP229		0.50	03/12/2019

Maximum Sample/Coolbox Temperature (°C) : **1.8**

ISO5667-3 Water quality - Sampling - Part3 -
During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG:	191205-120	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	534746
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			21298387			21298394		
Customer Sample Reference			TP204			TP228		
AGS Reference								
Depth (m)			0.10			0.50		
Container			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S	S	S	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 2		X			X	
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 2	X			X		
EPH CWG GC (S)	All	NDPs: 0 Tests: 2		X			X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 2			X			X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 2		X			X	
Metals in solid samples by OES	All	NDPs: 0 Tests: 2		X			X	
PAH by GCMS	All	NDPs: 0 Tests: 2		X			X	
pH	All	NDPs: 0 Tests: 2		X			X	
Phenols by HPLC (S)	All	NDPs: 0 Tests: 2		X			X	
Sample description	All	NDPs: 0 Tests: 2		X			X	
Total Organic Carbon	All	NDPs: 0 Tests: 2		X			X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 2		X			X	
VOC MS (S)	All	NDPs: 0 Tests: 2			X			X

CERTIFICATE OF ANALYSIS

SDG:	191205-120	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	534746
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
21298387	TP204	0.10	Light Brown	Loamy Sand	Vegetation	None
21298394	TP228	0.50	Light Brown	Sandy Clay Loam	Stones	None

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

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG: 191205-120 **Client Reference:** J4175 Stantec/ L & G **Report Number:** 534746
Location: Moathouse Farm, Rusper Ro **Order Number:** **Superseded Report:**

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP204	TP228				
			Depth (m)	0.10	0.50				
			Sample Type	Soil/Solid (S)	Soil/Solid (S)				
			Date Sampled	03/12/2019	03/12/2019				
			Sample Time	.	.				
			Date Received	05/12/2019	05/12/2019				
			SDG Ref	191205-120	191205-120				
			Lab Sample No.(s)	21298387	21298394				
			AGS Reference						
Moisture Content Ratio (% of as received sample)	%	PM024		21	17				
Phenol	<0.01 mg/kg	TM062 (S)		<0.01 M	<0.01 @ M				
Cresols	<0.01 mg/kg	TM062 (S)		<0.01 M	<0.01 @ M				
Xylenols	<0.015 mg/kg	TM062 (S)		<0.015 M	<0.015 @ M				
2,3,5-Trimethylphenol	<0.01 mg/kg	TM062 (S)		<0.01 M	<0.01 @ M				
2-Isopropylphenol	<0.015 mg/kg	TM062 (S)		<0.015 M	<0.015 @ M				
Phenols, Total Detected 5 speciated	<0.06 mg/kg	TM062 (S)		<0.06 M	<0.06 @ M				
Soil Organic Matter (SOM)	<0.35 %	TM132		2.97 #	0.557 #				
pH	1 pH Units	TM133		7.66 M	7.14 M				
Chromium, Hexavalent	<0.6 mg/kg	TM151		<0.6 #	<0.6 #				
Arsenic	<0.6 mg/kg	TM181		11.5 M	11 M				
Cadmium	<0.02 mg/kg	TM181		0.168 M	0.292 M				
Chromium	<0.9 mg/kg	TM181		20.6 M	<9 M				
Copper	<1.4 mg/kg	TM181		24.2 M	31 M				
Lead	<0.7 mg/kg	TM181		39.6 M	26 M				
Mercury	<0.14 mg/kg	TM181		<0.14 M	<1.4 M				
Nickel	<0.2 mg/kg	TM181		21.3 M	30.8 M				
Selenium	<1 mg/kg	TM181		1.75 #	<10 #				
Zinc	<1.9 mg/kg	TM181		83.4 M	93.8 M				
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243		0.0176 M	0.054 M				

Validated

CERTIFICATE OF ANALYSIS

SDG: 191205-120 **Client Reference:** J4175 Stantec/ L & G **Report Number:** 534746
Location: Moathouse Farm, Rusper Ro **Order Number:** **Superseded Report:**

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP204	TP228				
			Depth (m)	0.10	0.50				
			Sample Type	Soil/Solid (S)	Soil/Solid (S)				
			Date Sampled	03/12/2019	03/12/2019				
			Sample Time	.	.				
			Date Received	05/12/2019	05/12/2019				
			SDG Ref	191205-120	191205-120				
			Lab Sample No.(s)	21298387	21298394				
			AGS Reference						
Naphthalene-d8 % recovery**	%	TM218		105	109				
Acenaphthene-d10 % recovery**	%	TM218		106	108				
Phenanthrene-d10 % recovery**	%	TM218		101	102				
Chrysene-d12 % recovery**	%	TM218		93.6	87.1				
Perylene-d12 % recovery**	%	TM218		94.4	86.1				
Naphthalene	<9 µg/kg	TM218		<9 M	<9 M				
Acenaphthylene	<12 µg/kg	TM218		<12 M	<12 M				
Acenaphthene	<8 µg/kg	TM218		<8 M	<8 M				
Fluorene	<10 µg/kg	TM218		<10 M	<10 M				
Phenanthrene	<15 µg/kg	TM218		<15 M	<15 M				
Anthracene	<16 µg/kg	TM218		<16 M	<16 M				
Fluoranthene	<17 µg/kg	TM218		52.5 M	<17 M				
Pyrene	<15 µg/kg	TM218		45.5 M	<15 M				
Benz(a)anthracene	<14 µg/kg	TM218		18.6 M	<14 M				
Chrysene	<10 µg/kg	TM218		22.7 M	<10 M				
Benzo(b)fluoranthene	<15 µg/kg	TM218		28.9 M	<15 M				
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 M	<14 M				
Benzo(a)pyrene	<15 µg/kg	TM218		<15 M	<15 M				
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 M	<18 M				
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 M	<23 M				
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 M	<24 M				
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		168	<118				

Validated

CERTIFICATE OF ANALYSIS

SDG:	191205-120	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	534746
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP204	TP228				
			Depth (m)	0.10	0.50				
			Sample Type	Soil/Solid (S)	Soil/Solid (S)				
			Date Sampled	03/12/2019	03/12/2019				
			Sample Time	.	.				
			Date Received	05/12/2019	05/12/2019				
			SDG Ref	191205-120	191205-120				
			Lab Sample No.(s)	21298387	21298394				
			AGS Reference						
GRO Surrogate % recovery**	%	TM089		98.3	103				
Aliphatics >C5-C6	<10 µg/kg	TM089		<10	<10				
Aliphatics >C6-C8	<10 µg/kg	TM089		<10	<10				
Aliphatics >C8-C10	<10 µg/kg	TM089		<10	<10				
Aliphatics >C10-C12	<1000 µg/kg	TM414		<1000	<1000				
Aliphatics >C12-C16	<1000 µg/kg	TM414		<1000	<1000				
Aliphatics >C16-C21	<1000 µg/kg	TM414		<1000	<1000				
Aliphatics >C21-C35	<1000 µg/kg	TM414		2900	<1000				
Aliphatics >C35-C44	<1000 µg/kg	TM414		<1000	<1000				
Total Aliphatics >C10-C44	<5000 µg/kg	TM414		<5000	<5000				
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414		<10000	<10000				
Aromatics >EC5-EC7	<10 µg/kg	TM089		<10	<10				
Aromatics >EC7-EC8	<10 µg/kg	TM089		<10	<10				
Aromatics >EC8-EC10	<10 µg/kg	TM089		<10	<10				
Aromatics > EC10-EC12	<1000 µg/kg	TM414		<1000	<1000				
Aromatics > EC12-EC16	<1000 µg/kg	TM414		<1000	<1000				
Aromatics > EC16-EC21	<1000 µg/kg	TM414		<1000	<1000				
Aromatics > EC21-EC35	<1000 µg/kg	TM414		1640	<1000				
Aromatics >EC35-EC44	<1000 µg/kg	TM414		<1000	<1000				
Aromatics > EC40-EC44	<1000 µg/kg	TM414		<1000	<1000				
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414		<5000	<5000				
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414		<10000	<10000				
Total Aliphatics >C5-C10	<50 µg/kg	TM089		<50	<50				
Total Aromatics >EC5-EC10	<50 µg/kg	TM089		<50	<50				
GRO >C5-C10	<20 µg/kg	TM089		<20	<20				

Validated

CERTIFICATE OF ANALYSIS

SDG: 191205-120 **Client Reference:** J4175 Stantec/ L & G **Report Number:** 534746
Location: Moathouse Farm, Rusper Ro **Order Number:** **Superseded Report:**

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP204	TP228				
			Depth (m)	0.10	0.50				
			Sample Type	Soil/Solid (S)	Soil/Solid (S)				
			Date Sampled	03/12/2019	03/12/2019				
			Sample Time	.	.				
			Date Received	05/12/2019	05/12/2019				
			SDG Ref	191205-120	191205-120				
			Lab Sample No.(s)	21298387	21298394				
			AGS Reference						
Dibromofluoromethane**	%	TM116		105	102				
Toluene-d8**	%	TM116		90.4	98.9				
4-Bromofluorobenzene**	%	TM116		76.3	99.7				
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<10 M	<10 M				
Benzene	<9 µg/kg	TM116		<9 M	<9 M				
Toluene	<7 µg/kg	TM116		<7 M	<7 M				
Ethylbenzene	<4 µg/kg	TM116		<4 M	<4 M				
p/m-Xylene	<10 µg/kg	TM116		<10 #	<10 #				
o-Xylene	<10 µg/kg	TM116		<10 M	<10 M				
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.02	<0.02				
Sum of BTEX	<40 µg/kg	TM116		<40	<40				

CERTIFICATE OF ANALYSIS

SDG:	191205-120	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	534746
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP204 0.10 SOLID 03/12/2019 00:00:00 05/12/2019 06:00:00 191205-120 21298387 TM048	17/12/19	Andrzej Ferfecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP228 0.50 SOLID 03/12/2019 00:00:00 05/12/2019 06:00:00 191205-120 21298394 TM048	17/12/2019	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM243		Mixed Anions In Soils By Kone
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	191205-120	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	534746
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	21298387	21298394
Customer Sample Ref.	TP204	TP228
AGS Ref.		
Depth	0.10	0.50
Type	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	18-Dec-2019	18-Dec-2019
Asbestos ID in Solid Samples	17-Dec-2019	17-Dec-2019
EPH CWG GC (S)	18-Dec-2019	18-Dec-2019
GRO by GC-FID (S)	17-Dec-2019	17-Dec-2019
Hexavalent Chromium (s)	17-Dec-2019	17-Dec-2019
Metals in solid samples by OES	17-Dec-2019	18-Dec-2019
PAH by GCMS	18-Dec-2019	18-Dec-2019
pH	19-Dec-2019	19-Dec-2019
Phenols by HPLC (S)	17-Dec-2019	19-Dec-2019
Sample description	13-Dec-2019	13-Dec-2019
Total Organic Carbon	18-Dec-2019	18-Dec-2019
TPH CWG GC (S)	18-Dec-2019	18-Dec-2019
VOC MS (S)	17-Dec-2019	17-Dec-2019

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

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

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2107).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
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email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Endeavour Drilling
Aldgate Tower
2 Leman Street
London
E1 8FA

Attention: Oliver Wendland

CERTIFICATE OF ANALYSIS

Date of report Generation:	20 December 2019
Customer:	Endeavour Drilling
Sample Delivery Group (SDG):	191205-121
Your Reference:	J4175 Stantec/ L & G
Location:	Moathouse Farm, Rusper Rd, Horsham
Report No:	534952

We received 10 samples on Thursday December 05, 2019 and 3 of these samples were scheduled for analysis which was completed on Friday December 20, 2019. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan
Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	191205-121	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	534952
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
21298458	TP206		0.10	03/12/2019
21298457	TP206		0.50	03/12/2019
21298455	TP224		0.10	02/12/2019
21298456	TP224		0.40	02/12/2019
21298451	TP232		0.10	02/12/2019
21298452	TP232		0.50	02/12/2019
21298453	TP235		0.10	02/12/2019
21298454	TP235		0.50	02/12/2019
21298449	TP236		0.10	02/12/2019
21298450	TP236		0.50	02/12/2019

Maximum Sample/Coolbox Temperature (°C) : **1.8**

ISO5667-3 Water quality - Sampling - Part3 -
During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	191205-121	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	534952
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			21298457			21298456			21298451	
Customer Sample Reference			TP206			TP224			TP232	
AGS Reference										
Depth (m)			0.50			0.40			0.10	
Container			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S	S	S	S	S	S	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 3		X			X			X	
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 3	X			X			X		
EPH CWG GC (S)	All	NDPs: 0 Tests: 3		X			X			X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 3			X			X			X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 3		X			X			X	
Metals in solid samples by OES	All	NDPs: 0 Tests: 3		X			X			X	
PAH by GCMS	All	NDPs: 0 Tests: 3		X			X			X	
pH	All	NDPs: 0 Tests: 3		X			X			X	
Phenols by HPLC (S)	All	NDPs: 0 Tests: 3		X			X			X	
Sample description	All	NDPs: 0 Tests: 3		X			X			X	
Total Organic Carbon	All	NDPs: 0 Tests: 3		X			X			X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 3		X			X			X	
VOC MS (S)	All	NDPs: 0 Tests: 3			X			X			X

CERTIFICATE OF ANALYSIS

SDG:	191205-121	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	534952
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
21298457	TP206	0.50	Light Brown	Loamy Sand	None	None
21298456	TP224	0.40	Light Brown	Sandy Loam	Vegetation	N/A
21298451	TP232	0.10	Light Brown	Loamy Sand	Stones	Vegetation

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

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG: 191205-121 **Client Reference:** J4175 Stantec/ L & G **Report Number:** 534952
Location: Moathouse Farm, Rusper Ro **Order Number:** **Superseded Report:**

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP206	TP224	TP232			
			Depth (m)	0.50	0.40	0.10			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	03/12/2019	02/12/2019	02/12/2019			
			Sample Time	.	.	.			
			Date Received	05/12/2019	05/12/2019	05/12/2019			
			SDG Ref	191205-121	191205-121	191205-121			
			Lab Sample No.(s)	21298457	21298456	21298451			
			AGS Reference						
Moisture Content Ratio (% of as received sample)	%	PM024		21	21	25			
Phenol	<0.01 mg/kg	TM062 (S)		<0.01 @ M	<0.01 @ M	<0.01 @ M			
Cresols	<0.01 mg/kg	TM062 (S)		<0.01 @ M	<0.01 @ M	<0.01 @ M			
Xylenols	<0.015 mg/kg	TM062 (S)		<0.015 @ M	<0.015 @ M	<0.015 @ M			
2,3,5-Trimethylphenol	<0.01 mg/kg	TM062 (S)		<0.01 @ M	<0.01 @ M	<0.01 @ M			
2-Isopropylphenol	<0.015 mg/kg	TM062 (S)		<0.015 @ M	<0.015 @ M	<0.015 @ M			
Phenols, Total Detected 5 speciated	<0.06 mg/kg	TM062 (S)		<0.06 @ M	<0.06 @ M	<0.06 @ M			
Soil Organic Matter (SOM)	<0.35 %	TM132		0.571 #	0.717 #	3.57 #			
pH	1 pH Units	TM133		7.83 M	8.25 M	8.12 M			
Chromium, Hexavalent	<0.6 mg/kg	TM151		<0.6 #	<0.6 #	<0.6 #			
Arsenic	<0.6 mg/kg	TM181		9.31 M	6.38 M	13.7 M			
Cadmium	<0.02 mg/kg	TM181		0.0823 M	<0.02 M	0.61 M			
Chromium	<0.9 mg/kg	TM181		29 M	23.3 M	19.6 M			
Copper	<1.4 mg/kg	TM181		19.7 M	16.1 M	32.5 M			
Lead	<0.7 mg/kg	TM181		18.1 M	15.6 M	43.8 M			
Mercury	<0.14 mg/kg	TM181		<0.14 M	<0.14 M	<1.4 M			
Nickel	<0.2 mg/kg	TM181		24.3 M	19.4 M	31.3 M			
Selenium	<1 mg/kg	TM181		<1 #	<1 #	<10 #			
Zinc	<1.9 mg/kg	TM181		66.8 M	56.3 M	101 M			
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243		0.0162 M	0.0132 M	0.0063 M			

CERTIFICATE OF ANALYSIS

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PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP206	TP224	TP232			
			Depth (m)	0.50	0.40	0.10			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	03/12/2019	02/12/2019	02/12/2019			
			Sample Time	.	.	.			
			Date Received	05/12/2019	05/12/2019	05/12/2019			
			SDG Ref	191205-121	191205-121	191205-121			
			Lab Sample No.(s)	21298457	21298456	21298451			
			AGS Reference						
Naphthalene-d8 % recovery**	%	TM218		107	106	89.5			
Acenaphthene-d10 % recovery**	%	TM218		105	106	88.4			
Phenanthrene-d10 % recovery**	%	TM218		99.3	102	92.8			
Chrysene-d12 % recovery**	%	TM218		84.5	92.5	85.5			
Perylene-d12 % recovery**	%	TM218		83.7	95.6	87.5			
Naphthalene	<9 µg/kg	TM218		<9 M	<9 M	<9 @ M			
Acenaphthylene	<12 µg/kg	TM218		<12 M	<12 M	<12 @ M			
Acenaphthene	<8 µg/kg	TM218		<8 M	<8 M	<8 @ M			
Fluorene	<10 µg/kg	TM218		<10 M	<10 M	<10 @ M			
Phenanthrene	<15 µg/kg	TM218		<15 M	<15 M	<15 @ M			
Anthracene	<16 µg/kg	TM218		<16 M	<16 M	<16 @ M			
Fluoranthene	<17 µg/kg	TM218		<17 M	24.7 M	<17 @ M			
Pyrene	<15 µg/kg	TM218		<15 M	22 M	<15 @ M			
Benz(a)anthracene	<14 µg/kg	TM218		<14 M	<14 M	<14 @ M			
Chrysene	<10 µg/kg	TM218		<10 M	<10 M	<10 @ M			
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15 M	<15 M	<15 @ M			
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 M	<14 M	<14 @ M			
Benzo(a)pyrene	<15 µg/kg	TM218		<15 M	<15 M	<15 @ M			
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 M	<18 M	<18 @ M			
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 M	<23 M	<23 @ M			
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 M	<24 M	<24 @ M			
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	<118	<118			

Validated

CERTIFICATE OF ANALYSIS

SDG: 191205-121 **Client Reference:** J4175 Stantec/ L & G **Report Number:** 534952
Location: Moathouse Farm, Rusper Ro **Order Number:** **Superseded Report:**

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP206	TP224	TP232			
			Depth (m)	0.50	0.40	0.10			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	03/12/2019	02/12/2019	02/12/2019			
			Sample Time	.	.	.			
			Date Received	05/12/2019	05/12/2019	05/12/2019			
			SDG Ref	191205-121	191205-121	191205-121			
			Lab Sample No.(s)	21298457	21298456	21298451			
			AGS Reference						
GRO Surrogate % recovery**	%	TM089		88	100 @	94.1 @			
Aliphatics >C5-C6	<10 µg/kg	TM089		<10	<10 @	<10 @			
Aliphatics >C6-C8	<10 µg/kg	TM089		<10	<10 @	<10 @			
Aliphatics >C8-C10	<10 µg/kg	TM089		<10	<10 @	<10 @			
Aliphatics >C10-C12	<1000 µg/kg	TM414		<1000	<1000	<1000			
Aliphatics >C12-C16	<1000 µg/kg	TM414		<1000	<1000	<1000			
Aliphatics >C16-C21	<1000 µg/kg	TM414		<1000	<1000	2600			
Aliphatics >C21-C35	<1000 µg/kg	TM414		<1000	1600	19900			
Aliphatics >C35-C44	<1000 µg/kg	TM414		<1000	<1000	1120			
Total Aliphatics >C10-C44	<5000 µg/kg	TM414		<5000	<5000	23600			
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414		<10000	<10000	30600			
Aromatics >EC5-EC7	<10 µg/kg	TM089		<10	<10 @	<10 @			
Aromatics >EC7-EC8	<10 µg/kg	TM089		<10	<10 @	<10 @			
Aromatics >EC8-EC10	<10 µg/kg	TM089		<10	<10 @	<10 @			
Aromatics > EC10-EC12	<1000 µg/kg	TM414		<1000	<1000	<1000			
Aromatics > EC12-EC16	<1000 µg/kg	TM414		<1000	<1000	<1000			
Aromatics > EC16-EC21	<1000 µg/kg	TM414		<1000	<1000	<1000			
Aromatics > EC21-EC35	<1000 µg/kg	TM414		<1000	<1000	5670			
Aromatics >EC35-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000			
Aromatics > EC40-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000			
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414		<5000	<5000	6970			
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414		<10000	<10000	30600			
Total Aliphatics >C5-C10	<50 µg/kg	TM089		<50	<50 @	<50 @			
Total Aromatics >EC5-EC10	<50 µg/kg	TM089		<50	<50 @	<50 @			
GRO >C5-C10	<20 µg/kg	TM089		<20	<20 @	<20 @			

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SDG:	191205-121	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	534952
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VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP206	TP224	TP232			
			Depth (m)	0.50	0.40	0.10			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	03/12/2019	02/12/2019	02/12/2019			
			Sample Time	.	.	.			
			Date Received	05/12/2019	05/12/2019	05/12/2019			
			SDG Ref	191205-121	191205-121	191205-121			
			Lab Sample No.(s)	21298457	21298456	21298451			
			AGS Reference						
Dibromofluoromethane**	%	TM116		109	99.8 @	103 @			
Toluene-d8**	%	TM116		99.7	98.9 @	87.3 @			
4-Bromofluorobenzene**	%	TM116		99.5	96.8 @	74.2 @			
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<10 M	<10 @ M	<10 @ M			
Benzene	<9 µg/kg	TM116		<9 M	<9 @ M	<9 @ M			
Toluene	<7 µg/kg	TM116		<7 M	<7 @ M	<7 @ M			
Ethylbenzene	<4 µg/kg	TM116		<4 M	<4 @ M	<4 @ M			
p/m-Xylene	<10 µg/kg	TM116		<10 #	<10 @ #	<10 @ #			
o-Xylene	<10 µg/kg	TM116		<10 M	<10 @ M	<10 @ M			
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.02	<0.02 @	<0.02 @			
Sum of BTEX	<40 µg/kg	TM116		<40	<40 @	<40 @			

CERTIFICATE OF ANALYSIS

SDG:	191205-121	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	534952
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP206 0.50 SOLID 03/12/2019 00:00:00 05/12/2019 06:00:00 191205-121 21298457 TM048	17/12/2019	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP224 0.40 SOLID 02/12/2019 00:00:00 05/12/2019 06:00:00 191205-121 21298456 TM048	17/12/2019	Lucy Caroe	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP232 0.10 SOLID 02/12/2019 00:00:00 05/12/2019 06:00:00 191205-121 21298451 TM048	17/12/2019	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM243		Mixed Anions In Soils By Kone
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

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SDG:	191205-121	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	534952
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	21298457	21298456	21298451
Customer Sample Ref.	TP206	TP224	TP232
AGS Ref.			
Depth	0.50	0.40	0.10
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	18-Dec-2019	18-Dec-2019	18-Dec-2019
Asbestos ID in Solid Samples	17-Dec-2019	17-Dec-2019	17-Dec-2019
EPH CWG GC (S)	20-Dec-2019	18-Dec-2019	18-Dec-2019
GRO by GC-FID (S)	17-Dec-2019	17-Dec-2019	17-Dec-2019
Hexavalent Chromium (s)	19-Dec-2019	16-Dec-2019	16-Dec-2019
Metals in solid samples by OES	18-Dec-2019	17-Dec-2019	18-Dec-2019
PAH by GCMS	18-Dec-2019	18-Dec-2019	17-Dec-2019
pH	19-Dec-2019	19-Dec-2019	19-Dec-2019
Phenols by HPLC (S)	18-Dec-2019	18-Dec-2019	18-Dec-2019
Sample description	13-Dec-2019	13-Dec-2019	13-Dec-2019
Total Organic Carbon	18-Dec-2019	18-Dec-2019	18-Dec-2019
TPH CWG GC (S)	20-Dec-2019	18-Dec-2019	18-Dec-2019
VOC MS (S)	17-Dec-2019	17-Dec-2019	17-Dec-2019

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

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

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2107).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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Endeavour Drilling
Aldgate Tower
2 Leman Street
London
E1 8FA

Attention: Oliver Wendland

CERTIFICATE OF ANALYSIS

Date of report Generation:	06 January 2020
Customer:	Endeavour Drilling
Sample Delivery Group (SDG):	191207-93
Your Reference:	J4175 Stantec/ L & G
Location:	Moathouse Farm, Rusper Rd, Horsham
Report No:	536308

This report has been revised and directly supersedes 535928 in its entirety.

We received 18 samples on Saturday December 07, 2019 and 4 of these samples were scheduled for analysis which was completed on Monday January 06, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	191207-93	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	536308
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535928

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
21314561	TP208		0.10 - 0.10	05/12/2019
21314563	TP208		0.50 - 0.50	05/12/2019
21314564	TP211		0.10 - 0.10	05/12/2019
21314565	TP211		0.50 - 0.50	05/12/2019
21314559	TP213		0.10 - 0.10	05/12/2019
21314560	TP213		0.50 - 0.50	05/12/2019
21314566	TP215		0.10 - 0.10	05/12/2019
21314567	TP215		0.60 - 0.60	05/12/2019
21314568	TP217		0.10 - 0.10	05/12/2019
21314569	TP217		0.60 - 0.60	05/12/2019
21314576	TP218		0.10 - 0.10	04/12/2019
21314577	TP218		0.40 - 0.40	04/12/2019
21314570	TP221		0.10 - 0.10	04/12/2019
21314571	TP221		0.50 - 0.50	04/12/2019
21314572	TP222		0.10 - 0.10	04/12/2019
21314573	TP222		0.50 - 0.50	04/12/2019
21314574	TP223		0.10 - 0.10	04/12/2019
21314575	TP223		0.50 - 0.50	04/12/2019

Maximum Sample/Coolbox Temperature (°C) :

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

6.4

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	191207-93	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	536308
Location:	Moathouse Farm, Rusper Rd	**Order Number:**		**Superseded Report:**	535928

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)				21314565			21314559			21314568			21314573
Customer Sample Reference				TP211			TP213			TP217			TP222
AGS Reference													
Depth (m)				0.50 - 0.50			0.10 - 0.10			0.10 - 0.10			0.50 - 0.50
Container				1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type				S	S	S	S	S	S	S	S	S	S	S	S
Acid herbicides*	All	NDPs: 0 Tests: 1						X							
Anions by Kone (soil)	All	NDPs: 0 Tests: 4			X			X			X			X	
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 4		X			X			X			X		
EPH CWG GC (S)	All	NDPs: 0 Tests: 4			X			X			X			X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 4				X			X			X			X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 4			X			X			X			X	
Metals in solid samples by OES	All	NDPs: 0 Tests: 4			X			X			X			X	
OC OP Pesticides and Triazine Herb	All	NDPs: 0 Tests: 1						X							
PAH by GCMS	All	NDPs: 0 Tests: 4			X			X			X			X	
pH	All	NDPs: 0 Tests: 4			X			X			X			X	
Phenols by HPLC (S)	All	NDPs: 0 Tests: 4			X			X			X			X	
Sample description	All	NDPs: 0 Tests: 4			X			X			X			X	
Total Organic Carbon	All	NDPs: 0 Tests: 4			X			X			X			X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 4			X			X			X			X	
Triazine Herbicides (S)*	All	NDPs: 0 Tests: 1						X							

Validated

CERTIFICATE OF ANALYSIS

SDG:	191207-93	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	536308
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535928

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			21314565			21314559			21314568			21314573
Customer Sample Reference			TP211			TP213			TP217			TP222
AGS Reference												
Depth (m)			0.50 - 0.50			0.10 - 0.10			0.10 - 0.10			0.50 - 0.50
Container	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type	S	S	S	S	S	S	S	S	S	S	S	S
VOC MS (S) / All / NDPs: 0 Tests: 4			X			X			X			X

CERTIFICATE OF ANALYSIS

SDG:	191207-93	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	536308
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535928

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
21314565	TP211	0.50 - 0.50	Dark Brown	Loamy Sand	None	None
21314559	TP213	0.10 - 0.10	Light Brown	Silt Loam	None	None
21314568	TP217	0.10 - 0.10	Dark Brown	Loamy Sand	None	None
21314573	TP222	0.50 - 0.50	Light Brown	Loamy Sand	None	None

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

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG: 191207-93 **Client Reference:** J4175 Stantec/ L & G **Report Number:** 536308
Location: Moathouse Farm, Rusper Ro **Order Number:** **Superseded Report:** 535928

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP211	TP213	TP217	TP222		
			Depth (m)	0.50 - 0.50	0.10 - 0.10	0.10 - 0.10	0.50 - 0.50		
			Sample Type	Unspecified Solid (UNS)	Unspecified Solid (UNS)	Unspecified Solid (UNS)	Unspecified Solid (UNS)		
			Date Sampled	05/12/2019	05/12/2019	05/12/2019	04/12/2019		
			Sample Time	.	.	.	.		
			Date Received	07/12/2019	07/12/2019	07/12/2019	07/12/2019		
			SDG Ref	191207-93	191207-93	191207-93	191207-93		
			Lab Sample No.(s)	21314565	21314559	21314568	21314573		
			AGS Reference						
Moisture Content Ratio (% of as received sample)	%	PM024		20	19	22	18		
2,4,5-Trichlorophenol (2,4,5-T)*	<0.01 mg/kg	SUB			<0.01				
2,4,5-TP (Fenoprop)*	<0.01 mg/kg	SUB			<0.01				
2,4-D*	<0.01 mg/kg	SUB			<0.01				
2,4-DB*	<0.01 mg/kg	SUB			<0.01				
2,4-Dichloroprop (2,4 DP)*	<0.01 mg/kg	SUB			<0.01				
4-Chlorophenoxyacetic acid (4-CPA)*	<0.01 mg/kg	SUB			<0.01				
Acifluorfen*	<0.01 mg/kg	SUB			<0.01				
Bentazone*	<0.01 mg/kg	SUB			<0.01				
Bromoxynil*	<0.01 mg/kg	SUB			<0.01				
Dicamba*	<0.01 mg/kg	SUB			<0.01				
Diclofop*	<0.01 mg/kg	SUB			<0.01				
Dinoseb*	<0.01 mg/kg	SUB			<0.01				
DNOC*	<0.01 mg/kg	SUB			<0.01				
Fluroxypyr*	<0.01 mg/kg	SUB			<0.01				
Ioxynil*	<0.01 mg/kg	SUB			<0.01				
2-methyl-4-Chlorophenoxyacetic acid (MCPA)*	<0.01 mg/kg	SUB			<0.01				
4-(4-Chloro-o-tolyloxy) butyric acid (MCPB)*	<0.01 mg/kg	SUB			<0.01				
Mecoprop (MCPP)*	<0.01 mg/kg	SUB			<0.01				
Propoxycarbazone-sodium*	<0.01 mg/kg	SUB			<0.01				
Triclopyr*	<0.01 mg/kg	SUB			<0.01				
Triclosan*	<0.01 mg/kg	SUB			<0.01				
Phenol	<0.01 mg/kg	TM062 (S)		<0.01	<0.01	<0.01	<0.01		
Cresols	<0.01 mg/kg	TM062 (S)		<0.01	<0.01	<0.01	<0.01		
Xylenols	<0.015 mg/kg	TM062 (S)		<0.015	<0.015	<0.015	<0.015		
2,3,5-Trimethylphenol	<0.01 mg/kg	TM062 (S)		<0.01	<0.01	<0.01	<0.01		
2-Isopropylphenol	<0.015 mg/kg	TM062 (S)		<0.015	<0.015	<0.015	<0.015		
Phenols, Total Detected 5 speciated	<0.06 mg/kg	TM062 (S)		<0.06	<0.06	<0.06	<0.06		
Soil Organic Matter (SOM)	<0.35 %	TM132		0.686	2.17	3.1	<0.35		
pH	1 pH Units	TM133		7.63	7.56	7.2	5.45		
Chromium, Hexavalent	<0.6 mg/kg	TM151		<0.6	<0.6	<0.6	<0.6		
Arsenic	<0.6 mg/kg	TM181		11.5	12	13.1	10.1		
Cadmium	<0.02 mg/kg	TM181		<0.02	0.0782	0.317	<0.02		

Validated

CERTIFICATE OF ANALYSIS

SDG:	191207-93	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	536308
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535928

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP211	TP213	TP217	TP222		
			Depth (m)	0.50 - 0.50	0.10 - 0.10	0.10 - 0.10	0.50 - 0.50		
			Sample Type	Unspecified Solid (UNS)	Unspecified Solid (UNS)	Unspecified Solid (UNS)	Unspecified Solid (UNS)		
			Date Sampled	05/12/2019	05/12/2019	05/12/2019	04/12/2019		
			Sample Time	-	-	-	-		
			Date Received	07/12/2019	07/12/2019	07/12/2019	07/12/2019		
			SDG Ref	191207-93	191207-93	191207-93	191207-93		
			Lab Sample No.(s)	21314565	21314559	21314568	21314573		
			AGS Reference						
Chromium	<0.9 mg/kg	TM181		23.6	19	19.2	25.9		
Copper	<1.4 mg/kg	TM181		18.1	20.4	25	18.4		
Lead	<0.7 mg/kg	TM181		16.2	32.7	63.8	20.8		
Mercury	<0.14 mg/kg	TM181		<0.14	<0.14	<0.14	<0.14		
Nickel	<0.2 mg/kg	TM181		22.3	19.4	24.4	23.6		
Selenium	<1 mg/kg	TM181		<1	<1	2.11	<1		
Zinc	<1.9 mg/kg	TM181		66.8	70.5	89.5	60.3		
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243		0.0297	0.0126	0.0189	0.0401		

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OC OP Pesticides and Triazine Herb

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
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*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	Depth (m)	Sample Type	Date Sampled	Sample Time	Date Received	SDG Ref	Lab Sample No.(s)	AGS Reference
			TP213	0.10 - 0.10	Unspecified Solid (UNS)	05/12/2019	.	07/12/2019	191207-93	21314559	
Dichlorvos	<50 µg/kg	TM073	<50								
Mevinphos	<50 µg/kg	TM073	<50								
Tecnazene	<50 µg/kg	TM073	<50								
Hexachlorobenzene	<50 µg/kg	TM073	<50								
Trifluralin	<50 µg/kg	TM073	<50								
Phorate	<50 µg/kg	TM073	<50								
alpha-Hexachlorocyclohexane (HCH)	<50 µg/kg	TM073	<50								
Quintozene (PCNB)	<50 µg/kg	TM073	<50								
Diazinon	<50 µg/kg	TM073	<50								
Triallate	<50 µg/kg	TM073	<50								
Etrimphos	<50 µg/kg	TM073	<50								
gamma-Hexachlorocyclohexane (HCH / Lindane)	<50 µg/kg	TM073	<50								
Disulfoton	<50 µg/kg	TM073	<50								
Propetamphos	<50 µg/kg	TM073	<50								
Heptachlor	<50 µg/kg	TM073	<50								
Chlorpyriphos methyl	<50 µg/kg	TM073	<50								
Dimethoate	<50 µg/kg	TM073	<50								
Aldrin	<50 µg/kg	TM073	<50								
Chlorothalonil	<50 µg/kg	TM073	<50								
Pirimiphos-methyl	<50 µg/kg	TM073	<50								
Telodrin	<50 µg/kg	TM073	<50								
beta-Hexachlorocyclohexane (HCH)	<50 µg/kg	TM073	<50								
Chlorpyriphos	<50 µg/kg	TM073	<50								
Methyl parathion	<50 µg/kg	TM073	<50								
Isodrin	<50 µg/kg	TM073	<50								
delta-Hexachlorocyclohexane (HCH)	<50 µg/kg	TM073	<50								
Malathion	<50 µg/kg	TM073	<50								
Fenthion	<50 µg/kg	TM073	<50								
Fenitrothion	<50 µg/kg	TM073	<50								
Heptachlor epoxide	<50 µg/kg	TM073	<50								
Triadimefon	<50 µg/kg	TM073	<50								
Pendimethalin	<50 µg/kg	TM073	<50								
Parathion	<50 µg/kg	TM073	<50								

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OC OP Pesticides and Triazine Herb

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Customer Sample Ref.	TP213
Depth (m)	0.10 - 0.10
Sample Type	Unspecified Solid (UNS)
Date Sampled	05/12/2019
Sample Time	-
Date Received	07/12/2019
SDG Ref	191207-93
Lab Sample No.(s)	21314559
AGS Reference	

Component	LOD/Units	Method	
o,p-DDE	<50 µg/kg	TM073	<50
Chlorfenvinphos	<50 µg/kg	TM073	<50
Endosulphan I	<50 µg/kg	TM073	<50
Trans-chlordane	<50 µg/kg	TM073	<50
cis-Chlordane	<50 µg/kg	TM073	<50
p,p-DDE	<50 µg/kg	TM073	<50
Dieldrin	<50 µg/kg	TM073	<50
o,p'-DDD (TDE)	<50 µg/kg	TM073	<50
Endrin	<50 µg/kg	TM073	<50
o,p-DDT	<50 µg/kg	TM073	<50
p,p-TDE (DDD)	<50 µg/kg	TM073	<50
Ethion	<50 µg/kg	TM073	<50
Endosulphan II	<50 µg/kg	TM073	<50
p,p-DDT	<50 µg/kg	TM073	<50
Carbophenothion	<50 µg/kg	TM073	<50
o,p-Methoxychlor	<50 µg/kg	TM073	<50
Triazophos	<50 µg/kg	TM073	<50
p,p-Methoxychlor	<50 µg/kg	TM073	<50
Endosulphan sulphate	<50 µg/kg	TM073	<50
Permethrin I	<50 µg/kg	TM073	<50
Phosalone	<50 µg/kg	TM073	<50
Permethrin II	<50 µg/kg	TM073	<50
Azinphos-methyl	<50 µg/kg	TM073	<50
Azinphos-ethyl	<50 µg/kg	TM073	<50

Validated

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Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535928

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP211	TP213	TP217	TP222		
			Depth (m)	0.50 - 0.50	0.10 - 0.10	0.10 - 0.10	0.50 - 0.50		
			Sample Type	Unspecified Solid (UNS)	Unspecified Solid (UNS)	Unspecified Solid (UNS)	Unspecified Solid (UNS)		
			Date Sampled	05/12/2019	05/12/2019	05/12/2019	04/12/2019		
			Sample Time	.	.	.	.		
			Date Received	07/12/2019	07/12/2019	07/12/2019	07/12/2019		
			SDG Ref	191207-93	191207-93	191207-93	191207-93		
			Lab Sample No.(s)	21314565	21314559	21314568	21314573		
			AGS Reference						
Naphthalene-d8 % recovery**	%	TM218		90	86.2	94.9	86.5		
Acenaphthene-d10 % recovery**	%	TM218		90.2	84.1	92.5	87.5		
Phenanthrene-d10 % recovery**	%	TM218		91.9	87.4	96.1	87.8		
Chrysene-d12 % recovery**	%	TM218		86.4	83.5	90	81.7		
Perylene-d12 % recovery**	%	TM218		84.7	80.2	91.3	73.4		
Naphthalene	<9 µg/kg	TM218		<9	<9	<9	<9		
Acenaphthylene	<12 µg/kg	TM218		<12	<12	<12	<12		
Acenaphthene	<8 µg/kg	TM218		<8	<8	<8	<8		
Fluorene	<10 µg/kg	TM218		<10	<10	<10	<10		
Phenanthrene	<15 µg/kg	TM218		<15	<15	<15	<15		
Anthracene	<16 µg/kg	TM218		<16	<16	<16	<16		
Fluoranthene	<17 µg/kg	TM218		<17	<17	39	<17		
Pyrene	<15 µg/kg	TM218		<15	<15	32	<15		
Benz(a)anthracene	<14 µg/kg	TM218		<14	<14	<14	<14		
Chrysene	<10 µg/kg	TM218		<10	<10	16	<10		
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15	<15	<15	<15		
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14	<14	<14	<14		
Benzo(a)pyrene	<15 µg/kg	TM218		<15	<15	<15	<15		
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18	<18	<18	<18		
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23	<23	<23	<23		
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24	<24	<24	<24		
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	<118	<118	<118		

CERTIFICATE OF ANALYSIS

SDG: 191207-93 **Client Reference:** J4175 Stantec/ L & G **Report Number:** 536308
Location: Moathouse Farm, Rusper Ro **Order Number:** **Superseded Report:** 535928

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP211	TP213	TP217	TP222		
			Depth (m)	0.50 - 0.50	0.10 - 0.10	0.10 - 0.10	0.50 - 0.50		
			Sample Type	Unspecified Solid (UNS)	Unspecified Solid (UNS)	Unspecified Solid (UNS)	Unspecified Solid (UNS)		
			Date Sampled	05/12/2019	05/12/2019	05/12/2019	04/12/2019		
			Sample Time	.	.	.	.		
			Date Received	07/12/2019	07/12/2019	07/12/2019	07/12/2019		
			SDG Ref	191207-93	191207-93	191207-93	191207-93		
			Lab Sample No.(s)	21314565	21314559	21314568	21314573		
			AGS Reference						
GRO Surrogate % recovery**	%	TM089		105	103	71.1	100		
Aliphatics >C5-C6	<10 µg/kg	TM089		<10	<10	<10	<10		
Aliphatics >C6-C8	<10 µg/kg	TM089		<10	<10	<10	<10		
Aliphatics >C8-C10	<10 µg/kg	TM089		<10	<10	<10	<10		
Aliphatics >C10-C12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000		
Aliphatics >C12-C16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000		
Aliphatics >C16-C21	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000		
Aliphatics >C21-C35	<1000 µg/kg	TM414		<1000	2420	10500	<1000		
Aliphatics >C35-C44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000		
Total Aliphatics >C10-C44	<5000 µg/kg	TM414		<5000	<5000	11200	<5000		
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414		<10000	<10000	14900	<10000		
Aromatics >EC5-EC7	<10 µg/kg	TM089		<10	<10	<10	<10		
Aromatics >EC7-EC8	<10 µg/kg	TM089		<10	<10	<10	<10		
Aromatics >EC8-EC10	<10 µg/kg	TM089		<10	<10	<10	<10		
Aromatics > EC10-EC12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000		
Aromatics > EC12-EC16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000		
Aromatics > EC16-EC21	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000		
Aromatics > EC21-EC35	<1000 µg/kg	TM414		<1000	<1000	2250	<1000		
Aromatics >EC35-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000		
Aromatics > EC40-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000		
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414		<5000	<5000	<5000	<5000		
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414		<10000	<10000	11200	<10000		
Total Aliphatics >C5-C10	<50 µg/kg	TM089		<50	<50	<50	<50		
Total Aromatics >EC5-EC10	<50 µg/kg	TM089		<50	<50	<50	<50		
GRO >C5-C10	<20 µg/kg	TM089		<20	<20	<20	<20		

CERTIFICATE OF ANALYSIS

SDG:	191207-93	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	536308
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535928

Triazine Herbicides (S)*

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	Depth (m)	Sample Type	Date Sampled	Sample Time	Date Received	SDG Ref	Lab Sample No.(s)	AGS Reference
			TP213	0.10 - 0.10	Unspecified Solid (UNS)	05/12/2019	.	07/12/2019	191207-93	21314559	
Atrazine*	<0.02 mg/kg	SUB	<0.02								
Prometryne*	<0.02 mg/kg	SUB	<0.02								
Propazine*	<0.02 mg/kg	SUB	<0.02								
Simazine*	<0.02 mg/kg	SUB	<0.02								
Terbuthylazine*	<0.02 mg/kg	SUB	<0.02								
Terbutryne*	<0.02 mg/kg	SUB	<0.02								
Trietazine*	<0.02 mg/kg	SUB	<0.02								

Validated

CERTIFICATE OF ANALYSIS

SDG:	191207-93	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	536308
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535928

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	Depth (m)	Sample Type	Date Sampled	Sample Time	Date Received	SDG Ref	Lab Sample No.(s)	AGS Reference
			TP211	0.50 - 0.50	Unspecified Solid (UNS)	05/12/2019	.	07/12/2019	191207-93	21314565	
			TP213	0.10 - 0.10	Unspecified Solid (UNS)	05/12/2019	.	07/12/2019	191207-93	21314559	
			TP217	0.10 - 0.10	Unspecified Solid (UNS)	05/12/2019	.	07/12/2019	191207-93	21314568	
			TP222	0.50 - 0.50	Unspecified Solid (UNS)	04/12/2019	.	07/12/2019	191207-93	21314573	
Dibromofluoromethane**	%	TM116	108	106	114	105					
Toluene-d8**	%	TM116	97.8	92.4	88.6	96.1					
4-Bromofluorobenzene**	%	TM116	94.4	75	73.6	85.5					
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10	<10	<10	<10					
Benzene	<9 µg/kg	TM116	<9	<9	<9	<9					
Toluene	<7 µg/kg	TM116	<7	<7	<7	<7					
Ethylbenzene	<4 µg/kg	TM116	<4	<4	<4	<4					
p/m-Xylene	<10 µg/kg	TM116	<10	<10	<10	<10					
o-Xylene	<10 µg/kg	TM116	<10	<10	<10	<10					
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.02	<0.02	<0.02	<0.02					
Sum of BTEX	<40 µg/kg	TM116	<40	<40	<40	<40					

CERTIFICATE OF ANALYSIS

SDG:	191207-93	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	536308
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535928

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP211 0.50 - 0.50 MISC_SOLID 05/12/2019 00:00:00 07/12/2019 06:00:00 191207-93 21314565 TM048	19/12/2019	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP213 0.10 - 0.10 MISC_SOLID 05/12/2019 00:00:00 07/12/2019 06:00:00 191207-93 21314559 TM048	17/12/2019	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP217 0.10 - 0.10 MISC_SOLID 05/12/2019 00:00:00 07/12/2019 06:00:00 191207-93 21314568 TM048	17/12/2019	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP222 0.50 - 0.50 MISC_SOLID 04/12/2019 00:00:00 07/12/2019 06:00:00 191207-93 21314573 TM048	17/12/2019	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG:	191207-93	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	536308
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535928

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
SUB		Subcontracted Test
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM073	MEWAM BOOK 60 1980,95 1985, HMSO / Modified: US EPA Method 8081A & 8141A	Determination of organochlorine and organophosphorous pesticides by GCMS
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM243		Mixed Anions In Soils By Kone
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	191207-93	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	536308
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535928

Test Completion Dates

Lab Sample No(s)	21314565	21314559	21314568	21314573
Customer Sample Ref.	TP211	TP213	TP217	TP222
AGS Ref.				
Depth	0.50 - 0.50	0.10 - 0.10	0.10 - 0.10	0.50 - 0.50
Type	Unspecified So	Unspecified So	Unspecified So	Unspecified So
Acid herbicides*		31-Dec-2019		
Anions by Kone (soil)	18-Dec-2019	20-Dec-2019	20-Dec-2019	18-Dec-2019
Asbestos ID in Solid Samples	19-Dec-2019	17-Dec-2019	17-Dec-2019	17-Dec-2019
EPH CWG GC (S)	21-Dec-2019	20-Dec-2019	21-Dec-2019	20-Dec-2019
GRO by GC-FID (S)	17-Dec-2019	17-Dec-2019	17-Dec-2019	17-Dec-2019
Hexavalent Chromium (s)	19-Dec-2019	19-Dec-2019	19-Dec-2019	19-Dec-2019
Metals in solid samples by OES	18-Dec-2019	17-Dec-2019	18-Dec-2019	18-Dec-2019
OC OP Pesticides and Triazine Herb		23-Dec-2019		
PAH by GCMS	18-Dec-2019	18-Dec-2019	17-Dec-2019	18-Dec-2019
pH	19-Dec-2019	19-Dec-2019	19-Dec-2019	19-Dec-2019
Phenols by HPLC (S)	17-Dec-2019	17-Dec-2019	17-Dec-2019	17-Dec-2019
Sample description	15-Dec-2019	15-Dec-2019	15-Dec-2019	15-Dec-2019
Total Organic Carbon	19-Dec-2019	18-Dec-2019	19-Dec-2019	18-Dec-2019
TPH CWG GC (S)	21-Dec-2019	20-Dec-2019	21-Dec-2019	20-Dec-2019
Triazine Herbicides (S)*		06-Jan-2020		
VOC MS (S)	17-Dec-2019	17-Dec-2019	17-Dec-2019	17-Dec-2019

CERTIFICATE OF ANALYSIS

Work Order	: **PR19D9995**	Issue Date	: 31-Dec-2019
Customer	: **ALS Life Sciences Ltd**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: ALS Hawarden Reporting	Contact	: Client Service
Address	: Unit 7-8 Hawarden Business Park Manor Road, Hawarden CH5 3US Deeside United Kingdom	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: euhdnsubconresults@ALSGlobal.com	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Project	: 191207-93	Page	: 1 of 2
Order number	: 191207-93	Date Samples Received	: 16-Dec-2019
		Quote number	: PR2018ALSAL-GB0004 (CZ-256-18-0022)
Site	: ----	Date of test	: 23-Dec-2019 - 31-Dec-2019
Sampled by	: client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.

The laboratory declares that the test results relate only to the listed samples. If the section "Sampled by" of the Certificate of analysis states: "Sampled by Customer" then the results relate to the sample as received.

Responsible for accuracy

Testing Laboratory No. 1163
Accredited by CAI according to
CSN EN ISO/IEC 17025:2018

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

L 1163

Analytical Results

Sub-Matrix: **SOLID**			Client sample ID	**21374263 TP213**		----		----	
			Laboratory sample ID	*PR19D9995-001*		----		----	
			Client sampling date / time	05-Dec-2019 00:00		----		----	
Parameter	*Method*	*LOR*	*Unit*	**Result**	**MU**	**Result**	**MU**	**Result**	**MU**
Physical Parameters									
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**79.0**	± 6.0%	----	----	----	----
Pesticides									
2.4.5-T	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
2.4.5-TP	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
2.4-D	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
2.4-DB	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
2.4-DP (isomers)	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
4-CPP	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
Bentazone	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
Dinoseb	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
Fluroxypyr	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
MCPA	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
MCPB	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
MCPP (isomers)	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
Acifluorfen	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
Bromoxynil	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
DNOC	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
Dicamba	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
Diclofop	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
Ioxynil	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
Propoxycarbazone-sodium	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
Triclopyr	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
Triclosan	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.
Key: LOR = Limit of reporting; MU = Measurement Uncertainty. The MU does not include sampling uncertainty.

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-PESLMSA1	CZ_SOP_D06_03_182.B (CSN EN 15637, US EPA 1694) Determination of acidic herbicides and drug residues by liquid chromatography method with MS/MS detection.

A `*` symbol preceding any method indicates laboratory or subcontractor non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information. If the report contains subcontracted analysis, those are made in a subcontracted laboratory outside the laboratories ALS Czech Republic, s.r.o.
The calculation methods of summation parameters are available on request in the client service.

Certificate of Analysis

Report No.:	**19-89493-1**
Issue No.:	**1**
Date of Issue	**03/01/2020**
Customer Details:	ALS Life Sciences Limited, Unit7-8, Hawarden Business Park, Manor Road, Hawarden, Deeside, Flintshire, CH5 3US
Customer Contact:	Carrie Foster
Customer Order No.:	191207-93
Customer Reference:	191207-93
Quotation Reference:	191111/01
Description:	1 soil sample
Date Received:	17/12/2019
Date Started:	18/12/2019
Date Completed:	20/12/2019
Test Methods:	Details available on request (refer to SOP code against relevant result/s)
Notes:	None

Approved By: **Matthew Hickson, Laboratory Manager**

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service.
This certificate shall not be reproduced except in full without the prior written approval of the laboratory.
Observations and interpretations are outside of the scope of UKAS accreditation.
Results reported herein relate only to the items supplied to the laboratory for testing.
Results on an Interim Report are not dry-weight corrected.
Where the laboratory is not responsible for the sampling, results apply to the sample(s) as they were received.

Results Summary

Report No.: 19-89493-1

Customer Reference: 191207-93

Customer Order No: 191207-93

Customer Sample No	**21374271**
Customer Sample ID	TP213
RPS Sample No	424813
Sample Type	**SOIL**
Sample Depth (m)	0.10
Sampling Date	05/12/2019

Determinand	CAS No	Codes	SOP	Units	RL	
atrazine	1912-24-9	N	in house	mg/kg	0.02	< 0.02
prometryn	7287-19-6	N	346	mg/kg	0.02	< 0.02
propazine	139-40-2	N	346	mg/kg	0.02	< 0.02
simazine	122-34-9	N	346	mg/kg	0.02	< 0.02
terbuthylazine	5915-41-3	N	346	mg/kg	0.02	< 0.02
terbutryn	886-50-0	N	346	mg/kg	0.02	< 0.02
trietazine	1912-26-1	N	346	mg/kg	0.02	< 0.02

Deviating Samples

Report No.: 19-89493-1

Customer Reference: 191207-93

Customer Order No: 191207-93

Our policy on Deviating Samples has been implemented in accordance with UKAS Policy on Deviating Samples (TPS63).
RPS is not responsible for the integrity of samples as received, unless RPS personnel performed the sampling. Samples submitted may be declared to be deviating.
Where applicable the analysis method remains UKAS accredited, however results reported for a deviating sample may be compromised.
Where no sampling date was supplied, samples have been declared to be deviating. If the date can be supplied, results may be reissued if assessed not deviating.
Where the sample container used was unsuitable or broken, the sample is flagged as deviating and re-sampling/re-submisson may be required.

RPS No.	Customer No.	Customer ID	Date Sampled	Containers Received	Deviating	Reason for Deviation
424813	21374271		05/12/2019	100ml clear glass bottle	No	

Key Code	Description
U	UKAS Accredited Test - UKAS accreditation is only implied if the report carries the UKAS logo
F	UKAS Flexible Scope Test
M	MCERTS Accredited Test - MCERTS accreditation is only implied if the report carries the MCERTS logo
N	Not Accredited Test
O	Marine Management Organisation (MMO) Validated
S	Subcontracted to approved laboratory
US	Subcontracted to approved laboratory UKAS Accredited for the test
MS	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
SI	Subcontracted to internal RPS Group laboratory
USI	Subcontracted to internal RPS Group laboratory UKAS Accredited for the test
MSI	Subcontracted to internal RPS Group laboratory MCERTS/UKAS Accredited for the test
I/S (in results)	Insufficient Sample
U/S (in results)	Unsuitable Sample
S/C (in results)	See Comments
ND (in results)	Not Detected
DW (in units)	Results are expressed on a dry weight basis

Sample Type	Sample Retention and Disposal Period
Foodstuff	1 month (if frozen) from the issue date of this report
Waters	2 weeks from the issue date of this report
Other Liquids	1 month from the issue date of this report
Solids / Soils	1 month from the issue date of this report
Sediments	1 month from the issue date of this report

Note: Sample retention may be subject to agreement with the customer for particular projects

Where the dry solids value of a sample is low (<50%), reporting limits are automatically raised for all determinants analysed on an as-received basis.

Soil Typing	Description
Type 1	Clay - Brown
Type 2	Clay - Grey/Black
Type 3	Sand
Type 4	Top Soil (Standard)
Type 5	Top Soil (High Peat)
Type 6	Made Ground (>50% Clay)
Type 7	Made Ground (>50% Sand)
Type 8	Made Ground (>50% Top Soil)
Type X	Other

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

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

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2107).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Endeavour Drilling
Aldgate Tower
2 Leman Street
London
E1 8FA

Attention: Oliver Wendland

CERTIFICATE OF ANALYSIS

Date of report Generation:	06 January 2020
Customer:	Endeavour Drilling
Sample Delivery Group (SDG):	191211-121
Your Reference:	J4175 Stantec/ L & G
Location:	Moathouse Farm, Rusper Rd, Horsham
Report No:	536309

This report has been revised and directly supersedes 535817 in its entirety.

We received 18 samples on Wednesday December 11, 2019 and 7 of these samples were scheduled for analysis which was completed on Monday January 06, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	191211-121	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	536309
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535817

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
21340555	TP205		0.10	09/12/2019
21340556	TP205		0.50	09/12/2019
21340553	TP212		0.10	09/12/2019
21340554	TP212		0.50	09/12/2019
21340558	TP214		0.10	09/12/2019
21340559	TP214		0.50	09/12/2019
21340551	TP219		0.20	09/12/2019
21340552	TP219		0.50	09/12/2019
21340549	TP225		0.20	09/12/2019
21340550	TP225		0.60	09/12/2019
21340540	TP227		0.10	06/12/2019
21340541	TP227		0.50	06/12/2019
21340547	TP234		0.10	09/12/2019
21340548	TP234		0.50	09/12/2019
21340542	TP237		0.10	06/12/2019
21340544	TP237		0.50	06/12/2019
21340545	TP241		0.10	06/12/2019
21340546	TP241		0.50	06/12/2019

Maximum Sample/Coolbox Temperature (°C) : **5.6**

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 191211-121 **Client Reference:** J4175 Stantec/ L & G **Report Number:** 536309
Location: Moathouse Farm, Rusper Rd **Order Number:** **Superseded Report:** 535817

Results Legend

X Test

N No Determination Possible

Sample Types -

- S - Soil/Solid
- UNS - Unspecified Solid
- GW - Ground Water
- SW - Surface Water
- LE - Land Leachate
- PL - Prepared Leachate
- PR - Process Water
- SA - Saline Water
- TE - Trade Effluent
- TS - Treated Sewage
- US - Untreated Sewage
- RE - Recreational Water
- DW - Drinking Water Non-regulatory
- UNL - Unspecified Liquid
- SL - Sludge
- G - Gas
- OTH - Other

Lab Sample No(s)			21340555			21340554			21340559			21340549			21340540			21340544			21340545
Customer Sample Reference			TP205			TP212			TP214			TP225			TP227			TP237			TP241
AGS Reference																					
Depth (m)			0.10			0.50			0.50			0.20			0.10			0.50			0.10
Container			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Acid herbicides*	All	NDPs: 0 Tests: 2		X															X		
Anions by Kone (soil)	All	NDPs: 0 Tests: 7		X			X			X			X			X			X		
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 7	X			X			X			X			X			X			X
EPH CWG GC (S)	All	NDPs: 0 Tests: 7		X			X			X			X			X			X		
GRO by GC-FID (S)	All	NDPs: 0 Tests: 7			X			X			X			X			X			X	
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 7		X			X			X			X			X			X		
Metals in solid samples by OES	All	NDPs: 0 Tests: 7		X			X			X			X			X			X		
OC OP Pesticides and Triazine Herb	All	NDPs: 0 Tests: 2		X															X		
PAH by GCMS	All	NDPs: 0 Tests: 7		X			X			X			X			X			X		
pH	All	NDPs: 0 Tests: 7		X			X			X			X			X			X		
Phenols by HPLC (S)	All	NDPs: 0 Tests: 7		X			X			X			X			X			X		
Sample description	All	NDPs: 0 Tests: 7		X			X			X			X			X			X		
Total Organic Carbon	All	NDPs: 0 Tests: 7		X			X			X			X			X			X		
TPH CWG GC (S)	All	NDPs: 0 Tests: 7		X			X			X			X			X			X		
Triazine Herbicides (S)*	All	NDPs: 0 Tests: 2		X															X		

21340545					
TP241					
0.10					
250g Amber Jar (ALE210)	S	60g VOC (ALE215)	S		
X					
X					
		X			
X					
X					
X					
X					
X					
X					
X					
X					

Validated

CERTIFICATE OF ANALYSIS

SDG:	191211-121	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	536309
Location:	Moathouse Farm, Rusper Rd	**Order Number:**		**Superseded Report:**	535817

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)	21340555			21340554			21340559			21340549			21340540			21340544			21340545
Customer Sample Reference	TP205			TP212			TP214			TP225			TP227			TP237			TP241
AGS Reference																				
Depth (m)	0.10			0.50			0.50			0.20			0.10			0.50			0.10
Container	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)
Sample Type	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
VOC MS (S)	All	NDPs: 0 Tests: 7			X			X			X			X			X			X	

21340545	TP241		0.10	60g VOC (ALE215)	S
				250g Amber Jar (ALE210)	S
				X	

CERTIFICATE OF ANALYSIS

SDG:	191211-121	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	536309
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535817

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
21340555	TP205	0.10	Dark Brown	Silt Loam	None	None
21340554	TP212	0.50	Light Brown	Loamy Sand	None	None
21340559	TP214	0.50	Light Brown	Loamy Sand	None	None
21340549	TP225	0.20	Dark Brown	Clay Loam	None	None
21340540	TP227	0.10	Dark Brown	Clay Loam	Stones	Vegetation
21340544	TP237	0.50	Light Brown	Clay Loam	None	N/A
21340545	TP241	0.10	Light Brown	Loamy Sand	Vegetation	None

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

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG:	191211-121	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	536309
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535817

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP205	TP212	TP214	TP225	TP227	TP237
			Depth (m)	0.10	0.50	0.50	0.20	0.10	0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	09/12/2019	09/12/2019	09/12/2019	09/12/2019	06/12/2019	06/12/2019
			Sample Time	.	.	.	.	.	.
			Date Received	11/12/2019	11/12/2019	11/12/2019	11/12/2019	11/12/2019	11/12/2019
			SDG Ref	191211-121	191211-121	191211-121	191211-121	191211-121	191211-121
			Lab Sample No.(s)	21340555	21340554	21340559	21340549	21340540	21340544
			AGS Reference						
Moisture Content Ratio (% of as received sample)	%	PM024		29	22	20	22	24	20
2,4,5-Trichlorophenol (2,4,5-T)*	<0.01 mg/kg	SUB		<0.01					<0.01
2,4,5-TP (Fenoprop)*	<0.01 mg/kg	SUB		<0.01					<0.01
2,4-D*	<0.01 mg/kg	SUB		<0.01					<0.01
2,4-DB*	<0.01 mg/kg	SUB		<0.01					<0.01
2,4-Dichloroprop (2,4 DP)*	<0.01 mg/kg	SUB		<0.01					<0.01
4-Chlorophenoxyacetic acid (4-CPA)*	<0.01 mg/kg	SUB		<0.01					<0.01
Acifluorfen*	<0.01 mg/kg	SUB		<0.01					<0.01
Bentazone*	<0.01 mg/kg	SUB		<0.01					<0.01
Bromoxynil*	<0.01 mg/kg	SUB		<0.01					<0.01
Dicamba*	<0.01 mg/kg	SUB		<0.01					<0.01
Diclofop*	<0.01 mg/kg	SUB		<0.01					<0.01
Dinoseb*	<0.01 mg/kg	SUB		<0.01					<0.01
DNOC*	<0.01 mg/kg	SUB		<0.01					<0.01
Fluroxypyr*	<0.01 mg/kg	SUB		<0.01					<0.01
Ioxynil*	<0.01 mg/kg	SUB		<0.01					<0.01
2-methyl-4-Chlorophenoxyacetic acid (MCPA)*	<0.01 mg/kg	SUB		<0.01					<0.01
4-(4-Chloro-o-tolyloxy) butyric acid (MCPB)*	<0.01 mg/kg	SUB		<0.01					<0.01
Mecoprop (MCPP)*	<0.01 mg/kg	SUB		<0.01					<0.01
Propoxycarbazone-sodium*	<0.01 mg/kg	SUB		<0.01					<0.01
Triclopyr*	<0.01 mg/kg	SUB		<0.01					<0.01
Triclosan*	<0.01 mg/kg	SUB		<0.01					<0.01
Phenol	<0.01 mg/kg	TM062 (S)		<0.01 M	<0.01 M	<0.01 M	<0.01 M	<0.01 M	<0.01 M
Cresols	<0.01 mg/kg	TM062 (S)		<0.01 M	<0.01 M	<0.01 M	<0.01 M	0.0132 M	<0.01 M
Xylenols	<0.015 mg/kg	TM062 (S)		<0.015 M	<0.015 M	<0.015 M	<0.015 M	<0.015 M	<0.015 M
2,3,5-Trimethylphenol	<0.01 mg/kg	TM062 (S)		<0.01 M	0.0128 M	<0.01 M	<0.01 M	<0.01 M	<0.01 M
2-Isopropylphenol	<0.015 mg/kg	TM062 (S)		<0.015 M	<0.015 M	<0.015 M	<0.015 M	<0.015 M	<0.015 M
Phenols, Total Detected 5 speciated	<0.06 mg/kg	TM062 (S)		<0.06 M	<0.06 M	<0.06 M	<0.06 M	<0.06 M	<0.06 M
Soil Organic Matter (SOM)	<0.35 %	TM132		3.4 #	0.503 #	<0.35 #	2.38 #	4.14 #	0.383 #
pH	1 pH Units	TM133		6.75 M	6.87 M	8.11 M	6.94 M	7.7 M	7.5 M
Chromium, Hexavalent	<0.6 mg/kg	TM151		<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #
Arsenic	<0.6 mg/kg	TM181		7.01 M	7.82 M	7.33 M	9.27 M	14.8 M	10.2 M
Cadmium	<0.02 mg/kg	TM181		0.086 M	<0.02 M	<0.02 M	0.165 M	0.383 M	<0.02 M

Validated

CERTIFICATE OF ANALYSIS

SDG: 191211-121 **Client Reference:** J4175 Stantec/ L & G **Report Number:** 536309
Location: Moathouse Farm, Rusper Ro **Order Number:** **Superseded Report:** 535817

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP205	TP212	TP214	TP225	TP227	TP237
			Depth (m)	0.10	0.50	0.50	0.20	0.10	0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	09/12/2019	09/12/2019	09/12/2019	09/12/2019	06/12/2019	06/12/2019
			Sample Time	.	.	.	.	.	.
			Date Received	11/12/2019	11/12/2019	11/12/2019	11/12/2019	11/12/2019	11/12/2019
			SDG Ref	191211-121	191211-121	191211-121	191211-121	191211-121	191211-121
			Lab Sample No.(s)	21340555	21340554	21340559	21340549	21340540	21340544
			AGS Reference						
Chromium	<0.9 mg/kg	TM181		17.7 M	40 M	26.2 M	24.6 M	18 M	25.6 M
Copper	<1.4 mg/kg	TM181		13.4 M	34 M	21.9 M	21.2 M	53.7 M	17.2 M
Lead	<0.7 mg/kg	TM181		30.4 M	22.8 M	15.3 M	31.7 M	50.5 M	16.3 M
Mercury	<0.14 mg/kg	TM181		<0.14 M	<0.14 M	<0.14 M	<0.14 M	<0.14 M	<0.14 M
Nickel	<0.2 mg/kg	TM181		14.4 M	27.6 M	23 M	26.2 M	21.9 M	16.4 M
Selenium	<1 mg/kg	TM181		<1 #	<1 #	<1 #	<1 #	1.65 #	<1 #
Zinc	<1.9 mg/kg	TM181		70.8 M	55.4 M	57.2 M	86.2 M	162 M	46.2 M
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243		0.0221 M	0.0452 M	0.0187 M	0.021 M	0.0367 M	0.0381 M

Validated

CERTIFICATE OF ANALYSIS

SDG: 191211-121 **Client Reference:** J4175 Stantec/ L & G **Report Number:** 536309
Location: Moathouse Farm, Rusper Ro **Order Number:** **Superseded Report:** 535817

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

		Customer Sample Ref.	TP241
		Depth (m)	0.10
		Sample Type	Soil/Solid (S)
		Date Sampled	06/12/2019
		Sample Time	.
		Date Received	11/12/2019
		SDG Ref	191211-121
		Lab Sample No.(s)	21340545
		AGS Reference	
Component	**LOD/Units**	**Method**	
Moisture Content Ratio (% of as received sample)	%	PM024	25
Phenol	<0.01 mg/kg	TM062 (S)	<0.01 M
Cresols	<0.01 mg/kg	TM062 (S)	<0.01 M
Xylenols	<0.015 mg/kg	TM062 (S)	<0.015 M
2,3,5-Trimethylphenol	<0.01 mg/kg	TM062 (S)	<0.01 M
2-Isopropylphenol	<0.015 mg/kg	TM062 (S)	<0.015 M
Phenols, Total Detected 5 speciated	<0.06 mg/kg	TM062 (S)	<0.06 M
Soil Organic Matter (SOM)	<0.35 %	TM132	3.12 #
pH	1 pH Units	TM133	6.74 M
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6 #
Arsenic	<0.6 mg/kg	TM181	10.4 M
Cadmium	<0.02 mg/kg	TM181	0.193 M
Chromium	<0.9 mg/kg	TM181	18.9 M
Copper	<1.4 mg/kg	TM181	18.8 M
Lead	<0.7 mg/kg	TM181	30.7 M
Mercury	<0.14 mg/kg	TM181	<0.14 M
Nickel	<0.2 mg/kg	TM181	20 M
Selenium	<1 mg/kg	TM181	<1 #
Zinc	<1.9 mg/kg	TM181	77.8 M
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243	0.0217 M

CERTIFICATE OF ANALYSIS

SDG:	191211-121	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	536309
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535817

OC OP Pesticides and Triazine Herb

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP205	TP237				
			Depth (m)	0.10	0.50				
			Sample Type	Soil/Solid (S)	Soil/Solid (S)				
			Date Sampled	09/12/2019	06/12/2019				
			Sample Time	.	.				
			Date Received	11/12/2019	11/12/2019				
			SDG Ref	191211-121	191211-121				
			Lab Sample No.(s)	21340555	21340544				
			AGS Reference						
Dichlorvos	<50 µg/kg	TM073		<50	<50				
Mevinphos	<50 µg/kg	TM073		<50	<50				
Tecnazene	<50 µg/kg	TM073		<50	<50				
Hexachlorobenzene	<50 µg/kg	TM073		<50	<50				
Trifluralin	<50 µg/kg	TM073		<50	<50				
Phorate	<50 µg/kg	TM073		<50	<50				
alpha-Hexachlorocyclohexane (HCH)	<50 µg/kg	TM073		<50	<50				
Quintozene (PCNB)	<50 µg/kg	TM073		<50	<50				
Diazinon	<50 µg/kg	TM073		<50	<50				
Triallate	<50 µg/kg	TM073		<50	<50				
Etrimphos	<50 µg/kg	TM073		<50	<50				
gamma-Hexachlorocyclohexane (HCH / Lindane)	<50 µg/kg	TM073		<50	<50				
Disulfoton	<50 µg/kg	TM073		<50	<50				
Propetamphos	<50 µg/kg	TM073		<50	<50				
Heptachlor	<50 µg/kg	TM073		<50	<50				
Chlorpyriphos methyl	<50 µg/kg	TM073		<50	<50				
Dimethoate	<50 µg/kg	TM073		<50	<50				
Aldrin	<50 µg/kg	TM073		<50	<50				
Chlorothalonil	<50 µg/kg	TM073		<50	<50				
Pirimiphos-methyl	<50 µg/kg	TM073		<50	<50				
Telodrin	<50 µg/kg	TM073		<50	<50				
beta-Hexachlorocyclohexane (HCH)	<50 µg/kg	TM073		<50	<50				
Chlorpyriphos	<50 µg/kg	TM073		<50	<50				
Methyl parathion	<50 µg/kg	TM073		<50	<50				
Isodrin	<50 µg/kg	TM073		<50	<50				
delta-Hexachlorocyclohexane (HCH)	<50 µg/kg	TM073		<50	<50				
Malathion	<50 µg/kg	TM073		<50	<50				
Fenthion	<50 µg/kg	TM073		<50	<50				
Fenitrothion	<50 µg/kg	TM073		<50	<50				
Heptachlor epoxide	<50 µg/kg	TM073		<50	<50				
Triadimefon	<50 µg/kg	TM073		<50	<50				
Pendimethalin	<50 µg/kg	TM073		<50	<50				
Parathion	<50 µg/kg	TM073		<50	<50				

CERTIFICATE OF ANALYSIS

SDG: 191211-121 **Client Reference:** J4175 Stantec/ L & G **Report Number:** 536309
Location: Moathouse Farm, Rusper Ro **Order Number:** **Superseded Report:** 535817

OC OP Pesticides and Triazine Herb

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP205	TP237				
			Depth (m)	0.10	0.50				
			Sample Type	Soil/Solid (S)	Soil/Solid (S)				
			Date Sampled	09/12/2019	06/12/2019				
			Sample Time	-	-				
			Date Received	11/12/2019	11/12/2019				
			SDG Ref	191211-121	191211-121				
			Lab Sample No.(s)	21340555	21340544				
			AGS Reference						
o,p-DDE	<50 µg/kg	TM073		<50	<50				
Chlorfenvinphos	<50 µg/kg	TM073		<50	<50				
Endosulphan I	<50 µg/kg	TM073		<50	<50				
Trans-chlordane	<50 µg/kg	TM073		<50	<50				
cis-Chlordane	<50 µg/kg	TM073		<50	<50				
p,p-DDE	<50 µg/kg	TM073		<50	<50				
Dieldrin	<50 µg/kg	TM073		<50	<50				
o,p'-DDD (TDE)	<50 µg/kg	TM073		<50	<50				
Endrin	<50 µg/kg	TM073		<50	<50				
o,p-DDT	<50 µg/kg	TM073		<50	<50				
p,p-TDE (DDD)	<50 µg/kg	TM073		<50	<50				
Ethion	<50 µg/kg	TM073		<50	<50				
Endosulphan II	<50 µg/kg	TM073		<50	<50				
p,p-DDT	<50 µg/kg	TM073		<50	<50				
Carbophenothion	<50 µg/kg	TM073		<50	<50				
o,p-Methoxychlor	<50 µg/kg	TM073		<50	<50				
Triazophos	<50 µg/kg	TM073		<50	<50				
p,p-Methoxychlor	<50 µg/kg	TM073		<50	<50				
Endosulphan sulphate	<50 µg/kg	TM073		<50	<50				
Permethrin I	<50 µg/kg	TM073		<50	<50				
Phosalone	<50 µg/kg	TM073		<50	<50				
Permethrin II	<50 µg/kg	TM073		<50	<50				
Azinphos-methyl	<50 µg/kg	TM073		<50	<50				
Azinphos-ethyl	<50 µg/kg	TM073		<50	<50				

CERTIFICATE OF ANALYSIS

SDG:	191211-121	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	536309
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535817

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP205	TP212	TP214	TP225	TP227	TP237
			Depth (m)	0.10	0.50	0.50	0.20	0.10	0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	09/12/2019	09/12/2019	09/12/2019	09/12/2019	06/12/2019	06/12/2019
			Sample Time	.	.	.	.	.	.
			Date Received	11/12/2019	11/12/2019	11/12/2019	11/12/2019	11/12/2019	11/12/2019
			SDG Ref	191211-121	191211-121	191211-121	191211-121	191211-121	191211-121
			Lab Sample No.(s)	21340555	21340554	21340559	21340549	21340540	21340544
			AGS Reference						
Naphthalene-d8 % recovery**	%	TM218		102	107	95.3	90.5	86	105
Acenaphthene-d10 % recovery**	%	TM218		101	106	92.8	89.4	84.2	105
Phenanthrene-d10 % recovery**	%	TM218		95.4	99.9	95.1	89.6	85.1	103
Chrysene-d12 % recovery**	%	TM218		83	87.7	86	86.5	74.8	91.9
Perylene-d12 % recovery**	%	TM218		82.9	86.2	88	89.3	72.6	92.5
Naphthalene	<9 µg/kg	TM218		<9 M	<9 M	<9 M	<9 M	<9 M	26.7 M
Acenaphthylene	<12 µg/kg	TM218		<12 M	<12 M	<12 M	<12 M	<12 M	<12 M
Acenaphthene	<8 µg/kg	TM218		<8 M	<8 M	<8 M	<8 M	<8 M	<8 M
Fluorene	<10 µg/kg	TM218		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Phenanthrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M	<15 M	<15 M
Anthracene	<16 µg/kg	TM218		<16 M	<16 M	<16 M	<16 M	<16 M	<16 M
Fluoranthene	<17 µg/kg	TM218		27.8 M	<17 M	<17 M	38.5 M	47 M	<17 M
Pyrene	<15 µg/kg	TM218		24.5 M	<15 M	<15 M	34.1 M	39.6 M	<15 M
Benz(a)anthracene	<14 µg/kg	TM218		<14 M	<14 M	<14 M	<14 M	21.3 M	<14 M
Chrysene	<10 µg/kg	TM218		<10 M	<10 M	<10 M	18.3 M	25.5 M	<10 M
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	26.2 M	35.9 M	<15 M
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 M	<14 M	<14 M	<14 M	<14 M	<14 M
Benzo(a)pyrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M	21.7 M	<15 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 M	<18 M	<18 M	<18 M	<18 M	<18 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 M	<23 M	<23 M	<23 M	<23 M	<23 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 M	<24 M	<24 M	<24 M	<24 M	<24 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	<118	<118	<118	191	<118

Validated

CERTIFICATE OF ANALYSIS

SDG:	191211-121	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	536309
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535817

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

		Customer Sample Ref.	TP241
		Depth (m)	0.10
		Sample Type	Soil/Solid (S)
		Date Sampled	06/12/2019
		Sample Time	.
		Date Received	11/12/2019
		SDG Ref	191211-121
		Lab Sample No.(s)	21340545
		AGS Reference	
Component	**LOD/Units**	**Method**	
Naphthalene-d8 % recovery**	%	TM218	93.3
Acenaphthene-d10 % recovery**	%	TM218	90.6
Phenanthrene-d10 % recovery**	%	TM218	92
Chrysene-d12 % recovery**	%	TM218	82.7
Perylene-d12 % recovery**	%	TM218	82.9
Naphthalene	<9 µg/kg	TM218	<9 M
Acenaphthylene	<12 µg/kg	TM218	<12 M
Acenaphthene	<8 µg/kg	TM218	<8 M
Fluorene	<10 µg/kg	TM218	<10 M
Phenanthrene	<15 µg/kg	TM218	44.7 M
Anthracene	<16 µg/kg	TM218	<16 M
Fluoranthene	<17 µg/kg	TM218	137 M
Pyrene	<15 µg/kg	TM218	105 M
Benz(a)anthracene	<14 µg/kg	TM218	73.2 M
Chrysene	<10 µg/kg	TM218	73.7 M
Benzo(b)fluoranthene	<15 µg/kg	TM218	114 M
Benzo(k)fluoranthene	<14 µg/kg	TM218	48.8 M
Benzo(a)pyrene	<15 µg/kg	TM218	67.6 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	49.9 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<23 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218	52.3 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	766

CERTIFICATE OF ANALYSIS

SDG:	191211-121	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	536309
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535817

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP205	TP212	TP214	TP225	TP227	TP237
			Depth (m)	0.10	0.50	0.50	0.20	0.10	0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	09/12/2019	09/12/2019	09/12/2019	09/12/2019	06/12/2019	06/12/2019
			Sample Time	.	.	.	.	.	.
			Date Received	11/12/2019	11/12/2019	11/12/2019	11/12/2019	11/12/2019	11/12/2019
			SDG Ref	191211-121	191211-121	191211-121	191211-121	191211-121	191211-121
			Lab Sample No.(s)	21340555	21340554	21340559	21340549	21340540	21340544
			AGS Reference						
GRO Surrogate % recovery**	%	TM089		101	102	116	98	90	102
Aliphatics >C5-C6	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aliphatics >C8-C10	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aliphatics >C10-C12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C12-C16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C16-C21	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C21-C35	<1000 µg/kg	TM414		2740	<1000	<1000	4480	4830	<1000
Aliphatics >C35-C44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Total Aliphatics >C10-C44	<5000 µg/kg	TM414		<5000	<5000	<5000	<5000	5490	<5000
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414		<10000	<10000	<10000	<10000	<10000	<10000
Aromatics >EC5-EC7	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics > EC10-EC12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC12-EC16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC16-EC21	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC21-EC35	<1000 µg/kg	TM414		1520	<1000	<1000	2060	3020	<1000
Aromatics >EC35-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC40-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414		<5000	<5000	<5000	<5000	<5000	<5000
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414		<10000	<10000	<10000	<10000	<10000	<10000
Total Aliphatics >C5-C10	<50 µg/kg	TM089		<50	<50	<50	<50	<50	<50
Total Aromatics >EC5-EC10	<50 µg/kg	TM089		<50	<50	<50	<50	<50	<50
GRO >C5-C10	<20 µg/kg	TM089		<20	<20	<20	<20	<20	<20

Validated

CERTIFICATE OF ANALYSIS

SDG:	191211-121	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	536309
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535817

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	Depth (m)	Sample Type	Date Sampled	Sample Time	Date Received	SDG Ref	Lab Sample No.(s)	AGS Reference
			TP241	0.10	Soil/Solid (S)	06/12/2019	.	11/12/2019	191211-121	21340545	
GRO Surrogate % recovery**	%	TM089	97								
Aliphatics >C5-C6	<10 µg/kg	TM089	<10								
Aliphatics >C6-C8	<10 µg/kg	TM089	<10								
Aliphatics >C8-C10	<10 µg/kg	TM089	<10								
Aliphatics >C10-C12	<1000 µg/kg	TM414	<1000								
Aliphatics >C12-C16	<1000 µg/kg	TM414	<1000								
Aliphatics >C16-C21	<1000 µg/kg	TM414	<1000								
Aliphatics >C21-C35	<1000 µg/kg	TM414	4130								
Aliphatics >C35-C44	<1000 µg/kg	TM414	<1000								
Total Aliphatics >C10-C44	<5000 µg/kg	TM414	<5000								
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414	<10000								
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10								
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10								
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10								
Aromatics > EC10-EC12	<1000 µg/kg	TM414	<1000								
Aromatics > EC12-EC16	<1000 µg/kg	TM414	<1000								
Aromatics > EC16-EC21	<1000 µg/kg	TM414	<1000								
Aromatics > EC21-EC35	<1000 µg/kg	TM414	2220								
Aromatics >EC35-EC44	<1000 µg/kg	TM414	<1000								
Aromatics > EC40-EC44	<1000 µg/kg	TM414	<1000								
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414	<5000								
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414	<10000								
Total Aliphatics >C5-C10	<50 µg/kg	TM089	<50								
Total Aromatics >EC5-EC10	<50 µg/kg	TM089	<50								
GRO >C5-C10	<20 µg/kg	TM089	<20								

CERTIFICATE OF ANALYSIS

SDG:	191211-121	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	536309
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535817

Triazine Herbicides (S)*

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP205	TP237				
			Depth (m)	0.10	0.50				
			Sample Type	Soil/Solid (S)	Soil/Solid (S)				
			Date Sampled	09/12/2019	06/12/2019				
			Sample Time	.	.				
			Date Received	11/12/2019	11/12/2019				
			SDG Ref	191211-121	191211-121				
			Lab Sample No.(s)	21340555	21340544				
			AGS Reference						
Atrazine*	<0.02 mg/kg	SUB		<0.02	<0.02				
Prometryne*	<0.02 mg/kg	SUB		<0.02	<0.02				
Propazine*	<0.02 mg/kg	SUB		<0.02	<0.02				
Simazine*	<0.02 mg/kg	SUB		<0.02	<0.02				
Terbuthylazine*	<0.02 mg/kg	SUB		<0.02	<0.02				
Terbutryne*	<0.02 mg/kg	SUB		<0.02	<0.02				
Trietazine*	<0.02 mg/kg	SUB		<0.02	<0.02				

CERTIFICATE OF ANALYSIS

SDG:	191211-121	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	536309
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535817

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP205	TP212	TP214	TP225	TP227	TP237
			Depth (m)	0.10	0.50	0.50	0.20	0.10	0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	09/12/2019	09/12/2019	09/12/2019	09/12/2019	06/12/2019	06/12/2019
			Sample Time	.	.	.	.	.	.
			Date Received	11/12/2019	11/12/2019	11/12/2019	11/12/2019	11/12/2019	11/12/2019
			SDG Ref	191211-121	191211-121	191211-121	191211-121	191211-121	191211-121
			Lab Sample No.(s)	21340555	21340554	21340559	21340549	21340540	21340544
			AGS Reference						
Dibromofluoromethane**	%	TM116		103	101	103	107	103	106
Toluene-d8**	%	TM116		94.2	97.6	96.8	92.2	89.6	97.2
4-Bromofluorobenzene**	%	TM116		78.5	94.1	93.2	80	74.2	96
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Benzene	<9 µg/kg	TM116		<9 M	<9 M	<9 M	<9 M	<9 M	<9 M
Toluene	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7 M	<7 M
Ethylbenzene	<4 µg/kg	TM116		<4 M	<4 M	<4 M	<4 M	<4 M	<4 M
p/m-Xylene	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
o-Xylene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of BTEX	<40 µg/kg	TM116		<40	<40	<40	<40	<40	<40

Validated

CERTIFICATE OF ANALYSIS

SDG:	191211-121	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	536309
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535817

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

		Customer Sample Ref.	TP241
		Depth (m)	0.10
		Sample Type	Soil/Solid (S)
		Date Sampled	06/12/2019
		Sample Time	.
		Date Received	11/12/2019
		SDG Ref	191211-121
		Lab Sample No.(s)	21340545
		AGS Reference	
Component	**LOD/Units**	**Method**	
Dibromofluoromethane**	%	TM116	101
Toluene-d8**	%	TM116	95.4
4-Bromofluorobenzene**	%	TM116	80.7
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 M
Benzene	<9 µg/kg	TM116	<9 M
Toluene	<7 µg/kg	TM116	<7 M
Ethylbenzene	<4 µg/kg	TM116	<4 M
p/m-Xylene	<10 µg/kg	TM116	<10 #
o-Xylene	<10 µg/kg	TM116	<10 M
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.02
Sum of BTEX	<40 µg/kg	TM116	<40

CERTIFICATE OF ANALYSIS

SDG:	191211-121	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	536309
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535817

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP205 0.10 SOLID 09/12/2019 00:00:00 11/12/2019 06:00:00 191211-121 21340555 TM048	17/12/19	Andrzej Ferfecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP212 0.50 SOLID 09/12/2019 00:00:00 11/12/2019 06:00:00 191211-121 21340554 TM048	18/12/19	Andrzej Ferfecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP214 0.50 SOLID 09/12/2019 00:00:00 11/12/2019 06:00:00 191211-121 21340559 TM048	17/12/2019	Lucy Caroe	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP225 0.20 SOLID 09/12/2019 00:00:00 11/12/2019 06:00:00 191211-121 21340549 TM048	17/12/2019	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP227 0.10 SOLID 06/12/2019 00:00:00 11/12/2019 06:00:00 191211-121 21340540 TM048	18/12/19	Andrzej Ferfecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP237 0.50 SOLID 06/12/2019 00:00:00 11/12/2019 06:00:00 191211-121 21340544 TM048	17/12/2019	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP241 0.10 SOLID 06/12/2019 00:00:00 11/12/2019 06:00:00 191211-121 21340545 TM048	17/12/2019	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
SUB		Subcontracted Test
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM073	MEWAM BOOK 60 1980,95 1985, HMSO / Modified: US EPA Method 8081A & 8141A	Determination of organochlorine and organophosphorous pesticides by GCMS
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM243		Mixed Anions In Soils By Kone
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	191211-121	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	536309
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	535817

Test Completion Dates

Lab Sample No(s)	21340555	21340554	21340559	21340549	21340540	21340544	21340545
Customer Sample Ref.	TP205	TP212	TP214	TP225	TP227	TP237	TP241
AGS Ref.							
Depth	0.10	0.50	0.50	0.20	0.10	0.50	0.10
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Acid herbicides*	31-Dec-2019					31-Dec-2019	
Anions by Kone (soil)	20-Dec-2019	18-Dec-2019	18-Dec-2019	18-Dec-2019	18-Dec-2019	18-Dec-2019	18-Dec-2019
Asbestos ID in Solid Samples	17-Dec-2019	18-Dec-2019	17-Dec-2019	17-Dec-2019	18-Dec-2019	17-Dec-2019	17-Dec-2019
EPH CWG GC (S)	20-Dec-2019	20-Dec-2019	20-Dec-2019	20-Dec-2019	20-Dec-2019	18-Dec-2019	18-Dec-2019
GRO by GC-FID (S)	17-Dec-2019	17-Dec-2019	17-Dec-2019	16-Dec-2019	16-Dec-2019	17-Dec-2019	17-Dec-2019
Hexavalent Chromium (s)	19-Dec-2019	19-Dec-2019	19-Dec-2019	19-Dec-2019	19-Dec-2019	17-Dec-2019	17-Dec-2019
Metals in solid samples by OES	17-Dec-2019	18-Dec-2019	18-Dec-2019	17-Dec-2019	17-Dec-2019	18-Dec-2019	18-Dec-2019
OC OP Pesticides and Triazine Herb	23-Dec-2019					23-Dec-2019	
PAH by GCMS	18-Dec-2019	18-Dec-2019	17-Dec-2019	19-Dec-2019	17-Dec-2019	18-Dec-2019	17-Dec-2019
pH	19-Dec-2019	19-Dec-2019	19-Dec-2019	19-Dec-2019	19-Dec-2019	19-Dec-2019	19-Dec-2019
Phenols by HPLC (S)	18-Dec-2019	18-Dec-2019	18-Dec-2019	17-Dec-2019	17-Dec-2019	18-Dec-2019	18-Dec-2019
Sample description	13-Dec-2019	13-Dec-2019	13-Dec-2019	13-Dec-2019	13-Dec-2019	13-Dec-2019	13-Dec-2019
Total Organic Carbon	18-Dec-2019	18-Dec-2019	18-Dec-2019	19-Dec-2019	18-Dec-2019	18-Dec-2019	18-Dec-2019
TPH CWG GC (S)	20-Dec-2019	20-Dec-2019	20-Dec-2019	20-Dec-2019	20-Dec-2019	18-Dec-2019	18-Dec-2019
Triazine Herbicides (S)*	06-Jan-2020					06-Jan-2020	
VOC MS (S)	16-Dec-2019	17-Dec-2019	16-Dec-2019	16-Dec-2019	16-Dec-2019	16-Dec-2019	16-Dec-2019

CERTIFICATE OF ANALYSIS

Work Order	: **PR19E0037**	Issue Date	: 30-Dec-2019
Customer	: **ALS Life Sciences Ltd**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: ALS Hawarden Reporting	Contact	: Client Service
Address	: Unit 7-8 Hawarden Business Park Manor Road, Hawarden CH5 3US Deeside United Kingdom	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: euhdnsubconresults@ALSGlobal.com	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Project	: 191211-121	Page	: 1 of 2
Order number	: ----	Date Samples Received	: 17-Dec-2019
		Quote number	: PR2018ALSAL-GB0004 (CZ-256-18-0022)
Site	: ----	Date of test	: 23-Dec-2019 - 30-Dec-2019
Sampled by	: client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.

The laboratory declares that the test results relate only to the listed samples. If the section "Sampled by" of the Certificate of analysis states: "Sampled by Customer" then the results relate to the sample as received.

Responsible for accuracy

Testing Laboratory No. 1163
Accredited by CAI according to
CSN EN ISO/IEC 17025:2018

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

Analytical Results

Sub-Matrix: SOIL			Client sample ID	21356370		21356218		----	
			Laboratory sample ID	PR19E0037-001		PR19E0037-002		----	
			Client sampling date / time	09-Dec-2019 00:00		06-Dec-2019 00:00		----	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU
Physical Parameters									
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**71.6**	± 6.0%	**79.5**	± 6.0%	----	----
Pesticides									
2.4.5-T	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
2.4.5-TP	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
2.4-D	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
2.4-DB	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
2.4-DP (isomers)	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
4-CPP	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Bentazone	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Dinoseb	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Fluroxypyr	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
MCPA	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
MCPB	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
MCPP (isomers)	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Acifluorfen	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Bromoxynil	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
DNOC	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Dicamba	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Diclofop	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
loxynil	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Propoxycarbazone-sodium	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Triclopyr	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Triclosan	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.
Key: LOR = Limit of reporting; MU = Measurement Uncertainty. The MU does not include sampling uncertainty.

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	Method Descriptions
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-PESLMSA1	CZ_SOP_D06_03_182.B (CSN EN 15637, US EPA 1694) Determination of acidic herbicides and drug residues by liquid chromatography method with MS/MS detection.

A `*` symbol preceding any method indicates laboratory or subcontractor non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information. If the report contains subcontracted analysis, those are made in a subcontracted laboratory outside the laboratories ALS Czech Republic, s.r.o.
The calculation methods of summation parameters are available on request in the client service.

Certificate of Analysis

Report No.:	**19-89495-1**
Issue No.:	**1**
Date of Issue	**03/01/2020**
Customer Details:	ALS Life Sciences Limited, Unit7-8, Hawarden Business Park, Manor Road, Hawarden, Deeside, Flintshire, CH5 3US
Customer Contact:	Carrie Foster
Customer Order No.:	191211-121
Customer Reference:	191211-121
Quotation Reference:	191111/01
Description:	2 soil samples
Date Received:	17/12/2019
Date Started:	18/12/2019
Date Completed:	20/12/2019
Test Methods:	Details available on request (refer to SOP code against relevant result/s)
Notes:	None



Approved By: **Matthew Hickson, Laboratory Manager**

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service.
This certificate shall not be reproduced except in full without the prior written approval of the laboratory.
Observations and interpretations are outside of the scope of UKAS accreditation.
Results reported herein relate only to the items supplied to the laboratory for testing.
Results on an Interim Report are not dry-weight corrected.
Where the laboratory is not responsible for the sampling, results apply to the sample(s) as they were received.

Results Summary

Report No.: 19-89495-1

Customer Reference: 191211-121

Customer Order No: 191211-121

Customer Sample No	**21356405**	**21356237**
Customer Sample ID	TP205	TP237
RPS Sample No	424815	424816
Sample Type	**SOIL**	**SOIL**
Sample Depth (m)	0.1	0.5
Sampling Date	09/12/2019	06/12/2019

Determinand	CAS No	Codes	SOP	Units	RL		
atrazine	1912-24-9	N	in house	mg/kg	0.02	< 0.02	< 0.02
prometryn	7287-19-6	N	346	mg/kg	0.02	< 0.02	< 0.02
propazine	139-40-2	N	346	mg/kg	0.02	< 0.02	< 0.02
simazine	122-34-9	N	346	mg/kg	0.02	< 0.02	< 0.02
terbuthylazine	5915-41-3	N	346	mg/kg	0.02	< 0.02	< 0.02
terbutryn	886-50-0	N	346	mg/kg	0.02	< 0.02	< 0.02
trietazine	1912-26-1	N	346	mg/kg	0.02	< 0.02	< 0.02

Deviating Samples

Report No.: 19-89495-1

Customer Reference: 191211-121

Customer Order No: 191211-121

Our policy on Deviating Samples has been implemented in accordance with UKAS Policy on Deviating Samples (TPS63).
RPS is not responsible for the integrity of samples as received, unless RPS personnel performed the sampling. Samples submitted may be declared to be deviating.
Where applicable the analysis method remains UKAS accredited, however results reported for a deviating sample may be compromised.
Where no sampling date was supplied, samples have been declared to be deviating. If the date can be supplied, results may be reissued if assessed not deviating.
Where the sample container used was unsuitable or broken, the sample is flagged as deviating and re-sampling/re-submisson may be required.

RPS No.	Customer No.	Customer ID	Date Sampled	Containers Received	Deviating	Reason for Deviation
424815	21356405		09/12/2019	250ml amber glass jar	No	
424816	21356237		06/12/2019	100ml clear glass bottle	No	

Key Code	Description
U	UKAS Accredited Test - UKAS accreditation is only implied if the report carries the UKAS logo
F	UKAS Flexible Scope Test
M	MCERTS Accredited Test - MCERTS accreditation is only implied if the report carries the MCERTS logo
N	Not Accredited Test
O	Marine Management Organisation (MMO) Validated
S	Subcontracted to approved laboratory
US	Subcontracted to approved laboratory UKAS Accredited for the test
MS	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
SI	Subcontracted to internal RPS Group laboratory
USI	Subcontracted to internal RPS Group laboratory UKAS Accredited for the test
MSI	Subcontracted to internal RPS Group laboratory MCERTS/UKAS Accredited for the test
I/S (in results)	Insufficient Sample
U/S (in results)	Unsuitable Sample
S/C (in results)	See Comments
ND (in results)	Not Detected
DW (in units)	Results are expressed on a dry weight basis

Sample Type	Sample Retention and Disposal Period
Foodstuff	1 month (if frozen) from the issue date of this report
Waters	2 weeks from the issue date of this report
Other Liquids	1 month from the issue date of this report
Solids / Soils	1 month from the issue date of this report
Sediments	1 month from the issue date of this report

Note: Sample retention may be subject to agreement with the customer for particular projects

Where the dry solids value of a sample is low (<50%), reporting limits are automatically raised for all determinants analysed on an as-received basis.

Soil Typing	Description
Type 1	Clay - Brown
Type 2	Clay - Grey/Black
Type 3	Sand
Type 4	Top Soil (Standard)
Type 5	Top Soil (High Peat)
Type 6	Made Ground (>50% Clay)
Type 7	Made Ground (>50% Sand)
Type 8	Made Ground (>50% Top Soil)
Type X	Other

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

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

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2107).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Endeavour Drilling
Aldgate Tower
2 Leman Street
London
E1 8FA

Attention: Oliver Wendland

CERTIFICATE OF ANALYSIS

Date of report Generation:	03 January 2020
Customer:	Endeavour Drilling
Sample Delivery Group (SDG):	191213-100
Your Reference:	J4175 Stantec/ L & G
Location:	Moathouse Farm, Rusper Rd, Horsham
Report No:	536099

We received 8 samples on Friday December 13, 2019 and 1 of these samples were scheduled for analysis which was completed on Friday January 03, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	191213-100	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	536099
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
21360015	TP207		0.20 - 0.20	10/12/2019
21360016	TP207		0.60 - 0.60	10/12/2019
21360008	TP210		0.10 - 0.10	10/12/2019
21360009	TP210		0.50 - 0.50	10/12/2019
21360006	TP216		0.20 - 0.20	10/12/2019
21360007	TP216		0.70 - 0.70	10/12/2019
21360010	TP220		0.20 - 0.20	10/12/2019
21360011	TP220		0.60 - 0.60	10/12/2019

Maximum Sample/Coolbox Temperature (°C) : **5.6**

ISO5667-3 Water quality - Sampling - Part3 -
During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	191213-100	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	536099
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			21360015		
Customer Sample Reference			TP207		
AGS Reference					
Depth (m)			0.20 - 0.20		
Container			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 1		X	
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 1	X		
EPH CWG GC (S)	All	NDPs: 0 Tests: 1		X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 1			X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 1		X	
Metals in solid samples by OES	All	NDPs: 0 Tests: 1		X	
PAH by GCMS	All	NDPs: 0 Tests: 1		X	
pH	All	NDPs: 0 Tests: 1		X	
Phenols by HPLC (S)	All	NDPs: 0 Tests: 1		X	
Sample description	All	NDPs: 0 Tests: 1		X	
Total Organic Carbon	All	NDPs: 0 Tests: 1		X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 1		X	
VOC MS (S)	All	NDPs: 0 Tests: 1			X

CERTIFICATE OF ANALYSIS

SDG:	191213-100	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	536099
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
21360015	TP207	0.20 - 0.20	Light Brown	Loamy Sand	Stones	Vegetation

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

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG: 191213-100 **Client Reference:** J4175 Stantec/ L & G **Report Number:** 536099
Location: Moathouse Farm, Rusper Ro **Order Number:** **Superseded Report:**

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	Depth (m)	Sample Type	Date Sampled	Sample Time	Date Received	SDG Ref	Lab Sample No.(s)	AGS Reference
			TP207	0.20 - 0.20	Soil/Solid (S)	10/12/2019	.	13/12/2019	191213-100	21360015	
Moisture Content Ratio (% of as received sample)	%	PM024	20								
Phenol	<0.01 mg/kg	TM062 (S)	<0.01 M								
Cresols	<0.01 mg/kg	TM062 (S)	<0.01 M								
Xylenols	<0.015 mg/kg	TM062 (S)	<0.015 M								
2,3,5-Trimethylphenol	<0.01 mg/kg	TM062 (S)	<0.01 M								
2-Isopropylphenol	<0.015 mg/kg	TM062 (S)	<0.015 M								
Phenols, Total Detected 5 speciated	<0.06 mg/kg	TM062 (S)	<0.06 M								
Soil Organic Matter (SOM)	<0.35 %	TM132	2.38 #								
pH	1 pH Units	TM133	7.38 M								
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6 #								
Arsenic	<0.6 mg/kg	TM181	9.91 M								
Cadmium	<0.02 mg/kg	TM181	0.563 M								
Chromium	<0.9 mg/kg	TM181	15.8 M								
Copper	<1.4 mg/kg	TM181	15.2 M								
Lead	<0.7 mg/kg	TM181	31.6 M								
Mercury	<0.14 mg/kg	TM181	<0.14 M								
Nickel	<0.2 mg/kg	TM181	21.1 M								
Selenium	<1 mg/kg	TM181	2.12 #								
Zinc	<1.9 mg/kg	TM181	68.6 M								
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243	0.0112 M								

Validated

CERTIFICATE OF ANALYSIS

SDG:	191213-100	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	536099
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	Depth (m)	Sample Type	Date Sampled	Sample Time	Date Received	SDG Ref	Lab Sample No.(s)	AGS Reference
			TP207	0.20 - 0.20	Soil/Solid (S)	10/12/2019	.	13/12/2019	191213-100	21360015	
Naphthalene-d8 % recovery**	%	TM218	94.6								
Acenaphthene-d10 % recovery**	%	TM218	99.3								
Phenanthrene-d10 % recovery**	%	TM218	98.5								
Chrysene-d12 % recovery**	%	TM218	85.3								
Perylene-d12 % recovery**	%	TM218	80.6								
Naphthalene	<9 µg/kg	TM218	<9 M								
Acenaphthylene	<12 µg/kg	TM218	<12 M								
Acenaphthene	<8 µg/kg	TM218	<8 M								
Fluorene	<10 µg/kg	TM218	<10 M								
Phenanthrene	<15 µg/kg	TM218	<15 M								
Anthracene	<16 µg/kg	TM218	<16 M								
Fluoranthene	<17 µg/kg	TM218	33 M								
Pyrene	<15 µg/kg	TM218	29.4 M								
Benz(a)anthracene	<14 µg/kg	TM218	<14 M								
Chrysene	<10 µg/kg	TM218	<10 M								
Benzo(b)fluoranthene	<15 µg/kg	TM218	<15 M								
Benzo(k)fluoranthene	<14 µg/kg	TM218	<14 M								
Benzo(a)pyrene	<15 µg/kg	TM218	<15 M								
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	<18 M								
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<23 M								
Benzo(g,h,i)perylene	<24 µg/kg	TM218	<24 M								
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	<118								

Validated

CERTIFICATE OF ANALYSIS

SDG:	191213-100	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	536099
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	Depth (m)	Sample Type	Date Sampled	Sample Time	Date Received	SDG Ref	Lab Sample No.(s)	AGS Reference
			TP207	0.20 - 0.20	Soil/Solid (S)	10/12/2019	.	13/12/2019	191213-100	21360015	
GRO Surrogate % recovery**	%	TM089	91.4								
Aliphatics >C5-C6	<10 µg/kg	TM089	<10								
Aliphatics >C6-C8	<10 µg/kg	TM089	<10								
Aliphatics >C8-C10	<10 µg/kg	TM089	<10								
Aliphatics >C10-C12	<1000 µg/kg	TM414	<1000								
Aliphatics >C12-C16	<1000 µg/kg	TM414	<1000								
Aliphatics >C16-C21	<1000 µg/kg	TM414	<1000								
Aliphatics >C21-C35	<1000 µg/kg	TM414	2220								
Aliphatics >C35-C44	<1000 µg/kg	TM414	<1000								
Total Aliphatics >C10-C44	<5000 µg/kg	TM414	<5000								
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414	<10000								
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10								
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10								
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10								
Aromatics > EC10-EC12	<1000 µg/kg	TM414	<1000								
Aromatics > EC12-EC16	<1000 µg/kg	TM414	<1000								
Aromatics > EC16-EC21	<1000 µg/kg	TM414	<1000								
Aromatics > EC21-EC35	<1000 µg/kg	TM414	3730								
Aromatics >EC35-EC44	<1000 µg/kg	TM414	<1000								
Aromatics > EC40-EC44	<1000 µg/kg	TM414	<1000								
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414	5050								
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414	<10000								
Total Aliphatics >C5-C10	<50 µg/kg	TM089	<50								
Total Aromatics >EC5-EC10	<50 µg/kg	TM089	<50								
GRO >C5-C10	<20 µg/kg	TM089	<20								

Validated

CERTIFICATE OF ANALYSIS

SDG: 191213-100 **Client Reference:** J4175 Stantec/ L & G **Report Number:** 536099
Location: Moathouse Farm, Rusper Ro **Order Number:** **Superseded Report:**

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

		Customer Sample Ref.	TP207					
		Depth (m)	0.20 - 0.20					
		Sample Type	Soil/Solid (S)					
		Date Sampled	10/12/2019					
		Sample Time	.					
		Date Received	13/12/2019					
		SDG Ref	191213-100					
		Lab Sample No.(s)	21360015					
		AGS Reference						
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM116	113					
Toluene-d8**	%	TM116	91.1					
4-Bromofluorobenzene**	%	TM116	72.7					
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 M					
Benzene	<9 µg/kg	TM116	<9 M					
Toluene	<7 µg/kg	TM116	<7 M					
Ethylbenzene	<4 µg/kg	TM116	<4 M					
p/m-Xylene	<10 µg/kg	TM116	<10 #					
o-Xylene	<10 µg/kg	TM116	<10 M					
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.02					
Sum of BTEX	<40 µg/kg	TM116	<40					

CERTIFICATE OF ANALYSIS

SDG:	191213-100	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	536099
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref.	TP207	23/12/2019	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Depth (m)	0.20 - 0.20										
Sample Type	SOLID										
Date Sampled	10/12/2019 00:00:00										
Date Receieved	13/12/2019 06:00:00										
SDG	191213-100										
Original Sample	21360015										
Method Number	TM048										

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM243		Mixed Anions In Soils By Kone
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	191213-100	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	536099
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	21360015
Customer Sample Ref.	TP207
AGS Ref.	
Depth	0.20 - 0.20
Type	Soil/Solid (S)
Anions by Kone (soil)	27-Dec-2019
Asbestos ID in Solid Samples	23-Dec-2019
EPH CWG GC (S)	03-Jan-2020
GRO by GC-FID (S)	20-Dec-2019
Hexavalent Chromium (s)	27-Dec-2019
Metals in solid samples by OES	27-Dec-2019
PAH by GCMS	23-Dec-2019
pH	27-Dec-2019
Phenols by HPLC (S)	23-Dec-2019
Sample description	19-Dec-2019
Total Organic Carbon	23-Dec-2019
TPH CWG GC (S)	03-Jan-2020
VOC MS (S)	20-Dec-2019

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

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

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2107).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Endeavour Drilling
Aldgate Tower
2 Leman Street
London
E1 8FA

Attention: Oliver Wendland

CERTIFICATE OF ANALYSIS

Date of report Generation:	16 January 2020
Customer:	Endeavour Drilling
Sample Delivery Group (SDG):	191220-96
Your Reference:	J4175
Location:	Moathouse Farm, Rusper Rd, Horsham
Report No:	537504

This report has been revised and directly supersedes 536738 in its entirety.

We received 6 samples on Friday December 20, 2019 and 4 of these samples were scheduled for analysis which was completed on Thursday January 16, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan
Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	191220-96	**Client Reference:**	J4175	**Report Number:**	537504
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13459AP	**Superseded Report:**	536738

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
21418337	HP101	E1	0.10	17/12/2019
21418338	HP101	E2	0.50	17/12/2019
21418339	HP102	E1	0.10	17/12/2019
21418341	HP102	E2	0.50	17/12/2019
21418342	HP103	E1	0.10	17/12/2019
21418344	HP103	E2	0.50	17/12/2019

Maximum Sample/Coolbox Temperature (°C) : **10**

ISO5667-3 Water quality - Sampling - Part3 -
During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	191220-96	**Client Reference:**	J4175	**Report Number:**	537504
Location:	Moathouse Farm, Rusper Rd	**Order Number:**	13459AP	**Superseded Report:**	536738

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			21418337			21418341			21418342			21418344		
Customer Sample Reference			HP101			HP102			HP103			HP103		
AGS Reference			E1			E2			E1			E2		
Depth (m)			0.10			0.50			0.10			0.50		
Container			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S
Acid herbicides*	All	NDPs: 0 Tests: 2		X									X	
Anions by Kone (soil)	All	NDPs: 0 Tests: 4		X			X			X			X	
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 4	X			X			X			X		
EPH CWG GC (S)	All	NDPs: 0 Tests: 4		X			X			X			X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 4			X			X			X			X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 4		X			X			X			X	
Metals in solid samples by OES	All	NDPs: 0 Tests: 4		X			X			X			X	
OC OP Pesticides and Triazine Herb	All	NDPs: 0 Tests: 2		X									X	
PAH by GCMS	All	NDPs: 0 Tests: 4		X			X			X			X	
pH	All	NDPs: 0 Tests: 4		X			X			X			X	
Phenols by HPLC (S)	All	NDPs: 0 Tests: 4		X			X			X			X	
Sample description	All	NDPs: 0 Tests: 4		X			X			X			X	
Total Organic Carbon	All	NDPs: 0 Tests: 4		X			X			X			X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 4		X			X			X			X	
Triazine Herbicides (S)*	All	NDPs: 0 Tests: 2		X									X	

Validated

CERTIFICATE OF ANALYSIS

SDG:	191220-96	**Client Reference:**	J4175	**Report Number:**	537504
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13459AP	**Superseded Report:**	536738

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			21418337			21418341			21418342			21418344	
Customer Sample Reference			HP101			HP102			HP103			HP103	
AGS Reference			E1			E2			E1			E2	
Depth (m)			0.10			0.50			0.10			0.50	
Container	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	
Sample Type	S	S	S	S	S	S	S	S	S	S	S	S	
VOC MS (S)	All	NDPs: 0 Tests: 4			X			X			X			X

CERTIFICATE OF ANALYSIS

SDG:	191220-96	**Client Reference:**	J4175	**Report Number:**	537504
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13459AP	**Superseded Report:**	536738

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
21418337	HP101	0.10	Dark Brown	Sandy Loam	Stones	Vegetation
21418341	HP102	0.50	Dark Brown	Clay	Stones	Vegetation
21418342	HP103	0.10	Dark Brown	Sandy Loam	Stones	Vegetation
21418344	HP103	0.50	Dark Brown	Clay Loam	Stones	Vegetation

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

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG:	191220-96	**Client Reference:**	J4175	**Report Number:**	537504
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13459AP	**Superseded Report:**	536738

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	HP101	HP102	HP103	HP103		
			Depth (m)	0.10	0.50	0.10	0.50		
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
			Date Sampled	17/12/2019	17/12/2019	17/12/2019	17/12/2019		
			Sample Time	.	.	.	.		
			Date Received	20/12/2019	20/12/2019	20/12/2019	20/12/2019		
			SDG Ref	191220-96	191220-96	191220-96	191220-96		
			Lab Sample No.(s)	21418337	21418341	21418342	21418344		
			AGS Reference	E1	E2	E1	E2		
Moisture Content Ratio (% of as received sample)	%	PM024		25	24	25	20		
2,4,5-Trichlorophenol (2,4,5-T)*	<0.01 mg/kg	SUB		<0.01			<0.01		
2,4,5-TP (Fenoprop)*	<0.01 mg/kg	SUB		<0.01			<0.01		
2,4-D*	<0.01 mg/kg	SUB		<0.01			<0.01		
2,4-DB*	<0.01 mg/kg	SUB		<0.01			<0.01		
2,4-Dichloroprop (2,4 DP)*	<0.01 mg/kg	SUB		<0.01			<0.01		
4-Chlorophenoxyacetic acid (4-CPA)*	<0.01 mg/kg	SUB		<0.01			<0.01		
Acifluorfen*	<0.01 mg/kg	SUB		<0.01			<0.01		
Bentazone*	<0.01 mg/kg	SUB		<0.01			<0.01		
Bromoxynil*	<0.01 mg/kg	SUB		<0.01			<0.01		
Dicamba*	<0.01 mg/kg	SUB		<0.01			<0.01		
Diclofop*	<0.01 mg/kg	SUB		<0.01			<0.01		
Dinoseb*	<0.01 mg/kg	SUB		<0.01			<0.01		
DNOC*	<0.01 mg/kg	SUB		<0.01			<0.01		
Fluroxypyr*	<0.01 mg/kg	SUB		<0.01			<0.01		
Ioxynil*	<0.01 mg/kg	SUB		<0.01			<0.01		
2-methyl-4-Chlorophenoxyacetic acid (MCPA)*	<0.01 mg/kg	SUB		<0.01			<0.01		
4-(4-Chloro-o-tolyloxy) butyric acid (MCPB)*	<0.01 mg/kg	SUB		<0.01			<0.01		
Mecoprop (MCPP)*	<0.01 mg/kg	SUB		<0.01			<0.01		
Propoxycarbazone-sodium*	<0.01 mg/kg	SUB		<0.01			<0.01		
Triclopyr*	<0.01 mg/kg	SUB		<0.01			<0.01		
Triclosan*	<0.01 mg/kg	SUB		<0.01			<0.01		
Phenol	<0.01 mg/kg	TM062 (S)		<0.01 M	<0.01 M	<0.01 M	<0.01 M		
Cresols	<0.01 mg/kg	TM062 (S)		<0.01 M	<0.01 M	<0.01 M	<0.01 M		
Xylenols	<0.015 mg/kg	TM062 (S)		<0.015 M	<0.015 M	<0.015 M	<0.015 M		
2,3,5-Trimethylphenol	<0.01 mg/kg	TM062 (S)		<0.01 M	<0.01 M	<0.01 M	<0.01 M		
2-Isopropylphenol	<0.015 mg/kg	TM062 (S)		<0.015 M	<0.015 M	<0.015 M	<0.015 M		
Phenols, Total Detected 5 speciated	<0.06 mg/kg	TM062 (S)		<0.06 M	<0.06 M	<0.06 M	<0.06 M		
Soil Organic Matter (SOM)	<0.35 %	TM132		2.79 #	2.62 #	2.95 #	0.84 #		
pH	1 pH Units	TM133		7.81 M	7.76 M	8.04 M	8.05 M		
Chromium, Hexavalent	<0.6 mg/kg	TM151		<0.6 #	<0.6 #	<0.6 #	<0.6 #		
Arsenic	<0.6 mg/kg	TM181		14.9 M	13 M	10 M	6.4 M		
Cadmium	<0.02 mg/kg	TM181		0.241 M	0.554 M	0.322 M	0.0436 M		

Validated

CERTIFICATE OF ANALYSIS

SDG:	191220-96	**Client Reference:**	J4175	**Report Number:**	537504
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13459AP	**Superseded Report:**	536738

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	HP101	HP102	HP103	HP103		
			Depth (m)	0.10	0.50	0.10	0.50		
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
			Date Sampled	17/12/2019	17/12/2019	17/12/2019	17/12/2019		
			Sample Time	-	-	-	-		
			Date Received	20/12/2019	20/12/2019	20/12/2019	20/12/2019		
			SDG Ref	191220-96	191220-96	191220-96	191220-96		
			Lab Sample No.(s)	21418337	21418341	21418342	21418344		
			AGS Reference	E1	E2	E1	E2		
Chromium	<0.9 mg/kg	TM181		16.5 M	19.4 M	19.5 M	24.2 M		
Copper	<1.4 mg/kg	TM181		29.5 M	33.3 M	30.3 M	19.1 M		
Lead	<0.7 mg/kg	TM181		37.4 M	37.4 M	34.2 M	20.3 M		
Mercury	<0.14 mg/kg	TM181		<0.14 M	<1.4 M	<0.14 M	<0.14 M		
Nickel	<0.2 mg/kg	TM181		26 M	30 M	21.8 M	27.6 M		
Selenium	<1 mg/kg	TM181		1.71 #	<10 #	1.29 #	<1 #		
Zinc	<1.9 mg/kg	TM181		88.9 M	90.8 M	87.1 M	75.5 M		
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243		0.0195 M	0.0291 M	0.0112 M	0.0165 M		

CERTIFICATE OF ANALYSIS

SDG:	191220-96	**Client Reference:**	J4175	**Report Number:**	537504
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13459AP	**Superseded Report:**	536738

OC OP Pesticides and Triazine Herb

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	HP101	HP103				
			Depth (m)	0.10	0.50				
			Sample Type	Soil/Solid (S)	Soil/Solid (S)				
			Date Sampled	17/12/2019	17/12/2019				
			Sample Time	.	.				
			Date Received	20/12/2019	20/12/2019				
			SDG Ref	191220-96	191220-96				
			Lab Sample No.(s)	21418337	21418344				
			AGS Reference	E1	E2				
Dichlorvos	<50 µg/kg	TM073		<50	<50				
Mevinphos	<50 µg/kg	TM073		<50	<50				
Tecnazene	<50 µg/kg	TM073		<50	<50				
Hexachlorobenzene	<50 µg/kg	TM073		<50	<50				
Trifluralin	<50 µg/kg	TM073		<50	<50				
Phorate	<50 µg/kg	TM073		<50	<50				
alpha-Hexachlorocyclohexane (HCH)	<50 µg/kg	TM073		<50	<50				
Quintozene (PCNB)	<50 µg/kg	TM073		<50	<50				
Diazinon	<50 µg/kg	TM073		<50	<50				
Triallate	<50 µg/kg	TM073		<50	<50				
Etrimphos	<50 µg/kg	TM073		<50	<50				
gamma-Hexachlorocyclohexane (HCH / Lindane)	<50 µg/kg	TM073		<50	<50				
Disulfoton	<50 µg/kg	TM073		<50	<50				
Propetamphos	<50 µg/kg	TM073		<50	<50				
Heptachlor	<50 µg/kg	TM073		<50	<50				
Chlorpyriphos methyl	<50 µg/kg	TM073		<50	<50				
Dimethoate	<50 µg/kg	TM073		<50	<50				
Aldrin	<50 µg/kg	TM073		<50	<50				
Chlorothalonil	<50 µg/kg	TM073		<50	<50				
Pirimiphos-methyl	<50 µg/kg	TM073		<50	<50				
Telodrin	<50 µg/kg	TM073		<50	<50				
beta-Hexachlorocyclohexane (HCH)	<50 µg/kg	TM073		<50	<50				
Chlorpyriphos	<50 µg/kg	TM073		<50	<50				
Methyl parathion	<50 µg/kg	TM073		<50	<50				
Isodrin	<50 µg/kg	TM073		<50	<50				
delta-Hexachlorocyclohexane (HCH)	<50 µg/kg	TM073		<50	<50				
Malathion	<50 µg/kg	TM073		<50	<50				
Fenthion	<50 µg/kg	TM073		<50	<50				
Fenitrothion	<50 µg/kg	TM073		<50	<50				
Heptachlor epoxide	<50 µg/kg	TM073		<50	<50				
Triadimefon	<50 µg/kg	TM073		<50	<50				
Pendimethalin	<50 µg/kg	TM073		<50	<50				
Parathion	<50 µg/kg	TM073		<50	<50				

CERTIFICATE OF ANALYSIS

SDG:	191220-96	**Client Reference:**	J4175	**Report Number:**	537504
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13459AP	**Superseded Report:**	536738

OC OP Pesticides and Triazine Herb

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	HP101	HP103				
			Depth (m)	0.10	0.50				
			Sample Type	Soil/Solid (S)	Soil/Solid (S)				
			Date Sampled	17/12/2019	17/12/2019				
			Sample Time	-	-				
			Date Received	20/12/2019	20/12/2019				
			SDG Ref	191220-96	191220-96				
			Lab Sample No.(s)	21418337	21418344				
			AGS Reference	E1	E2				
o,p-DDE	<50 µg/kg	TM073		<50	<50				
Chlorfenvinphos	<50 µg/kg	TM073		<50	<50				
Endosulphan I	<50 µg/kg	TM073		<50	<50				
Trans-chlordane	<50 µg/kg	TM073		<50	<50				
cis-Chlordane	<50 µg/kg	TM073		<50	<50				
p,p-DDE	<50 µg/kg	TM073		<50	<50				
Dieldrin	<50 µg/kg	TM073		<50	<50				
o,p'-DDD (TDE)	<50 µg/kg	TM073		<50	<50				
Endrin	<50 µg/kg	TM073		<50	<50				
o,p-DDT	<50 µg/kg	TM073		<50	<50				
p,p-TDE (DDD)	<50 µg/kg	TM073		<50	<50				
Ethion	<50 µg/kg	TM073		<50	<50				
Endosulphan II	<50 µg/kg	TM073		<50	<50				
p,p-DDT	<50 µg/kg	TM073		<50	<50				
Carbophenothion	<50 µg/kg	TM073		<50	<50				
o,p-Methoxychlor	<50 µg/kg	TM073		<50	<50				
Triazophos	<50 µg/kg	TM073		<50	<50				
p,p-Methoxychlor	<50 µg/kg	TM073		<50	<50				
Endosulphan sulphate	<50 µg/kg	TM073		<50	<50				
Permethrin I	<50 µg/kg	TM073		<50	<50				
Phosalone	<50 µg/kg	TM073		<50	<50				
Permethrin II	<50 µg/kg	TM073		<50	<50				
Azinphos-methyl	<50 µg/kg	TM073		<50	<50				
Azinphos-ethyl	<50 µg/kg	TM073		<50	<50				

CERTIFICATE OF ANALYSIS

SDG:	191220-96	**Client Reference:**	J4175	**Report Number:**	537504
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13459AP	**Superseded Report:**	536738

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	HP101	HP102	HP103	HP103		
			Depth (m)	0.10	0.50	0.10	0.50		
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
			Date Sampled	17/12/2019	17/12/2019	17/12/2019	17/12/2019		
			Sample Time	.	.	.	.		
			Date Received	20/12/2019	20/12/2019	20/12/2019	20/12/2019		
			SDG Ref	191220-96	191220-96	191220-96	191220-96		
			Lab Sample No.(s)	21418337	21418341	21418342	21418344		
			AGS Reference	E1	E2	E1	E2		
Naphthalene-d8 % recovery**	%	TM218		86.9	83.8	92.2	91.5		
Acenaphthene-d10 % recovery**	%	TM218		82.7	81	89.6	89.7		
Phenanthrene-d10 % recovery**	%	TM218		84.1	86.5	91.2	94.7		
Chrysene-d12 % recovery**	%	TM218		70.6	77.4	75.5	82.7		
Perylene-d12 % recovery**	%	TM218		74.2	74.5	73.6	77.7		
Naphthalene	<9 µg/kg	TM218		<9 M	<9 M	<9 M	<9 M		
Acenaphthylene	<12 µg/kg	TM218		<12 M	<12 M	<12 M	<12 M		
Acenaphthene	<8 µg/kg	TM218		<8 M	<8 M	<8 M	<8 M		
Fluorene	<10 µg/kg	TM218		<10 M	<10 M	<10 M	<10 M		
Phenanthrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M		
Anthracene	<16 µg/kg	TM218		<16 M	<16 M	<16 M	<16 M		
Fluoranthene	<17 µg/kg	TM218		<17 M	31.4 M	23 M	<17 M		
Pyrene	<15 µg/kg	TM218		<15 M	26.4 M	<15 M	<15 M		
Benz(a)anthracene	<14 µg/kg	TM218		<14 M	<14 M	<14 M	<14 M		
Chrysene	<10 µg/kg	TM218		<10 M	17.2 M	<10 M	<10 M		
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15 M	26.9 M	<15 M	<15 M		
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 M	<14 M	<14 M	<14 M		
Benzo(a)pyrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M		
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 M	<18 M	<18 M	<18 M		
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 M	<23 M	<23 M	<23 M		
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 M	<24 M	<24 M	<24 M		
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	<118	<118	<118		

Validated

CERTIFICATE OF ANALYSIS

SDG:	191220-96	**Client Reference:**	J4175	**Report Number:**	537504
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13459AP	**Superseded Report:**	536738

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	HP101	HP102	HP103	HP103		
			Depth (m)	0.10	0.50	0.10	0.50		
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
			Date Sampled	17/12/2019	17/12/2019	17/12/2019	17/12/2019		
			Sample Time	.	.	.	.		
			Date Received	20/12/2019	20/12/2019	20/12/2019	20/12/2019		
			SDG Ref	191220-96	191220-96	191220-96	191220-96		
			Lab Sample No.(s)	21418337	21418341	21418342	21418344		
			AGS Reference	E1	E2	E1	E2		
GRO Surrogate % recovery**	%	TM089		117	117	91	107		
Aliphatics >C5-C6	<10 µg/kg	TM089		<10	<10	<10	<10		
Aliphatics >C6-C8	<10 µg/kg	TM089		<10	<10	<10	<10		
Aliphatics >C8-C10	<10 µg/kg	TM089		<10	<10	<10	<10		
Aliphatics >C10-C12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000		
Aliphatics >C12-C16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000		
Aliphatics >C16-C21	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000		
Aliphatics >C21-C35	<1000 µg/kg	TM414		7710	16000	16100	<1000		
Aliphatics >C35-C44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000		
Total Aliphatics >C10-C44	<5000 µg/kg	TM414		8910	17000	16800	<5000		
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414		15400	23700	24300	<10000		
Aromatics >EC5-EC7	<10 µg/kg	TM089		<10	<10	<10	<10		
Aromatics >EC7-EC8	<10 µg/kg	TM089		<10	<10	<10	<10		
Aromatics >EC8-EC10	<10 µg/kg	TM089		<10	<10	<10	<10		
Aromatics > EC10-EC12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000		
Aromatics > EC12-EC16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000		
Aromatics > EC16-EC21	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000		
Aromatics > EC21-EC35	<1000 µg/kg	TM414		5020	5710	6310	1790		
Aromatics >EC35-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000		
Aromatics > EC40-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000		
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414		6500	6710	7510	<5000		
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414		15400	23700	24300	<10000		
Total Aliphatics >C5-C10	<50 µg/kg	TM089		<50	<50	<50	<50		
Total Aromatics >EC5-EC10	<50 µg/kg	TM089		<50	<50	<50	<50		
GRO >C5-C10	<20 µg/kg	TM089		<20	<20	<20	<20		

Validated

CERTIFICATE OF ANALYSIS

SDG:	191220-96	**Client Reference:**	J4175	**Report Number:**	537504
Location:	Moathouse Farm, Rusper Rd	**Order Number:**	13459AP	**Superseded Report:**	536738

Triazine Herbicides (S)*

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	HP101	HP103				
			Depth (m)	0.10	0.50				
			Sample Type	Soil/Solid (S)	Soil/Solid (S)				
			Date Sampled	17/12/2019	17/12/2019				
			Sample Time	.	.				
			Date Received	20/12/2019	20/12/2019				
			SDG Ref	191220-96	191220-96				
			Lab Sample No.(s)	21418337	21418344				
			AGS Reference	E1	E2				
Atrazine*	<0.02 mg/kg	SUB		<0.02	<0.02				
Prometryne*	<0.02 mg/kg	SUB		<0.02	<0.02				
Propazine*	<0.02 mg/kg	SUB		<0.02	<0.02				
Simazine*	<0.02 mg/kg	SUB		<0.02	<0.02				
Terbuthylazine*	<0.02 mg/kg	SUB		<0.02	<0.02				
Terbutryne*	<0.02 mg/kg	SUB		<0.02	<0.02				
Trietazine*	<0.02 mg/kg	SUB		<0.02	<0.02				

CERTIFICATE OF ANALYSIS

SDG:	191220-96	**Client Reference:**	J4175	**Report Number:**	537504
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13459AP	**Superseded Report:**	536738

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	HP101	HP102	HP103	HP103		
			Depth (m)	0.10	0.50	0.10	0.50		
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
			Date Sampled	17/12/2019	17/12/2019	17/12/2019	17/12/2019		
			Sample Time	.	.	.	.		
			Date Received	20/12/2019	20/12/2019	20/12/2019	20/12/2019		
			SDG Ref	191220-96	191220-96	191220-96	191220-96		
			Lab Sample No.(s)	21418337	21418341	21418342	21418344		
			AGS Reference	E1	E2	E1	E2		
Dibromofluoromethane**	%	TM116		102	105	108 @	105		
Toluene-d8**	%	TM116		93.7	94.3	99.5 @	101		
4-Bromofluorobenzene**	%	TM116		70.7	73.5	92.8 @	94.7		
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<10 M	<10 M	<200 @ M	<10 M		
Benzene	<9 µg/kg	TM116		<9 M	<9 M	<180 @ M	<9 M		
Toluene	<7 µg/kg	TM116		<7 M	<7 M	<140 @ M	<7 M		
Ethylbenzene	<4 µg/kg	TM116		<4 M	<4 M	<80 @ M	<4 M		
p/m-Xylene	<10 µg/kg	TM116		<10 #	<10 #	<200 @ #	<10 #		
o-Xylene	<10 µg/kg	TM116		<10 M	<10 M	<200 @ M	<10 M		
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.02	<0.02	<0.4 @	<0.02		
Sum of BTEX	<40 µg/kg	TM116		<40	<40	<800 @	<40		

CERTIFICATE OF ANALYSIS

SDG:	191220-96	**Client Reference:**	J4175	**Report Number:**	537504
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13459AP	**Superseded Report:**	536738

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	HP101E1 0.10 SOLID 17/12/2019 00:00:00 20/12/2019 06:00:00 191220-96 21418337 TM048	30/12/2019	Lucy Caroe	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	HP102E2 0.50 SOLID 17/12/2019 00:00:00 20/12/2019 06:00:00 191220-96 21418341 TM048	30/12/19	Andrzej Ferfecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	HP103E1 0.10 SOLID 17/12/2019 00:00:00 20/12/2019 06:00:00 191220-96 21418342 TM048	30/12/2019	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	HP103E2 0.50 SOLID 17/12/2019 00:00:00 20/12/2019 06:00:00 191220-96 21418344 TM048	30/12/2019	Lucy Caroe	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected

CERTIFICATE OF ANALYSIS

SDG:	191220-96	**Client Reference:**	J4175	**Report Number:**	537504
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13459AP	**Superseded Report:**	536738

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
SUB		Subcontracted Test
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM073	MEWAM BOOK 60 1980,95 1985, HMSO / Modified: US EPA Method 8081A & 8141A	Determination of organochlorine and organophosphorous pesticides by GCMS
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM243		Mixed Anions In Soils By Kone
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	191220-96	**Client Reference:**	J4175	**Report Number:**	537504
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13459AP	**Superseded Report:**	536738

Test Completion Dates

Lab Sample No(s)	21418337	21418341	21418342	21418344
Customer Sample Ref.	HP101	HP102	HP103	HP103
AGS Ref.	E1	E2	E1	E2
Depth	0.10	0.50	0.10	0.50
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Acid herbicides*	08-Jan-2020			08-Jan-2020
Anions by Kone (soil)	31-Dec-2019	31-Dec-2019	31-Dec-2019	31-Dec-2019
Asbestos ID in Solid Samples	30-Dec-2019	30-Dec-2019	30-Dec-2019	30-Dec-2019
EPH CWG GC (S)	04-Jan-2020	04-Jan-2020	06-Jan-2020	04-Jan-2020
GRO by GC-FID (S)	31-Dec-2019	31-Dec-2019	31-Dec-2019	31-Dec-2019
Hexavalent Chromium (s)	31-Dec-2019	31-Dec-2019	31-Dec-2019	31-Dec-2019
Metals in solid samples by OES	03-Jan-2020	06-Jan-2020	03-Jan-2020	02-Jan-2020
OC OP Pesticides and Triazine Herb	31-Dec-2019			31-Dec-2019
PAH by GCMS	02-Jan-2020	02-Jan-2020	02-Jan-2020	02-Jan-2020
pH	02-Jan-2020	02-Jan-2020	02-Jan-2020	02-Jan-2020
Phenols by HPLC (S)	27-Dec-2019	27-Dec-2019	27-Dec-2019	27-Dec-2019
Sample description	23-Dec-2019	23-Dec-2019	23-Dec-2019	23-Dec-2019
Total Organic Carbon	02-Jan-2020	02-Jan-2020	02-Jan-2020	02-Jan-2020
TPH CWG GC (S)	04-Jan-2020	04-Jan-2020	06-Jan-2020	04-Jan-2020
Triazine Herbicides (S)*	16-Jan-2020			16-Jan-2020
VOC MS (S)	30-Dec-2019	30-Dec-2019	31-Dec-2019	30-Dec-2019

CERTIFICATE OF ANALYSIS

Work Order	: **PR2000312**	Issue Date	: 08-Jan-2020
Customer	: **ALS Life Sciences Ltd**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: ALS Hawarden Reporting	Contact	: Client Service
Address	: Unit 7-8 Hawarden Business Park Manor Road, Hawarden CH5 3US Deeside United Kingdom	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: euhdnsubconresults@ALSGlobal.com	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Project	: 191220-96	Page	: 1 of 2
Order number	: 191220-96	Date Samples Received	: 03-Jan-2020
		Quote number	: PR2018ALSAL-GB0004 (CZ-256-18-0022)
Site	: ----	Date of test	: 03-Jan-2020 - 08-Jan-2020
Sampled by	: client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.

The laboratory declares that the test results relate only to the listed samples. If the section "Sampled by" of the Certificate of analysis states: "Sampled by Customer" then the results relate to the sample as received.

Responsible for accuracy

Testing Laboratory No. 1163
Accredited by CAI according to
CSN EN ISO/IEC 17025:2018

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

L 1163

Analytical Results

Sub-Matrix: SOIL	Client sample ID	21426777 HP101		21427087 HP103		----	
	Laboratory sample ID	PR2000312-001		PR2000312-002		----	
	Client sampling date / time	03-Jan-2020 00:00		03-Jan-2020 00:00		----	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU
Physical Parameters									
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**75.5**	± 6.0%	**79.5**	± 6.0%	**----**	----
Pesticides									
2.4.5-T	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	**----**	----
2.4.5-TP	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	**----**	----
2.4-D	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	**----**	----
2.4-DB	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	**----**	----
2.4-DP (isomers)	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	**----**	----
4-CPP	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	**----**	----
Bentazone	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	**----**	----
Dinoseb	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	**----**	----
Fluroxypyr	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	**----**	----
MCPA	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	**----**	----
MCPB	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	**----**	----
MCPP (isomers)	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	**----**	----
Acifluorfen	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	**----**	----
Bromoxynil	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	**----**	----
DNOC	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	**----**	----
Dicamba	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	**----**	----
Diclofop	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	**----**	----
Ioxynil	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	**----**	----
Propoxycarbazone-sodium	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	**----**	----
Triclopyr	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	**----**	----
Triclosan	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	**----**	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.
Key: LOR = Limit of reporting; MU = Measurement Uncertainty. The MU does not include sampling uncertainty.

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	Method Descriptions
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-PESLMSA1	CZ_SOP_D06_03_182.B (CSN EN 15637, US EPA 1694) Determination of acidic herbicides and drug residues by liquid chromatography method with MS/MS detection.

A `*` symbol preceding any method indicates laboratory or subcontractor non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information. If the report contains subcontracted analysis, those are made in a subcontracted laboratory outside the laboratories ALS Czech Republic, s.r.o.
The calculation methods of summation parameters are available on request in the client service.

Certificate of Analysis

Report No.:	**20-89677-1**
Issue No.:	**1**
Date of Issue	**16/01/2020**
Customer Details:	ALS Life Sciences Limited, Unit7-8, Hawarden Business Park, Manor Road, Hawarden, Deeside, Flintshire, CH5 3US
Customer Contact:	Carrie Foster
Customer Order No.:	191220-96
Customer Reference:	191220-96
Quotation Reference:	191111/01
Description:	2 soil samples
Date Received:	03/01/2020
Date Started:	09/01/2020
Date Completed:	10/01/2020
Test Methods:	Details available on request (refer to SOP code against relevant result/s)
Notes:	None



Approved By: **Matthew Hickson, Laboratory Manager**

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service.
This certificate shall not be reproduced except in full without the prior written approval of the laboratory.
Observations and interpretations are outside of the scope of UKAS accreditation.
Results reported herein relate only to the items supplied to the laboratory for testing.
Results on an Interim Report are not dry-weight corrected.
Where the laboratory is not responsible for the sampling, results apply to the sample(s) as they were received.

Results Summary

Report No.: 20-89677-1

Customer Reference: 191220-96

Customer Order No: 191220-96

Customer Sample No	**21426778**	**21427092**
Customer Sample ID	HP101	HP103
RPS Sample No	425459	425460
Sample Type	**SOIL**	**SOIL**
Sample Depth (m)	0.1	0.5
Sampling Date	17/12/2019	17/12/2019

Determinand	CAS No	Codes	SOP	Units	RL		
atrazine	1912-24-9	N	in house	mg/kg	0.02	< 0.02	< 0.02
prometryn	7287-19-6	N	346	mg/kg	0.02	< 0.02	< 0.02
propazine	139-40-2	N	346	mg/kg	0.02	< 0.02	< 0.02
simazine	122-34-9	N	346	mg/kg	0.02	< 0.02	< 0.02
terbuthylazine	5915-41-3	N	346	mg/kg	0.02	< 0.02	< 0.02
terbutryn	886-50-0	N	346	mg/kg	0.02	< 0.02	< 0.02
trietazine	1912-26-1	N	346	mg/kg	0.02	< 0.02	< 0.02

Deviating Samples

Report No.: 20-89677-1

Customer Reference: 191220-96

Customer Order No: 191220-96

Our policy on Deviating Samples has been implemented in accordance with UKAS Policy on Deviating Samples (TPS63).
RPS is not responsible for the integrity of samples as received, unless RPS personnel performed the sampling. Samples submitted may be declared to be deviating.
Where applicable the analysis method remains UKAS accredited, however results reported for a deviating sample may be compromised.
Where no sampling date was supplied, samples have been declared to be deviating. If the date can be supplied, results may be reissued if assessed not deviating.
Where the sample container used was unsuitable or broken, the sample is flagged as deviating and re-sampling/re-submisson may be required.

RPS No.	Customer No.	Customer ID	Date Sampled	Containers Received	Deviating	Reason for Deviation
425459	21426778		17/12/2019	100ml clear glass bottle	No	
425460	21427092		17/12/2019	100ml clear glass bottle	No	

Key Code	Description
U	UKAS Accredited Test - UKAS accreditation is only implied if the report carries the UKAS logo
F	UKAS Flexible Scope Test
M	MCERTS Accredited Test - MCERTS accreditation is only implied if the report carries the MCERTS logo
N	Not Accredited Test
O	Marine Management Organisation (MMO) Validated
S	Subcontracted to approved laboratory
US	Subcontracted to approved laboratory UKAS Accredited for the test
MS	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
SI	Subcontracted to internal RPS Group laboratory
USI	Subcontracted to internal RPS Group laboratory UKAS Accredited for the test
MSI	Subcontracted to internal RPS Group laboratory MCERTS/UKAS Accredited for the test
I/S (in results)	Insufficient Sample
U/S (in results)	Unsuitable Sample
S/C (in results)	See Comments
ND (in results)	Not Detected
DW (in units)	Results are expressed on a dry weight basis

Sample Type	Sample Retention and Disposal Period
Foodstuff	1 month (if frozen) from the issue date of this report
Waters	2 weeks from the issue date of this report
Other Liquids	1 month from the issue date of this report
Solids / Soils	1 month from the issue date of this report
Sediments	1 month from the issue date of this report

Note: Sample retention may be subject to agreement with the customer for particular projects

Where the dry solids value of a sample is low (<50%), reporting limits are automatically raised for all determinants analysed on an as-received basis.

Soil Typing	Description
Type 1	Clay - Brown
Type 2	Clay - Grey/Black
Type 3	Sand
Type 4	Top Soil (Standard)
Type 5	Top Soil (High Peat)
Type 6	Made Ground (>50% Clay)
Type 7	Made Ground (>50% Sand)
Type 8	Made Ground (>50% Top Soil)
Type X	Other

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

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

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2107).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Endeavour Drilling
Aldgate Tower
2 Leman Street
London
E1 8FA

Attention: Oliver Wendland

CERTIFICATE OF ANALYSIS

Date of report Generation:	08 January 2020
Customer:	Endeavour Drilling
Sample Delivery Group (SDG):	191220-100
Your Reference:	J4175
Location:	Moathouse Farm, Rusper Rd, Horsham
Report No:	536737

This report has been revised and directly supersedes 536648 in its entirety.

We received 10 samples on Friday December 20, 2019 and 10 of these samples were scheduled for analysis which was completed on Wednesday January 08, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	191220-100	**Client Reference:**	J4175	**Report Number:**	536737
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13458AP	**Superseded Report:**	536648

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
21418585	TP230	E2	0.50	18/12/2019
21418584	TP240	E1	0.10	18/12/2019
21418587	TP242	E1	0.10	18/12/2019
21418574	TP244	E1	0.30	18/12/2019
21418589	TP248	E2	0.60	18/12/2019
21418576	TP250	E2	0.50	18/12/2019
21418583	TP254	E1	0.20	18/12/2019
21418578	TP255	E2	0.40	18/12/2019
21418580	TP256	E2	0.30	18/12/2019
21418581	TP257	E1	0.20	18/12/2019

Maximum Sample/Coolbox Temperature (°C) : **10**

ISO5667-3 Water quality - Sampling - Part3 -
During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 191220-100 **Client Reference:** J4175 **Report Number:** 536737
Location: Moathouse Farm, Rusper Rc **Order Number:** 13458AP **Superseded Report:** 536648

Results Legend

- X Test
- N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			21418585			21418584			21418587			21418574			21418589			21418576			21418583
Customer Sample Reference			TP230			TP240			TP242			TP244			TP248			TP250			TP254
AGS Reference			E2			E1			E1			E1			E2			E2			E1
Depth (m)			0.50			0.10			0.10			0.30			0.60			0.50			0.20
Container			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Acid herbicides*	All	NDPs: 0 Tests: 3								X			X								
Anions by Kone (soil)	All	NDPs: 0 Tests: 10		X			X			X			X			X			X		
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 10	X			X			X			X			X			X			X
EPH CWG GC (S)	All	NDPs: 0 Tests: 10		X			X			X			X			X			X		
GRO by GC-FID (S)	All	NDPs: 0 Tests: 10			X			X			X			X			X			X	
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 10		X			X			X			X			X			X		
Metals in solid samples by OES	All	NDPs: 0 Tests: 10		X			X			X			X			X			X		
OC OP Pesticides and Triazine Herb	All	NDPs: 0 Tests: 3								X			X								
PAH by GCMS	All	NDPs: 0 Tests: 10		X			X			X			X			X			X		
pH	All	NDPs: 0 Tests: 10		X			X			X			X			X			X		
Phenols by HPLC (S)	All	NDPs: 0 Tests: 10		X			X			X			X			X			X		
Sample description	All	NDPs: 0 Tests: 10		X			X			X			X			X			X		
Total Organic Carbon	All	NDPs: 0 Tests: 10		X			X			X			X			X			X		
TPH CWG GC (S)	All	NDPs: 0 Tests: 10		X			X			X			X			X			X		
Triazine Herbicides (S)*	All	NDPs: 0 Tests: 3								X			X								

21418581	TP257	E1	0.20	60g VOC (ALE215)	S						x											
				250g Amber Jar (ALE210)	S	x	x		x		x	x	x	x	x	x	x	x	x	x	x	x
				1kg TUB with Handle (ALE260)	S			x															
21418580	TP256	E2	0.30	60g VOC (ALE215)	S					x												
				250g Amber Jar (ALE210)	S		x		x		x	x		x	x	x	x	x	x	x		
				1kg TUB with Handle (ALE260)	S			x															
21418578	TP255	E2	0.40	60g VOC (ALE215)	S					x												
				250g Amber Jar (ALE210)	S		x		x		x	x		x	x	x	x	x	x	x		
				1kg TUB with Handle (ALE260)	S			x															
21418583	TP254	E1	0.20	60g VOC (ALE215)	S					x												
				250g Amber Jar (ALE210)	S		x		x		x	x		x	x	x	x	x	x	x		

Validated

CERTIFICATE OF ANALYSIS

SDG:	191220-100	**Client Reference:**	J4175	**Report Number:**	536737
Location:	Moathouse Farm, Rusper Rd	**Order Number:**	13458AP	**Superseded Report:**	536648

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)	21418585			21418584			21418587			21418574			21418589			21418576			21418583	
Customer Sample Reference	TP230			TP240			TP242			TP244			TP248			TP250			TP254	
AGS Reference	E2			E1			E1			E1			E2			E2			E1	
Depth (m)	0.50			0.10			0.10			0.30			0.60			0.50			0.20	
Container	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	
Sample Type	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	
VOC MS (S)			X			X			X			X			X			X		

All — NDPs: 0, Tests: 10

21418581	TP257	E1	0.20	60g VOC (ALE215)	S		X		
				250g Amber Jar (ALE210)	S				
				1kg TUB with Handle (ALE260)	S				
21418580	TP256	E2	0.30	60g VOC (ALE215)	S		X		
				250g Amber Jar (ALE210)	S				
				1kg TUB with Handle (ALE260)	S				
21418578	TP255	E2	0.40	60g VOC (ALE215)	S		X		
				250g Amber Jar (ALE210)	S				
				1kg TUB with Handle (ALE260)	S				
21418583	TP254	E1	0.20	60g VOC (ALE215)	S		X		
				250g Amber Jar (ALE210)	S				

CERTIFICATE OF ANALYSIS

SDG:	191220-100	**Client Reference:**	J4175	**Report Number:**	536737
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13458AP	**Superseded Report:**	536648

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
21418585	TP230	0.50	Light Brown	Silt Loam	Stones	Vegetation
21418584	TP240	0.10	Light Brown	Loamy Sand	Vegetation	None
21418587	TP242	0.10	Light Brown	Silt Loam	Stones	Vegetation
21418574	TP244	0.30	Light Brown	Silt Loam	Stones	Vegetation
21418589	TP248	0.60	Light Brown	Silt Loam	Stones	Vegetation
21418576	TP250	0.50	Light Brown	Clay	None	None
21418583	TP254	0.20	Light Brown	Loamy Sand	Stones	Vegetation
21418578	TP255	0.40	Light Brown	Clay	Vegetation	None
21418580	TP256	0.30	Light Brown	Clay Loam	Stones	None
21418581	TP257	0.20	Light Brown	Loamy Sand	Vegetation	Stones

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

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG:	191220-100	**Client Reference:**	J4175	**Report Number:**	536737
Location:	Moathouse Farm, Rusper Rd	**Order Number:**	13458AP	**Superseded Report:**	536648

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP230	TP240	TP242	TP244	TP248	TP250
			Depth (m)	0.50	0.10	0.10	0.30	0.60	0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	18/12/2019	18/12/2019	18/12/2019	18/12/2019	18/12/2019	18/12/2019
			Sample Time	.	.	.	.	.	.
			Date Received	20/12/2019	20/12/2019	20/12/2019	20/12/2019	20/12/2019	20/12/2019
			SDG Ref	191220-100	191220-100	191220-100	191220-100	191220-100	191220-100
			Lab Sample No.(s)	21418585	21418584	21418587	21418574	21418589	21418576
			AGS Reference	E2	E1	E1	E1	E2	E2
Moisture Content Ratio (% of as received sample)	%	PM024		22	27	23	23	21	20
2,4,5-Trichlorophenol (2,4,5-T)*	<0.01 mg/kg	SUB				<0.01	<0.01		
2,4,5-TP (Fenoprop)*	<0.01 mg/kg	SUB				<0.01	<0.01		
2,4-D*	<0.01 mg/kg	SUB				<0.01	<0.01		
2,4-DB*	<0.01 mg/kg	SUB				<0.01	<0.01		
2,4-Dichloroprop (2,4 DP)*	<0.01 mg/kg	SUB				<0.01	<0.01		
4-Chlorophenoxyacetic acid (4-CPA)*	<0.01 mg/kg	SUB				<0.01	<0.01		
Acifluorfen*	<0.01 mg/kg	SUB				<0.01	<0.01		
Bentazone*	<0.01 mg/kg	SUB				<0.01	<0.01		
Bromoxynil*	<0.01 mg/kg	SUB				<0.01	<0.01		
Dicamba*	<0.01 mg/kg	SUB				<0.01	<0.01		
Diclofop*	<0.01 mg/kg	SUB				<0.01	<0.01		
Dinoseb*	<0.01 mg/kg	SUB				<0.01	<0.01		
DNOC*	<0.01 mg/kg	SUB				<0.01	<0.01		
Fluroxypyr*	<0.01 mg/kg	SUB				<0.01	<0.01		
Ioxynil*	<0.01 mg/kg	SUB				<0.01	<0.01		
2-methyl-4-Chlorophenoxyacetic acid (MCPA)*	<0.01 mg/kg	SUB				<0.01	<0.01		
4-(4-Chloro-o-tolyloxy) butyric acid (MCPB)*	<0.01 mg/kg	SUB				<0.01	<0.01		
Mecoprop (MCPP)*	<0.01 mg/kg	SUB				<0.01	<0.01		
Propoxycarbazone-sodium*	<0.01 mg/kg	SUB				<0.01	<0.01		
Triclopyr*	<0.01 mg/kg	SUB				<0.01	<0.01		
Triclosan*	<0.01 mg/kg	SUB				<0.01	<0.01		
Phenol	<0.01 mg/kg	TM062 (S)		<0.01 M	<0.01 M	<0.01 M	<0.01 M	<0.01 M	<0.01 M
Cresols	<0.01 mg/kg	TM062 (S)		<0.01 M	<0.01 M	<0.01 M	<0.01 M	<0.01 M	<0.01 M
Xylenols	<0.015 mg/kg	TM062 (S)		<0.015 M	<0.015 M	<0.015 M	<0.015 M	<0.015 M	<0.015 M
2,3,5-Trimethylphenol	<0.01 mg/kg	TM062 (S)		<0.01 M	<0.01 M	<0.01 M	<0.01 M	<0.01 M	<0.01 M
2-Isopropylphenol	<0.015 mg/kg	TM062 (S)		<0.015 M	<0.015 M	<0.015 M	<0.015 M	<0.015 M	<0.015 M
Phenols, Total Detected 5 speciated	<0.06 mg/kg	TM062 (S)		<0.06 M	<0.06 M	<0.06 M	<0.06 M	<0.06 M	<0.06 M
Soil Organic Matter (SOM)	<0.35 %	TM132		0.693 #	3.78 #	2.62 #	2.74 #	0.707 #	0.452 #
pH	1 pH Units	TM133		7.6 M	7.07 M	7.77 M	7.93 M	7.45 M	7.85 M
Chromium, Hexavalent	<0.6 mg/kg	TM151		<3 #	<3 #	<0.6 #	<3 #	<0.6 #	<3 #
Arsenic	<0.6 mg/kg	TM181		14.9 M	12.4 M	15.8 M	9.49 M	12.3 M	6.02 M
Cadmium	<0.02 mg/kg	TM181		<0.2 M	0.369 M	0.49 M	0.349 M	0.264 M	0.144 M

Validated

CERTIFICATE OF ANALYSIS

SDG:	191220-100	**Client Reference:**	J4175	**Report Number:**	536737
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13458AP	**Superseded Report:**	536648

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP230	TP240	TP242	TP244	TP248	TP250
			Depth (m)	0.50	0.10	0.10	0.30	0.60	0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	18/12/2019	18/12/2019	18/12/2019	18/12/2019	18/12/2019	18/12/2019
			Sample Time	-	-	-	-	-	-
			Date Received	20/12/2019	20/12/2019	20/12/2019	20/12/2019	20/12/2019	20/12/2019
			SDG Ref	191220-100	191220-100	191220-100	191220-100	191220-100	191220-100
			Lab Sample No.(s)	21418585	21418584	21418587	21418574	21418589	21418576
			AGS Reference	E2	E1	E1	E1	E2	E2
Chromium	<0.9 mg/kg	TM181		29.9 M	21.4 M	19.3 M	17.7 M	19.1 M	21.7 M
Copper	<1.4 mg/kg	TM181		23.4 M	19.5 M	16.6 M	23.7 M	23.7 M	14.2 M
Lead	<0.7 mg/kg	TM181		24.5 M	42.5 M	34.3 M	49.2 M	19.9 M	44.9 M
Mercury	<0.14 mg/kg	TM181		<1.4 M	<0.14 M	<0.14 M	<0.14 M	<0.14 M	<0.14 M
Nickel	<0.2 mg/kg	TM181		24.3 M	16.6 M	21.6 M	14.4 M	25.9 M	17.5 M
Selenium	<1 mg/kg	TM181		<10 #	<1 #	1.59 #	<1 #	2.01 #	<1 #
Zinc	<1.9 mg/kg	TM181		87.7 M	77.2 M	88.7 M	69.9 M	57.1 M	53.7 M
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243		0.0178 M	<0.004 M	0.0128 M	0.0118 M	0.0122 M	0.0249 M

Validated

CERTIFICATE OF ANALYSIS

SDG:	191220-100	**Client Reference:**	J4175	**Report Number:**	536737
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13458AP	**Superseded Report:**	536648

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP254	TP255	TP256	TP257		
			Depth (m)	0.20	0.40	0.30	0.20		
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
			Date Sampled	18/12/2019	18/12/2019	18/12/2019	18/12/2019		
			Sample Time	.	.	.	.		
			Date Received	20/12/2019	20/12/2019	20/12/2019	20/12/2019		
			SDG Ref	191220-100	191220-100	191220-100	191220-100		
			Lab Sample No.(s)	21418583	21418578	21418580	21418581		
			AGS Reference	E1	E2	E2	E1		
Moisture Content Ratio (% of as received sample)	%	PM024		23	22	25	27		
2,4,5-Trichlorophenol (2,4,5-T)*	<0.01 mg/kg	SUB					<0.01		
2,4,5-TP (Fenoprop)*	<0.01 mg/kg	SUB					<0.01		
2,4-D*	<0.01 mg/kg	SUB					<0.01		
2,4-DB*	<0.01 mg/kg	SUB					<0.01		
2,4-Dichloroprop (2,4 DP)*	<0.01 mg/kg	SUB					<0.01		
4-Chlorophenoxyacetic acid (4-CPA)*	<0.01 mg/kg	SUB					<0.01		
Acifluorfen*	<0.01 mg/kg	SUB					<0.01		
Bentazone*	<0.01 mg/kg	SUB					<0.01		
Bromoxynil*	<0.01 mg/kg	SUB					<0.01		
Dicamba*	<0.01 mg/kg	SUB					<0.01		
Diclofop*	<0.01 mg/kg	SUB					<0.01		
Dinoseb*	<0.01 mg/kg	SUB					<0.01		
DNOC*	<0.01 mg/kg	SUB					<0.01		
Fluroxypyr*	<0.01 mg/kg	SUB					<0.01		
Ioxynil*	<0.01 mg/kg	SUB					<0.01		
2-methyl-4-Chlorophenoxyacetic acid (MCPA)*	<0.01 mg/kg	SUB					<0.01		
4-(4-Chloro-o-tolyloxy) butyric acid (MCPB)*	<0.01 mg/kg	SUB					<0.01		
Mecoprop (MCPP)*	<0.01 mg/kg	SUB					<0.01		
Propoxycarbazone-sodium*	<0.01 mg/kg	SUB					<0.01		
Triclopyr*	<0.01 mg/kg	SUB					<0.01		
Triclosan*	<0.01 mg/kg	SUB					<0.01		
Phenol	<0.01 mg/kg	TM062 (S)		<0.01 M	<0.01 M	<0.01 M	<0.01 M		
Cresols	<0.01 mg/kg	TM062 (S)		<0.01 M	<0.01 M	<0.01 M	0.0136 M		
Xylenols	<0.015 mg/kg	TM062 (S)		<0.015 M	<0.015 M	<0.015 M	<0.015 M		
2,3,5-Trimethylphenol	<0.01 mg/kg	TM062 (S)		<0.01 M	<0.01 M	<0.01 M	<0.01 M		
2-Isopropylphenol	<0.015 mg/kg	TM062 (S)		<0.015 M	<0.015 M	<0.015 M	<0.015 M		
Phenols, Total Detected 5 speciated	<0.06 mg/kg	TM062 (S)		<0.06 M	<0.06 M	<0.06 M	<0.06 M		
Soil Organic Matter (SOM)	<0.35 %	TM132		2.29 #	1.05 #	2.76 #	2.4 #		
pH	1 pH Units	TM133		6.68 M	8.06 M	7.84 M	7.99 M		
Chromium, Hexavalent	<0.6 mg/kg	TM151		<3 #	<0.6 #	<3 #	<3 #		
Arsenic	<0.6 mg/kg	TM181		12.2 M	9.49 M	9.97 M	11.2 M		
Cadmium	<0.02 mg/kg	TM181		0.501 M	0.19 M	0.393 M	0.335 M		

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Validated

CERTIFICATE OF ANALYSIS

SDG:	191220-100	**Client Reference:**	J4175	**Report Number:**	536737
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13458AP	**Superseded Report:**	536648

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP254	TP255	TP256	TP257		
			Depth (m)	0.20	0.40	0.30	0.20		
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
			Date Sampled	18/12/2019	18/12/2019	18/12/2019	18/12/2019		
			Sample Time	-	-	-	-		
			Date Received	20/12/2019	20/12/2019	20/12/2019	20/12/2019		
			SDG Ref	191220-100	191220-100	191220-100	191220-100		
			Lab Sample No.(s)	21418583	21418578	21418580	21418581		
			AGS Reference	E1	E2	E2	E1		
Chromium	<0.9 mg/kg	TM181		18.1 M	17 M	23.6 M	26.3 M		
Copper	<1.4 mg/kg	TM181		19.4 M	11.3 M	25.7 M	26.6 M		
Lead	<0.7 mg/kg	TM181		45.5 M	24.9 M	35.6 M	45.3 M		
Mercury	<0.14 mg/kg	TM181		<0.14 M	<0.14 M	<0.14 M	<0.14 M		
Nickel	<0.2 mg/kg	TM181		21.4 M	12.3 M	17.3 M	16.6 M		
Selenium	<1 mg/kg	TM181		<1 #	<1 #	<1 #	<1 #		
Zinc	<1.9 mg/kg	TM181		77.5 M	49.1 M	67.5 M	70 M		
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243		0.0306 M	0.012 M	0.0046 M	0.0061 M		

Validated

CERTIFICATE OF ANALYSIS

SDG:	191220-100	**Client Reference:**	J4175	**Report Number:**	536737
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13458AP	**Superseded Report:**	536648

OC OP Pesticides and Triazine Herb

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP242	TP244	TP257			
			Depth (m)	0.10	0.30	0.20			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	18/12/2019	18/12/2019	18/12/2019			
			Sample Time	.	.	.			
			Date Received	20/12/2019	20/12/2019	20/12/2019			
			SDG Ref	191220-100	191220-100	191220-100			
			Lab Sample No.(s)	21418587	21418574	21418581			
			AGS Reference	E1	E1	E1			
Dichlorvos	<50 µg/kg	TM073		<50	<50	<50			
Mevinphos	<50 µg/kg	TM073		<50	<50	<50			
Tecnazene	<50 µg/kg	TM073		<50	<50	<50			
Hexachlorobenzene	<50 µg/kg	TM073		<50	<50	<50			
Trifluralin	<50 µg/kg	TM073		<50	<50	<50			
Phorate	<50 µg/kg	TM073		<50	<50	<50			
alpha-Hexachlorocyclohexane (HCH)	<50 µg/kg	TM073		<50	<50	<50			
Quintozene (PCNB)	<50 µg/kg	TM073		<50	<50	<50			
Diazinon	<50 µg/kg	TM073		<50	<50	<50			
Triallate	<50 µg/kg	TM073		<50	<50	<50			
Etrimphos	<50 µg/kg	TM073		<50	<50	<50			
gamma-Hexachlorocyclohexane (HCH / Lindane)	<50 µg/kg	TM073		<50	<50	<50			
Disulfoton	<50 µg/kg	TM073		<50	<50	<50			
Propetamphos	<50 µg/kg	TM073		<50	<50	<50			
Heptachlor	<50 µg/kg	TM073		<50	<50	<50			
Chlorpyriphos methyl	<50 µg/kg	TM073		<50	<50	<50			
Dimethoate	<50 µg/kg	TM073		<50	<50	<50			
Aldrin	<50 µg/kg	TM073		<50	<50	<50			
Chlorothalonil	<50 µg/kg	TM073		<50	<50	<50			
Pirimiphos-methyl	<50 µg/kg	TM073		<50	<50	<50			
Telodrin	<50 µg/kg	TM073		<50	<50	<50			
beta-Hexachlorocyclohexane (HCH)	<50 µg/kg	TM073		<50	<50	<50			
Chlorpyriphos	<50 µg/kg	TM073		<50	<50	<50			
Methyl parathion	<50 µg/kg	TM073		<50	<50	<50			
Isodrin	<50 µg/kg	TM073		<50	<50	<50			
delta-Hexachlorocyclohexane (HCH)	<50 µg/kg	TM073		<50	<50	<50			
Malathion	<50 µg/kg	TM073		<50	<50	<50			
Fenthion	<50 µg/kg	TM073		<50	<50	<50			
Fenitrothion	<50 µg/kg	TM073		<50	<50	<50			
Heptachlor epoxide	<50 µg/kg	TM073		<50	<50	<50			
Triadimefon	<50 µg/kg	TM073		<50	<50	<50			
Pendimethalin	<50 µg/kg	TM073		<50	<50	<50			
Parathion	<50 µg/kg	TM073		<50	<50	<50			

CERTIFICATE OF ANALYSIS

SDG:	191220-100	**Client Reference:**	J4175	**Report Number:**	536737
Location:	Moathouse Farm, Rusper Rd	**Order Number:**	13458AP	**Superseded Report:**	536648

OC OP Pesticides and Triazine Herb

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP242	TP244	TP257			
			Depth (m)	0.10	0.30	0.20			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	18/12/2019	18/12/2019	18/12/2019			
			Sample Time	-	-	-			
			Date Received	20/12/2019	20/12/2019	20/12/2019			
			SDG Ref	191220-100	191220-100	191220-100			
			Lab Sample No.(s)	21418587	21418574	21418581			
			AGS Reference	E1	E1	E1			
o,p-DDE	<50 µg/kg	TM073		<50	<50	<50			
Chlorfenvinphos	<50 µg/kg	TM073		<50	<50	<50			
Endosulphan I	<50 µg/kg	TM073		<50	<50	<50			
Trans-chlordane	<50 µg/kg	TM073		<50	<50	<50			
cis-Chlordane	<50 µg/kg	TM073		<50	<50	<50			
p,p-DDE	<50 µg/kg	TM073		<50	<50	<50			
Dieldrin	<50 µg/kg	TM073		<50	<50	<50			
o,p'-DDD (TDE)	<50 µg/kg	TM073		<50	<50	<50			
Endrin	<50 µg/kg	TM073		<50	<50	<50			
o,p-DDT	<50 µg/kg	TM073		<50	<50	<50			
p,p-TDE (DDD)	<50 µg/kg	TM073		<50	<50	<50			
Ethion	<50 µg/kg	TM073		<50	<50	<50			
Endosulphan II	<50 µg/kg	TM073		<50	<50	<50			
p,p-DDT	<50 µg/kg	TM073		<50	<50	<50			
Carbophenothion	<50 µg/kg	TM073		<50	<50	<50			
o,p-Methoxychlor	<50 µg/kg	TM073		<50	<50	<50			
Triazophos	<50 µg/kg	TM073		<50	<50	<50			
p,p-Methoxychlor	<50 µg/kg	TM073		<50	<50	<50			
Endosulphan sulphate	<50 µg/kg	TM073		<50	<50	<50			
Permethrin I	<50 µg/kg	TM073		<50	<50	<50			
Phosalone	<50 µg/kg	TM073		<50	<50	<50			
Permethrin II	<50 µg/kg	TM073		<50	<50	<50			
Azinphos-methyl	<50 µg/kg	TM073		<50	<50	<50			
Azinphos-ethyl	<50 µg/kg	TM073		<50	<50	<50			

Validated

CERTIFICATE OF ANALYSIS

SDG:	191220-100	**Client Reference:**	J4175	**Report Number:**	536737
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13458AP	**Superseded Report:**	536648

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP230	TP240	TP242	TP244	TP248	TP250
			Depth (m)	0.50	0.10	0.10	0.30	0.60	0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	18/12/2019	18/12/2019	18/12/2019	18/12/2019	18/12/2019	18/12/2019
			Sample Time	.	.	.	.	.	.
			Date Received	20/12/2019	20/12/2019	20/12/2019	20/12/2019	20/12/2019	20/12/2019
			SDG Ref	191220-100	191220-100	191220-100	191220-100	191220-100	191220-100
			Lab Sample No.(s)	21418585	21418584	21418587	21418574	21418589	21418576
			AGS Reference	E2	E1	E1	E1	E2	E2
Naphthalene-d8 % recovery**	%	TM218		84.1	100	95.7	97.2	86.9	70.7
Acenaphthene-d10 % recovery**	%	TM218		91.5	93.6	101	88.2	92.4	71.3
Phenanthrene-d10 % recovery**	%	TM218		98.5	88.3	108	82.8	95.6	76
Chrysene-d12 % recovery**	%	TM218		80.4	84.6	94.4	72.1	81.3	70.7
Perylene-d12 % recovery**	%	TM218		78.7	87.3	83.7	71.5	76.5	71.4
Naphthalene	<9 µg/kg	TM218		<9 M	<9 M	<9 M	<9 M	<9 M	<9 M
Acenaphthylene	<12 µg/kg	TM218		<12 M	<12 M	<12 M	<12 M	<12 M	<12 M
Acenaphthene	<8 µg/kg	TM218		<8 M	<8 M	<8 M	<8 M	<8 M	<8 M
Fluorene	<10 µg/kg	TM218		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Phenanthrene	<15 µg/kg	TM218		<15 M	<15 M	20 M	31.3 M	<15 M	<15 M
Anthracene	<16 µg/kg	TM218		<16 M	<16 M	<16 M	<16 M	<16 M	<16 M
Fluoranthene	<17 µg/kg	TM218		<17 M	39.5 M	58 M	76.7 M	<17 M	<17 M
Pyrene	<15 µg/kg	TM218		<15 M	33.2 M	45.9 M	62.3 M	<15 M	<15 M
Benz(a)anthracene	<14 µg/kg	TM218		<14 M	<14 M	24.7 M	32.9 M	<14 M	<14 M
Chrysene	<10 µg/kg	TM218		<10 M	24.1 M	25.1 M	34.8 M	<10 M	<10 M
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15 M	30.5 M	31.1 M	55 M	<15 M	<15 M
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 M	<14 M	<14 M	<14 M	<14 M	<14 M
Benzo(a)pyrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	34 M	<15 M	<15 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 M	<18 M	<18 M	<18 M	<18 M	<18 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 M	<23 M	<23 M	<23 M	<23 M	<23 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 M	<24 M	<24 M	<24 M	<24 M	<24 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	127	205	327	<118	<118

CERTIFICATE OF ANALYSIS

SDG:	191220-100	**Client Reference:**	J4175	**Report Number:**	536737
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13458AP	**Superseded Report:**	536648

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP254	TP255	TP256	TP257		
			Depth (m)	0.20	0.40	0.30	0.20		
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
			Date Sampled	18/12/2019	18/12/2019	18/12/2019	18/12/2019		
			Sample Time	.	.	.	.		
			Date Received	20/12/2019	20/12/2019	20/12/2019	20/12/2019		
			SDG Ref	191220-100	191220-100	191220-100	191220-100		
			Lab Sample No.(s)	21418583	21418578	21418580	21418581		
			AGS Reference	E1	E2	E2	E1		
Naphthalene-d8 % recovery**	%	TM218		96.8	98.5	58	81.2		
Acenaphthene-d10 % recovery**	%	TM218		91.9	92.3	65	86.7		
Phenanthrene-d10 % recovery**	%	TM218		86.5	88.5	61.3	91.7		
Chrysene-d12 % recovery**	%	TM218		88.6	80.4	42.2	77.9		
Perylene-d12 % recovery**	%	TM218		71.1	84.2	40.1	71.5		
Naphthalene	<9 µg/kg	TM218		<9 M	<9 M	<9 M	<9 M		
Acenaphthylene	<12 µg/kg	TM218		<12 M	<12 M	<12 M	<12 M		
Acenaphthene	<8 µg/kg	TM218		<8 M	<8 M	<8 M	<8 M		
Fluorene	<10 µg/kg	TM218		<10 M	<10 M	<10 M	<10 M		
Phenanthrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M		
Anthracene	<16 µg/kg	TM218		<16 M	<16 M	<16 M	<16 M		
Fluoranthene	<17 µg/kg	TM218		31.9 M	<17 M	<17 M	<17 M		
Pyrene	<15 µg/kg	TM218		26.9 M	<15 M	<15 M	<15 M		
Benz(a)anthracene	<14 µg/kg	TM218		<14 M	<14 M	<14 M	<14 M		
Chrysene	<10 µg/kg	TM218		15.5 M	<10 M	<10 M	<10 M		
Benzo(b)fluoranthene	<15 µg/kg	TM218		23.5 M	<15 M	<15 M	<15 M		
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 M	<14 M	<14 M	<14 M		
Benzo(a)pyrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M		
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 M	<18 M	<18 M	<18 M		
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 M	<23 M	<23 M	<23 M		
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 M	<24 M	<24 M	<24 M		
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	<118	<118	<118		

Validated

CERTIFICATE OF ANALYSIS

SDG:	191220-100	**Client Reference:**	J4175	**Report Number:**	536737
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13458AP	**Superseded Report:**	536648

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP230	TP240	TP242	TP244	TP248	TP250
			Depth (m)	0.50	0.10	0.10	0.30	0.60	0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	18/12/2019	18/12/2019	18/12/2019	18/12/2019	18/12/2019	18/12/2019
			Sample Time	.	.	.	.	.	.
			Date Received	20/12/2019	20/12/2019	20/12/2019	20/12/2019	20/12/2019	20/12/2019
			SDG Ref	191220-100	191220-100	191220-100	191220-100	191220-100	191220-100
			Lab Sample No.(s)	21418585	21418584	21418587	21418574	21418589	21418576
			AGS Reference	E2	E1	E1	E1	E2	E2
GRO Surrogate % recovery**	%	TM089		95	99.3	95	97	103	98
Aliphatics >C5-C6	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aliphatics >C8-C10	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aliphatics >C10-C12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C12-C16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C16-C21	<1000 µg/kg	TM414		<1000	<1000	<1000	2420	<1000	<1000
Aliphatics >C21-C35	<1000 µg/kg	TM414		<1000	4170	1790	17600	<1000	<1000
Aliphatics >C35-C44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Total Aliphatics >C10-C44	<5000 µg/kg	TM414		<5000	<5000	<5000	20800	<5000	<5000
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414		<10000	11800	<10000	29500	<10000	<10000
Aromatics >EC5-EC7	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics > EC10-EC12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC12-EC16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC16-EC21	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC21-EC35	<1000 µg/kg	TM414		1590	4880	4870	7570	1560	1890
Aromatics >EC35-EC44	<1000 µg/kg	TM414		<1000	2070	<1000	<1000	<1000	<1000
Aromatics > EC40-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414		<5000	6950	5870	8660	<5000	<5000
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414		<10000	<10000	<10000	29500	<10000	<10000
Total Aliphatics >C5-C10	<50 µg/kg	TM089		<50	<50	<50	<50	<50	<50
Total Aromatics >EC5-EC10	<50 µg/kg	TM089		<50	<50	<50	<50	<50	<50
GRO >C5-C10	<20 µg/kg	TM089		<20	<20	<20	<20	<20	<20

Validated

CERTIFICATE OF ANALYSIS

SDG:	191220-100	**Client Reference:**	J4175	**Report Number:**	536737
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13458AP	**Superseded Report:**	536648

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP254	TP255	TP256	TP257		
			Depth (m)	0.20	0.40	0.30	0.20		
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
			Date Sampled	18/12/2019	18/12/2019	18/12/2019	18/12/2019		
			Sample Time	.	.	.	.		
			Date Received	20/12/2019	20/12/2019	20/12/2019	20/12/2019		
			SDG Ref	191220-100	191220-100	191220-100	191220-100		
			Lab Sample No.(s)	21418583	21418578	21418580	21418581		
			AGS Reference	E1	E2	E2	E1		
GRO Surrogate % recovery**	%	TM089		87.5	98	97.5	99.4		
Aliphatics >C5-C6	<10 µg/kg	TM089		<10	<10	<10	<10		
Aliphatics >C6-C8	<10 µg/kg	TM089		<10	<10	<10	<10		
Aliphatics >C8-C10	<10 µg/kg	TM089		<10	<10	<10	<10		
Aliphatics >C10-C12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000		
Aliphatics >C12-C16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000		
Aliphatics >C16-C21	<1000 µg/kg	TM414		<1000	<1000	<1000	1030		
Aliphatics >C21-C35	<1000 µg/kg	TM414		1340	1330	8730	14700		
Aliphatics >C35-C44	<1000 µg/kg	TM414		<1000	<1000	<1000	1200		
Total Aliphatics >C10-C44	<5000 µg/kg	TM414		<5000	<5000	8920	16900		
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414		<10000	<10000	15000	27900		
Aromatics >EC5-EC7	<10 µg/kg	TM089		<10	<10	<10	<10		
Aromatics >EC7-EC8	<10 µg/kg	TM089		<10	<10	<10	<10		
Aromatics >EC8-EC10	<10 µg/kg	TM089		<10	<10	<10	<10		
Aromatics > EC10-EC12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000		
Aromatics > EC12-EC16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000		
Aromatics > EC16-EC21	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000		
Aromatics > EC21-EC35	<1000 µg/kg	TM414		3070	4380	5020	9030		
Aromatics >EC35-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	1150		
Aromatics > EC40-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000		
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414		<5000	5470	6110	11000		
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414		<10000	<10000	15000	27900		
Total Aliphatics >C5-C10	<50 µg/kg	TM089		<50	<50	<50	<50		
Total Aromatics >EC5-EC10	<50 µg/kg	TM089		<50	<50	<50	<50		
GRO >C5-C10	<20 µg/kg	TM089		<20	<20	<20	<20		

CERTIFICATE OF ANALYSIS

SDG:	191220-100	**Client Reference:**	J4175	**Report Number:**	536737
Location:	Moathouse Farm, Rusper Rc	**Order Number:**	13458AP	**Superseded Report:**	536648

Triazine Herbicides (S)*

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP242	TP244	TP257			
			Depth (m)	0.10	0.30	0.20			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	18/12/2019	18/12/2019	18/12/2019			
			Sample Time	.	.	.			
			Date Received	20/12/2019	20/12/2019	20/12/2019			
			SDG Ref	191220-100	191220-100	191220-100			
			Lab Sample No.(s)	21418587	21418574	21418581			
			AGS Reference	E1	E1	E1			
Atrazine*	<0.02 mg/kg	SUB		<0.02	<0.02	<0.02			
Prometryne*	<0.02 mg/kg	SUB		<0.02	<0.02	<0.02			
Propazine*	<0.02 mg/kg	SUB		<0.02	<0.02	<0.02			
Simazine*	<0.02 mg/kg	SUB		<0.02	<0.02	<0.02			
Terbuthylazine*	<0.02 mg/kg	SUB		<0.02	<0.02	<0.02			
Terbutryne*	<0.02 mg/kg	SUB		<0.02	<0.02	<0.02			
Trietazine*	<0.02 mg/kg	SUB		<0.02	<0.02	<0.02			

CERTIFICATE OF ANALYSIS

SDG:	191220-100	**Client Reference:**	J4175	**Report Number:**	536737
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13458AP	**Superseded Report:**	536648

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP230	TP240	TP242	TP244	TP248	TP250
			Depth (m)	0.50	0.10	0.10	0.30	0.60	0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	18/12/2019	18/12/2019	18/12/2019	18/12/2019	18/12/2019	18/12/2019
			Sample Time	.	.	.	.	.	.
			Date Received	20/12/2019	20/12/2019	20/12/2019	20/12/2019	20/12/2019	20/12/2019
			SDG Ref	191220-100	191220-100	191220-100	191220-100	191220-100	191220-100
			Lab Sample No.(s)	21418585	21418584	21418587	21418574	21418589	21418576
			AGS Reference	E2	E1	E1	E1	E2	E2
Dibromofluoromethane**	%	TM116		108	113	105	114	113	109
Toluene-d8**	%	TM116		97.8	98	91.4	96.7	98.8	98.9
4-Bromofluorobenzene**	%	TM116		89.5	89.1	72.2	87.8	94.2	96.7
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<10 M	<100 M	<10 M	<100 M	<10 M	<10 M
Benzene	<9 µg/kg	TM116		<9 M	<90 M	<9 M	<90 M	<9 M	<9 M
Toluene	<7 µg/kg	TM116		<7 M	<70 M	<7 M	<70 M	<7 M	<7 M
Ethylbenzene	<4 µg/kg	TM116		<4 M	<40 M	<4 M	<40 M	<4 M	<4 M
p/m-Xylene	<10 µg/kg	TM116		<10 #	<100 #	<10 #	<100 #	<10 #	<10 #
o-Xylene	<10 µg/kg	TM116		<10 M	<100 M	<10 M	<100 M	<10 M	<10 M
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.02	<0.2	<0.02	<0.2	<0.02	<0.02
Sum of BTEX	<40 µg/kg	TM116		<40	<400	<40	<400	<40	<40

CERTIFICATE OF ANALYSIS

SDG:	191220-100	**Client Reference:**	J4175	**Report Number:**	536737
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13458AP	**Superseded Report:**	536648

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP254	TP255	TP256	TP257		
			Depth (m)	0.20	0.40	0.30	0.20		
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
			Date Sampled	18/12/2019	18/12/2019	18/12/2019	18/12/2019		
			Sample Time	.	.	.	.		
			Date Received	20/12/2019	20/12/2019	20/12/2019	20/12/2019		
			SDG Ref	191220-100	191220-100	191220-100	191220-100		
			Lab Sample No.(s)	21418583	21418578	21418580	21418581		
			AGS Reference	E1	E2	E2	E1		
Dibromofluoromethane**	%	TM116		110	120	122	108		
Toluene-d8**	%	TM116		95.1	97.2	92.9	91.2		
4-Bromofluorobenzene**	%	TM116		76.3	87.3	74.9	70.5		
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M		
Benzene	<9 µg/kg	TM116		<9 M	<9 M	<9 M	<9 M		
Toluene	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M		
Ethylbenzene	<4 µg/kg	TM116		<4 M	<4 M	<4 M	<4 M		
p/m-Xylene	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #		
o-Xylene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M		
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.02	<0.02	<0.02	<0.02		
Sum of BTEX	<40 µg/kg	TM116		<40	<40	<40	<40		

CERTIFICATE OF ANALYSIS

SDG:	191220-100	**Client Reference:**	J4175	**Report Number:**	536737
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13458AP	**Superseded Report:**	536648

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP230E2 0.50 SOLID 18/12/2019 00:00:00 20/12/2019 06:00:00 191220-100 21418585 TM048	30/12/2019	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP240E1 0.10 SOLID 18/12/2019 00:00:00 20/12/2019 06:00:00 191220-100 21418584 TM048	30/12/2019	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP242E1 0.10 SOLID 18/12/2019 00:00:00 20/12/2019 06:00:00 191220-100 21418587 TM048	30/12/2019	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP244E1 0.30 SOLID 18/12/2019 00:00:00 20/12/2019 06:00:00 191220-100 21418574 TM048	24/12/2019	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP248E2 0.60 SOLID 18/12/2019 00:00:00 20/12/2019 06:00:00 191220-100 21418589 TM048	30/12/2019	Lucy Caroe	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP250E2 0.50 SOLID 18/12/2019 00:00:00 20/12/2019 06:00:00 191220-100 21418576 TM048	24/12/19	Andrzej Ferfecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP254E1 0.20 SOLID 18/12/2019 00:00:00 20/12/2019 06:00:00 191220-100 21418583 TM048	30/12/2019	Lucy Caroe	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP255E2 0.40 SOLID 18/12/2019 00:00:00 20/12/2019 06:00:00 191220-100 21418578 TM048	24/12/19	Andrzej Ferfecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

Validated

CERTIFICATE OF ANALYSIS

SDG:	191220-100	**Client Reference:**	J4175	**Report Number:**	536737
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13458AP	**Superseded Report:**	536648

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP256E2 0.30 SOLID 18/12/2019 00:00:00 20/12/2019 06:00:00 191220-100 21418580 TM048	27/12/2019	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP257E1 0.20 SOLID 18/12/2019 00:00:00 20/12/2019 06:00:00 191220-100 21418581 TM048	30/12/2019	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG:	191220-100	**Client Reference:**	J4175	**Report Number:**	536737
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13458AP	**Superseded Report:**	536648

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
SUB		Subcontracted Test
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM073	MEWAM BOOK 60 1980,95 1985, HMSO / Modified: US EPA Method 8081A & 8141A	Determination of organochlorine and organophosphorous pesticides by GCMS
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM243		Mixed Anions In Soils By Kone
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	191220-100	**Client Reference:**	J4175	**Report Number:**	536737
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13458AP	**Superseded Report:**	536648

Test Completion Dates

Lab Sample No(s)	21418585	21418584	21418587	21418574	21418589	21418576	21418583	21418578	21418580	21418581
Customer Sample Ref.	TP230	TP240	TP242	TP244	TP248	TP250	TP254	TP255	TP256	TP257
AGS Ref.	E2	E1	E1	E1	E2	E2	E1	E2	E2	E1
Depth	0.50	0.10	0.10	0.30	0.60	0.50	0.20	0.40	0.30	0.20
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Acid herbicides*			08-Jan-2020	08-Jan-2020						08-Jan-2020
Anions by Kone (soil)	31-Dec-2019	31-Dec-2019	31-Dec-2019	31-Dec-2019	31-Dec-2019	31-Dec-2019	30-Dec-2019	30-Dec-2019	31-Dec-2019	30-Dec-2019
Asbestos ID in Solid Samples	30-Dec-2019	30-Dec-2019	30-Dec-2019	24-Dec-2019	30-Dec-2019	24-Dec-2019	30-Dec-2019	24-Dec-2019	27-Dec-2019	30-Dec-2019
EPH CWG GC (S)	02-Jan-2020	04-Jan-2020	04-Jan-2020	06-Jan-2020	02-Jan-2020	06-Jan-2020	04-Jan-2020	06-Jan-2020	06-Jan-2020	02-Jan-2020
GRO by GC-FID (S)	27-Dec-2019	24-Dec-2019	27-Dec-2019	27-Dec-2019	27-Dec-2019	27-Dec-2019	24-Dec-2019	27-Dec-2019	27-Dec-2019	27-Dec-2019
Hexavalent Chromium (s)	03-Jan-2020	03-Jan-2020	27-Dec-2019	03-Jan-2020	27-Dec-2019	03-Jan-2020	03-Jan-2020	27-Dec-2019	03-Jan-2020	03-Jan-2020
Metals in solid samples by OES	02-Jan-2020	31-Dec-2019	02-Jan-2020	31-Dec-2019	31-Dec-2019	31-Dec-2019	02-Jan-2020	31-Dec-2019	02-Jan-2020	02-Jan-2020
OC OP Pesticides and Triazine Herb			31-Dec-2019	31-Dec-2019						31-Dec-2019
PAH by GCMS	30-Dec-2019	31-Dec-2019	30-Dec-2019	31-Dec-2019	30-Dec-2019	27-Dec-2019	31-Dec-2019	31-Dec-2019	02-Jan-2020	30-Dec-2019
pH	29-Dec-2019	29-Dec-2019	29-Dec-2019	30-Dec-2019	29-Dec-2019	30-Dec-2019	29-Dec-2019	30-Dec-2019	30-Dec-2019	29-Dec-2019
Phenols by HPLC (S)	27-Dec-2019	27-Dec-2019	30-Dec-2019	30-Dec-2019	27-Dec-2019	30-Dec-2019	27-Dec-2019	27-Dec-2019	27-Dec-2019	30-Dec-2019
Sample description	21-Dec-2019	20-Dec-2019	21-Dec-2019	21-Dec-2019	21-Dec-2019	21-Dec-2019	20-Dec-2019	21-Dec-2019	21-Dec-2019	21-Dec-2019
Total Organic Carbon	31-Dec-2019	30-Dec-2019	30-Dec-2019	30-Dec-2019	30-Dec-2019	30-Dec-2019	31-Dec-2019	30-Dec-2019	30-Dec-2019	30-Dec-2019
TPH CWG GC (S)	02-Jan-2020	04-Jan-2020	04-Jan-2020	06-Jan-2020	02-Jan-2020	06-Jan-2020	04-Jan-2020	06-Jan-2020	06-Jan-2020	02-Jan-2020
Triazine Herbicides (S)*			08-Jan-2020	08-Jan-2020						08-Jan-2020
VOC MS (S)	27-Dec-2019	27-Dec-2019	27-Dec-2019	27-Dec-2019	27-Dec-2019	27-Dec-2019	24-Dec-2019	27-Dec-2019	27-Dec-2019	27-Dec-2019

Certificate of Analysis

Report No.:	**19-89627-2**
Issue No.:	**2**
Date of Issue	**07/01/2020**
Customer Details:	ALS Life Sciences Limited, Unit7-8, Hawarden Business Park, Manor Road, Hawarden, Deeside, Flintshire, CH5 3US
Customer Contact:	Carrie Foster
Customer Order No.:	191220-100
Customer Reference:	191220-100
Quotation Reference:	191111/01
Description:	3 soil samples
Date Received:	24/12/2019
Date Started:	02/01/2020
Date Completed:	03/01/2020
Test Methods:	Details available on request (refer to SOP code against relevant result/s)
Notes:	This report replaces issue 1 in its entirety



Approved By: **Matthew Hickson, Laboratory Manager**

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service.
This certificate shall not be reproduced except in full without the prior written approval of the laboratory.
Observations and interpretations are outside of the scope of UKAS accreditation.
Results reported herein relate only to the items supplied to the laboratory for testing.
Results on an Interim Report are not dry-weight corrected.
Where the laboratory is not responsible for the sampling, results apply to the sample(s) as they were received.

Results Summary

Report No.: 19-89627-2

Customer Reference: 191220-100

Customer Order No: 191220-100

Customer Sample No	**21420164**	**21420091**	**21419978**
Customer Sample ID	TP242	TP244	TP257
RPS Sample No	425186	425187	425188
Sample Type	**SOIL**	**SOIL**	**SOIL**
Sample Depth (m)	0.1m	0.3m	0.2m
Sampling Date	18/12/2019	18/12/2019	18/12/2019

Determinand	CAS No	Codes	SOP	Units	RL			
atrazine	1912-24-9	N	in house	mg/kg	0.02	< 0.02	< 0.02	< 0.02
prometryn	7287-19-6	N	346	mg/kg	0.02	< 0.02	< 0.02	< 0.02
propazine	139-40-2	N	346	mg/kg	0.02	< 0.02	< 0.02	< 0.02
simazine	122-34-9	N	346	mg/kg	0.02	< 0.02	< 0.02	< 0.02
terbuthylazine	5915-41-3	N	346	mg/kg	0.02	< 0.02	< 0.02	< 0.02
terbutryn	886-50-0	N	346	mg/kg	0.02	< 0.02	< 0.02	< 0.02
trietazine	1912-26-1	N	346	mg/kg	0.02	< 0.02	< 0.02	< 0.02

Deviating Samples

Report No.: 19-89627-2

Customer Reference: 191220-100

Customer Order No: 191220-100

Our policy on Deviating Samples has been implemented in accordance with UKAS Policy on Deviating Samples (TPS63).
RPS is not responsible for the integrity of samples as received, unless RPS personnel performed the sampling. Samples submitted may be declared to be deviating.
Where applicable the analysis method remains UKAS accredited, however results reported for a deviating sample may be compromised.
Where no sampling date was supplied, samples have been declared to be deviating. If the date can be supplied, results may be reissued if assessed not deviating.
Where the sample container used was unsuitable or broken, the sample is flagged as deviating and re-sampling/re-submisson may be required.

RPS No.	Customer No.	Customer ID	Date Sampled	Containers Received	Deviating	Reason for Deviation
425186	21420164		18/12/2019	100ml clear glass bottle	No	
425187	21420091		18/12/2019	100ml clear glass bottle	No	
425188	21419978		18/12/2019	100ml clear glass bottle	No	

Key Code	Description
U	UKAS Accredited Test - UKAS accreditation is only implied if the report carries the UKAS logo
F	UKAS Flexible Scope Test
M	MCERTS Accredited Test - MCERTS accreditation is only implied if the report carries the MCERTS logo
N	Not Accredited Test
O	Marine Management Organisation (MMO) Validated
S	Subcontracted to approved laboratory
US	Subcontracted to approved laboratory UKAS Accredited for the test
MS	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
SI	Subcontracted to internal RPS Group laboratory
USI	Subcontracted to internal RPS Group laboratory UKAS Accredited for the test
MSI	Subcontracted to internal RPS Group laboratory MCERTS/UKAS Accredited for the test
I/S (in results)	Insufficient Sample
U/S (in results)	Unsuitable Sample
S/C (in results)	See Comments
ND (in results)	Not Detected
DW (in units)	Results are expressed on a dry weight basis

Sample Type	Sample Retention and Disposal Period
Foodstuff	1 month (if frozen) from the issue date of this report
Waters	2 weeks from the issue date of this report
Other Liquids	1 month from the issue date of this report
Solids / Soils	1 month from the issue date of this report
Sediments	1 month from the issue date of this report

Note: Sample retention may be subject to agreement with the customer for particular projects

Where the dry solids value of a sample is low (<50%), reporting limits are automatically raised for all determinants analysed on an as-received basis.

Soil Typing	Description
Type 1	Clay - Brown
Type 2	Clay - Grey/Black
Type 3	Sand
Type 4	Top Soil (Standard)
Type 5	Top Soil (High Peat)
Type 6	Made Ground (>50% Clay)
Type 7	Made Ground (>50% Sand)
Type 8	Made Ground (>50% Top Soil)
Type X	Other

CERTIFICATE OF ANALYSIS

Work Order	: **PR2000308**	Issue Date	: 08-Jan-2020
Customer	: **ALS Life Sciences Ltd**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: ALS Hawarden Reporting	Contact	: Client Service
Address	: Unit 7-8 Hawarden Business Park Manor Road, Hawarden CH5 3US Deeside United Kingdom	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: euhdnsubconresults@ALSGlobal.com	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Project	: 191220-100	Page	: 1 of 2
Order number	: 191220-100	Date Samples Received	: 03-Jan-2020
		Quote number	: PR2018ALSAL-GB0004 (CZ-256-18-0022)
Site	: ----	Date of test	: 03-Jan-2020 - 08-Jan-2020
Sampled by	: client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.

The laboratory declares that the test results relate only to the listed samples. If the section "Sampled by" of the Certificate of analysis states: "Sampled by Customer" then the results relate to the sample as received.

Responsible for accuracy

Testing Laboratory No. 1163
Accredited by CAI according to
CSN EN ISO/IEC 17025:2018

Signatories		*Position*
Zdeněk Jirák		Environmental Business Unit Manager

Analytical Results

Sub-Matrix: SOIL	Client sample ID	21420154 TP242		21420085 TP244		21419966 TP257	
	Laboratory sample ID	PR2000308-001		PR2000308-002		PR2000308-003	
	Client sampling date / time	18-Dec-2019 00:00		18-Dec-2019 00:00		18-Dec-2019 00:00	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU
Physical Parameters									
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	**75.2**	± 6.0%	**76.3**	± 6.0%	**73.0**	± 6.0%
Pesticides									
2.4.5-T	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	<0.0100	----
2.4.5-TP	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	<0.0100	----
2.4-D	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	<0.0100	----
2.4-DB	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	<0.0100	----
2.4-DP (isomers)	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	<0.0100	----
4-CPP	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	<0.0100	----
Bentazone	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	<0.0100	----
Dinoseb	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	<0.0100	----
Fluroxypyr	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	<0.0100	----
MCPA	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	<0.0100	----
MCPB	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	<0.0100	----
MCPP (isomers)	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	<0.0100	----
Acifluorfen	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	<0.0100	----
Bromoxynil	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	<0.0100	----
DNOC	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	<0.0100	----
Dicamba	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	<0.0100	----
Diclofop	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	<0.0100	----
Ioxynil	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	<0.0100	----
Propoxycarbazone-sodium	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	<0.0100	----
Triclopyr	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	<0.0100	----
Triclosan	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	<0.0100	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.
Key: LOR = Limit of reporting; MU = Measurement Uncertainty. The MU does not include sampling uncertainty.

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	Method Descriptions
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-PESLMSA1	CZ_SOP_D06_03_182.B (CSN EN 15637, US EPA 1694) Determination of acidic herbicides and drug residues by liquid chromatography method with MS/MS detection.

A `*` symbol preceding any method indicates laboratory or subcontractor non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information. If the report contains subcontracted analysis, those are made in a subcontracted laboratory outside the laboratories ALS Czech Republic, s.r.o.
The calculation methods of summation parameters are available on request in the client service.

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

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

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2107).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Endeavour Drilling
Aldgate Tower
2 Leman Street
London
E1 8FA

Attention: Oliver Wendland

CERTIFICATE OF ANALYSIS

Date of report Generation:	28 January 2020
Customer:	Endeavour Drilling
Sample Delivery Group (SDG):	200118-47
Your Reference:	J4175 Stantec/ L & G
Location:	Moathouse Farm, Rusper Rd, Horsham
Report No:	538707

We received 16 samples on Saturday January 18, 2020 and 11 of these samples were scheduled for analysis which was completed on Tuesday January 28, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	200118-47	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	538707
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
21512438	BH201			17/01/2020
21512439	BH203			17/01/2020
21512440	BH204			17/01/2020
21512441	BH205			17/01/2020
21512442	BH206			17/01/2020
21512443	BH208			17/01/2020
21512452	RIVER SAMPLE 1			17/01/2020
21512453	RIVER SAMPLE 2			17/01/2020
21512454	RIVER SAMPLE 3			17/01/2020
21512455	RIVER SAMPLE 4			17/01/2020
21512444	WS201			17/01/2020
21512449	WS206			17/01/2020
21512445	WS202A			17/01/2020
21512446	WS204A			17/01/2020
21512447	WS205A			17/01/2020
21512451	WS207A			17/01/2020

Maximum Sample/Coolbox Temperature (°C) : **8.2**

ISO5667-3 Water quality - Sampling - Part3 -
During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	200118-47	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	538707
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			21512440		21512441		21512443		21512452		21512453		21512454		21512455		21512449	21512445	21512446	21512447
Customer Sample Reference			BH204		BH205		BH208		RIVER SAMPLE 1		RIVER SAMPLE 2		RIVER SAMPLE 3		RIVER SAMPLE 4		WS206	WS202A	WS204A	WS205A
AGS Reference																				
Depth (m)																				
Container			0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	500ml Plastic (ALE208)	500ml Plastic (ALE208)	500ml Plastic (ALE208)	500ml Plastic (ALE208)
Sample Type			GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Alkalinity as CaCO3	All	NDPs: 0 Tests: 11		X		X		X		X		X		X		X	X	X	X	X
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 11		X		X		X		X		X		X		X	X	X	X	X
Pesticides (Suite I) by GCMS	All	NDPs: 1 Tests: 6	N		X		X		X		X		X		X					
Pesticides (Suite II) by GCMS	All	NDPs: 1 Tests: 6	N		X		X		X		X		X		X					
Pesticides (Suite III) by GCMS	All	NDPs: 1 Tests: 6	N		X		X		X		X		X		X					
pH Value	All	NDPs: 0 Tests: 11		X		X		X		X		X		X		X	X	X	X	X

CERTIFICATE OF ANALYSIS

SDG:	200118-47	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	538707
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH204	BH205	BH208	RIVER SAMPLE 1	RIVER SAMPLE 2	RIVER SAMPLE 3
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	17/01/2020	17/01/2020	17/01/2020	17/01/2020	17/01/2020	17/01/2020
			Sample Time	.	.	.	.	.	.
			Date Received	18/01/2020	18/01/2020	18/01/2020	18/01/2020	18/01/2020	18/01/2020
			SDG Ref	200118-47	200118-47	200118-47	200118-47	200118-47	200118-47
			Lab Sample No.(s)	21512440	21512441	21512443	21512452	21512453	21512454
			AGS Reference						
Alkalinity, Total as CaCO3	<2 mg/l	TM043		362	134	90	90	95	<2
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		0.821	0.383	0.33	0.238	0.232	1.5
pH	<1 pH Units	TM256		7.57	7.04	6.66	7.39	7.5	2.53
Trifluralin	<0.01 µg/l	TM343			<0.01	<0.02	<0.01	<0.02	<0.02
alpha-HCH	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01
gamma-HCH (Lindane)	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01
Heptachlor	<0.01 µg/l	TM343			<0.01	<0.02	<0.01	<0.02	<0.02
Aldrin	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01
beta-HCH	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01
Isodrin	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01
delta-HCH	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01
Heptachlor epoxide	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01
o,p'-DDE	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01
Endosulphan I	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01
trans-Chlordane	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01
cis-Chlordane	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01
p,p'-DDE	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01
Dieldrin	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01
o,p'-DDD (TDE)	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01
Endrin	<0.01 µg/l	TM343			<0.01	<0.02	<0.01	<0.02	<0.02
o,p'-DDT	<0.01 µg/l	TM343			<0.01	<0.02	<0.01	<0.02	<0.02
p,p'-DDD (TDE)	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01
Endosulphan II	<0.02 µg/l	TM343			<0.02	<0.02	<0.02	<0.02	<0.02
p,p'-DDT	<0.01 µg/l	TM343			<0.01	<0.04	<0.01	<0.04	<0.04
o,p'-Methoxychlor	<0.01 µg/l	TM343			<0.01	<0.03	<0.01	<0.03	<0.03
p,p'-Methoxychlor	<0.01 µg/l	TM343			<0.02	<0.08	<0.02	<0.08	<0.08
Endosulphan Sulphate	<0.02 µg/l	TM343			<0.02	<0.02	<0.02	<0.02	<0.02
Permethrin I	<0.01 µg/l	TM343			<0.01	<0.02	<0.01	<0.02	<0.02
Permethrin II	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01
1,3,5-Trichlorobenzene	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01	<0.01
Hexachlorobutadiene	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01	<0.01
1,2,4-Trichlorobenzene	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01	<0.01
1,2,3-Trichlorobenzene	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01	<0.01

CERTIFICATE OF ANALYSIS

SDG:	200118-47	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	538707
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH204	BH205	BH208	RIVER SAMPLE 1	RIVER SAMPLE 2	RIVER SAMPLE 3
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	17/01/2020	17/01/2020	17/01/2020	17/01/2020	17/01/2020	17/01/2020
			Sample Time	.	.	.	.	.	.
			Date Received	18/01/2020	18/01/2020	18/01/2020	18/01/2020	18/01/2020	18/01/2020
			SDG Ref	200118-47	200118-47	200118-47	200118-47	200118-47	200118-47
			Lab Sample No.(s)	21512440	21512441	21512443	21512452	21512453	21512454
			AGS Reference						
Dichlorvos	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dichlobenil	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Mevinphos	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tecnazene	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Hexachlorobenzene	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Demeton-S-methyl	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phorate	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Diazinon	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Triallate	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Atrazine	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Simazine	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Disulfoton	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Propetamphos	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chlorpyriphos-methyl	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Dimethoate	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Pirimiphos-methyl	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Chlorpyriphos	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Methyl Parathion	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Malathion	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Fenthion	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Fenitrothion	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Triadimefon	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Pendimethalin	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Parathion	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Chlorfenvinphos	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
trans-Chlordane	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
cis-Chlordane	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Ethion	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Carbophenothion	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Triazophos	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Phosalone	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Azinphos methyl	<0.02 µg/l	TM344		<0.06	<0.06	<0.06	<0.06	<0.06	<0.06

Validated

CERTIFICATE OF ANALYSIS

SDG:	200118-47	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	538707
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH204	BH205	BH208	RIVER SAMPLE 1	RIVER SAMPLE 2	RIVER SAMPLE 3
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	17/01/2020	17/01/2020	17/01/2020	17/01/2020	17/01/2020	17/01/2020
			Sample Time	.	.	.	.	.	.
			Date Received	18/01/2020	18/01/2020	18/01/2020	18/01/2020	18/01/2020	18/01/2020
			SDG Ref	200118-47	200118-47	200118-47	200118-47	200118-47	200118-47
			Lab Sample No.(s)	21512440	21512441	21512443	21512452	21512453	21512454
			AGS Reference						
Azinphos ethyl	<0.02 µg/l	TM344		<0.04	<0.02	<0.04	<0.04	<0.04	
Etridiazole	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Pentachlorobenzene	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Tributylphosphate	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Propachlor	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Quintozene (PCNB)	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Omethoate	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Propazine	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Propyzamide	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Alachlor	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Prometryn	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Telodrin	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Terbutryn	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Chlorothalonil	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Etrimphos	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Metazachlor	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Cyanazine	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Trietazine	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Coumaphos	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Phosphamidon I	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Phosphamidon II	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	

CERTIFICATE OF ANALYSIS

SDG:	200118-47	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	538707
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	RIVER SAMPLE 4	WS206	WS202A	WS204A	WS205A
			Depth (m)	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	17/01/2020	17/01/2020	17/01/2020	17/01/2020	17/01/2020
			Sample Time	.	.	.	.	.
			Date Received	18/01/2020	18/01/2020	18/01/2020	18/01/2020	18/01/2020
			SDG Ref	200118-47	200118-47	200118-47	200118-47	200118-47
			Lab Sample No.(s)	21512455	21512449	21512445	21512446	21512447
			AGS Reference					
Alkalinity, Total as CaCO3	<2 mg/l	TM043		70	307	240	168	210
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		0.239	1.11	0.433	2.1	0.274
pH	<1 pH Units	TM256		7.67	6.55	8.21	6.41	5.93
Trifluralin	<0.01 µg/l	TM343		<0.02				
alpha-HCH	<0.01 µg/l	TM343		<0.01				
gamma-HCH (Lindane)	<0.01 µg/l	TM343		<0.01				
Heptachlor	<0.01 µg/l	TM343		<0.02				
Aldrin	<0.01 µg/l	TM343		<0.01				
beta-HCH	<0.01 µg/l	TM343		<0.01				
Isodrin	<0.01 µg/l	TM343		<0.01				
delta-HCH	<0.01 µg/l	TM343		<0.01				
Heptachlor epoxide	<0.01 µg/l	TM343		<0.01				
o,p'-DDE	<0.01 µg/l	TM343		<0.01				
Endosulphan I	<0.01 µg/l	TM343		<0.01				
trans-Chlordane	<0.01 µg/l	TM343		<0.01				
cis-Chlordane	<0.01 µg/l	TM343		<0.01				
p,p'-DDE	<0.01 µg/l	TM343		<0.01				
Dieldrin	<0.01 µg/l	TM343		<0.01				
o,p'-DDD (TDE)	<0.01 µg/l	TM343		<0.01				
Endrin	<0.01 µg/l	TM343		<0.02				
o,p'-DDT	<0.01 µg/l	TM343		<0.02				
p,p'-DDD (TDE)	<0.01 µg/l	TM343		<0.01				
Endosulphan II	<0.02 µg/l	TM343		<0.02				
p,p'-DDT	<0.01 µg/l	TM343		<0.04				
o,p'-Methoxychlor	<0.01 µg/l	TM343		<0.03				
p,p'-Methoxychlor	<0.01 µg/l	TM343		<0.08				
Endosulphan Sulphate	<0.02 µg/l	TM343		<0.02				
Permethrin I	<0.01 µg/l	TM343		<0.02				
Permethrin II	<0.01 µg/l	TM343		<0.01				
1,3,5-Trichlorobenzene	<0.01 µg/l	TM344		<0.01				
Hexachlorobutadiene	<0.01 µg/l	TM344		<0.01				
1,2,4-Trichlorobenzene	<0.01 µg/l	TM344		<0.01				
1,2,3-Trichlorobenzene	<0.01 µg/l	TM344		<0.01				

CERTIFICATE OF ANALYSIS

SDG:	200118-47	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	538707
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
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aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	RIVER SAMPLE 4	WS206	WS202A	WS204A	WS205A
			Depth (m)	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	17/01/2020	17/01/2020	17/01/2020	17/01/2020	17/01/2020
			Sample Time	.	.	.	.	.
			Date Received	18/01/2020	18/01/2020	18/01/2020	18/01/2020	18/01/2020
			SDG Ref	200118-47	200118-47	200118-47	200118-47	200118-47
			Lab Sample No.(s)	21512455	21512449	21512445	21512446	21512447
			AGS Reference					
Dichlorvos	<0.01 µg/l	TM344		<0.01				
Dichlobenil	<0.01 µg/l	TM344		<0.01				
Mevinphos	<0.01 µg/l	TM344		<0.01				
Tecnazene	<0.01 µg/l	TM344		<0.01				
Hexachlorobenzene	<0.01 µg/l	TM344		<0.01				
Demeton-S-methyl	<0.01 µg/l	TM344		<0.01				
Phorate	<0.01 µg/l	TM344		<0.01				
Diazinon	<0.01 µg/l	TM344		<0.01				
Triallate	<0.01 µg/l	TM344		<0.01				
Atrazine	<0.01 µg/l	TM344		<0.01				
Simazine	<0.01 µg/l	TM344		<0.01				
Disulfoton	<0.01 µg/l	TM344		<0.01				
Propetamphos	<0.01 µg/l	TM344		<0.01				
Chlorpyriphos-methyl	<0.01 µg/l	TM344		<0.02				
Dimethoate	<0.01 µg/l	TM344		<0.02				
Pirimiphos-methyl	<0.01 µg/l	TM344		<0.02				
Chlorpyriphos	<0.01 µg/l	TM344		<0.02				
Methyl Parathion	<0.01 µg/l	TM344		<0.02				
Malathion	<0.01 µg/l	TM344		<0.02				
Fenthion	<0.01 µg/l	TM344		<0.02				
Fenitrothion	<0.01 µg/l	TM344		<0.02				
Triadimefon	<0.01 µg/l	TM344		<0.02				
Pendimethalin	<0.01 µg/l	TM344		<0.02				
Parathion	<0.01 µg/l	TM344		<0.02				
Chlorfenvinphos	<0.01 µg/l	TM344		<0.02				
trans-Chlordane	<0.01 µg/l	TM344		<0.02				
cis-Chlordane	<0.01 µg/l	TM344		<0.02				
Ethion	<0.01 µg/l	TM344		<0.02				
Carbophenothion	<0.01 µg/l	TM344		<0.02				
Triazophos	<0.01 µg/l	TM344		<0.02				
Phosalone	<0.01 µg/l	TM344		<0.02				
Azinphos methyl	<0.02 µg/l	TM344		<0.06				

Validated

CERTIFICATE OF ANALYSIS

SDG:	200118-47	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	538707
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	Depth (m)	Sample Type	Date Sampled	Sample Time	Date Received	SDG Ref	Lab Sample No.(s)	AGS Reference
			RIVER SAMPLE 4	.	Ground Water (GW)	17/01/2020	.	18/01/2020	200118-47	21512455	
			WS206	.	Ground Water (GW)	17/01/2020	.	18/01/2020	200118-47	21512449	
			WS202A	.	Ground Water (GW)	17/01/2020	.	18/01/2020	200118-47	21512445	
			WS204A	.	Ground Water (GW)	17/01/2020	.	18/01/2020	200118-47	21512446	
			WS205A	.	Ground Water (GW)	17/01/2020	.	18/01/2020	200118-47	21512447	
Azinphos ethyl	<0.02 µg/l	TM344	<0.04								
Etridiazole	<0.01 µg/l	TM345	<0.01								
Pentachlorobenzene	<0.01 µg/l	TM345	<0.01								
Tributylphosphate	<0.01 µg/l	TM345	<0.01								
Propachlor	<0.01 µg/l	TM345	<0.01								
Quintozene (PCNB)	<0.01 µg/l	TM345	<0.01								
Omethoate	<0.01 µg/l	TM345	<0.01								
Propazine	<0.01 µg/l	TM345	<0.01								
Propyzamide	<0.01 µg/l	TM345	<0.01								
Alachlor	<0.01 µg/l	TM345	<0.01								
Prometryn	<0.01 µg/l	TM345	<0.01								
Telodrin	<0.01 µg/l	TM345	<0.01								
Terbutryn	<0.01 µg/l	TM345	<0.01								
Chlorothalonil	<0.01 µg/l	TM345	<0.01								
Etrimphos	<0.01 µg/l	TM345	<0.01								
Metazachlor	<0.01 µg/l	TM345	<0.01								
Cyanazine	<0.01 µg/l	TM345	<0.01								
Trietazine	<0.01 µg/l	TM345	<0.01								
Coumaphos	<0.01 µg/l	TM345	<0.01								
Phosphamidon I	<0.01 µg/l	TM345	<0.01								
Phosphamidon II	<0.01 µg/l	TM345	<0.01								

CERTIFICATE OF ANALYSIS

SDG:	200118-47	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	538707
Location:	Moathouse Farm, Rusper Ro	**Order Number:**		**Superseded Report:**	

Notification of NDPs (No determination possible)

Date Received : 18/01/2020 11:37:06

Sample No	Customer Sample Ref.	Depth (m)	Test	Comment
21512440	BH204		Pesticides (Suite I) by GCMS	Sample unsuitable for extraction
21512440	BH204		Pesticides (Suite II) by GCMS	Sample unsuitable for extraction
21512440	BH204		Pesticides (Suite III) by GCMS	Sample unsuitable for extraction

Table of Results - Appendix

Method No	Reference	Description
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter
TM343	EPA 8270D - Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of Selected Pesticides (Suite I) in Liquids by GCMS
TM344	EPA 8270D – Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of selected pesticides (Suite II) by GCMS
TM345	EPA 8270D – Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of selected pesticides (Suite III) by GCMS

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

Validated

CERTIFICATE OF ANALYSIS

SDG:	200118-47	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	538707
Location:	Moathouse Farm, Rusper Rd	**Order Number:**		**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	21512440	21512441	21512443	21512452	21512453	21512454	21512455	21512449	21512445	21512446
Customer Sample Ref.	BH204	BH205	BH208	RIVER SAMPLE 1	RIVER SAMPLE 2	RIVER SAMPLE 3	RIVER SAMPLE 4	WS206	WS202A	WS204A
AGS Ref.										
Depth										
Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Alkalinity as CaCO3	23-Jan-2020	23-Jan-2020	24-Jan-2020	21-Jan-2020	21-Jan-2020	21-Jan-2020	21-Jan-2020	23-Jan-2020	21-Jan-2020	23-Jan-2020
Conductivity (at 20 deg.C)	24-Jan-2020	24-Jan-2020	24-Jan-2020	24-Jan-2020	24-Jan-2020	24-Jan-2020	24-Jan-2020	24-Jan-2020	24-Jan-2020	24-Jan-2020
Pesticides (Suite I) by GCMS		28-Jan-2020	28-Jan-2020	28-Jan-2020	28-Jan-2020	28-Jan-2020	28-Jan-2020			
Pesticides (Suite II) by GCMS		27-Jan-2020	27-Jan-2020	27-Jan-2020	27-Jan-2020	27-Jan-2020	27-Jan-2020			
Pesticides (Suite III) by GCMS		27-Jan-2020	27-Jan-2020	27-Jan-2020	27-Jan-2020	27-Jan-2020	27-Jan-2020			
pH Value	23-Jan-2020	23-Jan-2020	23-Jan-2020	23-Jan-2020	23-Jan-2020	23-Jan-2020	23-Jan-2020	23-Jan-2020	23-Jan-2020	23-Jan-2020

Lab Sample No(s)	21512447
Customer Sample Ref.	WS205A
AGS Ref.	
Depth	
Type	Ground Water
Alkalinity as CaCO3	24-Jan-2020
Conductivity (at 20 deg.C)	24-Jan-2020
pH Value	23-Jan-2020

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

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

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2107).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Endeavour Drilling
Aldgate Tower
2 Leman Street
London
E1 8FA

Attention: Oliver Wendland

CERTIFICATE OF ANALYSIS

Date of report Generation:	13 February 2020
Customer:	Endeavour Drilling
Sample Delivery Group (SDG):	200118-47
Your Reference:	J4175 Stantec/ L & G
Location:	Moathouse Farm, Rusper Rd, Horsham
Report No:	541129

This report has been revised and directly supersedes 538707 in its entirety.

We received 16 samples on Saturday January 18, 2020 and 11 of these samples were scheduled for analysis which was completed on Thursday February 13, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan
Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	200118-47	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	541129
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13519AP	**Superseded Report:**	538707

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
21512438	BH201			17/01/2020
21512439	BH203			17/01/2020
21512440	BH204			17/01/2020
21512441	BH205			17/01/2020
21512442	BH206			17/01/2020
21512443	BH208			17/01/2020
21512452	RIVER SAMPLE 1			17/01/2020
21512453	RIVER SAMPLE 2			17/01/2020
21512454	RIVER SAMPLE 3			17/01/2020
21512455	RIVER SAMPLE 4			17/01/2020
21512444	WS201			17/01/2020
21512449	WS206			17/01/2020
21512445	WS202A			17/01/2020
21512446	WS204A			17/01/2020
21512447	WS205A			17/01/2020
21512451	WS207A			17/01/2020

Maximum Sample/Coolbox Temperature (°C) : **8.2**

ISO5667-3 Water quality - Sampling - Part3 -
During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	200118-47	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	541129
Location:	Moathouse Farm, Rusper Rd	**Order Number:**	13519AP	**Superseded Report:**	538707

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			21512440		21512441			21512443		21512452		21512453		21512454			21512455			21512449	
Customer Sample Reference			BH204		BH205			BH208		RIVER SAMPLE 1		RIVER SAMPLE 2		RIVER SAMPLE 3			RIVER SAMPLE 4			WS206	
AGS Reference																					
Depth (m)																					
Container			0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	0.5l glass bottle (ALE227)
Sample Type			GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Alkalinity as CaCO3	All	NDPs: 0 Tests: 11		X		X			X		X			X		X			X				
Ammonium Low	All	NDPs: 0 Tests: 11		X			X		X			X		X			X			X			
Anions by Kone (w)	All	NDPs: 0 Tests: 11		X		X			X		X			X		X			X				
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 11		X		X			X		X			X		X			X				
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 11	X		X			X		X			X		X			X					X
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 11		X		X			X		X			X		X			X				
Pesticides (Suite I) by GCMS	All	NDPs: 1 Tests: 6	N		X			X		X			X		X			X					
Pesticides (Suite II) by GCMS	All	NDPs: 1 Tests: 6	N		X			X		X			X		X			X					
Pesticides (Suite III) by GCMS	All	NDPs: 1 Tests: 6	N		X			X		X			X		X			X					
pH Value	All	NDPs: 0 Tests: 11		X		X			X		X			X		X			X				

21512447	WS205A			H2SO4 (ALE244)	GW				X																
				500ml Plastic (ALE208)	GW		X				X		X				X								X
				0.5l glass bottle (ALE227)	GW										X										
21512446	WS204A			H2SO4 (ALE244)	GW				X																
				500ml Plastic (ALE208)	GW		X				X		X				X								X
				0.5l glass bottle (ALE227)	GW										X										
21512445	WS202A			H2SO4 (ALE244)	GW				X																
				500ml Plastic (ALE208)	GW		X				X		X				X								X
				0.5l glass bottle (ALE227)	GW										X										
21512449	WS206			H2SO4 (ALE244)	GW				X																
				500ml Plastic (ALE208)	GW		X				X		X				X								X

Validated

CERTIFICATE OF ANALYSIS

SDG:	200118-47	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	541129
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13519AP	**Superseded Report:**	538707

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH204	BH205	BH208	RIVER SAMPLE 1	RIVER SAMPLE 2	RIVER SAMPLE 3
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	17/01/2020	17/01/2020	17/01/2020	17/01/2020	17/01/2020	17/01/2020
			Sample Time	.	.	.	.	.	.
			Date Received	18/01/2020	18/01/2020	18/01/2020	18/01/2020	18/01/2020	18/01/2020
			SDG Ref	200118-47	200118-47	200118-47	200118-47	200118-47	200118-47
			Lab Sample No.(s)	21512440	21512441	21512443	21512452	21512453	21512454
			AGS Reference						
Alkalinity, Total as CaCO3	<2 mg/l	TM043		362	134	90	90	95	<2
Carbon, Organic (diss.filt)	<3 mg/l	TM090		5.23	4.69	<3	8.4	8.74	10
Ammoniacal Nitrogen as N (low level)	<0.01 mg/l	TM099		0.0927 2 #	0.097 #	0.0609 2 #	0.0488 #	0.0423 2 #	0.0876 #
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		0.821	0.383	0.33	0.238	0.232	1.5
Sulphate	<2 mg/l	TM184		138 #	34.1 #	28.5 #	16.3 #	11.7 #	311 #
Chloride	<2 mg/l	TM184		111 #	24 #	33.3 #	16.2 #	15.5 #	16.2 #
Chromium, Hexavalent	<0.03 mg/l	TM241		<0.03 @ #	<0.03 @ #	<0.03 @ #	<0.03 @ #	<0.03 @ #	<0.03 @ #
pH	<1 pH Units	TM256		7.57	7.04	6.66	7.39	7.5	2.53
Trifluralin	<0.01 µg/l	TM343			<0.01	<0.02	<0.01	<0.02	<0.02
alpha-HCH	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01
gamma-HCH (Lindane)	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01
Heptachlor	<0.01 µg/l	TM343			<0.01	<0.02	<0.01	<0.02	<0.02
Aldrin	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01
beta-HCH	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01
Isodrin	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01
delta-HCH	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01
Heptachlor epoxide	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01
o,p'-DDE	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01
Endosulphan I	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01
trans-Chlordane	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01
cis-Chlordane	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01
p,p'-DDE	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01
Dieldrin	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01
o,p'-DDD (TDE)	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01
Endrin	<0.01 µg/l	TM343			<0.01	<0.02	<0.01	<0.02	<0.02
o,p'-DDT	<0.01 µg/l	TM343			<0.01	<0.02	<0.01	<0.02	<0.02
p,p'-DDD (TDE)	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01	<0.01
Endosulphan II	<0.02 µg/l	TM343			<0.02	<0.02	<0.02	<0.02	<0.02
p,p'-DDT	<0.01 µg/l	TM343			<0.01	<0.04	<0.01	<0.04	<0.04
o,p'-Methoxychlor	<0.01 µg/l	TM343			<0.01	<0.03	<0.01	<0.03	<0.03
p,p'-Methoxychlor	<0.01 µg/l	TM343			<0.02	<0.08	<0.02	<0.08	<0.08
Endosulphan Sulphate	<0.02 µg/l	TM343			<0.02	<0.02	<0.02	<0.02	<0.02
Permethrin I	<0.01 µg/l	TM343			<0.01	<0.02	<0.01	<0.02	<0.02

CERTIFICATE OF ANALYSIS

SDG:	200118-47	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	541129
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13519AP	**Superseded Report:**	538707

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH204	BH205	BH208	RIVER SAMPLE 1	RIVER SAMPLE 2	RIVER SAMPLE 3
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	17/01/2020	17/01/2020	17/01/2020	17/01/2020	17/01/2020	17/01/2020
			Sample Time	.	.	.	.	.	.
			Date Received	18/01/2020	18/01/2020	18/01/2020	18/01/2020	18/01/2020	18/01/2020
			SDG Ref	200118-47	200118-47	200118-47	200118-47	200118-47	200118-47
			Lab Sample No.(s)	21512440	21512441	21512443	21512452	21512453	21512454
			AGS Reference						
Permethrin II	<0.01 µg/l	TM343		<0.01	<0.01	<0.01	<0.01	<0.01	
1,3,5-Trichlorobenzene	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01	<0.01	
Hexachlorobutadiene	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01	<0.01	
1,2,4-Trichlorobenzene	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01	<0.01	
1,2,3-Trichlorobenzene	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01	<0.01	
Dichlorvos	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01	<0.01	
Dichlobenil	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01	<0.01	
Mevinphos	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01	<0.01	
Tecnazene	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01	<0.01	
Hexachlorobenzene	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01	<0.01	
Demeton-S-methyl	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01	<0.01	
Phorate	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01	<0.01	
Diazinon	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01	<0.01	
Triallate	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01	<0.01	
Atrazine	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01	<0.01	
Simazine	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01	<0.01	
Disulfoton	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01	<0.01	
Propetamphos	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01	<0.01	
Chlorpyriphos-methyl	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	
Dimethoate	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	
Pirimiphos-methyl	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	
Chlorpyriphos	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	
Methyl Parathion	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	
Malathion	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	
Fenthion	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	
Fenitrothion	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	
Triadimefon	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	
Pendimethalin	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	
Parathion	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	
Chlorfenvinphos	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	
trans-Chlordane	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	
cis-Chlordane	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	

CERTIFICATE OF ANALYSIS

SDG:	200118-47	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	541129
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13519AP	**Superseded Report:**	538707

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH204	BH205	BH208	RIVER SAMPLE 1	RIVER SAMPLE 2	RIVER SAMPLE 3
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	17/01/2020	17/01/2020	17/01/2020	17/01/2020	17/01/2020	17/01/2020
			Sample Time	.	.	.	.	.	.
			Date Received	18/01/2020	18/01/2020	18/01/2020	18/01/2020	18/01/2020	18/01/2020
			SDG Ref	200118-47	200118-47	200118-47	200118-47	200118-47	200118-47
			Lab Sample No.(s)	21512440	21512441	21512443	21512452	21512453	21512454
			AGS Reference						
Ethion	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	
Carbophenothion	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	
Triazophos	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	
Phosalone	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02	<0.02	
Azinphos methyl	<0.02 µg/l	TM344		<0.06	<0.06	<0.06	<0.06	<0.06	
Azinphos ethyl	<0.02 µg/l	TM344		<0.04	<0.02	<0.04	<0.04	<0.04	
Etridiazole	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Pentachlorobenzene	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Tributylphosphate	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Propachlor	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Quintozene (PCNB)	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Omethoate	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Propazine	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Propyzamide	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Alachlor	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Prometryn	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Telodrin	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Terbutryn	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Chlorothalonil	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Etrimphos	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Metazachlor	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Cyanazine	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Trietazine	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Coumaphos	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Phosphamidon I	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	
Phosphamidon II	<0.01 µg/l	TM345		<0.02	<0.05	<0.01	<0.01	<0.01	

Validated

CERTIFICATE OF ANALYSIS

SDG:	200118-47	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	541129
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13519AP	**Superseded Report:**	538707

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	RIVER SAMPLE 4	WS206	WS202A	WS204A	WS205A
			Depth (m)	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	17/01/2020	17/01/2020	17/01/2020	17/01/2020	17/01/2020
			Sample Time	.	.	.	.	.
			Date Received	18/01/2020	18/01/2020	18/01/2020	18/01/2020	18/01/2020
			SDG Ref	200118-47	200118-47	200118-47	200118-47	200118-47
			Lab Sample No.(s)	21512455	21512449	21512445	21512446	21512447
			AGS Reference					
Alkalinity, Total as CaCO3	<2 mg/l	TM043		70	307	240	168	210
Carbon, Organic (diss.filt)	<3 mg/l	TM090		8.62	9.26	7.43	33.9	6.63
Ammoniacal Nitrogen as N (low level)	<0.01 mg/l	TM099		0.181 #	<0.01 #	0.216 #	1.44 #	0.116 #
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		0.239	1.11	0.433	2.1	0.274
Sulphate	<2 mg/l	TM184		19.8 #	218 #	22.6 #	1010 #	63.6 #
Chloride	<2 mg/l	TM184		22.8 #	113 #	16.9 #	120 #	33 #
Chromium, Hexavalent	<0.03 mg/l	TM241		<0.03 @ #	<0.03 @ #	<0.03 @ #	<0.03 @ #	<0.03 @ #
pH	<1 pH Units	TM256		7.67	6.55	8.21	6.41	5.93
Trifluralin	<0.01 µg/l	TM343		<0.02				
alpha-HCH	<0.01 µg/l	TM343		<0.01				
gamma-HCH (Lindane)	<0.01 µg/l	TM343		<0.01				
Heptachlor	<0.01 µg/l	TM343		<0.02				
Aldrin	<0.01 µg/l	TM343		<0.01				
beta-HCH	<0.01 µg/l	TM343		<0.01				
Isodrin	<0.01 µg/l	TM343		<0.01				
delta-HCH	<0.01 µg/l	TM343		<0.01				
Heptachlor epoxide	<0.01 µg/l	TM343		<0.01				
o,p'-DDE	<0.01 µg/l	TM343		<0.01				
Endosulphan I	<0.01 µg/l	TM343		<0.01				
trans-Chlordane	<0.01 µg/l	TM343		<0.01				
cis-Chlordane	<0.01 µg/l	TM343		<0.01				
p,p'-DDE	<0.01 µg/l	TM343		<0.01				
Dieldrin	<0.01 µg/l	TM343		<0.01				
o,p'-DDD (TDE)	<0.01 µg/l	TM343		<0.01				
Endrin	<0.01 µg/l	TM343		<0.02				
o,p'-DDT	<0.01 µg/l	TM343		<0.02				
p,p'-DDD (TDE)	<0.01 µg/l	TM343		<0.01				
Endosulphan II	<0.02 µg/l	TM343		<0.02				
p,p'-DDT	<0.01 µg/l	TM343		<0.04				
o,p'-Methoxychlor	<0.01 µg/l	TM343		<0.03				
p,p'-Methoxychlor	<0.01 µg/l	TM343		<0.08				
Endosulphan Sulphate	<0.02 µg/l	TM343		<0.02				
Permethrin I	<0.01 µg/l	TM343		<0.02				

CERTIFICATE OF ANALYSIS

SDG:	200118-47	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	541129
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13519AP	**Superseded Report:**	538707

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	RIVER SAMPLE 4	WS206	WS202A	WS204A	WS205A
			Depth (m)	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	17/01/2020	17/01/2020	17/01/2020	17/01/2020	17/01/2020
			Sample Time	.	.	.	.	.
			Date Received	18/01/2020	18/01/2020	18/01/2020	18/01/2020	18/01/2020
			SDG Ref	200118-47	200118-47	200118-47	200118-47	200118-47
			Lab Sample No.(s)	21512455	21512449	21512445	21512446	21512447
			AGS Reference					
Permethrin II	<0.01 µg/l	TM343		<0.01				
1,3,5-Trichlorobenzene	<0.01 µg/l	TM344		<0.01				
Hexachlorobutadiene	<0.01 µg/l	TM344		<0.01				
1,2,4-Trichlorobenzene	<0.01 µg/l	TM344		<0.01				
1,2,3-Trichlorobenzene	<0.01 µg/l	TM344		<0.01				
Dichlorvos	<0.01 µg/l	TM344		<0.01				
Dichlobenil	<0.01 µg/l	TM344		<0.01				
Mevinphos	<0.01 µg/l	TM344		<0.01				
Tecnazene	<0.01 µg/l	TM344		<0.01				
Hexachlorobenzene	<0.01 µg/l	TM344		<0.01				
Demeton-S-methyl	<0.01 µg/l	TM344		<0.01				
Phorate	<0.01 µg/l	TM344		<0.01				
Diazinon	<0.01 µg/l	TM344		<0.01				
Triallate	<0.01 µg/l	TM344		<0.01				
Atrazine	<0.01 µg/l	TM344		<0.01				
Simazine	<0.01 µg/l	TM344		<0.01				
Disulfoton	<0.01 µg/l	TM344		<0.01				
Propetamphos	<0.01 µg/l	TM344		<0.01				
Chlorpyriphos-methyl	<0.01 µg/l	TM344		<0.02				
Dimethoate	<0.01 µg/l	TM344		<0.02				
Pirimiphos-methyl	<0.01 µg/l	TM344		<0.02				
Chlorpyriphos	<0.01 µg/l	TM344		<0.02				
Methyl Parathion	<0.01 µg/l	TM344		<0.02				
Malathion	<0.01 µg/l	TM344		<0.02				
Fenthion	<0.01 µg/l	TM344		<0.02				
Fenitrothion	<0.01 µg/l	TM344		<0.02				
Triadimefon	<0.01 µg/l	TM344		<0.02				
Pendimethalin	<0.01 µg/l	TM344		<0.02				
Parathion	<0.01 µg/l	TM344		<0.02				
Chlorfenvinphos	<0.01 µg/l	TM344		<0.02				
trans-Chlordane	<0.01 µg/l	TM344		<0.02				
cis-Chlordane	<0.01 µg/l	TM344		<0.02				

CERTIFICATE OF ANALYSIS

SDG:	200118-47	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	541129
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13519AP	**Superseded Report:**	538707

Results Legend

#	ISO17025 accredited.
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aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
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**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	RIVER SAMPLE 4	WS206	WS202A	WS204A	WS205A
			Depth (m)	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	17/01/2020	17/01/2020	17/01/2020	17/01/2020	17/01/2020
			Sample Time	.	.	.	.	.
			Date Received	18/01/2020	18/01/2020	18/01/2020	18/01/2020	18/01/2020
			SDG Ref	200118-47	200118-47	200118-47	200118-47	200118-47
			Lab Sample No.(s)	21512455	21512449	21512445	21512446	21512447
			AGS Reference					
Ethion	<0.01 µg/l	TM344		<0.02				
Carbophenothion	<0.01 µg/l	TM344		<0.02				
Triazophos	<0.01 µg/l	TM344		<0.02				
Phosalone	<0.01 µg/l	TM344		<0.02				
Azinphos methyl	<0.02 µg/l	TM344		<0.06				
Azinphos ethyl	<0.02 µg/l	TM344		<0.04				
Etridiazole	<0.01 µg/l	TM345		<0.01				
Pentachlorobenzene	<0.01 µg/l	TM345		<0.01				
Tributylphosphate	<0.01 µg/l	TM345		<0.01				
Propachlor	<0.01 µg/l	TM345		<0.01				
Quintozene (PCNB)	<0.01 µg/l	TM345		<0.01				
Omethoate	<0.01 µg/l	TM345		<0.01				
Propazine	<0.01 µg/l	TM345		<0.01				
Propyzamide	<0.01 µg/l	TM345		<0.01				
Alachlor	<0.01 µg/l	TM345		<0.01				
Prometryn	<0.01 µg/l	TM345		<0.01				
Telodrin	<0.01 µg/l	TM345		<0.01				
Terbutryn	<0.01 µg/l	TM345		<0.01				
Chlorothalonil	<0.01 µg/l	TM345		<0.01				
Etrimphos	<0.01 µg/l	TM345		<0.01				
Metazachlor	<0.01 µg/l	TM345		<0.01				
Cyanazine	<0.01 µg/l	TM345		<0.01				
Trietazine	<0.01 µg/l	TM345		<0.01				
Coumaphos	<0.01 µg/l	TM345		<0.01				
Phosphamidon I	<0.01 µg/l	TM345		<0.01				
Phosphamidon II	<0.01 µg/l	TM345		<0.01				

CERTIFICATE OF ANALYSIS

SDG:	200118-47	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	541129
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13519AP	**Superseded Report:**	538707

Notification of NDPs (No determination possible)

Date Received : 18/01/2020 11:37:06

Sample No	Customer Sample Ref.	Depth (m)	Test	Comment
21512440	BH204		Pesticides (Suite I) by GCMS	Sample unsuitable for extraction
21512440	BH204		Pesticides (Suite II) by GCMS	Sample unsuitable for extraction
21512440	BH204		Pesticides (Suite III) by GCMS	Sample unsuitable for extraction

CERTIFICATE OF ANALYSIS

SDG:	200118-47	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	541129
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13519AP	**Superseded Report:**	538707

Table of Results - Appendix

Method No	Reference	Description
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter
TM343	EPA 8270D - Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of Selected Pesticides (Suite I) in Liquids by GCMS
TM344	EPA 8270D – Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of selected pesticides (Suite II) by GCMS
TM345	EPA 8270D – Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of selected pesticides (Suite III) by GCMS

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

Validated

CERTIFICATE OF ANALYSIS

SDG:	200118-47	**Client Reference:**	J4175 Stantec/ L & G	**Report Number:**	541129
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13519AP	**Superseded Report:**	538707

Test Completion Dates

Lab Sample No(s)	21512440	21512441	21512443	21512452	21512453	21512454	21512455	21512449	21512445	21512446
Customer Sample Ref.	BH204	BH205	BH208	RIVER SAMPLE 1	RIVER SAMPLE 2	RIVER SAMPLE 3	RIVER SAMPLE 4	WS206	WS202A	WS204A
AGS Ref.										
Depth										
Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Alkalinity as CaCO3	23-Jan-2020	23-Jan-2020	24-Jan-2020	21-Jan-2020	21-Jan-2020	21-Jan-2020	21-Jan-2020	23-Jan-2020	13-Feb-2020	23-Jan-2020
Ammonium Low	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020
Anions by Kone (w)	08-Feb-2020	10-Feb-2020	10-Feb-2020	08-Feb-2020	08-Feb-2020	08-Feb-2020	08-Feb-2020	10-Feb-2020	08-Feb-2020	08-Feb-2020
Conductivity (at 20 deg.C)	24-Jan-2020	24-Jan-2020	24-Jan-2020	24-Jan-2020	24-Jan-2020	24-Jan-2020	24-Jan-2020	24-Jan-2020	24-Jan-2020	24-Jan-2020
Dissolved Organic/Inorganic Carbon	11-Feb-2020	11-Feb-2020	11-Feb-2020	11-Feb-2020	11-Feb-2020	11-Feb-2020	11-Feb-2020	11-Feb-2020	11-Feb-2020	11-Feb-2020
Hexavalent Chromium (w)	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020	10-Feb-2020
Pesticides (Suite I) by GCMS		28-Jan-2020	28-Jan-2020	28-Jan-2020	28-Jan-2020	28-Jan-2020	28-Jan-2020			
Pesticides (Suite II) by GCMS		27-Jan-2020	27-Jan-2020	27-Jan-2020	27-Jan-2020	27-Jan-2020	27-Jan-2020			
Pesticides (Suite III) by GCMS		27-Jan-2020	27-Jan-2020	27-Jan-2020	27-Jan-2020	27-Jan-2020	27-Jan-2020			
pH Value	23-Jan-2020	23-Jan-2020	23-Jan-2020	23-Jan-2020	23-Jan-2020	23-Jan-2020	23-Jan-2020	23-Jan-2020	23-Jan-2020	23-Jan-2020

Lab Sample No(s)	21512447
Customer Sample Ref.	WS205A
AGS Ref.	
Depth	
Type	Ground Water
Alkalinity as CaCO3	24-Jan-2020
Ammonium Low	10-Feb-2020
Anions by Kone (w)	10-Feb-2020
Conductivity (at 20 deg.C)	24-Jan-2020
Dissolved Organic/Inorganic Carbon	11-Feb-2020
Hexavalent Chromium (w)	10-Feb-2020
pH Value	23-Jan-2020

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

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

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2107).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Endeavour Drilling
Aldgate Tower
2 Leman Street
London
E1 8FA

Attention: Oliver Wendland

CERTIFICATE OF ANALYSIS

Date of report Generation:	09 March 2020
Customer:	Endeavour Drilling
Sample Delivery Group (SDG):	200218-57
Your Reference:	J4175
Location:	Moathouse Farm, Rusper Rd, Horsham
Report No:	544710

This report has been revised and directly supersedes 543037 in its entirety.

We received 11 samples on Tuesday February 18, 2020 and 11 of these samples were scheduled for analysis which was completed on Monday March 09, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	200218-57	**Client Reference:**	J4175	**Report Number:**	544710
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13555JW	**Superseded Report:**	543037

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
21708461	BH204			17/02/2020
21708462	BH205			17/02/2020
21708453	BH208			17/02/2020
21708447	RIVER SAMPLE 1			17/02/2020
21708448	RIVER SAMPLE 2			17/02/2020
21708451	RIVER SAMPLE 3			17/02/2020
21708452	RIVER SAMPLE 4			17/02/2020
21708460	WS206			17/02/2020
21708455	WS202A			17/02/2020
21708456	WS204A			17/02/2020
21708458	WS205A			17/02/2020

Maximum Sample/Coolbox Temperature (°C) : **7.2**

ISO5667-3 Water quality - Sampling - Part3 -
During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	200218-57	**Client Reference:**	J4175	**Report Number:**	544710
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13555JW	**Superseded Report:**	543037

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)						21708461					21708462					21708453				21708447			
Customer Sample Reference						BH204					BH205					BH208				RIVER SAMPLE 1			
AGS Reference																							
Depth (m)																							
Container						0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Unfiltered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Unfiltered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Unfiltered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Unfiltered (ALE204)
Sample Type						GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Alkalinity as CaCO3	All	NDPs: 0 Tests: 11					X				X				X						X		
Ammonium Low	All	NDPs: 0 Tests: 11						X				X				X						X	
Anions by Kone (w)	All	NDPs: 0 Tests: 11					X				X				X						X		
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 11					X				X				X						X		
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 11					X				X				X						X		
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 11	X					X				X				X						X	
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 11	X					X				X				X						X	
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 11	X					X				X				X						X	
GRO by GC-FID (W)	All	NDPs: 0 Tests: 11								X					X						X		
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 11					X				X				X						X		
Mercury Dissolved	All	NDPs: 0 Tests: 11					X				X				X						X		
Mercury Unfiltered	All	NDPs: 0 Tests: 11							X					X					X				X
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 11	X					X				X				X						X	
pH Value	All	NDPs: 0 Tests: 11					X				X				X						X		
Phenols by HPLC (W)	All	NDPs: 0 Tests: 11						X				X				X						X	

21708460	WS206			Vial (ALE297)	GW									X							
				HNO3 Unfiltered (ALE204)	GW													X			
				H2SO4 (ALE244)	GW		X														X
				500ml Plastic (ALE208)	GW	X		X	X	X					X	X				X	
				0.5l glass bottle (ALE227)	GW						X	X	X						X		
21708452	RIVER SAMPLE 4			Vial (ALE297)	GW									X							
				HNO3 Unfiltered (ALE204)	GW													X			
				H2SO4 (ALE244)	GW		X														X
				500ml Plastic (ALE208)	GW	X		X	X	X					X	X				X	
				0.5l glass bottle (ALE227)	GW						X	X	X						X		
21708451	RIVER SAMPLE 3			Vial (ALE297)	GW									X							
				HNO3 Unfiltered (ALE204)	GW													X			
				H2SO4 (ALE244)	GW		X														X
				500ml Plastic (ALE208)	GW	X		X	X	X					X	X				X	
				0.5l glass bottle (ALE227)	GW						X	X	X						X		
21708448	RIVER SAMPLE 2			Vial (ALE297)	GW									X							
				HNO3 Unfiltered (ALE204)	GW													X			
				H2SO4 (ALE244)	GW		X														X
				500ml Plastic (ALE208)	GW	X		X	X	X					X	X				X	
				0.5l glass bottle (ALE227)	GW						X	X	X						X		
21708447	RIVER SAMPLE 1			Vial (ALE297)	GW									X							

Validated

CERTIFICATE OF ANALYSIS

SDG:	200218-57	**Client Reference:**	J4175	**Report Number:**	544710
Location:	Moathouse Farm, Rusper Rd	**Order Number:**	13555JW	**Superseded Report:**	543037

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)					21708461					21708462					21708453					21708447
Customer Sample Reference					BH204					BH205					BH208					RIVER SAMPLE 1
AGS Reference																				
Depth (m)																				
Container					0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Unfiltered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Unfiltered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Unfiltered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Unfiltered (ALE204)
Sample Type					GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Total Metals by ICP-MS	All	NDPs: 0 Tests: 11						X					X					X					X
TPH CWG (W)	All	NDPs: 0 Tests: 11			X					X					X					X			

21708460	WS206			Vial (ALE297)	GW				
				HNO3 Unfiltered (ALE204)	GW		X		
				H2SO4 (ALE244)	GW				
				500ml Plastic (ALE208)	GW				
				0.5l glass bottle (ALE227)	GW				X
21708452	RIVER SAMPLE 4			Vial (ALE297)	GW				
				HNO3 Unfiltered (ALE204)	GW		X		
				H2SO4 (ALE244)	GW				
				500ml Plastic (ALE208)	GW				
				0.5l glass bottle (ALE227)	GW				X
21708451	RIVER SAMPLE 3			Vial (ALE297)	GW				
				HNO3 Unfiltered (ALE204)	GW		X		
				H2SO4 (ALE244)	GW				
				500ml Plastic (ALE208)	GW				
				0.5l glass bottle (ALE227)	GW				X
21708448	RIVER SAMPLE 2			Vial (ALE297)	GW				
				HNO3 Unfiltered (ALE204)	GW		X		
				H2SO4 (ALE244)	GW				
				500ml Plastic (ALE208)	GW				
				0.5l glass bottle (ALE227)	GW				X
21708447	RIVER SAMPLE 1			Vial (ALE297)	GW				

![ALS logo]

CERTIFICATE OF ANALYSIS

Validated

SDG:	200218-57	**Client Reference:**	J4175	**Report Number:**	544710
Location:	Moathouse Farm, Rusper Rc	**Order Number:**	13555JW	**Superseded Report:**	543037

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			21708455					21708456					21708458				
Customer Sample Reference			WS202A					WS204A					WS205A				
AGS Reference																	
Depth (m)																	
Container			0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Unfiltered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Unfiltered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Unfiltered (ALE204)	Vial (ALE297)
Sample Type			GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Alkalinity as CaCO3	All	NDPs: 0 Tests: 11		X					X					X			
Ammonium Low	All	NDPs: 0 Tests: 11			X					X					X		
Anions by Kone (w)	All	NDPs: 0 Tests: 11		X					X					X			
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 11		X					X					X			
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 11		X					X					X			
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 11	X					X					X				
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 11	X					X					X				
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 11	X					X					X				
GRO by GC-FID (W)	All	NDPs: 0 Tests: 11					X					X					X
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 11		X					X					X			
Mercury Dissolved	All	NDPs: 0 Tests: 11		X					X					X			
Mercury Unfiltered	All	NDPs: 0 Tests: 11				X					X					X	
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 11	X					X					X				
pH Value	All	NDPs: 0 Tests: 11		X					X					X			
Phenols by HPLC (W)	All	NDPs: 0 Tests: 11			X					X					X		

Validated

CERTIFICATE OF ANALYSIS

SDG:	200218-57	**Client Reference:**	J4175	**Report Number:**	544710
Location:	Moathouse Farm, Rusper Rd	**Order Number:**	13555JW	**Superseded Report:**	543037

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)						21708455						21708456						21708458		
Customer Sample Reference						WS202A						WS204A						WS205A		
AGS Reference																				
Depth (m)																				
Container						0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Unfiltered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Unfiltered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Unfiltered (ALE204)	Vial (ALE297)
Sample Type						GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Total Metals by ICP-MS	All	NDPs: 0 Tests: 11							X						X				X	
TPH CWG (W)	All	NDPs: 0 Tests: 11				X					X						X			

Validated

CERTIFICATE OF ANALYSIS

SDG:	200218-57	**Client Reference:**	J4175	**Report Number:**	544710
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13555JW	**Superseded Report:**	543037

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH204	BH205	BH208	RIVER SAMPLE 1	RIVER SAMPLE 2	RIVER SAMPLE 3
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	17/02/2020	17/02/2020	17/02/2020	17/02/2020	17/02/2020	17/02/2020
			Sample Time	.	.	.	.	.	.
			Date Received	18/02/2020	18/02/2020	18/02/2020	18/02/2020	18/02/2020	18/02/2020
			SDG Ref	200218-57	200218-57	200218-57	200218-57	200218-57	200218-57
			Lab Sample No.(s)	21708461	21708462	21708453	21708447	21708448	21708451
			AGS Reference						
Alkalinity, Total as CaCO3	<2 mg/l	TM043		305	140	100	84.3	65.1	39
Carbon, Organic (diss.filt)	<3 mg/l	TM090		<3	4.59	<3	8.3	9.07	9.25
Ammoniacal Nitrogen as N (low level)	<0.01 mg/l	TM099		0.0122	0.0931	0.0296	0.0259	0.241	0.0524
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		0.803	0.334	0.365	0.231	0.161	0.146
Arsenic (diss.filt)	<0.5 µg/l	TM152		0.689 2	<0.5 2	<0.5 2	0.594 2	<0.5 2	<0.5 2
Arsenic (tot.unfilt)	<2 µg/l	TM152		152	13.9	38.8	<2	3.31	2.88
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 2	<0.08 2	0.134 2	<0.08 2	<0.08 2	<0.08 2
Cadmium (tot.unfilt)	<0.5 µg/l	TM152		4.7	<3	3.53	<0.5	<0.5	<0.5
Chromium (tot.unfilt)	<3 µg/l	TM152		718	84.4	374	5.66	13.1	11.7
Chromium (diss.filt)	<1 µg/l	TM152		<1 2	<1 2	<1 2	<1 2	<1 2	<1 2
Copper (tot.unfilt)	<1 µg/l	TM152		772	122	401	6.62	14.1	10.5
Lead (tot.unfilt)	<1 µg/l	TM152		663	147	244	3.99	14.4	9.67
Copper (diss.filt)	<0.3 µg/l	TM152		0.475 2	1.36 2	0.72 2	3.09 2	2.75 2	2.94 2
Lead (diss.filt)	<0.2 µg/l	TM152		<0.2 2	<0.2 2	<0.2 2	0.512 2	<0.2 2	0.236 2
Nickel (tot.unfilt)	<1 µg/l	TM152		857	156	416	4.47	10.8	9.96
Selenium (tot.unfilt)	<1 µg/l	TM152		22.2	9.77	13.4	<1	<1	<1
Nickel (diss.filt)	<0.4 µg/l	TM152		7.05 2	3.94 2	26.8 2	1.42 2	1.28 2	1.92 2
Selenium (diss.filt)	<1 µg/l	TM152		2.02 2	<1 2	1 2	<1 2	<1 2	<1 2
Zinc (tot.unfilt)	<5 µg/l	TM152		1880	361	890	21	61.8	51.5
Zinc (diss.filt)	<1 µg/l	TM152		1.08 2	1.04 2	4.35 2	2.44 2	1.79 2	2.25 2
Calcium (Dis.Filt)	<0.2 mg/l	TM152		100 2	51.9 2	29 2	41.7 2	22.5 2	17.7 2
Calcium (Tot. Unfilt.)	<0.057 mg/l	TM152		224	87.3	56	42	26.8	19.6
Mercury (diss.filt)	<0.01 µg/l	TM183		<0.01 2	<0.01 2	<0.01 2	0.0258 2	<0.01 2	0.115 2
Mercury (tot.unfilt)	<0.02 µg/l	TM183		0.182	0.15	0.0726	<0.02	0.0314	0.0269
Sulphate	<2 mg/l	TM184		135	30.3	44.2	14.8	7.8	13.3
Chloride	<2 mg/l	TM184		97.9	23	33	14.1	13.3	16.8
Chromium, Hexavalent	<0.03 mg/l	TM241		<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
pH	<1 pH Units	TM256		7.44	6.93	6.72	7.53	7.44	7.11
Phenol	<0.002 mg/l	TM259		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cresols	<0.006 mg/l	TM259		<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Xylenols	<0.008 mg/l	TM259		<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
2,3,5-Trimethylphenol	<0.003 mg/l	TM259		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
2-Isopropylphenol	<0.006 mg/l	TM259		<0.006	<0.006	<0.006	<0.006	<0.006	<0.006

Validated

CERTIFICATE OF ANALYSIS

SDG:	200218-57	**Client Reference:**	J4175	**Report Number:**	544710
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13555JW	**Superseded Report:**	543037

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH204	BH205	BH208	RIVER SAMPLE 1	RIVER SAMPLE 2	RIVER SAMPLE 3
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	17/02/2020	17/02/2020	17/02/2020	17/02/2020	17/02/2020	17/02/2020
			Sample Time	.	.	.	.	.	.
			Date Received	18/02/2020	18/02/2020	18/02/2020	18/02/2020	18/02/2020	18/02/2020
			SDG Ref	200218-57	200218-57	200218-57	200218-57	200218-57	200218-57
			Lab Sample No.(s)	21708461	21708462	21708453	21708447	21708448	21708451
			AGS Reference						
Phenols, Total Detected 5 speciated	<0.025 mg/l	TM259		<0.025	<0.025	<0.025	<0.025	<0.025	<0.025

Validated

CERTIFICATE OF ANALYSIS

SDG:	200218-57	**Client Reference:**	J4175	**Report Number:**	544710
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13555JW	**Superseded Report:**	543037

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	RIVER SAMPLE 4	WS206	WS202A	WS204A	WS205A
			Depth (m)	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	17/02/2020	17/02/2020	17/02/2020	17/02/2020	17/02/2020
			Sample Time	.	.	.	.	.
			Date Received	18/02/2020	18/02/2020	18/02/2020	18/02/2020	18/02/2020
			SDG Ref	200218-57	200218-57	200218-57	200218-57	200218-57
			Lab Sample No.(s)	21708452	21708460	21708455	21708456	21708458
			AGS Reference					
Alkalinity, Total as CaCO3	<2 mg/l	TM043		41	251	214	134	390
Carbon, Organic (diss.filt)	<3 mg/l	TM090		9.59	14.3	5.5	24.5	9.33
Ammoniacal Nitrogen as N (low level)	<0.01 mg/l	TM099		0.0477	0.302	0.0852	1.25	0.16
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		0.146	0.909	0.386	1.76	0.677
Arsenic (diss.filt)	<0.5 µg/l	TM152		<0.5 2	0.637 2	0.792 2	1.32 2	0.742 2
Arsenic (tot.unfilt)	<2 µg/l	TM152		<2	16.2	10.2	27.8	113
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 2	0.642 2	<0.08 2	1.17 2	<0.08 2
Cadmium (tot.unfilt)	<0.5 µg/l	TM152		<0.5	2.2	<0.5	1.6	5.11
Chromium (tot.unfilt)	<3 µg/l	TM152		8	46.5	53.3	95.5	525
Chromium (diss.filt)	<1 µg/l	TM152		<1 2	<1 2	1.06 2	<1 2	<1 2
Copper (tot.unfilt)	<1 µg/l	TM152		9.27	61.2	73.9	89	789
Lead (tot.unfilt)	<1 µg/l	TM152		9.85	65.1	63.9	122	757
Copper (diss.filt)	<0.3 µg/l	TM152		3.11 2	3.84 2	10.5 2	9.13 2	2.3 2
Lead (diss.filt)	<0.2 µg/l	TM152		0.325 2	<0.2 2	<0.2 2	0.35 2	<0.2 2
Nickel (tot.unfilt)	<1 µg/l	TM152		8.96	85.6	46.6	82.4	631
Selenium (tot.unfilt)	<1 µg/l	TM152		<1	3.21	3.18	7.33	31.1
Nickel (diss.filt)	<0.4 µg/l	TM152		2.07 2	35.9 2	2.12 2	25 2	5.84 2
Selenium (diss.filt)	<1 µg/l	TM152		<1 2	<1 2	<1 2	1.92 2	2.2 2
Zinc (tot.unfilt)	<5 µg/l	TM152		43.1	229	192	321	1500
Zinc (diss.filt)	<1 µg/l	TM152		2.09 2	17.8 2	2.81 2	48.6 2	2.7 2
Calcium (Dis.Filt)	<0.2 mg/l	TM152		18.2 2	83.9 2	72.8 2	339 2	56.7 2
Calcium (Tot. Unfilt.)	<0.057 mg/l	TM152		21.2	79.8	107	335	224
Mercury (diss.filt)	<0.01 µg/l	TM183		<0.01 2	<0.01 2	<0.01 2	<0.01 2	<0.01 2
Mercury (tot.unfilt)	<0.02 µg/l	TM183		0.0245	0.0503	0.251	0.166	1.25
Sulphate	<2 mg/l	TM184		13.5	145	19.7	919	91.4
Chloride	<2 mg/l	TM184		16.8	97.1	18.1	105	53.4
Chromium, Hexavalent	<0.03 mg/l	TM241		<0.03	<0.03	<0.03	<0.03	<0.03
pH	<1 pH Units	TM256		7.22	6.47	7.72	6.31	7.15
Phenol	<0.002 mg/l	TM259		<0.002	<0.002	<0.002	<0.002	<0.002
Cresols	<0.006 mg/l	TM259		<0.006	<0.006	<0.006	<0.006	<0.006
Xylenols	<0.008 mg/l	TM259		<0.008	<0.008	<0.008	<0.008	<0.008
2,3,5-Trimethylphenol	<0.003 mg/l	TM259		<0.003	<0.003	<0.003	<0.003	<0.003
2-Isopropylphenol	<0.006 mg/l	TM259		<0.006	<0.006	<0.006	<0.006	<0.006

Validated

CERTIFICATE OF ANALYSIS

SDG:	200218-57	**Client Reference:**	J4175	**Report Number:**	544710
Location:	Moathouse Farm, Rusper Rd	**Order Number:**	13555JW	**Superseded Report:**	543037

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	RIVER SAMPLE 4	WS206	WS202A	WS204A	WS205A
			Depth (m)	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	17/02/2020	17/02/2020	17/02/2020	17/02/2020	17/02/2020
			Sample Time	.	.	.	.	.
			Date Received	18/02/2020	18/02/2020	18/02/2020	18/02/2020	18/02/2020
			SDG Ref	200218-57	200218-57	200218-57	200218-57	200218-57
			Lab Sample No.(s)	21708452	21708460	21708455	21708456	21708458
			AGS Reference					
Phenols, Total Detected 5 speciated	<0.025 mg/l	TM259		<0.025	<0.025	<0.025	<0.025	<0.025

Validated

CERTIFICATE OF ANALYSIS

SDG:	200218-57	**Client Reference:**	J4175	**Report Number:**	544710
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13555JW	**Superseded Report:**	543037

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH204	BH205	BH208	RIVER SAMPLE 1	RIVER SAMPLE 2	RIVER SAMPLE 3
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	17/02/2020	17/02/2020	17/02/2020	17/02/2020	17/02/2020	17/02/2020
			Sample Time	.	.	.	.	.	.
			Date Received	18/02/2020	18/02/2020	18/02/2020	18/02/2020	18/02/2020	18/02/2020
			SDG Ref	200218-57	200218-57	200218-57	200218-57	200218-57	200218-57
			Lab Sample No.(s)	21708461	21708462	21708453	21708447	21708448	21708451
			AGS Reference						
Naphthalene (aq)	<0.01 µg/l	TM178		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthene (aq)	<0.005 µg/l	TM178		<0.005	<0.005	0.0221	<0.005	<0.005	<0.005
Acenaphthylene (aq)	<0.005 µg/l	TM178		<0.005	<0.005	0.0326	<0.005	<0.005	<0.005
Fluoranthene (aq)	<0.005 µg/l	TM178		0.141	0.0961	1.17	<0.005	0.0835	0.0148
Anthracene (aq)	<0.005 µg/l	TM178		0.0156	0.00588	0.0887	<0.005	0.00546	<0.005
Phenanthrene (aq)	<0.005 µg/l	TM178		0.0449	0.0209	0.162	<0.005	0.0187	0.00638
Fluorene (aq)	<0.005 µg/l	TM178		<0.005	<0.005	0.0189	<0.005	<0.005	<0.005
Chrysene (aq)	<0.005 µg/l	TM178		0.0898	0.0608	0.547	<0.005	0.0474	<0.005
Pyrene (aq)	<0.005 µg/l	TM178		0.158	0.0974	1.32	<0.005	0.0837	0.014
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178		0.0682	0.0494	0.573	<0.005	0.0312	0.00526
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178		0.139	0.112	1.14	<0.005	0.0869	0.014
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178		0.0568	0.0576	0.582	<0.005	0.0461	0.00586
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178		0.0939	0.0771	0.944	<0.002	0.0673	0.009
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178		0.0147	0.0111	0.111	<0.005	0.00837	<0.005
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178		0.128	0.072	0.655	<0.005	0.0599	<0.005
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178		0.0848	0.0554	0.571	<0.005	0.0454	<0.005
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178		1.04	0.716	7.93	<0.082	0.584	<0.082

Validated

CERTIFICATE OF ANALYSIS

SDG:	200218-57	**Client Reference:**	J4175	**Report Number:**	544710
Location:	Moathouse Farm, Rusper Rd	**Order Number:**	13555JW	**Superseded Report:**	543037

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	RIVER SAMPLE 4	WS206	WS202A	WS204A	WS205A
			Depth (m)	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	17/02/2020	17/02/2020	17/02/2020	17/02/2020	17/02/2020
			Sample Time	.	.	.	.	.
			Date Received	18/02/2020	18/02/2020	18/02/2020	18/02/2020	18/02/2020
			SDG Ref	200218-57	200218-57	200218-57	200218-57	200218-57
			Lab Sample No.(s)	21708452	21708460	21708455	21708456	21708458
			AGS Reference					
Naphthalene (aq)	<0.01 µg/l	TM178		<0.01	0.0318	<0.01	0.782	<0.01
Acenaphthene (aq)	<0.005 µg/l	TM178		<0.005	0.172	0.0111	0.0148	0.0414
Acenaphthylene (aq)	<0.005 µg/l	TM178		<0.005	0.374	<0.005	0.00692	0.0402
Fluoranthene (aq)	<0.005 µg/l	TM178		0.0876	7.41	0.577	0.0241	2.61
Anthracene (aq)	<0.005 µg/l	TM178		0.00512	0.581	0.0455	0.00542	0.157
Phenanthrene (aq)	<0.005 µg/l	TM178		0.0203	1.14	0.165	0.0319	0.52
Fluorene (aq)	<0.005 µg/l	TM178		<0.005	0.127	0.0144	0.0216	0.0381
Chrysene (aq)	<0.005 µg/l	TM178		0.0397	3.15	0.339	<0.005	1.8
Pyrene (aq)	<0.005 µg/l	TM178		0.0825	7.36	0.653	0.0266	2.61
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178		0.0256	3.56	0.301	<0.005	1.88
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178		0.0918	8.13	0.735	0.0143	5.87
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178		0.0343	2.81	0.325	0.00592	3.33
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178		0.0591	6.01	0.473	0.0101	4.75
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178		0.00807	0.794	0.0625	<0.005	0.609
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178		0.0504	4.22	0.387	<0.005	4.02
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178		0.0462	3.35	0.296	<0.005	3.04
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178		0.551	49.2	4.38	0.944	31.3

Validated

CERTIFICATE OF ANALYSIS

SDG:	200218-57	**Client Reference:**	J4175	**Report Number:**	544710
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13555JW	**Superseded Report:**	543037

TPH CWG (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH204	BH205	BH208	RIVER SAMPLE 1	RIVER SAMPLE 2	RIVER SAMPLE 3
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	17/02/2020	17/02/2020	17/02/2020	17/02/2020	17/02/2020	17/02/2020
			Sample Time	.	.	.	.	.	.
			Date Received	18/02/2020	18/02/2020	18/02/2020	18/02/2020	18/02/2020	18/02/2020
			SDG Ref	200218-57	200218-57	200218-57	200218-57	200218-57	200218-57
			Lab Sample No.(s)	21708461	21708462	21708453	21708447	21708448	21708451
			AGS Reference						
GRO Surrogate % recovery**	%	TM245		99	111	103	100	98	97
GRO >C5-C12	<50 µg/l	TM245		<50	<50	<50	<50	<50	<50
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245		<3	<3	<3	<3	<3	<3
Benzene	<7 µg/l	TM245		<7	<7	<7	<7	<7	<7
Toluene	<4 µg/l	TM245		<4	<4	<4	<4	<4	<4
Ethylbenzene	<5 µg/l	TM245		<5	<5	<5	<5	<5	<5
m,p-Xylene	<8 µg/l	TM245		<8	<8	<8	<8	<8	<8
o-Xylene	<3 µg/l	TM245		<3	<3	<3	<3	<3	<3
Sum of detected Xylenes	<11 µg/l	TM245		<11	<11	<11	<11	<11	<11
Sum of detected BTEX	<28 µg/l	TM245		<28	<28	<28	<28	<28	<28
Aliphatics >C5-C6	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C8-C10	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C10-C12	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174		<10	<20	<10	<10	<10	<10
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174		<10	<20	<10	<10	<10	<10
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174		<10	<20	52	<10	<10	<10
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174		<10	<20	52	<10	<10	<10
Aromatics >EC5-EC7	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC10-EC12	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174		<10	<20	<10	<10	<10	<10
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174		<10	<20	<10	<10	<10	<10
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174		<10	<20	31	<10	<10	<10
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174		<10	<20	31	<10	<10	<10
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174		<10	<10	83	<10	<10	<10
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174		<10	<20	52	<10	<10	<10

Validated

CERTIFICATE OF ANALYSIS

SDG:	200218-57	**Client Reference:**	J4175	**Report Number:**	544710
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13555JW	**Superseded Report:**	543037

TPH CWG (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	RIVER SAMPLE 4	WS206	WS202A	WS204A	WS205A
			Depth (m)	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	17/02/2020	17/02/2020	17/02/2020	17/02/2020	17/02/2020
			Sample Time	.	.	.	.	.
			Date Received	18/02/2020	18/02/2020	18/02/2020	18/02/2020	18/02/2020
			SDG Ref	200218-57	200218-57	200218-57	200218-57	200218-57
			Lab Sample No.(s)	21708452	21708460	21708455	21708456	21708458
			AGS Reference					
GRO Surrogate % recovery**	%	TM245		103	97	104	102	100
GRO >C5-C12	<50 µg/l	TM245		<50	<50	<50	<50	<50
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245		<3	<3	<3	<3	<3
Benzene	<7 µg/l	TM245		<7	<7	<7	<7	<7
Toluene	<4 µg/l	TM245		<4	<4	<4	<4	<4
Ethylbenzene	<5 µg/l	TM245		<5	<5	<5	<5	<5
m,p-Xylene	<8 µg/l	TM245		<8	<8	<8	<8	<8
o-Xylene	<3 µg/l	TM245		<3	<3	<3	<3	<3
Sum of detected Xylenes	<11 µg/l	TM245		<11	<11	<11	<11	<11
Sum of detected BTEX	<28 µg/l	TM245		<28	<28	<28	<28	<28
Aliphatics >C5-C6	<10 µg/l	TM245		<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/l	TM245		<10	<10	<10	<10	<10
Aliphatics >C8-C10	<10 µg/l	TM245		<10	<10	<10	<10	<10
Aliphatics >C10-C12	<10 µg/l	TM245		<10	<10	<10	<10	<10
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174		<10	<10	17	<10	<20
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174		<10	20	38	<10	<20
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174		<10	262	205	42	87
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174		<10	282	260	42	87
Aromatics >EC5-EC7	<10 µg/l	TM245		<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/l	TM245		<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/l	TM245		<10	<10	<10	<10	<10
Aromatics >EC10-EC12	<10 µg/l	TM245		<10	<10	<10	<10	<10
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174		<10	<10	18	<10	<20
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174		<10	21	125	<10	<20
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174		<10	280	92	<10	101
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174		<10	301	235	<10	101
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174		<10	583	495	54	188
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174		<10	282	243	42	87

CERTIFICATE OF ANALYSIS

SDG:	200218-57	**Client Reference:**	J4175	**Report Number:**	544710
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13555JW	**Superseded Report:**	543037

Table of Results - Appendix

Method No	Reference	Description
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser
TM245	By GC-FID	Determination of GRO by Headspace in waters
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	200218-57	**Client Reference:**	J4175	**Report Number:**	544710
Location:	Moathouse Farm, Rusper Ro	**Order Number:**	13555JW	**Superseded Report:**	543037

Test Completion Dates

Lab Sample No(s)	21708461	21708462	21708453	21708447	21708448	21708451	21708452	21708460	21708455	21708456
Customer Sample Ref.	BH204	BH205	BH208	RIVER SAMPLE 1	RIVER SAMPLE 2	RIVER SAMPLE 3	RIVER SAMPLE 4	WS206	WS202A	WS204A
AGS Ref.										
Depth										
Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Alkalinity as CaCO3	25-Feb-2020	25-Feb-2020	25-Feb-2020	25-Feb-2020	25-Feb-2020	25-Feb-2020	25-Feb-2020	25-Feb-2020	25-Feb-2020	25-Feb-2020
Ammonium Low	24-Feb-2020	24-Feb-2020	24-Feb-2020	24-Feb-2020	24-Feb-2020	24-Feb-2020	24-Feb-2020	24-Feb-2020	24-Feb-2020	24-Feb-2020
Anions by Kone (w)	21-Feb-2020	21-Feb-2020	21-Feb-2020	21-Feb-2020	21-Feb-2020	21-Feb-2020	21-Feb-2020	21-Feb-2020	21-Feb-2020	21-Feb-2020
Conductivity (at 20 deg.C)	21-Feb-2020	21-Feb-2020	21-Feb-2020	21-Feb-2020	24-Feb-2020	21-Feb-2020	21-Feb-2020	24-Feb-2020	21-Feb-2020	21-Feb-2020
Dissolved Metals by ICP-MS	24-Feb-2020	24-Feb-2020	24-Feb-2020	24-Feb-2020	24-Feb-2020	24-Feb-2020	24-Feb-2020	24-Feb-2020	24-Feb-2020	25-Feb-2020
Dissolved Organic/Inorganic Carbon	24-Feb-2020	25-Feb-2020	21-Feb-2020	21-Feb-2020	25-Feb-2020	21-Feb-2020	25-Feb-2020	25-Feb-2020	21-Feb-2020	21-Feb-2020
EPH CWG (Aliphatic) Aqueous GC (W)	27-Feb-2020	28-Feb-2020	03-Mar-2020	27-Feb-2020	28-Feb-2020	27-Feb-2020	28-Feb-2020	03-Mar-2020	29-Feb-2020	03-Mar-2020
EPH CWG (Aromatic) Aqueous GC (W)	27-Feb-2020	28-Feb-2020	03-Mar-2020	27-Feb-2020	28-Feb-2020	27-Feb-2020	28-Feb-2020	03-Mar-2020	29-Feb-2020	03-Mar-2020
GRO by GC-FID (W)	24-Feb-2020	24-Feb-2020	24-Feb-2020	24-Feb-2020	24-Feb-2020	24-Feb-2020	24-Feb-2020	24-Feb-2020	24-Feb-2020	24-Feb-2020
Hexavalent Chromium (w)	21-Feb-2020	21-Feb-2020	21-Feb-2020	21-Feb-2020	21-Feb-2020	21-Feb-2020	21-Feb-2020	21-Feb-2020	21-Feb-2020	21-Feb-2020
Mercury Dissolved	24-Feb-2020	24-Feb-2020	24-Feb-2020	24-Feb-2020	24-Feb-2020	24-Feb-2020	24-Feb-2020	24-Feb-2020	24-Feb-2020	24-Feb-2020
Mercury Unfiltered	25-Feb-2020	25-Feb-2020	25-Feb-2020	25-Feb-2020	25-Feb-2020	25-Feb-2020	25-Feb-2020	25-Feb-2020	25-Feb-2020	25-Feb-2020
PAH Spec MS - Aqueous (W)	25-Feb-2020	26-Feb-2020	25-Feb-2020	26-Feb-2020	26-Feb-2020	25-Feb-2020	26-Feb-2020	25-Feb-2020	26-Feb-2020	25-Feb-2020
pH Value	23-Feb-2020	23-Feb-2020	23-Feb-2020	23-Feb-2020	23-Feb-2020	24-Feb-2020	23-Feb-2020	23-Feb-2020	23-Feb-2020	23-Feb-2020
Phenols by HPLC (W)	24-Feb-2020	25-Feb-2020	25-Feb-2020	25-Feb-2020	24-Feb-2020	25-Feb-2020	24-Feb-2020	25-Feb-2020	24-Feb-2020	25-Feb-2020
Total Metals by ICP-MS	26-Feb-2020	26-Feb-2020	26-Feb-2020	26-Feb-2020	26-Feb-2020	26-Feb-2020	26-Feb-2020	26-Feb-2020	26-Feb-2020	26-Feb-2020
TPH CWG (W)	27-Feb-2020	28-Feb-2020	03-Mar-2020	27-Feb-2020	28-Feb-2020	27-Feb-2020	28-Feb-2020	03-Mar-2020	29-Feb-2020	03-Mar-2020

Lab Sample No(s)	21708458
Customer Sample Ref.	WS205A
AGS Ref.	
Depth	
Type	Ground Water
Alkalinity as CaCO3	25-Feb-2020
Ammonium Low	24-Feb-2020
Anions by Kone (w)	21-Feb-2020
Conductivity (at 20 deg.C)	24-Feb-2020
Dissolved Metals by ICP-MS	24-Feb-2020
Dissolved Organic/Inorganic Carbon	24-Feb-2020
EPH CWG (Aliphatic) Aqueous GC (W)	09-Mar-2020
EPH CWG (Aromatic) Aqueous GC (W)	09-Mar-2020
GRO by GC-FID (W)	24-Feb-2020
Hexavalent Chromium (w)	21-Feb-2020
Mercury Dissolved	24-Feb-2020
Mercury Unfiltered	25-Feb-2020
PAH Spec MS - Aqueous (W)	26-Feb-2020
pH Value	23-Feb-2020
Phenols by HPLC (W)	24-Feb-2020
Total Metals by ICP-MS	26-Feb-2020
TPH CWG (W)	09-Mar-2020

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

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

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2107).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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Analytical Report Number : 20-79313

Project / Site name:	L&G - LNO Horsham	**Samples received on:**	
Your job number:	J4175	**Samples instructed on:**	23/12/2019
Your order number:		**Analysis completed by:**	10/01/2020
Report Issue Number:	1	**Report issued on:**	10/01/2020
Samples Analysed:	6 soil samples		

Signed:

Zina Abdul Razzak
Senior Quality Specialist

For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 20-79313

Project / Site name: L&G - LNO Horsham

Lab Sample Number				1403258	1403259	1403260	1403261	1403262
Sample Reference				BH201	BH201	BH202	BH202	BH203
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.84-2.94	9.86-10.14	12.48-12.58	18.50-18.67	6.80-6.98
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	9.5	6.7	5.0	8.8	7.8
Total mass of sample received	kg	0.001	NONE	2.0	2.0	2.0	2.0	2.0
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.0	7.0	7.0	7.7	7.4
Total Sulphate as SO_4	%	0.005	MCERTS	0.023	0.017	0.024	0.018	0.016
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0097	0.032	0.055	0.012	0.027
Total Sulphur	%	0.005	MCERTS	0.009	0.102	0.163	0.020	0.069
Organic Matter	%	0.1	MCERTS	0.4	0.9	1.0	0.7	0.9

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Analytical Report Number: 20-79313

Project / Site name: L&G - LNO Horsham

Lab Sample Number				1403263				
Sample Reference				BH203				
Sample Number				None Supplied				
Depth (m)				10.90-11.02				
Date Sampled				Deviating				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	8.5				
Total mass of sample received	kg	0.001	NONE	2.0				
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.5				
Total Sulphate as SO_4	%	0.005	MCERTS	0.015				
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.023				
Total Sulphur	%	0.005	MCERTS	0.075				
Organic Matter	%	0.1	MCERTS	1.0				

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Analytical Report Number : 20-79313

Project / Site name: L&G - LNO Horsham

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Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1403258	BH201	None Supplied	2.84-2.94	Light brown clay.
1403259	BH201	None Supplied	9.86-10.14	Grey clay.
1403260	BH202	None Supplied	12.48-12.58	Grey clay.
1403261	BH202	None Supplied	18.50-18.67	Grey clay and sand.
1403262	BH203	None Supplied	6.80-6.98	Grey clay and sand.
1403263	BH203	None Supplied	10.90-11.02	Grey clay.

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Analytical Report Number : 20-79313

Project / Site name: L&G - LNO Horsham

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In-house method based on BS1377 Part 2, 1990, Classification tests	L019-UK/PL	W	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
BH201		S	20-79313	1403258	a			
BH201		S	20-79313	1403259	a			
BH202		S	20-79313	1403260	a			
BH202		S	20-79313	1403261	a			
BH203		S	20-79313	1403262	a			
BH203		S	20-79313	1403263	a			

Key: a - No sampling date b - Incorrect container
c - Holding time d - Headspace e - Temperature

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Analytical Report Number : 20-79314

Project / Site name:	L&G - LNO Horsham	**Samples received on:**	23/12/2019
Your job number:	J4175	**Samples instructed on:**	23/12/2019
Your order number:		**Analysis completed by:**	08/01/2020
Report Issue Number:	1	**Report issued on:**	08/01/2020
Samples Analysed:	4 soil samples		

Signed: K. Lewicka

Katarzyna Lewicka
Head of Reporting Section

For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

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Analytical Report Number: 20-79314

Project / Site name: L&G - LNO Horsham

Lab Sample Number				1403264	1403265	1403266	1403267	
Sample Reference				TP234	TP210	TP224	TP254	
Sample Number				2	4	3	1	
Depth (m)				1.80	3.10	3.90	0.50	
Date Sampled				Deviating	Deviating	Deviating	Deviating	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
Moisture Content	%	N/A	NONE	13	12	12	19	
Total mass of sample received	kg	0.001	NONE	0.47	0.45	1.3	0.50	
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	5.9	5.4	6.0	6.6	
Total Sulphate as SO_4	%	0.005	MCERTS	0.028	0.027	0.023	0.054	
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.021	0.015	0.0098	0.015	
Total Sulphur	%	0.005	MCERTS	0.013	0.009	0.009	0.023	
Organic Matter	%	0.1	MCERTS	< 0.1	0.2	0.1	1.9	

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Analytical Report Number : 20-79314

Project / Site name: L&G - LNO Horsham

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Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1403264	TP234	2	1.80	Light grey sandy clay with gravel.
1403265	TP210	4	3.10	Light grey gravelly clay.
1403266	TP224	3	3.90	Light grey clay.
1403267	TP254	1	0.50	Grey loam and clay with gravel and vegetation.

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Analytical Report Number : 20-79314

Project / Site name: L&G - LNO Horsham

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In-house method based on BS1377 Part 2, 1990, Classification tests	L019-UK/PL	W	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
TP210	4	S	20-79314	1403265	a			
TP224	3	S	20-79314	1403266	a			
TP234	2	S	20-79314	1403264	a			
TP254	1	S	20-79314	1403267	a			

Key: a - No sampling date b - Incorrect container
c - Holding time d - Headspace e - Temperature

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Analytical Report Number : 20-80142

Project / Site name:	L&G - LNO Horsham	**Samples received on:**	08/01/2020
Your job number:	J4175	**Samples instructed on:**	08/01/2020
Your order number:		**Analysis completed by:**	20/01/2020
Report Issue Number:	1	**Report issued on:**	20/01/2020
Samples Analysed:	2 soil samples		

Signed:

Zina Abdul Razzak
Senior Quality Specialist

For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 20-80142

Project / Site name: L&G - LNO Horsham

Lab Sample Number				1407360	1407361			
Sample Reference				BH207	BH207			
Sample Number				None Supplied	None Supplied			
Depth (m)				6.93-7.12	15.86-16.07			
Date Sampled				Deviating	Deviating			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1			
Moisture Content	%	N/A	NONE	6.6	11			
Total mass of sample received	kg	0.001	NONE	0.84	0.67			
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.6	8.6			
Total Sulphate as SO_4	%	0.005	MCERTS	0.022	0.014			
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.060	0.015			
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	60.3	14.7			
Total Sulphur	%	0.005	MCERTS	0.131	0.011			
Organic Matter	%	0.1	MCERTS	1.0	< 0.1			

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Analytical Report Number : 20-80142

Project / Site name: L&G - LNO Horsham

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Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1407360	BH207	None Supplied	6.93-7.12	Grey clay.
1407361	BH207	None Supplied	15.86-16.07	Grey clay.

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Analytical Report Number : 20-80142

Project / Site name: L&G - LNO Horsham

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In-house method based on BS1377 Part 2, 1990, Classification tests	L019-UK/PL	W	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
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Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
BH207		S	20-80142	1407360	a			
BH207		S	20-80142	1407361	a			

Key: a - No sampling date b - Incorrect container
c - Holding time d - Headspace e - Temperature