CERTIFICATION OF CALIBRATION

4533

Date Of Calibration: 06-Aug-2021

Certificate Number: G506065_2/28612

Issued by: QED Environmental Systems Ltd.

Customer: **Allied Exploration & Geotechnics Ltd**
25 Stella Gill Industrial Estate Pelton Fell Chester Le Street
County Durham DH2 2RG UNITED KINGDOM

Description: Gas Analyser

Model: GA5000

Serial Number: G506065

UKAS Accredited results:

Results after adjustment :

Methane (CH_4)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
5.0	4.9	0.072
14.9	14.8	0.13
59.7	59.4	0.42

Carbon Dioxide (CO_2)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
5.0	4.9	0.074
15.1	15.0	0.13
40.3	40.2	0.29

Oxygen (O_2)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
21.1	21.2	0.25

The inwards assessment was carried out 28-Jul-2021.
The maximum adjustment is larger than the specification limit.
Inwards assessment data is available if requested.

All concentrations are molar.

CH_4, CO_2 readings recorded at : 32.5 °C ± 2.5 °C

O2 readings recorded at : 22.6 °C ± 2.5 °C

Barometric Pressure : 0984 mbar ± 4 mbar

Method of Test : The analyser is calibrated in a temperature controlled chamber using a series of reference gases, in compliance with procedure LP004.

Instrument has passed calibration as the measurement result is within the specification limit. The specification limit takes into account the measurement uncertainty.
The results relate only to the item calibrated

Calibration Instance:112 IGC Instance:112

www.qedenv.com +44 (0) 333 800 0088 sales@qedenv.co.uk

QED Environmental Systems Ltd. Cyan Park - Unit 3, Jimmy Hill Way, Coventry, CV2 4QP, UNITED KINGDOM

Registered in England and Wales 1898734

CERTIFICATION OF CALIBRATION

4533

Date Of Calibration: 06-Aug-2021

Certificate Number: G506065_2/28612

Issued by: QED Environmental Systems Ltd.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

Calibrations marked 'Non-UKAS Accredited results' on this certificate have been included for completeness.

Non-UKAS accredited results after adjustment:

Barometer (mbar)	
Reference	**Instrument Reading**
984	984

Additional Gas Cells		
Gas	**Certified Gas (ppm)**	**Instrument Reading (ppm)**
CO	509	513
H_2S	250	250

Internal Flow	
Applied (l/hr)	**Instrument Reading (l/hr)**
5	5.2
10	10.2

Date of Issue : 09-Aug-2021 **Approved by Signatory**

Laura McBride

Laboratory Inspection

End of Certificate

Calibration Instance:112 IGC Instance:112

www.qedenv.com +44 (0) 333 800 0088 sales@qedenv.co.uk

QED Environmental Systems Ltd. Cyan Park - Unit 3, Jimmy Hill Way, Coventry, CV2 4QP, UNITED KINGDOM

Registered in England and Wales 1898734

Ribble Enviro Ltd
www.ribble-enviro.co.uk

...everything gas detection

Certificate of Calibration

Customer:	Allied Exploration + Geotechnics LTD
Instrument:	MiniRAE 3000 +
Job:	Service, test & re-calibration
Serial number:	592-929909
Fleet Number:	-
Certificate no:	929909/080121
Next calibration due date:	08.01.2022
Tested on:	08.01.2021
Calibrated for:	Isobutylene

Applied Gas Concentration:	Cylinder Reference:	Initial Sensor Reading	Final Sensor Reading	Accuracy Limits
Isobutylene 100ppm	WO263190-10	97ppm	100ppm	+/-5%

The instrument has been calibrated after re-zeroing and introducing span calibration gas, using gas that is traceable to national standards and has been prepared in accordance with BS EN ISO 6145-6:2017

Calibration Engineer: DANIEL JACQUES

Sign:

Quality Assessed by (Print):	C. S.	Sign:	

Tel: 01200 445 804 **Fax:** 01200 445 809 **Email:** info@ribble-enviro.co.uk
Ribble Enviro Ltd., Unit 4, Gisburn Business Park, Gisburn, Nr Clitheroe, BB7 4JP, UK
Company Registered in England: 06140589 **VAT No.:** GB 906 6241 34

In-situ Test Report Certificate

IN-SITU TESTING ENCLOSURES

ALLIED EXPLORATION & GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co. Durham, DH2 2RG - Tel: 0191 3874700 Fax: 0191 3874710
Regional Office: Unit 20 Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL – Tel: 01254 503 200 Fax: 01254 662 590

IN-SITU TESTING REPORT CERTIFICATE

1367

Contract Title: Prairie Phase 4 **AEG Reference:** 4355

Client Address: Tees Valley Combined Authority
Teesside Management Office
Trunk Road
Redcar
TS10 5QW

I certify that *In-situ* testing was carried out on the above contract in accordance with techniques outlined in BS 1377: 1990: Part 9 or other appropriate standards as quoted*,* and the following results, given on the attached enclosures, were obtained.

The tests carried out are indicated in the attached table showing the enclosure number and the total number of pages.

For and on behalf of Allied Exploration & Geotechnics Limited

☐ Nick Vater (Managing Director)

☐ Kerry Wade (Technical Manager)

Signed _____ Date: 18 January 2022

Tests marked not UKAS accredited in this certificate are not included in the UKAS accreditation schedule for our laboratory. Any opinions and interpretations expressed herein are outside the scope of the laboratory's UKAS accreditation

IN-SITU TESTING REPORT CERTIFICATE

ENCLOSURES

Enclosure Number	Description	UKAS Accredited	Reference	No. of Pages
0	Test Report Certificate	N/A		2
1	Standard Penetration Test Results (SPT)	Yes	BS EN ISO 22476-3	4
2	Photo-ionisation Detector Test Results	No		2
-	Variable Head Permeability Test Results	No	BS 5930 1999:Section 4	-
3	*In-situ* Water Quality Parameter Test Results	No		1
-	Density by Sand Replacement Method	Yes	BS 1377 Part 9 1990	-
-	Density by Core Cutter Method	Yes	BS 1377 Part 9 1990	-
-	Determination of the Vane Shear Strength (Down the Hole)	Yes	BS 1377 Part 9 1990	-
-	Shallow Pad (skip) Load Test Results	No	BS 1377 Part 9 1990	-
-	Determination of the California Bearing Ratio	Yes	BS 1377 Part 9 1990	-
-	Plate Loading Test Results	No	BS 1377 Part 9 1990	-
-	Apparent Resistivity of Soil	No	BS 1377 Part 9 1990	-
-	Redox Potential of Soil	No	BS 1377 Part 9 1990	-
-	Determination of the Soil Infiltration Rate for Soakaway Design	No	BRE Digest 365:1991	-

Standard Penetration Test Results

IN-SITU TESTING ENCLOSURE 1

ALLIED EXPLORATION & GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co. Durham, DH2 2RG **Tel:** 0191 387 4700 **Fax:** 0191 387 4710
Regional Office: Unit 20 Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL **Tel:** 01772 735 300 **Fax:** 01772 735 999

STANDARD PENETRATION TEST RESULTS

(BS EN ISO 22476-3: 2005)

Exploratory Hole No.	Test Depth (Reduced Level)	Water Depth (Casing)	Rod Length	SPT Hammer Ref.	Energy Ratio E_m	SEATING DRIVE						TEST DRIVE										Rod Length Corr. C_R	Energy Ratio Corr. C_E	Pen (mm)/Blow	SPT'N' Value	SPT'N' Value (Corr.) N_{60}	Shoe or Cone	Remarks
						Pen	Blows	Pen	Blows	Total Pen	Total Blows	Pen	Blows	Pen	Blows	Pen	Blows	Pen	Blows	Total Pen	Total Blows							
	m	m	m		%	mm	No.	mm	No.	mm	No.	mm	No.	mm	No.	mm	No.	mm	No.	mm	No.						S/C	
S3_BHA03	7.50 (2.40)	Dry (7.10)	7.50	ATH07	54	75	2	75	2	150	4	75	2	75	3	75	3	75	4	300	12	0.90	0.90	25.00	12	10	S	
S3_BHA03	9.50 (0.40)	Dry (9.00)	9.50	ATH07	54	75	4	75	6	150	10	75	4	75	10	75	11	75	14	300	39	0.98	0.90	7.69	39	34	S	
S3_BHA03	10.50 (-0.60)	Dry (10.10)	10.50	ATH07	54	75	31			75	31	54	100							54	100	1.00	0.90	0.54	-	-	S	
S3_BHA04	2.00 (8.02)	Dry (1.95)	2.00	ATH07	54	75	3	75	3	150	6	75	3	75	3	75	4	75	6	300	16	0.68	0.90	18.75	16	10	S	
S3_BHA04	4.00 (6.02)	Dry (3.80)	4.00	ATH07	54	75	2	75	3	150	5	75	3	75	3	75	4	75	7	300	17	0.76	0.90	17.65	17	12	S	
S3_BHA04	6.50 (3.52)	Dry (6.10)	6.50	ATH07	54	75	4	75	6	150	10	75	6	75	5	75	10	75	10	300	31	0.86	0.90	9.68	31	24	S	
S3_BHA04	7.70 (2.32)	Dry (7.30)	7.70	ATH07	54	75	9	75	30	150	39	61	100							61	100	0.91	0.90	0.61	-	-	S	

NOTE: Please refer to calibration certificate for additional information and corresponding Exploratory Hole record for sampling details. Uncorrected and corrected SPT'N' values are presented on the attached graphical plot relative to each Exploratory Hole.

Contract Title :-	Client :-	AEG Contract No :-
Prairie Phase 4	Tees Valley Combined Authority	4355

Date of Issue :-	Page No. :-	Checked By :-	Approved By :-	Certificate No. :-
18/01/2022	1 of 1			SPT/4355/1

UKAS TESTING 1367

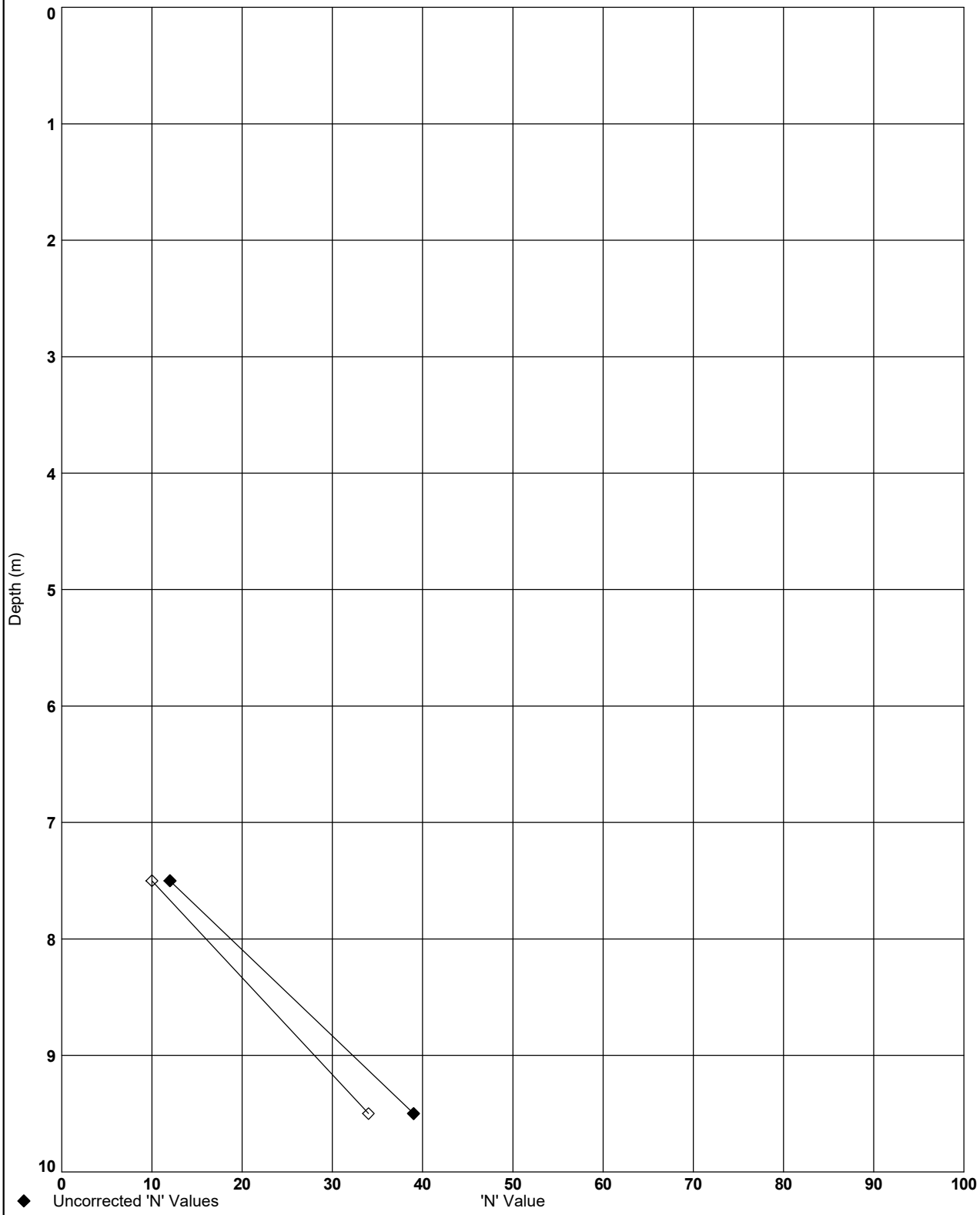
ALLIED EXPLORATION & GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co. Durham, DH2 2RG **Tel:** 0191 387 4700 **Fax:** 0191 387 4710
Regional Office: Unit 20 Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL **Tel:** 01772 735 300 **Fax:** 01772 735 999

STANDARD PENETRATION TEST RESULTS
(BS EN ISO 22476-3: 2005)

Exploratory Hole No

S3_BHA03



Note: Graph does not display extrapolated SPT results (e.g. refusals).

Contract Title :-	Client :-
Prairie Phase 4	Tees Valley Combined Authority

Date of issue :-	Certificate No :-	Operator :-
18/01/2022	SPT/4355/Graph/S3_BHA03	S.C./L.H.
Checked By :-	**Approved By :-**	**AEG Contract No. :-**
		4355

UKAS TESTING
1367

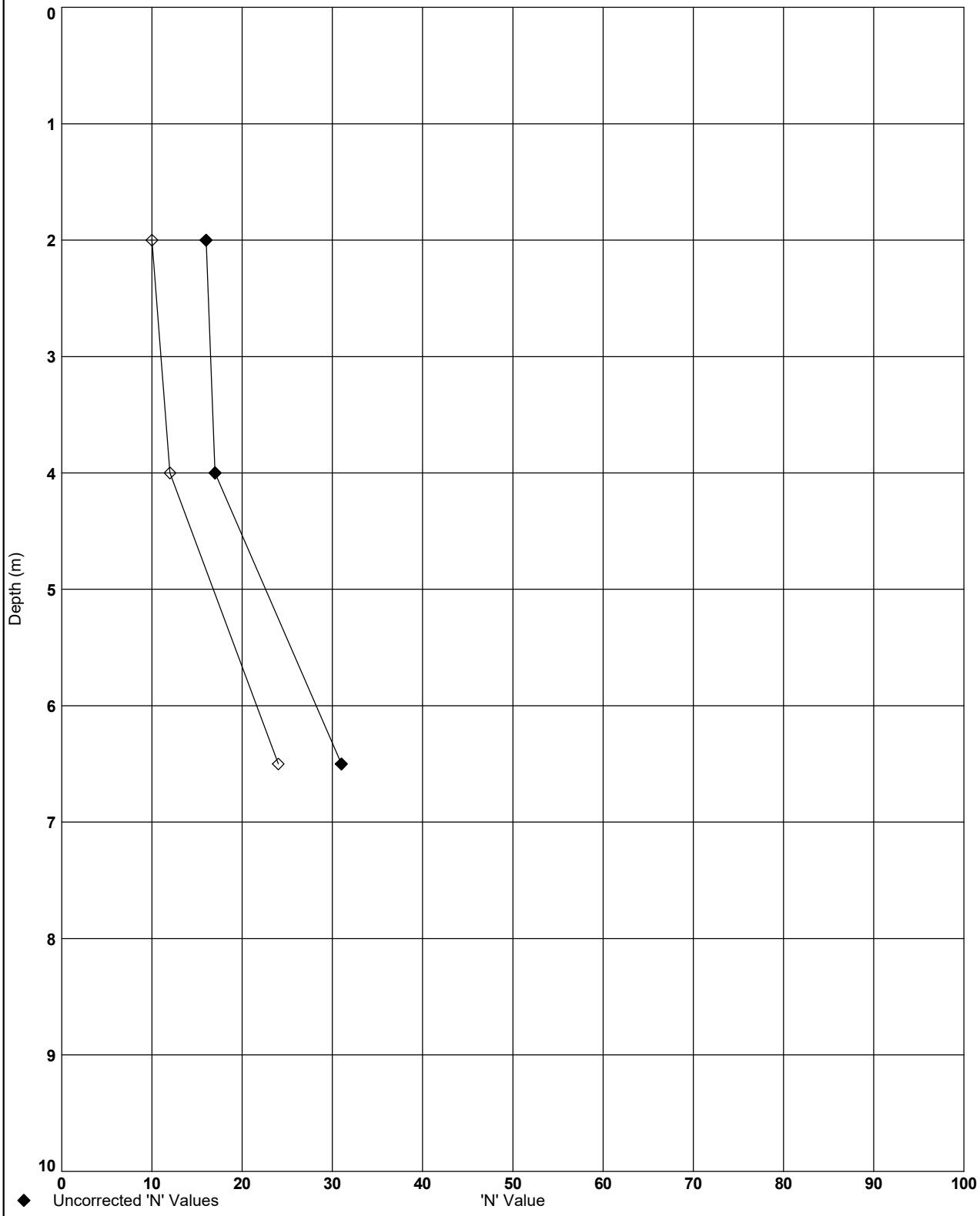
ALLIED EXPLORATION & GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co. Durham, DH2 2RG **Tel:** 0191 387 4700 **Fax:** 0191 387 4710
Regional Office: Unit 20 Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL **Tel:** 01772 735 300 **Fax:** 01772 735 999

STANDARD PENETRATION TEST RESULTS
(BS EN ISO 22476-3: 2005)

Exploratory Hole No

S3_BHA04



Note: Graph does not display extrapolated SPT results (e.g. refusals).

Contract Title :-	Client :-
Prairie Phase 4	Tees Valley Combined Authority

Date of issue :-	Certificate No :-	Operator :-
18/01/2022	SPT/4355/Graph/S3_BHA04	S.C./L.H.
Checked By :-	**Approved By :-**	**AEG Contract No. :-**
		4355

UKAS TESTING
1367

Allied Exploration & Geotechnics Ltd.

Unit 25 Stella Gill Industrial Estate
Pelton Fell
Chester-le-Street
DH2 2RG

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

SPT Hammer Ref:	ATH07
Test Date:	06/02/2021
Report Date:	08/02/2021
File Name:	ATH07.spt
Test Operator:	BP

QUALITY CONTROL CHECKED 08 APR 2021 Signed

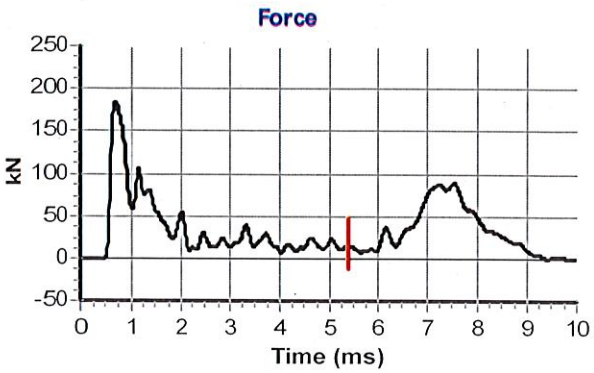
Instrumented Rod Data

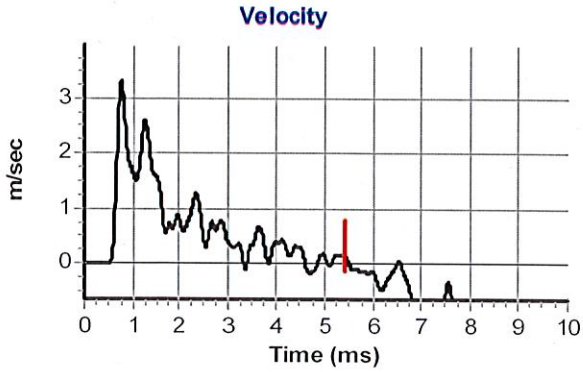
Diameter d_r (mm):	67
Wall Thickness t_r (mm):	8.8
Assumed Modulus E_a (GPa):	208
Accelerometer No.1:	65939
Accelerometer No.2:	66286

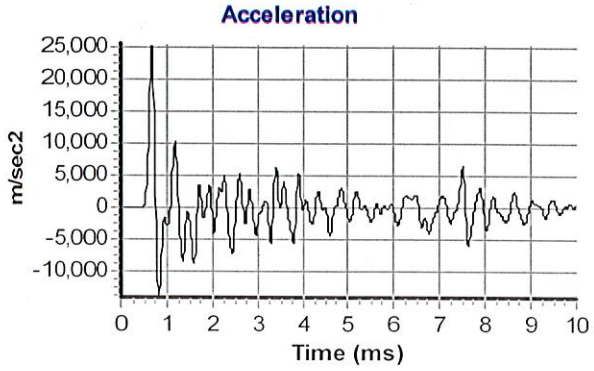
SPT Hammer Information

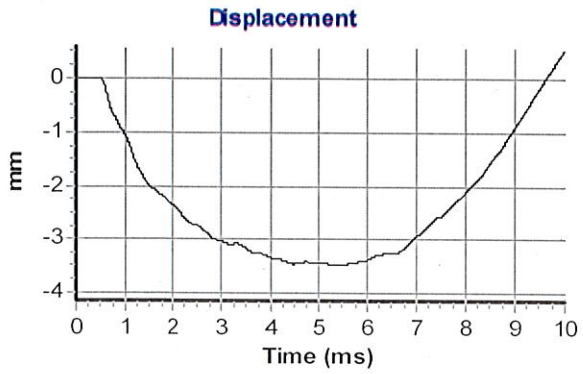
Hammer Mass m (kg):	63.2
Falling Height h (mm):	760
SPT String Length L (m):	14.1

Comments / Location









Calculations

Area of Rod A (mm2):	1609
Theoretical Energy E_{theor} (J):	473
Measured Energy E_{meas} (J):	256

Energy Ratio E_r (%): **54**

B Proctor

Signed: Brian Proctor
Title: Senior Technician

The recommended calibration interval is 12 months

Photo-ionisation Detector Test Results

IN-SITU TESTING ENCLOSURE 2

ALLIED EXPLORATION & GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co. Durham, DH2 2RG **Tel:** 0191 387 4700 **Fax:** 0191 387 4710
Regional Office: Unit 20 Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL **Tel:** 01772 735 300 **Fax:** 01772 735 999

PHOTO-IONISATION DETECTOR

Exploratory Hole No.	Depth (m)	PID (ppm)	Date Tested	Remarks
S3_BHA03	0.30	0.3	23/09/2021	
S3_BHA03	1.30	See Remarks	23/09/2021	<0.1ppm
S3_BHA03	2.30	See Remarks	23/09/2021	<0.1ppm
S3_BHA03	3.30	See Remarks	23/09/2021	<0.1ppm
S3_BHA03	4.80	See Remarks	23/09/2021	<0.1ppm
S3_BHA04	0.40	0.3	22/09/2021	
S3_BHA04	1.50	See Remarks	22/09/2021	<0.1ppm
S3_TPA_TP101	0.20	See Remarks	24/09/2021	<0.1ppm
S3_TPA_TP101	1.10	See Remarks	24/09/2021	<0.1ppm
S3_TPA_TP102	0.40	See Remarks	23/09/2021	<0.1ppm
S3_TPA_TP102	2.40	See Remarks	23/09/2021	<0.1ppm
S3_TPA_TP102A	0.60	0.2	27/09/2021	
S3_TPA_TP102A	1.90	See Remarks	27/09/2021	<0.1ppm
S3_TPA_TP103	0.40	See Remarks	24/09/2021	<0.1ppm
S3_TPA_TP103	1.60	See Remarks	24/09/2021	<0.1ppm
S3_TPA_TP104	0.40	0.3	27/09/2021	
S3_TPA_TP104	1.70	See Remarks	27/09/2021	<0.1ppm
S3_TPA_TP105	0.30	See Remarks	24/09/2021	<0.1ppm
S3_TPA_TP105	1.20	See Remarks	24/09/2021	<0.1ppm
S3_TPA_TP106	0.40	See Remarks	24/09/2021	<0.1ppm
S3_TPA_TP107	0.40	See Remarks	24/09/2021	<0.1ppm
S3_TPA_TP107	0.90	See Remarks	24/09/2021	<0.1ppm
S3_TPA_TP108	0.60	0.2	24/09/2021	
S3_TPA_TP108	1.60	See Remarks	24/09/2021	<0.1ppm
S3_TPA_TP108	2.70	See Remarks	24/09/2021	<0.1ppm
S3_TPA_TP108	3.70	See Remarks	24/09/2021	<0.1ppm
S3_TPA_TP108	4.90	See Remarks	24/09/2021	<0.1ppm
S3_TPA_TP109	0.30	See Remarks	24/09/2021	<0.1ppm
S3_TPA_TP109	1.90	See Remarks	24/09/2021	<0.1ppm
S3_TPA_TP110	0.30	See Remarks	27/09/2021	<0.1ppm
S3_TPA_TP110	1.60	See Remarks	27/09/2021	<0.1ppm
S3_TPA_TP111	0.30	0.2	22/09/2021	
S3_TPA_TP111	1.30	See Remarks	22/09/2021	<0.1ppm
S3_TPA_TP111	2.30	See Remarks	22/09/2021	<0.1ppm

See attached Calibration Certificate for Model No. and any other details

Contract Title :-	Client :-
Prairie Phase 4	Tees Valley Combined Authority

Calibration Compliant :-	Date of Issue :-	Page No. :-
YES	18/01/2022	1 of 1
Checked By :-	**Approved By :-**	**AEG Contract No. :-**
		4355

Ribble Enviro Ltd
www.ribble-enviro.co.uk

...everything gas detection

Certificate of Calibration

Customer:	Allied Exploration + Geotechnics LTD
Instrument:	MiniRAE 3000 +
Job:	Service, test & re-calibration
Serial number:	592-929909
Fleet Number:	-
Certificate no:	929909/080121
Next calibration due date:	08.01.2022
Tested on:	08.01.2021
Calibrated for:	Isobutylene

Applied Gas Concentration:	Cylinder Reference:	Initial Sensor Reading	Final Sensor Reading	Accuracy Limits
Isobutylene 100ppm	WO263190-10	97ppm	100ppm	+/-5%

The instrument has been calibrated after re-zeroing and introducing span calibration gas, using gas that is traceable to national standards and has been prepared in accordance with BS EN ISO 6145-6:2017

Calibration Engineer: DANIEL JACQUES

Sign:

Quality Assessed by (Print):	C. S.	Sign:	

Tel: 01200 445 804 **Fax:** 01200 445 809 **Email:** info@ribble-enviro.co.uk
Ribble Enviro Ltd., Unit 4, Gisburn Business Park, Gisburn, Nr Clitheroe, BB7 4JP, UK
Company Registered in England: 06140589 **VAT No.:** GB 906 6241 34

In-situ Water Quality Parameter Test Results

IN-SITU TESTING ENCLOSURE 3

ALLIED EXPLORATION GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co. Durham, DH2 2RG - Tel: 0191 387 4700 Fax: 0191 387 4710
Regional Office: Unit 20 Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL - Tel: 01254 503 200 Fax: 01254 662 590

IN-SITU WATER QUALITY PARAMETER MONITORING RESULTS

Date of Test:	02/11/2021	**Operator:**	A.M
Weather Condition (inc temperature):		Clear **(6-10°C)**	

Monitoring Point	Time	pH	Temp (°C)	Electrical Conductivity (µs)	Redox Potential (mv)	Dissolved Oxygen (%)
S3_BHA03 (Deep)	11:29:00	8.12	12.22	3530.3	-55.7	1.26
	11:32:00	8.11	12.21	3355.5	-59.8	1.21
	11:35:00	8.11	12.28	3351.1	-62.6	1.23
S3_BHA04 (Shallow)	09:49:00	8.76	11.16	1318.9	-116.5	0.47
	09:52:00	8.76	11.21	1319.6	-119.5	0.48
	09:55:00	8.76	11.20	1319.3	-121.0	0.44
S3_BHA04 (Deep)	09:19:00	9.50	10.59	1363.8	-47.5	0.35
	09:22:00	9.52	10.68	1362.2	-54.7	0.36
	09:25:00	9.52	10.66	1359.6	-60.8	0.32

Remarks :	S3_BHA03 (Shallow) Dry - Unable to sample	
Contract Title: **Prairie Phase 4**		Client: **Tees Valley Combined Authority**
Checked By:		Approved By:
Date of issue: 02/11/2021	Page No. : 1	AEG Contract No. : **4355**

Laboratory Report Certificate

LABORATORY TESTING ENCLOSURES

ALLIED EXPLORATION & GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co. Durham, DH2 2RG - Tel: 0191 3874700 Fax: 0191 3874710
Regional Office: Unit 20 Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL – Tel: 01722 735 300 Fax: 01722 735 999

LABORATORY REPORT CERTIFICATE

UKAS TESTING
1367

Contract Title: Prairie Phase 4

AEG Reference: 4355

Client Address: Tees Valley Combined Authority
Teesside Management Office
Trunk Road
Redcar
TS10 5QW

We certify that Laboratory testing was carried out on samples from the above contract in accordance with techniques outlined in BS 1377: 1990, BS EN ISO 17892:2014 or other appropriate standards as quoted. The samples were received from September 2021 and the following results, given on the attached enclosures, were obtained.

The tests carried out are indicated in the attached table showing the enclosure number and the total number of pages.

For and on behalf of Allied Exploration & Geotechnics Limited

☐ Nick Vater (Managing Director)

☑ Michelle Selkirk (Laboratory Manager)

Signed _____ Date: 17 November 2021

Tests marked not UKAS accredited in this certificate are not included in the UKAS accreditation schedule for our laboratory. Any opinions and interpretations expressed herein are outside the scope of the laboratory's UKAS accreditation.

Please note the material was derived from samples taken outside the control of the laboratory.