Photographic Log – RO104

Client Name: Glenny LLP	Site Location: Chapman Way, Tunbridge Wells	Project No.: 561063

Photo No.	Date
40	September 2023

Description:

RO104 – Made Ground arisings at 11m bgl.

Photo No.	Date
41	September 2023

Description:

RO104 – Made Ground arisings from 12.00m to 13.50m bgl.

Photographic Log – RO104

Client Name:	Site Location:	Project No.:
Glenny LLP	Chapman Way, Tunbridge Wells	561063

Photo No.	Date
42	September 2023

Description:

RO104 – Made Ground arisings from 13.50m to 14.00m bgl.

Photo No.	Date
43	September 2023

Description:

RO104 – Made Ground arisings from 16.50m to 18.00m bgl.

Photographic Log – RO104

Client Name:	Site Location:	Project No.:
Glenny LLP	Chapman Way, Tunbridge Wells	561063

Photo No.	Date
44	September 2023

Description:

RO104 – Natural arisings from 19.50m to 21.00m bgl.

Photo No.	Date
45	September 2023

Description:

RO104 – Natural arisings from 21.00m to 22.50m bgl.

Photographic Log – RO104

Client Name: Glenny LLP	Site Location: Chapman Way, Tunbridge Wells	Project No.: 561063

Photo No.	Date
46	September 2023

Description:

RO104 – Natural arisings from 22.50m to 24.00m bgl.

Photo No.	Date
47	September 2023

Description:

RO104 – Natural arisings from 24.00m to 25.50m bgl.

Photographic Log – RO104

Client Name:	Site Location:	Project No.:
Glenny LLP	Chapman Way, Tunbridge Wells	561063

Photo No.	Date
48	September 2023

Description:

RO104 – Natural arisings from 25.50m to 27.00m bgl.

Photo No.	Date
49	September 2023

Description:

RO104 – Natural arisings from 27.00m to 28.50m bgl.

Photographic Log – RO104

Client Name:	Site Location:	Project No.:
Glenny LLP	Chapman Way, Tunbridge Wells	561063

Photo No.	Date
50	September 2023

Description:

RO104 – Natural arisings from 28.50m to 30.00m bgl.

Annex C: Exploratory Hole Logs

Key to Exploratory Hole Logs

Composite Materials and Lithology

Code	Description	Code	Description	Code	Description
101	Topsoil	730	Boulders	810	Medium Grained Igneous
102	Made Ground or Fill	801	Mudstone	811	Coarse Grained Igneous
103	Asphalt	802	Siltstone	812	Fine Grained Metamorphic
104	Concrete	803	Sandstone	813	Medium Grained Metamorphic
201	Clay	804	Limestone or Dolomite	814	Coarse Grained Metamorphic
301	Silt	805	Chalk	815	Pyroclastic
401	Sand	806	Coal	816	Gypsum or Rocksalt
501	Gravel	807	Breccia	817	Shale
601	Peat	808	Conglomerate	998 999	No recovery Void
701	Cobbles	809	Fine Grained Igneous		

Backfill

Code	Description
901	Sand Filter
902 908	Gravel Filter Ballast
903	Bentonite
904	Grout
905	Arisings
906 912	Concrete Paving Slab
907	Asphalt
999	Void

NB: Composite soil types are represented by combined legends. Each type will have its own code within the AGS data.

In-Situ Testing

Prefix	Type	Comments
SPT(S) SPT(C)	Standard Penetration Test (S) Split Spoon (C) Solid Cone	Uncorrected test results at relevant start depth. Hammer ID and Energy Ratio reported on log and in relevant AGS fields
HV	Hand Vane Test	Undrained Shear Strength reported in kPa.
PP	Hand Penetrometer Test	Unconfined Compressive Strength reported in kPa
PID	On-Site Volatile Headspace Testing by Photo Ionization Detector	Screening reported as ppmv. Headspace testing undertaken as per contract documents
PPM	In-Situ Permeability Test	Permeability (k) reported in m/s. Please refer to individual test sheets for data and methodology

Rotary Boreholes:

T.C.R. -Total Core Recovery %

S.C.R. -Solid Core Recovery %

R.Q.D. -Rock Quality Designation %

F.I. - Fracture Index

Sampling

Prefix	Type	Comments
D	Small Disturbed Sample	Nominally 1kg
B	Bulk Disturbed Sample	Nominally 5kg
LB	Large Bulk Disturbed Sample	25kg to 60kg depending on material type, for compaction related tests
U	Undisturbed sample - thick wall driven tube	For CP, nominally 100mm diameter, 450mm length. For WS, nominally 38mm diameter, 100mm length. Blows to drive tube and recovery found in remarks
UT	Undisturbed Sample – Thin wall driven tube	Nominally 100mm diameter, 450mm length. Blows to drive tube and recovery found in remarks
P	Pushed piston sample	Nominally 100mm diameter, 1000mm length. Recovery found in remarks
C	Core sample	-
AMAL	Amalgamated Sample	Details of samples used noted in remarks as well as relevant AGS field
W	Water sample	Not for environmental testing purposes
ES	Environmental sample	Multiple containers used where appropriate
EW	Environmental water sample	Multiple containers used where appropriate

Installations

Legend	Description
	Piezometer Plain Pipe
	Piezometer Slotted Pipe

Water Observations

Legend	Description
▽	Water strike
▼	Standing water level after specified time

Details are provided on each log through the Water Strike Table

All soil and rock descriptions in general accordance with BS5930, BS EN ISO 14688 and BS EN ISO 14689

Well

Well

Well

Well

Well

Well

Well

Well

Well

Well

Well

Annex D: Field Data

IMS Ref: GMPM
Version: 2.3

Experts in Continuous Monitoring

MONITORING WELL COMMENTS

Headworks: Ground Level
Valve in rubber bung is clear and clean: Yes
Area surrounding borehole is: Dry

Extra Notes: Monitoring equipment pump failure at 30s, due to negative pressure within standpipe.

PROJECT DETAILS			
Project ID	GGS3465	Date	11.10.23
Site	Chapman Way, Tunbridge Wells	Time	10:30
Specialist	AT		

EQUIPMENT	
Model	Serial Number
GasData GFM 436	13739
TDL500	4520413
MiniRae	595-005336

PRESSURE DETAILS	Start:	End:
Atmospheric Pressure (mb)	1014	1014
Borehole Pressure (pa)	2382	-1342

TIME	Gas Flow	Gas Readings						
(seconds)	Litres/hour	CH_4 (% v/v)	CO_2 (% v/v)	O_2 (% v/v)	BAL	CO (ppmv)	H_2S (ppmv)	TVOC (ppmv)
Fresh Air	0.0	0.0	0.0	20.8	79.2	<1	<1	<0.1
Initial	97.8	16.3	2.2	4.8	76.7	<1	<1	<0.1
30	45.0	16.6	15.9	0.6	66.9	<1	<1	<0.1
60	0.9							
120	0.0							
180	0.0							
240								
300								
360								
420								
480								
540								
600								
Fresh Air		0.0	0.0	20.9	79.1	<1	<1	<0.1

BOREHOLE DETAILS	
Borehole ID	R101
Groundwater Level (mbgl)	0.97
Depth to base (mbgl)	7.65

STEADY STATE FINAL RESULTS								
	Flow (l/hr)	CH_4 (% v/v)	CO_2 (% v/v)	O_2 (% v/v)	BAL	CO (ppmv)	H_2S (ppmv)	TVOC (ppmv)
Steady state time (s)	180	N/A	N/A	N/A	N/A	30	30	30
Steady state value	0.0	N/A	N/A	N/A	N/A	<1	<1	<0.1
Peak Value (O_2 Low)	97.8	16.6	15.9	0.6	76.7	0	0	0.0

KEY: <0.1= Below instrument limit of detection, NM = Not Measured, N/A = Not Applicable, %v/v = Percentage volume by volume, ppmv = parts per million by volume, mb = milibar, ltr/hr = litres per hour, mbgl = metres below ground level, OS = off scale of instrument

Experts in Continuous Monitoring

IMS Ref: GMPM
Version: 2.3

MONITORING WELL COMMENTS

Headworks: Ground Level
Valve in rubber bung is clear and clean: Yes
Area surrounding borehole is: Dry

Extra Notes: Monitoring equipment pump failure at 360s, due to negative pressure within standpipe.

PROJECT DETAILS

Project ID	GGS3465	Date	11.10.23
Site	Chapman Way, Tunbridge Wells	Time	11:00
Specialist	AT		

EQUIPMENT

Model	Serial Number
GasData GFM 436	13739
TDL500	4520413
MiniRae	595-005336

PRESSURE DETAILS

PRESSURE DETAILS	Start:	End:
Atmospheric Pressure (mb)	1014	1014
Borehole Pressure (mb)	1272	-76

BOREHOLE DETAILS

Borehole ID	R102
Groundwater Level (mbgl)	2.87
Depth to base (mbgl)	15.80

Gas Readings

TIME	Gas Flow	Gas Readings						
(seconds)	Litres/hour	CH_4 (% v/v)	CO_2 (% v/v)	O_2 (% v/v)	BAL	CO (ppmv)	H_2S (ppmv)	TVOC (ppmv)
Fresh Air	0.0	0.0	0.0	20.9	79.1	<1	<1	<0.1
Initial	64.6	99.2	2.0	5.2	-6.4	<1	<1	<0.1
30	65.0	92.3	3.4	2.5	1.8	<1	<1	<0.1
60	58.6	96.0	3.9	0.5	-0.4	<1	<1	<0.1
120	37.2	95.7	3.8	0.8	-0.3	<1	<1	<0.1
180	26.1	90.5	3.7	0.4	5.4	<1	<1	<0.1
240	20.7	84.2	3.7	1.3	10.8	<1	<1	<0.1
300	17.2	87.2	4.0	0.4	8.4	<1	<1	<0.1
360	14.4	87.1	4.1	0.1	8.7	<1	<1	<0.1
420	15.6							
480	11.2							
540	9.0							
600	5.2							
Fresh Air	0.0	0.0	0.0	20.8	79.2	<1	<1	<0.1

STEADY STATE FINAL RESULTS

	Flow (l/hr)	CH_4 (% v/v)	CO_2 (% v/v)	O_2 (% v/v)	BAL	CO (ppmv)	H_2S (ppmv)	TVOC (ppmv)
Steady state time (s)	600	300	300	360	300	30	30	30
Steady state value	5.2	87.2	4.0	0.1	8.7	<1	<1	<0.1
Peak Value (O_2 Low)	65.0	99.2	4.1	0.1	10.8	0	0	0.0

KEY: <0.1= Below instrument limit of detection, NM = Not Measured, N/A = Not Applicable, %v/v = Percentage volume by volume, ppmv = parts per million by volume, mb = milibar, ltr/hr = litres per hour, mbgl = metres below ground level, OS = off scale of instrument

Experts in Continuous Monitoring

IMS Ref: GMPM
Version: 2.3

MONITORING WELL COMMENTS

Headworks: Ground Level
Valve in rubber bung is clear and clean: Yes
Area surrounding borehole is: Dry

Extra Notes: Flow did not stabilise.
Monitoring equipment pump failure at 60s, due to negative pressure within standpipe.
Well has apparently, collapsed.

PROJECT DETAILS

Project ID	GGS3465	Date	11.10.23
Site	Chapman Way, Tunbridge Wells	Time	10:16
Specialist	AT		

EQUIPMENT

Model	Serial Number
GasData GFM 436	13739
TDL500	4520413
MiniRae	595-005336

PRESSURE DETAILS

PRESSURE DETAILS	Start:	End:
Atmospheric Pressure (mb)	1014	1014
Borehole Pressure (mb)	52	-213

Gas Readings

TIME (seconds)	Gas Flow Litres/hour	CH_4 (% v/v)	CO_2 (% v/v)	O_2 (% v/v)	BAL	CO (ppmv)	H_2S (ppmv)	TVOC (ppmv)
Fresh Air	0.0	0.0	0.0	20.9	79.1	<1	<1	<0.1
Initial	52.0	38.7	2.3	15.6	43.4	<1	<1	<0.1
30	8.7	61.0	0.5	10.4	28.1	<1	<1	<0.1
60	0.1	60.0	2.1	5.7	32.2	<1	<1	<0.1
120	1.0							
180	0.6							
240	2.5							
300	1.5							
360	1.2							
420	0.9							
480	2.1							
540								
600								
Fresh Air		0.0	0.0	20.7	79.3	<1	<1	<0.1

BOREHOLE DETAILS

Borehole ID	R103
Groundwater Level (mbgl)	1.00
Depth to base (mbgl)	11.73

STEADY STATE FINAL RESULTS

	Flow (l/hr)	CH_4 (% v/v)	CO_2 (% v/v)	O_2 (% v/v)	BAL	CO (ppmv)	H_2S (ppmv)	TVOC (ppmv)
Steady state time (s)	N/A	N/A	N/A	N/A	N/A	30	30	30
Steady state value	N/A	N/A	N/A	N/A	N/A	<1	<1	<0.1
Peak Value (O_2 Low)	52.0	61.0	2.3	5.7	43.4	0	0	0.0

KEY: <0.1= Below instrument limit of detection, NM = Not Measured, N/A = Not Applicable, %v/v = Percentage volume by volume, ppmv = parts per million by volume, mb = milibar, ltr/hr = litres per hour, mbgl = metres below ground level, OS = off scale of instrument

Experts in Continuous Monitoring

IMS Ref: GMPM
Version: 2.3

MONITORING WELL COMMENTS

Headworks: Ground Level
Valve in rubber bung is clear and clean: Yes
Area surrounding borehole is: Dry

PROJECT DETAILS

Project ID	GGS3465	Date	11.10.23
Site	Chapman Way, Tunbridge Wells	Time	09:42
Specialist	AT		

EQUIPMENT

Model	Serial Number
GasData GFM 436	13739
TDL500	4520413
MiniRae	595-005336

PRESSURE DETAILS

PRESSURE DETAILS	Start:	End:
Atmospheric Pressure (mb)	1014	1014
Borehole Pressure (mb)	0	0

Gas Readings

TIME (seconds)	Gas Flow Litres/hour	CH_4 (% v/v)	CO_2 (% v/v)	O_2 (% v/v)	BAL	CO (ppmv)	H_2S (ppmv)	TVOC (ppmv)
Fresh Air	0.0	0.0	0.0	20.9	79.1	<1	<1	<0.1
Initial	0.0	3.1	1.9	7.0		<1	<1	<0.1
30	0.0	24.9	2.0	5.8		<1	<1	<0.1
60		31.6	2.0	5.7		<1	<1	<0.1
120		31.6	2.0	6.1		<1	<1	<0.1
180		46.4	2.0	6.3		<1	<1	<0.1
240		45.9	2.0	6.5		<1	<1	<0.1
300		44.7	2.0	6.8		<1	<1	<0.1
360		44.2	2.0	6.9		<1	<1	<0.1
420		43.9	1.9	7.1		<1	<1	<0.1
480		42.9	1.9	7.3		<1	<1	<0.1
540		41.4	1.9	7.8		<1	<1	<0.1
600		41.1	1.9	7.7		<1	<1	<0.1
Fresh Air		0.0	0.0	21.0	79.0	<1	<1	<0.1

BOREHOLE DETAILS

Borehole ID	R104
Groundwater Level (mbgl)	3.14
Depth to base (mbgl)	4.52

STEADY STATE FINAL RESULTS

	Flow (l/hr)	CH_4 (% v/v)	CO_2 (% v/v)	O_2 (% v/v)	BAL	CO (ppmv)	H_2S (ppmv)	TVOC (ppmv)
Steady state time (s)	30	30	30	N/A		30	30	30
Steady state value	0.0	N/A	2.0	N/A	N/A	<1	<1	<0.1
Peak Value (O_2 Low)	0.0	46.4	2.0	5.7	0.0	0	0	0.0

KEY: <0.1= Below instrument limit of detection, NM = Not Measured, N/A = Not Applicable, %v/v = Percentage volume by volume, ppmv = parts per million by volume, mb = milibar, ltr/hr = litres per hour, mbgl = metres below ground level, OS = off scale of instrument

Ground Gas and Groundwater Monitoring Record Sheet

JOB DETAILS: Chapman Way, Tunbridge Wells
Client: TRC | **Quote No:** 561063
Site: Chapman Way, Tunbridge Wells | **Visit No:** 1 **of** 6
Date: 20.9.2023 | **Operator:** Tim Singer | **Project Manager:** Harry McAllister

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	GAS CONCENTRATIONS												VOLATILES		FLOW DATA				WELL AND WATER DATA		Comments
Monitoring Point	Methane (%v/v)		%LEL		Carbon dioxide (%v/v)		Carbon monoxide (ppmv)		Hydrogen sulphide (ppmv)		Oxygen (%v/v)		PID Peak (ppm)	Product thickness (mm)	Flow rate (l/hr)		Differential borehole Pressure (Pa)	Time for flow to equalise (secs)	Water level (mbgl)	Depth of well (m)	
	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Min.	Steady			Peak	Steady					
RO101	2.7	2.7			11.7	11.7	10	5	1	1	0.3	0.3			-10.3	0.0	-0.26	300	0.80	9.10	Bentonite seal has failed. After 30-40 bails the water level did not decreased at all
RO102	99.5	99.5			3.7	3.7	1	0	2	1	0.1	0.0			-8.8	-8.8	-0.26	300	3.00	15.60	
RO103	87.4	86.2			2.3	2.3	0	0	1	1	0.1	0.2			-14.1	0.0	-0.23	300	0.80	14.10	
RO104	34.1	34.1			1.8	1.8	2	2	1	1	6.7	6.7			-0.2	0.0	-0.07	300	2.60	4.50	
Max	99.5	99.5	ND	ND	11.7	11.7	10	5	2	1	6.7	6.7	NA	NA	-0.2	0.0	0	300	3.00	15.60	
Min	**2.7**	**2.7**	**0.0**	**0.0**	**1.8**	**1.8**	**0**	**0**	**1**	**1**	**0.1**	**0.0**	**NA**	**NA**	**-14.1**	**-8.8**	**-0.3**	**300**	**0.80**	**4.50**	

ND - Not detected
NR - Not recorded
NA - Non applicable

METEOROLOGICAL AND SITE INFORMATION: (Select correct box with X or enter data, as applicable)

State of ground:		Dry		Moist	x	Wet		Snow		Frozen
Wind:		Calm	x	Light		Moderate		Strong		
Cloud cover:		None		Slight		Cloudy	x	Overcast		
Precipitation:		None		Slight		Moderate	x	Heavy		
Time monitoring performed:			11:22	Start			13:30	End		
Barometric pressure (mbar):			993	Start			992	End		
Pressure trend (Daily):			x	Falling		Steady		Rising		
Source:										
Air Temperature (Deg. C):			18	Before			18	After		

INSTRUMENTATION TECHNICAL SPECIFICATIONS:

Ground gas meter: G507726
Gas Range: **CH_4** 0 - 100% **CO_2** 0 - 100% **O_2** 0 - 25%
Gas Flow range: +100/-50 l/hour
Differential Pressure: (+/-) 1000 Pa
Date of last calibration: 12/01/2023
Date of next calibration: 12/07/2023

Ambient air check: **CH_4** [ ] **CO_2** [ ] **O_2** [ ]

JOB DET/ Chapman Way, Tunbridge Wells
Client: TRC
Site: Chapman Way, Tunbridge Wells
Date: 27.9.23

Quote No: 561063
Visit No: 2 **of** 6
Operator: B Welburn
Project Manager: Harry McAllister
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	GAS CONCENTRATIONS												VOLATILES		FLOW DATA				ELL AND WATER DA		Comments
Monitoring Point	Methane (%v/v)		%LEL		Carbon dioxide (%v/v)		Carbon monoxide (ppmv)		Hydrogen sulphide (ppmv)		Oxygen (%v/v)		PID Peak (ppm)	Product thickness (mm)	Flow rate (l/hr)		Differential borehole Pressure (Pa)	Time for flow to equalise (secs)	Water level (mbgl)	Depth of well (m)	
	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Min.	Steady			Peak	Steady					
RO101	8.9	8.9			11.4	11.4	8	8	1	1	1.2	1.2	0.3			-1.5	37.85	120	0.92	8.37	
RO102	94.3	94.2			3.5	3.5	3	3	1	1	0.3	0.2	0.2			-2.2	78.41	120	3.68	15.82	
RO103	88.3	83.7			2.4	2.3	2	2	1	1	0.3	0.3	0.1			1.8	13.19	120	0.97	13.27	bentonight seal gone
RO104	39.2	39.2			1.6	1.6	4	4	1	1	5.1	5.1	0.3			0	0.09	120	2.66	4.56	
Max	**94.3**	**94.2**	**ND**	**ND**	**11.4**	**11.4**	**8**	**8**	**1**	**1**	**5.1**	**5.1**	**NA**	**NA**	**ND**	**1.8**	**78**	**120**	**3.68**	**15.82**	
Min	**8.9**	**8.9**	**0.0**	**0.0**	**1.6**	**1.6**	**2**	**2**	**1**	**1**	**0.3**	**0.2**	**NA**	**NA**	**0.0**	**-2.2**	**0.1**	**120**	**0.92**	**4.56**	

ND - Not detected
NR - Not recorded
NA - Non applicable

METEOROLOGICAL AND SITE INFORMATION:

(Select correct box with X or enter data, as applicable)

State of ground:	x	Dry		Moist		Wet		Snow		Frozen
Wind:	x	Calm		Light		Moderate		Strong		
Cloud cover:		None		Slight		Cloudy	x	Overcast		
Precipitation:	x	None		Slight		Moderate		Heavy		
Time monitoring performed:			10:00	Start			10:40	End		
Barometric pressure (mbar):			1008	Start			1003	End		
Pressure trend (Daily):				Falling	x	Steady		Rising		
Source:										
Air Temperature (Deg. C):				Before				After		

INSTRUMENTATION TECHNICAL SPECIFICATIONS:

Ground gas meter: G507726
Gas Range: **CH_4** 0 - 100% **CO_2** 0 - 100% **O_2** 0 - 25%
Gas Flow range: +100/-50 l/hour
Differential Pressure: (+/-) 1000 Pa
Date of last calibration: 12/01/2023
Date of next calibration: 12/07/2023

Ambient air check: **CH_4** ___ **CO_2** ___ **O_2** ___

JOB DET. Chapman Way, Tunbridge Wells
Client: TRC
Site: Chapman Way, Tunbridge Wells
Date: 05.10.23

Quote No: 561063
Visit No: 3 **of** 6
Operator: M Dorfling **Project Manager:** Harry McAllister

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	GAS CONCENTRATIONS												VOLATILES		FLOW DATA				ELL AND WATER DA		Comments
Monitoring Point	Methane (%v/v)		%LEL		Carbon dioxide (%v/v)		Carbon monoxide (ppmv)		Hydrogen sulphide (ppmv)		Oxygen (%v/v)		PID Peak (ppm)	Product thickness (mm)	Flow rate (l/hr)		Differential borehole Pressure (Pa)	Time for flow to equalise (secs)	Water level (mbgl)	Depth of well (m)	
	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Min.	Steady			Peak	Steady					
RO101	7	7	NR	NR	14.8	14.8	3	3	0	0	0.5	0.5	0	ND	0.3	0.3	27.57	240	1.03	7.88	
RO102	92.2	92.2	NR	NR	3.6	3.6	2	2	0	0	0.2	0.2	0	ND	14.1	14.1	67.18	120	3.22	9.75	
RO103	80.3	80.3	NR	NR	3.6	3.6	2	2	0	0	0.2	0.2	0	ND	0.1	0.1	8.19	120	1.05	11.96	bentonight seal gone
RO104	40.7	40.7	NR	NR	2	2	3	3	0	0	5.7	5.7	0	ND	0.1	0.1	0	120	3.13	4.55	
Max	**92.2**	**92.2**	**ND**	**ND**	**14.8**	**14.8**	**3**	**3**	**0**	**0**	**5.7**	**5.7**	**NA**	**NA**	**14.1**	**14.1**	**67**	**240**	**3.22**	**11.96**	
Min	**7.0**	**7.0**	**0.0**	**0.0**	**2.0**	**2.0**	**2**	**2**	**0**	**0**	**0.2**	**0.2**	**NA**	**NA**	**0.1**	**0.1**	**0.0**	**120**	**1.03**	**4.55**	

ND - Not detected
NR - Not recorded
NA - Non applicable

METEOROLOGICAL AND SITE INFORMATION: (Select correct box with X or enter data, as applicable)

State of ground:	x	Dry		Moist		Wet		Snow		Frozen
Wind:		Calm		Light	x	Moderate		Strong		
Cloud cover:		None		Slight	x	Cloudy		Overcast		
Precipitation:	x	None		Slight		Moderate		Heavy		
Time monitoring performed:				Start				End		
Barometric pressure (mbar):			1017	Start			1017	End		
Pressure trend (Daily):				Falling	x	Steady		Rising		
Source:										
Air Temperature (Deg. C):			17	Before				After		

INSTRUMENTATION TECHNICAL SPECIFICATIONS:
Ground gas meter: G507726
Gas Range: **CH_4** 0 - 100% **CO_2** 0 - 100% **O_2** 0 - 25%
Gas Flow range: +100/-50 l/hour
Differential Pressure: (+/-) 1000 Pa
Date of last calibration: 12/01/2023
Date of next calibration: 12/07/2023

Ambient air check: **CH_4** 0.0 **CO_2** 0.0 **O_2** 21.1

JOB DET/ Chapman Way, Tunbridge Wells
Client: TRC
Site: Chapman Way, Tunbridge Wells
Date: 11.10.23

Quote No: 561063
Visit No: 4 **of** 6
Operator: GGS
9
Project Manager: Harry McAllister

	GAS CONCENTRATIONS												VOLATILES		FLOW DATA				ELL AND WATER DA		Comments
Monitoring Point	Methane (%v/v)		%LEL		Carbon dioxide (%v/v)		Carbon monoxide (ppmv)		Hydrogen sulphide (ppmv)		Oxygen (%v/v)		PID Peak (ppm)	Product thickness (mm)	Flow rate (l/hr)		Differential borehole Pressure (Pa)	Time for flow to equalise (secs)	Water level (mbgl)	Depth of well (m)	
	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Min.	Steady			Peak	Steady					
RO101	16.6	N/A	NR	NR	15.9	N/A	<1	<1	<1	<1	0.6	N/A	NR	ND	**0.1**	0.1		180	0.97	7.65	Monitoring equipment pump failure at 30s, due to negative pressure within standpipe.
RO102	96	87.2	NR	NR	4.1	4	<1	<1	<1	<1	0.1	0.1	NR	ND	**65.0**	5.2		600	2.87	15.8	Monitoring equipment pump failure at 30s, due to negative pressure within standpipe.
RO103	61	N/A	NR	NR	2.3	N/A	<1	<1	<1	<1	5.7	N/A	NR	ND	**52.0**	0.1	52	60	1	11.73	Flow did not stabilise. Monitoring equipment pump failure at 60s, due to negative pressure within standpipe. Well has apparently, collapsed.
RO104	46.4	N/A	NR	NR	2	2	<1	<1	<1	<1	5.7	N/A	NR	ND	<0.1	<0.1			3.14	4.52	
Max	96.0	87.2	ND	ND	15.9	4.0	ND	ND	ND	ND	5.7	0.1	NA	NA	65.0	5.2	52	600	3.14	15.80	
Min	**16.6**	**87.2**	**0.0**	**0.0**	**2.0**	**2.0**	**0**	**0**	**0**	**0**	**0.1**	**0.1**	**NA**	**NA**	**0.1**	**0.1**	**52.0**	**60**	**0.97**	**4.52**	

ND - Not detected
NR - Not recorded
NA - Non applicable

METEOROLOGICAL AND SITE INFORMATION:

State of ground:	x	Dry		Moist		Wet		Snow		Frozen
Wind:		Calm		Light		Moderate		Strong		
Cloud cover:		None		Slight		Cloudy		Overcast		
Precipitation:		None		Slight		Moderate		Heavy		
Time monitoring performed:				Start				End		
Barometric pressure (mbar):			1014	Start			1014	End		
Pressure trend (Daily):				Falling	x	Steady		Rising		
Source:										
Air Temperature (Deg. C):				Before				After		

INSTRUMENTATION TECHNICAL SPECIFICATIONS:
Ground gas meter: G507726
Gas Range: **CH_4** 0 - 100% **CO_2** 0 - 100% **O_2** 0 - 25%
Gas Flow range: +100/-50 l/hour
Differential Pressure: (+/-) 1000 Pa
Date of last calibration:
Date of next calibration:

Ambient air check: **CH_4** 0.0 **CO_2** 0.0 **O_2**

JOB DET/ Chapman Way, Tunbridge Wells
Client: TRC
Site: Chapman Way, Tunbridge Wells
Date: 17.10.23

Quote No: 561063
Visit No: 5 **of** 6
Operator: M Dorfling
9
Project Manager: Harry McAllister

	GAS CONCENTRATIONS												VOLATILES		FLOW DATA				ELL AND WATER DA		Comments
Monitoring Point	Methane (%v/v)		%LEL		Carbon dioxide (%v/v)		Carbon monoxide (ppmv)		Hydrogen sulphide (ppmv)		Oxygen (%v/v)		PID Peak (ppm)	Product thickness (mm)	Flow rate (l/hr)		Differential borehole Pressure (Pa)	Time for flow to equalise (secs)	Water level (mbgl)	Depth of well (m)	
	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Min.	Steady			Peak	Steady					
RO101	20.3	20.3	NR	NR	14.9	14.9	3	3	0	0	1.3	1.3	0	ND	0.3	0.3	32.31	60	0.96		
RO102	93	93	NR	NR	3.7	3.7	2	2	0	0	0.3	0.3	0	ND	15.7	15.7	60.12	60	3.18		Gas bubbling out of well cap
RO103	81.8	81.8	NR	NR	2.6	2.6	3	3	0	0	0.2	0.2	0	ND	9.4	9.4	56.38	180	1.27		Well is repaired from last visit.
RO104	36.3	36.3	NR	NR	2.1	2.1	2	2	0	0	3.4	3.4	0	ND	0.2	0.2	0	60	2.5		
Max	93.0	93.0	ND	ND	14.9	14.9	3	3	0	0	3.4	3.4	NA	NA	15.7	15.7	60	180	3.18	NR	
Min	**20.3**	**20.3**	**0.0**	**0.0**	**2.1**	**2.1**	**2**	**2**	**0**	**0**	**0.2**	**0.2**	**NA**	**NA**	**0.2**	**0.2**	**0.0**	**60**	**0.96**	**0.00**	

ND - Not detected
NR - Not recorded
NA - Non applicable

METEOROLOGICAL AND SITE INFORMATION:

(Select correct box with X or enter data, as applicable)

State of ground:		Dry	x	Moist	x	Wet		Snow		Frozen
Wind:		Calm		Light	x	Moderate		Strong		
Cloud cover:		None	x	Slight		Cloudy		Overcast		
Precipitation:	x	None		Slight		Moderate		Heavy		
Time monitoring performed:				Start				End		
Barometric pressure (mbar):			1006	Start			1006	End		
Pressure trend (Daily):				Falling	x	Steady		Rising		
Source:										
Air Temperature (Deg. C):			12	Before				After		

INSTRUMENTATION TECHNICAL SPECIFICATIONS:

Ground gas meter: G507726

Gas Range: CH_4 0 - 100% CO_2 0 - 100% O_2 0 - 25%

JOB DET/ Chapman Way, Tunbridge Wells
Client: TRC
Site: Chapman Way, Tunbridge Wells
Date: 23.10.23

Quote No: 561063
Visit No: 6 **of** 6
Operator: M Dorfling
Project Manager: Harry McAllister
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Monitoring Point	GAS CONCENTRATIONS: Methane (%v/v) Peak	Methane (%v/v) Steady	%LEL Peak	%LEL Steady	Carbon dioxide (%v/v) Peak	Carbon dioxide (%v/v) Steady	Carbon monoxide (ppmv) Peak	Carbon monoxide (ppmv) Steady	Hydrogen sulphide (ppmv) Peak	Hydrogen sulphide (ppmv) Steady	Oxygen (%v/v) Min.	Oxygen (%v/v) Steady	VOLATILES: PID Peak (ppm)	Product thickness (mm)	FLOW DATA: Flow rate (l/hr) Peak	Flow rate (l/hr) Steady	Differential borehole Pressure (Pa)	Time for flow to equalise (secs)	ELL AND WATER DA: Water level (mbgl)	Depth of well (m)	Comments
RO101	32.1	32.1	NR	NR	8.3	8.3	2	2	0	0	2.1	2.1	0	ND	0.1	0.1	52.92	60	1.01		
RO102	93.3	93.3	NR	NR	3.7	3.7	1	1	0	0	0.2	0.2	0	ND	20.4	20.4	94.33	60	3.53		
RO103	82.7	82.7	NR	NR	2.9	2.9	2	2	1	1	0.2	0.2	0	ND	8.7	8.7	45.55	120	1.39		
RO104	43.4	43.4	NR	NR	2	2	2	2	0	0	3.9	3.9	0	ND	0.1	0.1	-2.49	60	1.68		
Max	93.3	93.3	ND	ND	8.3	8.3	2	2	1	1	3.9	3.9	NA	NA	20.4	20.4	94	120	3.53	NR	
Min	32.1	32.1	0.0	0.0	2.0	2.0	1	1	0	0	0.2	0.2	NA	NA	0.1	0.1	-2.5	60	1.01	0.00	

ND - Not detected
NR - Not recorded
NA - Non applicable

METEOROLOGICAL AND SITE INFORMATION:

(Select correct box with X or enter data, as applicable)

State of ground:		Dry		Moist	x	Wet		Snow		Frozen
Wind:		Calm	x	Light		Moderate		Strong		
Cloud cover:		None	x	Slight		Cloudy		Overcast		
Precipitation:	x	None		Slight		Moderate		Heavy		
Time monitoring performed:				Start				End		
Barometric pressure (mbar):			998	Start			998	End		
Pressure trend (Daily):				Falling	x	Steady		Rising		
Source:										
Air Temperature (Deg. C):			12	Before				After		

INSTRUMENTATION TECHNICAL SPECIFICATIONS:

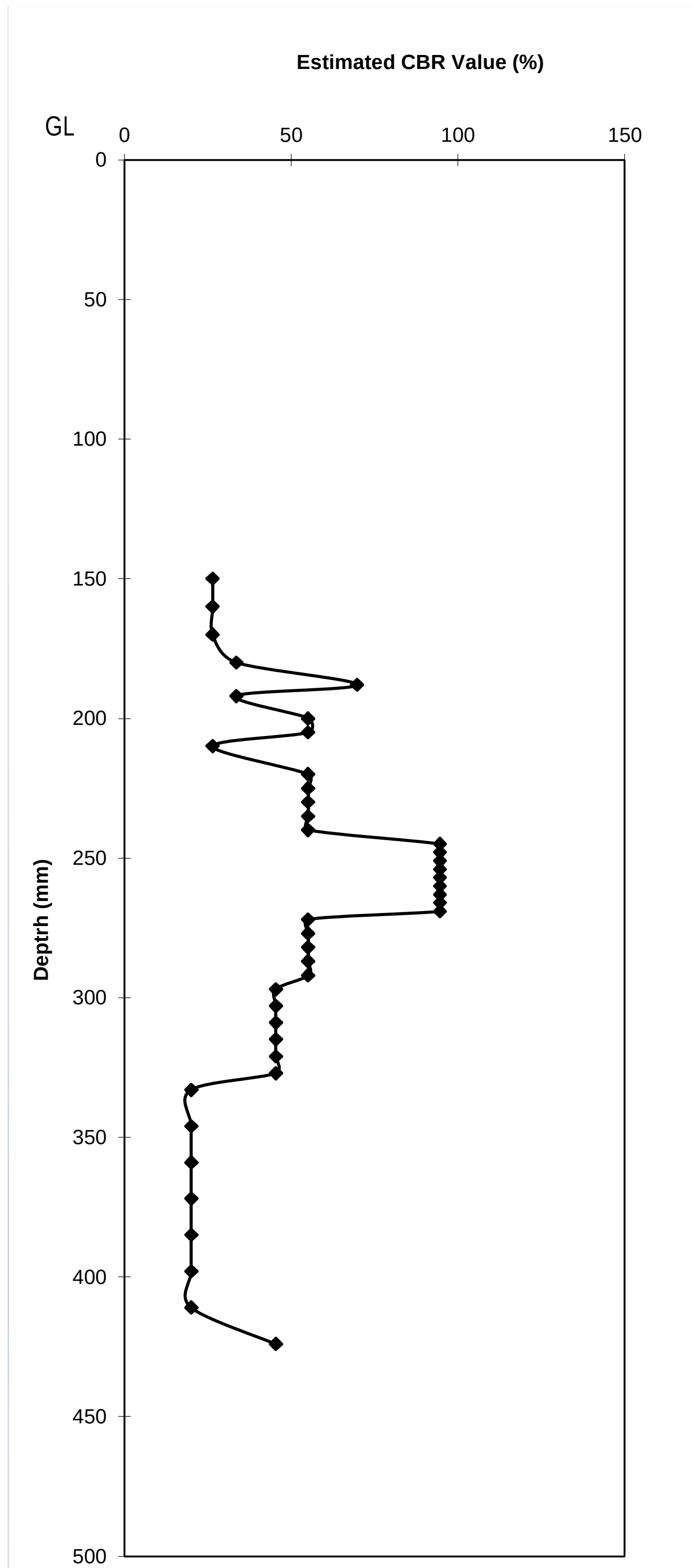
Ground gas meter: G507726

Gas Range: CH_4 0 - 100% CO_2 0 - 100% O_2 0 - 25%

TRC - In situ CBR by DCP Probe

Number of Blows	Penetration Per Blow (mm)	Depth from GL (mm)	Log P	2.48-1.057 Log P	CBR Value (%)
0	150	150			
1	10	160	1.0	1.423	26.5
2	10	170	1.0	1.423	26.5
3	10	180	1.0	1.423	26.5
4	8	188	0.9	1.525	33.5
5	4	192	0.6	1.844	69.8
6	8	200	0.9	1.525	33.5
7	5	205	0.7	1.741	55.1
8	5	210	0.7	1.741	55.1
9	10	220	1.0	1.423	26.5
10	5	225	0.7	1.741	55.1
11	5	230	0.7	1.741	55.1
12	5	235	0.7	1.741	55.1
13	5	240	0.7	1.741	55.1
14	5	245	0.7	1.741	55.1
15	3	248	0.5	1.976	94.6
16	3	251	0.5	1.976	94.6
17	3	254	0.5	1.976	94.6
18	3	257	0.5	1.976	94.6
19	3	260	0.5	1.976	94.6
20	3	263	0.5	1.976	94.6
21	3	266	0.5	1.976	94.6
22	3	269	0.5	1.976	94.6
23	3	272	0.5	1.976	94.6
24	5	277	0.7	1.741	55.1
25	5	282	0.7	1.741	55.1
26	5	287	0.7	1.741	55.1
27	5	292	0.7	1.741	55.1
28	5	297	0.7	1.741	55.1
29	6	303	0.8	1.657	45.4
30	6	309	0.8	1.657	45.4
31	6	315	0.8	1.657	45.4
32	6	321	0.8	1.657	45.4
33	6	327	0.8	1.657	45.4
34	6	333	0.8	1.657	45.4
35	13	346	1.1	1.303	20.1
36	13	359	1.1	1.303	20.1
37	13	372	1.1	1.303	20.1
38	13	385	1.1	1.303	20.1
39	13	398	1.1	1.303	20.1
40	13	411	1.1	1.303	20.1
41	13	424	1.1	1.303	20.1
42	6	430	0.8	1.657	45.4

Remarks: Tests commenced from ground level
Zero reading = start depth below ground surface
Zero reading at start of test: 150 (mm)



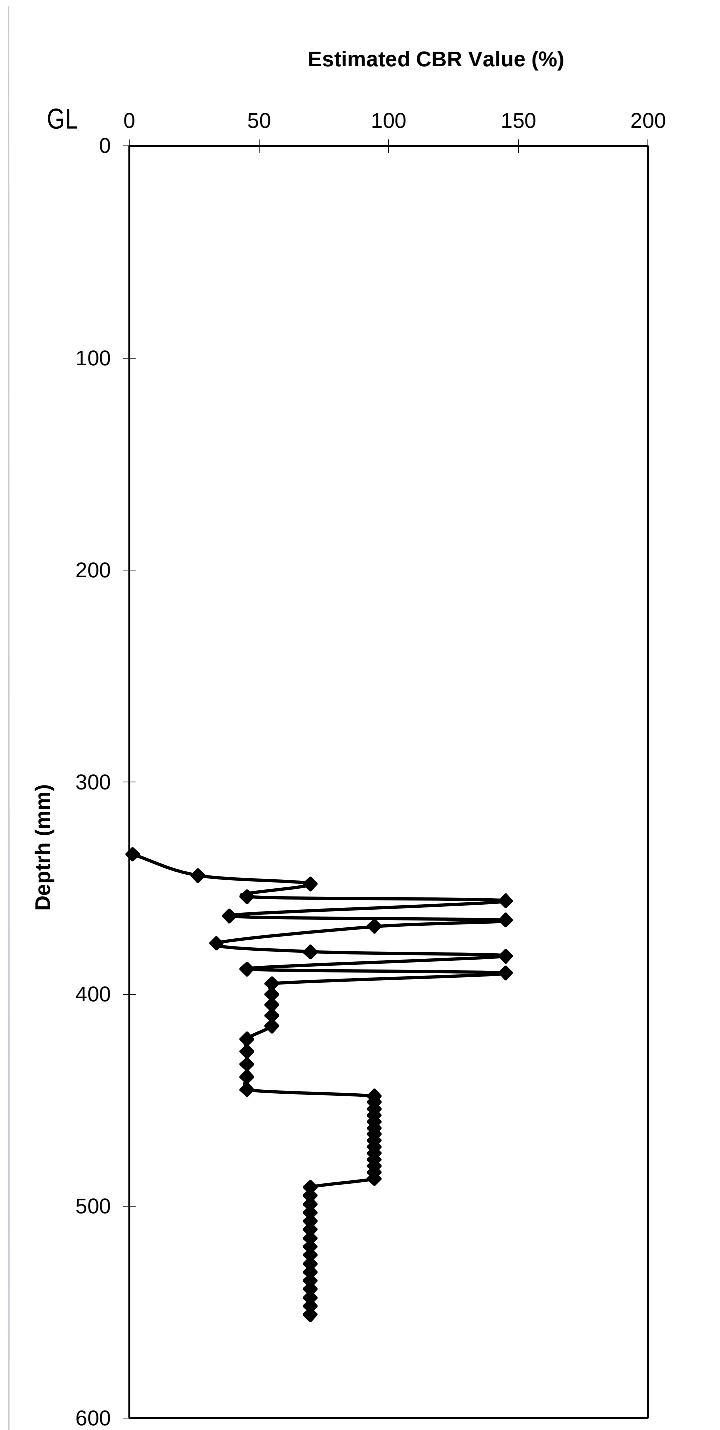
Remarks: Refusal at 430mm
Project Number: 561063
Project: Chapman Way Tunbridge Wells

Date: 07-Nov
Reference: DCP 7

TRC - In situ CBR by DCP Probe

Remarks: Tests commenced from ground level
Zero reading = start depth below ground surface
Zero reading at start of test: 160 (mm)

Number of Blows	Penetration Per Blow (mm)	Depth from GL (mm)	Log P	2.48-1.057 Log P	CBR Value (%)
0	160	160			
1	174	334	2.2	0.112	1.3
2	10	344	1.0	1.423	26.5
3	4	348	0.6	1.844	69.8
4	6	354	0.8	1.657	45.4
5	2	356	0.3	2.162	145.1
6	7	363	0.8	1.587	38.6
7	2	365	0.3	2.162	145.1
8	3	368	0.5	1.976	94.6
9	8	376	0.9	1.525	33.5
10	4	380	0.6	1.844	69.8
11	2	382	0.3	2.162	145.1
12	6	388	0.8	1.657	45.4
13	2	390	0.3	2.162	145.1
14	5	395	0.7	1.741	55.1
15	5	400	0.7	1.741	55.1
16	5	405	0.7	1.741	55.1
17	5	410	0.7	1.741	55.1
18	5	415	0.7	1.741	55.1
19	6	421	0.8	1.657	45.4
20	6	427	0.8	1.657	45.4
21	6	433	0.8	1.657	45.4
22	6	439	0.8	1.657	45.4
23	6	445	0.8	1.657	45.4
24	3	448	0.5	1.976	94.6
25	3	451	0.5	1.976	94.6
26	3	454	0.5	1.976	94.6
27	3	457	0.5	1.976	94.6
28	3	460	0.5	1.976	94.6
29	3	463	0.5	1.976	94.6
30	3	466	0.5	1.976	94.6
31	3	469	0.5	1.976	94.6
32	3	472	0.5	1.976	94.6
33	3	475	0.5	1.976	94.6
34	3	478	0.5	1.976	94.6
35	3	481	0.5	1.976	94.6
36	3	484	0.5	1.976	94.6
37	3	487	0.5	1.976	94.6
38	4	491	0.6	1.844	69.8
39	4	495	0.6	1.844	69.8
40	4	499	0.6	1.844	69.8
41	4	503	0.6	1.844	69.8
42	4	507	0.6	1.844	69.8
43	4	511	0.6	1.844	69.8
44	4	515	0.6	1.844	69.8
45	4	519	0.6	1.844	69.8
46	4	523	0.6	1.844	69.8
47	4	527	0.6	1.844	69.8
48	4	531	0.6	1.844	69.8
49	4	535	0.6	1.844	69.8
50	4	539	0.6	1.844	69.8
51	4	543	0.6	1.844	69.8
52	4	547	0.6	1.844	69.8
53	4	551	0.6	1.844	69.8
53	4	555	0.6	1.844	69.8
53	4	559	0.6	1.844	69.8
53	4	563	0.6	1.844	69.8
53	4	567	0.6	1.844	69.8
53	4	571	0.6	1.844	69.8
53	4	575	0.6	1.844	69.8



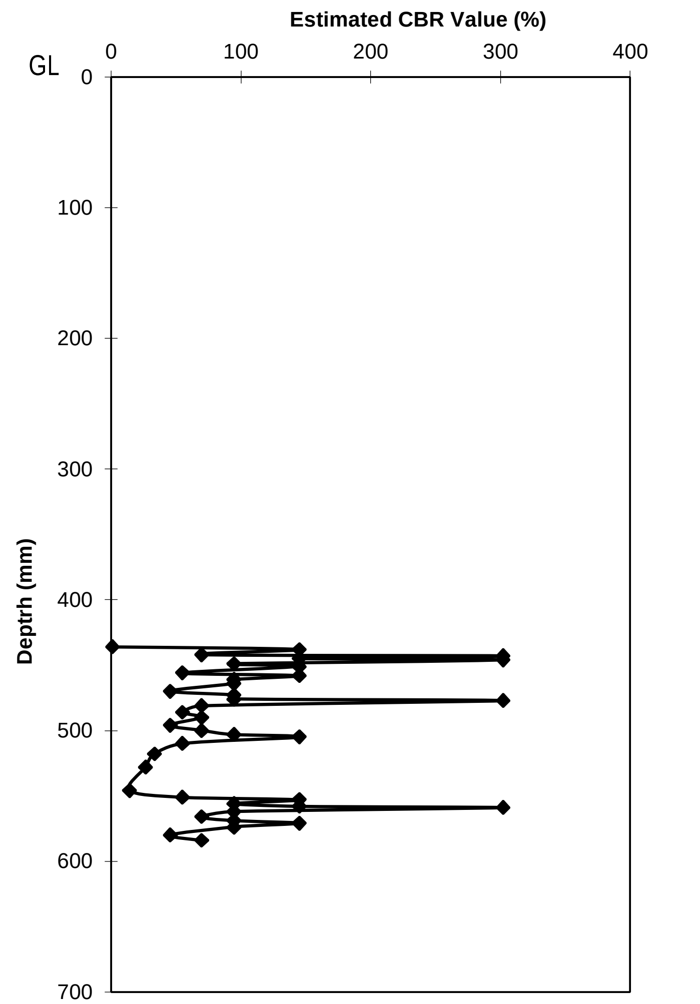
Remarks: Refusal at 575mm
Project Number: 561063
Project: Chapman Way Tunbridge Wells

Date: 07-Nov
Reference: DCP 1

TRC - In situ CBR by DCP Probe

Remarks: Tests commenced from ground level
Zero reading = start depth below ground surface
Zero reading at start of test: 216 (mm)

Number of Blows	Penetration Per Blow (mm)	Depth from GL (mm)	Log P	2.48-1.057 Log P	CBR Value (%)
0	216	216			
1	220	436	2.3	0.004	1.0
1	2	438	0.3	2.162	145.1
1	4	442	0.6	1.844	69.8
1	1	443	0.0	2.480	302.0
1	2	445	0.3	2.162	145.1
1	1	446	0.0	2.480	302.0
1	3	449	0.5	1.976	94.6
1	2	451	0.3	2.162	145.1
1	5	456	0.7	1.741	55.1
1	2	458	0.3	2.162	145.1
1	3	461	0.5	1.976	94.6
1	3	464	0.5	1.976	94.6
1	6	470	0.8	1.657	45.4
1	3	473	0.5	1.976	94.6
1	3	476	0.5	1.976	94.6
1	1	477	0.0	2.480	302.0
1	4	481	0.6	1.844	69.8
1	5	486	0.7	1.741	55.1
1	4	490	0.6	1.844	69.8
1	6	496	0.8	1.657	45.4
1	4	500	0.6	1.844	69.8
1	3	503	0.5	1.976	94.6
1	2	505	0.3	2.162	145.1
1	5	510	0.7	1.741	55.1
1	8	518	0.9	1.525	33.5
1	10	528	1.0	1.423	26.5
1	18	546	1.3	1.153	14.2
1	5	551	0.7	1.741	55.1
1	2	553	0.3	2.162	145.1
1	3	556	0.5	1.976	94.6
1	2	558	0.3	2.162	145.1
1	1	559	0.0	2.480	302.0
1	3	562	0.5	1.976	94.6
1	4	566	0.6	1.844	69.8
1	3	569	0.5	1.976	94.6
1	2	571	0.3	2.162	145.1
1	3	574	0.5	1.976	94.6
1	6	580	0.8	1.657	45.4
1	4	584	0.6	1.844	69.8



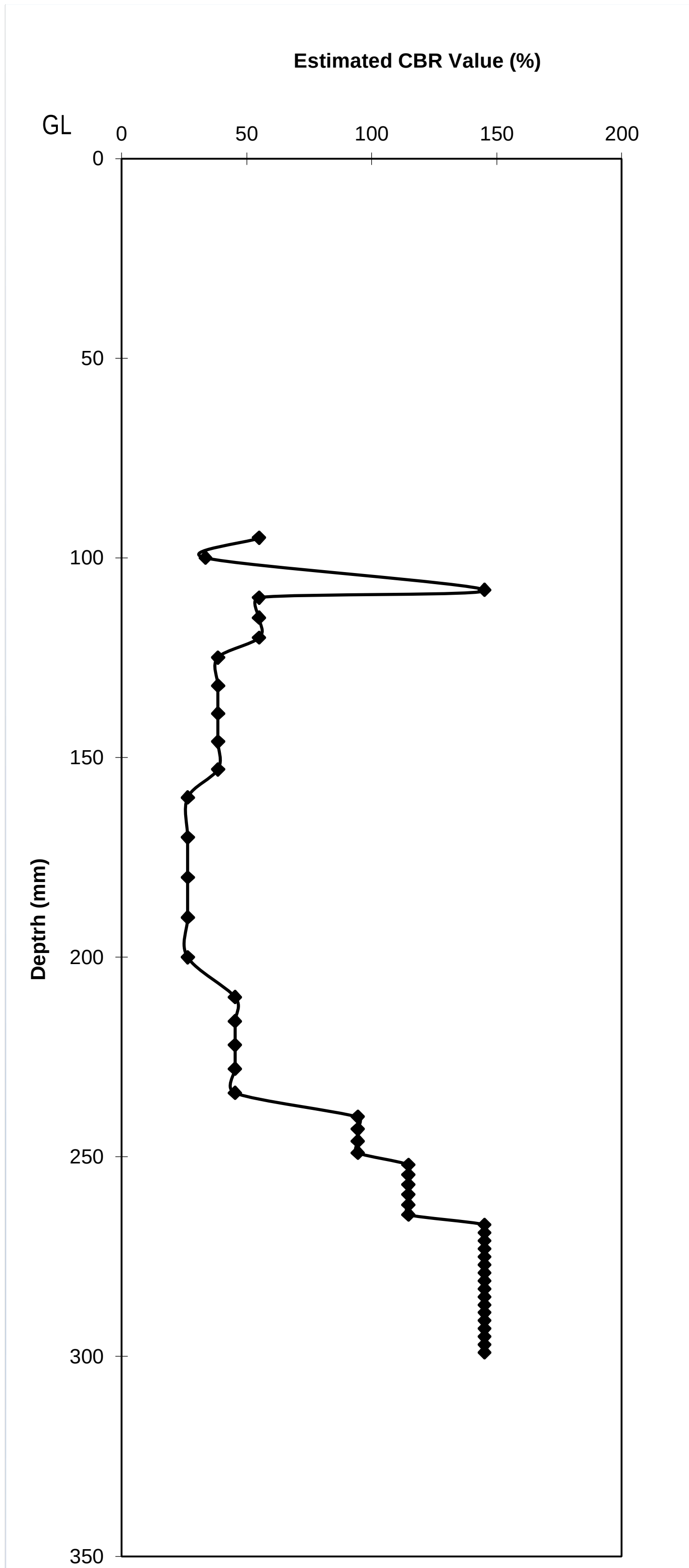
Remarks: Refusal at 584mm
Project Number: 561063
Project: Chapman Way Tunbridge Wells

Date: 07-Nov
Reference: DCP 4

TRC - In situ CBR by DCP Probe

Remarks: Tests commenced from ground level
Zero reading = start depth below ground surface
Zero reading at start of test: 95 (mm)

Number of Blows	Penetration Per Blow (mm)	Depth from GL (mm)	Log P	2.48-1.057 Log P	CBR Value (%)
0	95	95			
1	5	100	0.7	1.741	55.1
2	8	108	0.9	1.525	33.5
3	2	110	0.3	2.162	145.1
4	5	115	0.7	1.741	55.1
5	5	120	0.7	1.741	55.1
6	5	125	0.7	1.741	55.1
7	7	132	0.8	1.587	38.6
8	7	139	0.8	1.587	38.6
9	7	146	0.8	1.587	38.6
10	7	153	0.8	1.587	38.6
11	7	160	0.8	1.587	38.6
12	10	170	1.0	1.423	26.5
13	10	180	1.0	1.423	26.5
14	10	190	1.0	1.423	26.5
15	10	200	1.0	1.423	26.5
16	10	210	1.0	1.423	26.5
17	6	216	0.8	1.657	45.4
18	6	222	0.8	1.657	45.4
19	6	228	0.8	1.657	45.4
20	6	234	0.8	1.657	45.4
21	6	240	0.8	1.657	45.4
22	3	243	0.5	1.976	94.6
23	3	246	0.5	1.976	94.6
24	3	249	0.5	1.976	94.6
25	3	252	0.5	1.976	94.6
26	2.5	254.5	0.4	2.059	114.7
27	2.5	257	0.4	2.059	114.7
28	2.5	259.5	0.4	2.059	114.7
29	2.5	262	0.4	2.059	114.7
30	2.5	264.5	0.4	2.059	114.7
31	2.5	267	0.4	2.059	114.7
32	2	269	0.3	2.162	145.1
33	2	271	0.3	2.162	145.1
34	2	273	0.3	2.162	145.1
35	2	275	0.3	2.162	145.1
36	2	277	0.3	2.162	145.1
37	2	279	0.3	2.162	145.1
38	2	281	0.3	2.162	145.1
39	2	283	0.3	2.162	145.1
40	2	285	0.3	2.162	145.1
41	2	287	0.3	2.162	145.1
42	2	289	0.3	2.162	145.1
43	2	291	0.3	2.162	145.1
44	2	293	0.3	2.162	145.1
45	2	295	0.3	2.162	145.1
46	2	297	0.3	2.162	145.1
47	2	299	0.3	2.162	145.1
48	2	301	0.3	2.162	145.1



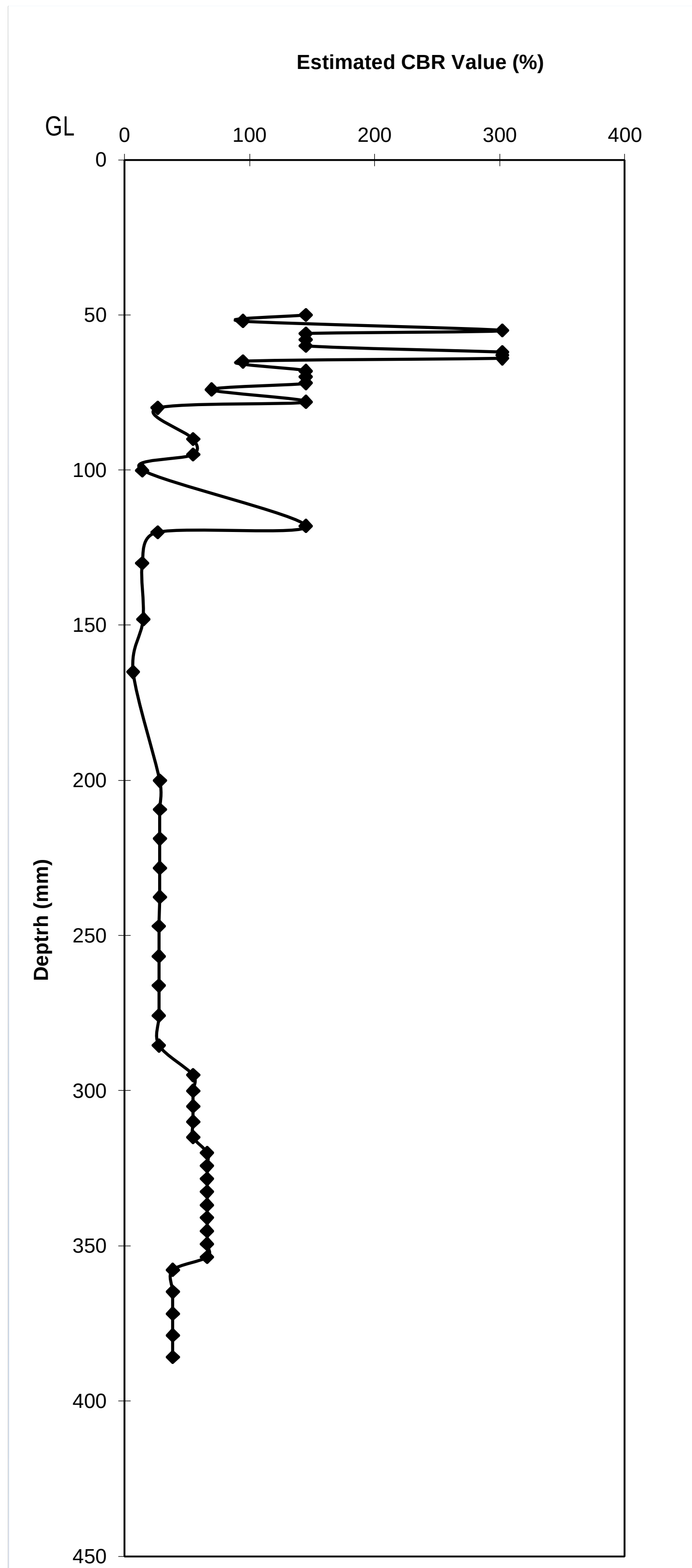
Remarks: Refusal at 300mm
Project Number: 561063
Project: Chapman Way Tunbridge Wells

Date: 07-Nov
Reference: DCP 5

TRC - In situ CBR by DCP Probe

Remarks: Tests commenced from ground level
Zero reading = start depth below ground surface
Zero reading at start of test: 50 (mm)

Number of Blows	Penetration Per Blow (mm)	Depth from GL (mm)	Log P	2.48-1.057 Log P	CBR Value (%)
0	50	50			
1	2	52	0.3	2.162	145.1
2	3	55	0.5	1.976	94.6
3	1	56	0.0	2.480	302.0
4	2	58	0.3	2.162	145.1
5	2	60	0.3	2.162	145.1
6	2	62	0.3	2.162	145.1
7	1	63	0.0	2.480	302.0
8	1	64	0.0	2.480	302.0
9	1	65	0.0	2.480	302.0
10	3	68	0.5	1.976	94.6
11	2	70	0.3	2.162	145.1
12	2	72	0.3	2.162	145.1
13	2	74	0.3	2.162	145.1
14	4	78	0.6	1.844	69.8
15	2	80	0.3	2.162	145.1
16	10	90	1.0	1.423	26.5
17	5	95	0.7	1.741	55.1
18	5	100	0.7	1.741	55.1
19	18	118	1.3	1.153	14.2
20	2	120	0.3	2.162	145.1
21	10	130	1.0	1.423	26.5
22	18	148	1.3	1.153	14.2
23	17	165	1.2	1.179	15.1
24	35	200	1.5	0.848	7.0
25	9.4	209.4	1.0	1.451	28.3
26	9.4	218.8	1.0	1.451	28.3
27	9.4	228.2	1.0	1.451	28.3
28	9.4	237.6	1.0	1.451	28.3
29	9.4	247	1.0	1.451	28.3
30	9.6	256.6	1.0	1.442	27.7
31	9.6	266.2	1.0	1.442	27.7
32	9.6	275.8	1.0	1.442	27.7
33	9.6	285.4	1.0	1.442	27.7
34	9.6	295	1.0	1.442	27.7
35	5	300	0.7	1.741	55.1
36	5	305	0.7	1.741	55.1
37	5	310	0.7	1.741	55.1
38	5	315	0.7	1.741	55.1
39	5	320	0.7	1.741	55.1
40	4.2	324	0.6	1.821	66.3
41	4.2	328	0.6	1.821	66.3
42	4.2	333	0.6	1.821	66.3
43	4.2	337	0.6	1.821	66.3
44	4.2	341	0.6	1.821	66.3
45	4.2	345	0.6	1.821	66.3
46	4.2	349	0.6	1.821	66.3
47	4.2	354	0.6	1.821	66.3
48	4.2	358	0.6	1.821	66.3
48	7	365	0.8	1.587	38.6
48	7	372	0.8	1.587	38.6
48	7	379	0.8	1.587	38.6
48	7	386	0.8	1.587	38.6
48	7	393	0.8	1.587	38.6



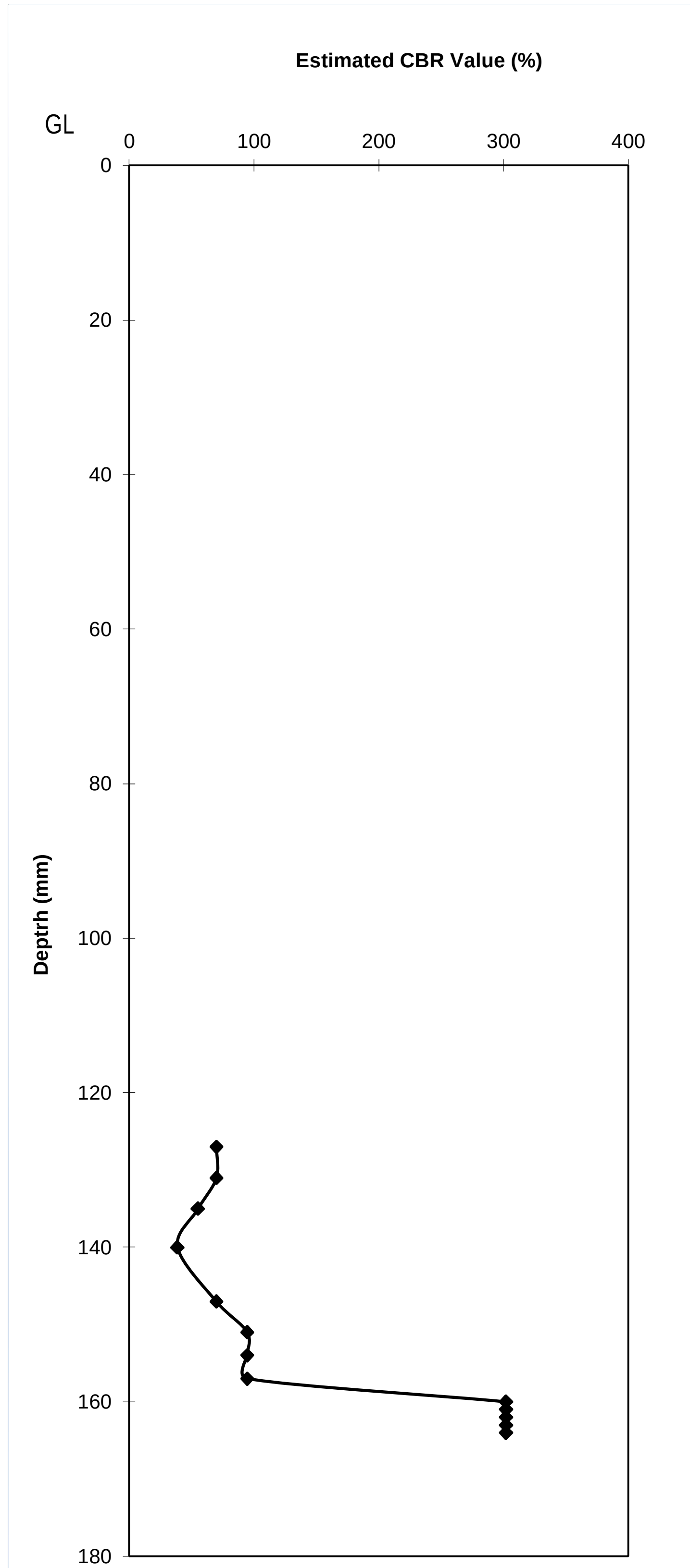
Remarks: Refusal at 393mm
Project Number: 561063
Project: Chapman Way Tunbridge Wells

Date: 07-Nov
Reference: DCP 6

TRC - In situ CBR by DCP Probe

Remarks: Tests commenced from ground level
Zero reading = start depth below ground surface
Zero reading at start of test: 127 (mm)

Number of Blows	Penetration Per Blow (mm)	Depth from GL (mm)	Log P	2.48-1.057 Log P	CBR Value (%)
0	127	127			
1	4	131	0.6	1.844	69.8
2	4	135	0.6	1.844	69.8
3	5	140	0.7	1.741	55.1
4	7	147	0.8	1.587	38.6
5	4	151	0.6	1.844	69.8
6	3	154	0.5	1.976	94.6
7	3	157	0.5	1.976	94.6
8	3	160	0.5	1.976	94.6
9	1	161	0.0	2.480	302.0
10	1	162	0.0	2.480	302.0
11	1	163	0.0	2.480	302.0
12	1	164	0.0	2.480	302.0
13	1	165	0.0	2.480	302.0



Remarks: Refusal at 165mm
Project Number: 561063
Project: Chapman Way Tunbridge Wells

Date: 07-Nov
Reference: DCP 8

IN SITU
SITE INVESTIGATION

STATIC CONE PENETRATION TEST

FACTUAL REPORT

CLIENT: TRC Companies

PROJECT: Chapman Way, Tunbridge Wells

Project	Chapman Way, Tunbridge Wells
Project No.	1230378
Client	TRC Companies
Address	20 Red Lion Streen, WCP 4PS

Attention: Mr Harry McAllister

Dear Mr McAllister,

We have pleasure in providing a digital copy of our report and data in AGS format for the above project.

We hope that you are satisfied with the performance of our staff, equipment and reporting on this project. If you should have any queries about any aspect of the works carried out, please do not hesitate to contact us. We look forward to being of service to you in the future.

Yours faithfully,

In Situ Site Investigation Limited

[redacted]

Darren Ward

Director

Report Issue

Issue	Date	Prepared	Sign	Checked	Sign	Approved	Sign
01	11/09/2023	Chloe Donovan	[redacted]	Darren Ward	[redacted]	Darren Ward	[redacted]

Table of Contents

1.0 INTRODUCTION

In Situ Site Investigation Limited (In Situ) was engaged in a geotechnical site investigation at Chapman Way, at the request of TRC Companies. The site investigation consisted of completing 16 Static Piezocone Penetration Tests (CPTU), to provide information on the soil conditions and derived geotechnical parameters at:

Chapman Way,
Tunbridge Wells,
TN2 3EF

All test locations were provided by the client. A site map is included in the end of Appendix A of this report (if provided by the client). The tests were stopped when they reached the target depth as per the client's technical specifications or for other technical reasons, as detailed in the *Project Summary Table* in *Appendix A.1* and on each CPTU log included in Appendix B of this report.

The fieldwork was carried out from 5th September 2023 to 6th September 2023 as per the client's request.

The work on site and the final factual reporting have been undertaken in accordance with the international technical standard *ISO 22476-1:2022(E)*.

2.0 FIELDWORK

2.1 CONE PENETRATION TESTS

The fieldwork activity is summarised in Table 2.1.

Table 2.1 Fieldwork Summary	
CPT Operator/s	Andy Chatfield
Date Started	5th September 2023
Date Finished	6th September 2023
In Situ S.I. Project Manager	Darren Ward
Main Contractor's Site Manager	Lauren Sadowski

2.1.1 Rig Information

Details of CPTU rig used in this project are shown in Table 2.2. Full data sheet for the rig is presented in *Appendix A.2*.

Table 2.2 Rig Summary	
Rig Name	**Rig Description**
CPT007	20 Tonne Track Mounted CPT Rig

2.1.2 CPTU Cone

Details of electric CPTU cone (Type TE2) used in this project conforming to the requirements of Application Class 2 of *ISO 22476-1:2022*, are shown in Table 2.3.

Table 2.3 Cone Summary		
Number	**Cross-section area**	**Filter position**
S15-CFIP.1867	15cm^2	u_2

A full datasheet of the cone used is shown in *Appendix A.3*.

The cone's measured parameters are shown in Table 2.4.

Table 2.4 Completed Fieldwork Summary
16 CPTU to a maximum depth of 24.94m. Each test measured Cone Resistance, q_c, Sleeve Friction, f_s, Porewater Pressure in the shoulder position, u_2, Inclination in X and Y axes.
Provision of factual report with estimated soil type, derived geotechnical parameters & AGS data file.

2.1.3 CPTU Cone Calibration

The cone resistance and sleeve friction are recorded by calibrated load cells in the cone. The CPTU load cells and pressure transducers are regularly calibrated in line with *ISO 22476-1:2022(E)* standard by the cone manufacturer. The cone calibration certificate for the cone used at this site are presented in *Appendix A.4*.

2.1.4 CPTU Cone Saturation

The pore water pressure is recorded using a calibrated pressure transducer located in the piezocone. To ensure pore water pressure measurements are not affected by the presence of air in the measuring transducer, a de-airing procedure is carried out prior to each test. The cone and filter are saturated using a glycerine fluid with a viscosity of 10,000 CST.

2.1.5 Test Procedure

The tests are carried out in accordance with the *International Standard for Electrical Cone and Piezocone Penetration Test ISO 22476-1:2022(E)*.

The final depths of the tests were determined by either completion to the specified test depth or when the maximal safe capacity of the equipment was reached. A schedule of the tests performed is shown in *Appendix A.1*, which has been compiled from the operators' daily progress reports.

The data is transmitted from the digital CPTU through an umbilical cable that runs through the push rods to the data acquisition system. Results are displayed instantaneously on the computer logging screen. The results are recorded on the computer hard disc.

The rate of penetration is kept constant at 20 mm/s ± 5 mm/s except when penetrating very dense or hard strata. Before each test is carried out zero values are taken of the cone to check if it is within calibration. At the end of each test, zero values are taken again to see if there has been any drift during the test. These values are inspected during the post processing stage. This is a quality check on the data and the testing procedure. Individual test zero values are shown on their corresponding test results in *Appendix B*.

2.1.6 In Situ Pore Pressure (u_0)

The in situ or hydrostatic pore pressure is required for the calculation of several derived parameters included in this report. For this report, the groundwater level is assumed at 0.5m below ground surface, for calculation purposes. The in situ pore pressure, u_0 values are presented on the pore pressure plot, on *CPT Log 01,* which is included in *Appendix B*.

2.2 POSITIONING

Positioning and surveying of all investigated locations was the responsibility of the client.

3.0 CONE PENETRATION MEASURED PARAMETERS

All measured parameters of tests carried with the CPTU cone are shown in *Appendix B* and all the information about data processing and results are given in sections *3.1*, *3.2* and *3.3*.

3.1 DATA PROCESSING

The measured parameters, cone end resistance, q_c, sleeve friction, f_s, porewater pressure measurements with filter in shoulder position, u_2 and inclination for *x* and *y* axis, I_x, I_y, were recorded for every *10 mm* of penetration keeping a constant speed of *20 mm/s* ± *5 mm/s*, which may slightly change when the cone is penetrating hard strata.

The measured data from the site works is processed and presented using specialised CPT software. The interpretations on the CPTU results were carried out following the recommendations of *ISO 22476-1:2022(E)*, *Lunne et al. (1997)* and *Robertson (2015)*. Measured parameters, mentioned in *Sections 3.2* and *3.3*, were used to derive all the geotechnical parameters, which are presented in *Chapter 4.0*. The soil behaviour type method used on this report is *Robertson et al. (1986)*, shown in *Figure 3.2*.

3.1.1 Zero Measurements

Before and after each CPTU test, zero measurements are recorded for each channel of the cone. The zero measurements are presented on the logs in *Appendix B*. This is a routine quality check carried out on site.

3.2 MEASURED PARAMETERS

3.2.1 Cone Resistance (q_c)

Cone resistance, q_c, is measured as the total force acting on the cone, divided by the projected area of the cone. The results are presented in *MPa*, on *CPT Log 01*, in *Appendix B*, scale *0-20 MPa* with a minor scale printing on the same graph at *0-4 MPa*.

3.2.2 Sleeve Friction (f_s)

Sleeve friction, f_s, is measured as the total frictional force acting on the friction sleeve divided by its surface area. The results are presented in *kPa*, on *CPT Log 01*, in *Appendix B*, using a scale of *0-500 kPa*.

3.2.3 Porewater pressure (u_2)

The pore pressure, u_2, is measured during the test. If the material is free draining and saturation is maintained it will normally measure hydrostatic pore pressure. In materials that are not free draining, it will record the total pore pressure (hydrostatic plus any excess pore pressures generated) created by the cone penetration through this material.

The filter element can be mounted in one of three positions. For all tests carried out in this project the filter was mounted in the u_2 position (see *Figure 3.1*).

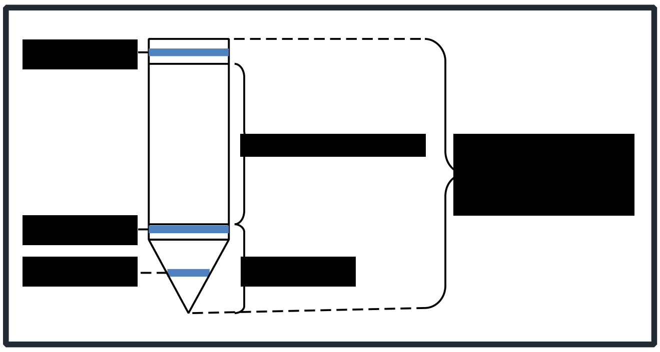


Figure 3.1: *Diagram showing pore pressure filter locations (after Lunne et al., 1997)*

3.2.4 Inclination (I_x, I_y)

The CPT rig was set up to obtain a thrust direction as near as possible to vertical. The CPTU cones have inclinometers incorporated to measure the non-verticality of the test. For test depths less than *15 m*, significant non-verticality is unusual, provided the initial thrust direction is vertical.

3.3 ESTIMATED SOIL BEHAVIOUR TYPE

3.3.1 Friction Ratio (R_f)

The friction ratio, R_f is the ratio between the sleeve friction and the cone resistance (Lunne *et al.,* 1997).

$$= \frac{(\quad)}{(\quad)} \times 100$$

3.3.2 Estimated Soil Behaviour Type (SBT)

The estimation of soil behaviour type, *SBT*, using measurements of cone resistance and sleeve friction is based upon the variations of the friction ratio and cone resistance. The friction ratio varies depending upon whether the soil is cohesive or granular. The cone resistance varies depending on the strength and densities of the soil.

The interpretation used in this report is *Robertson et al. (1986)*, which is shown in Figure 3.2. The results are presented on *CPT Log 01*, in *Appendix B*.

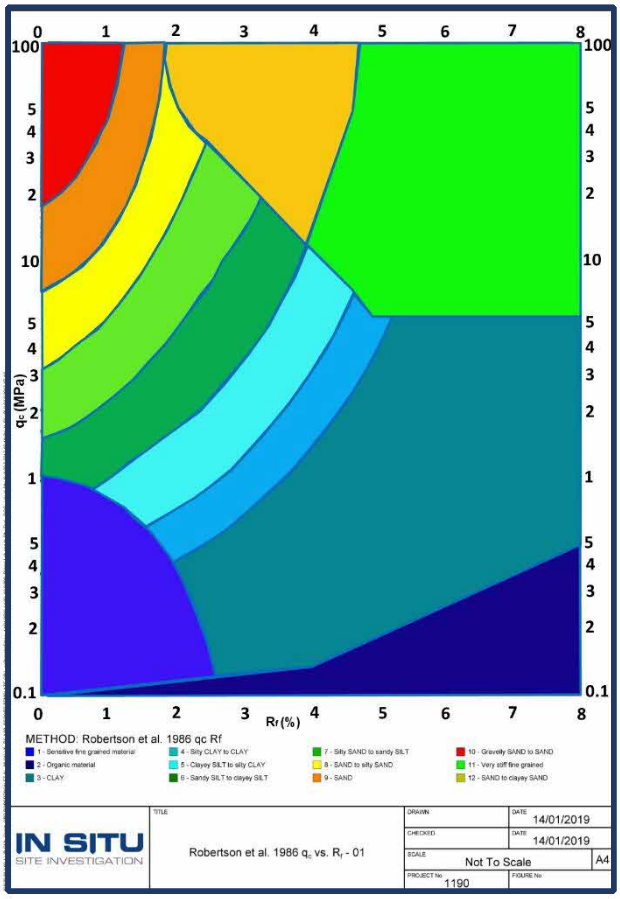


Figure 3.2: *Robertson et al., 1986 soil behaviour type chart.*

3.3.3 Pore Pressure Ratio (B_q)

Pore pressure ratio, B_q is the ratio between the measured pore pressure generated during penetration and the corrected cone resistance minus the total overburden stress.

Pore pressure ratio as defined by *Senneset and Janbu (1985)* is defined as:

$$B_q = \frac{u_2 - u_0}{q_t - \sigma_{vo}}$$

where

- u_2 is pore pressure measured between the cone and the friction sleeve
- u_0 is equilibrium pore pressure
- σ_{vo} is total overburden stress
- q_t is cone resistance corrected for unequal end area effects

3.4 APPLIED CORRECTIONS

3.4.1 Corrected Cone Resistance (q_t)

For each penetration test, the measured cone resistance, q_c, can be corrected for the ‘‘unequal area effect’’ due to the influence of the ambient pore water pressure acting on the cone.

The correction has been applied using the following equation by Lunne et *al.,* 1997:

$$= \quad + [\;_{2}.(1 - \quad)]$$

where

is the cone area ratio

The cone area ratio used for this project is stated on both the cone calibration certificate and the data footer. This value is geometrically measured.

3.4.2 Depth Correction

All tests in the report have been corrected for depth difference caused by inclination. This has been calculated using the method described in *ISO 22476-1:2022*.

To calculate the corrected depth the following formula is used:

$$= \quad \cdot \quad {}_{0}$$

where

z	is penetration depth, in *m*
l	is penetration length, in *m*
C_{inc}	is correction factor for the effect of the inclination of the CPTU relative to the vertical axis.

The equation for calculating the correction factor for the influence of the inclination for a bi-axial inclinometer is:

$$= \frac{1}{\overline{(1 + \quad^{2}\;_{1} + \quad^{2}\;_{2}}}$$

where

β_1	is the angle between the vertical axis and the projection of the axis of the CPTU on a vertical plane, in degrees
β_2	is the angle between the vertical axis and the projection of the axis of the CPTU on a vertical plane that is perpendicular to the plane of angle $\;_1$, in degrees

4.0 GEOTECHNICAL DERIVED PARAMETERS

A number of empirical correlations can be used to derive geotechnical parameters from CPTU data. This report includes only the parameters which are described in this chapter. The results of all correlations used to obtain the geotechnical derived parameters are presented on *CPT Log 02* and *CPT Log 03* in *Appendix B*.

Please, note that each empirical correlation is derived for a certain type of soil, and may not be appropriate for all the soil types encountered on this project.

4.1 SOIL BEHAVIOUR TYPE INDEX (I_c)

The soil behaviour type index, I_c, was derived by *Jefferies and Davies (1991)*, and was created to simplify the application of CPTU SBT chart shown in *Chapter 3*, *Figure 3.2*. This approach has been modified for use with the *Robertson (1990)* normalised CPT soil classification chart, *Figure 4.1*. The normalised cone parameters Q_t and F_r (for definitions see *Appendix A5* Symbol List) can be combined into one Soil Behaviour Type Index, I_c, *(Lunne et al., 1997)*.

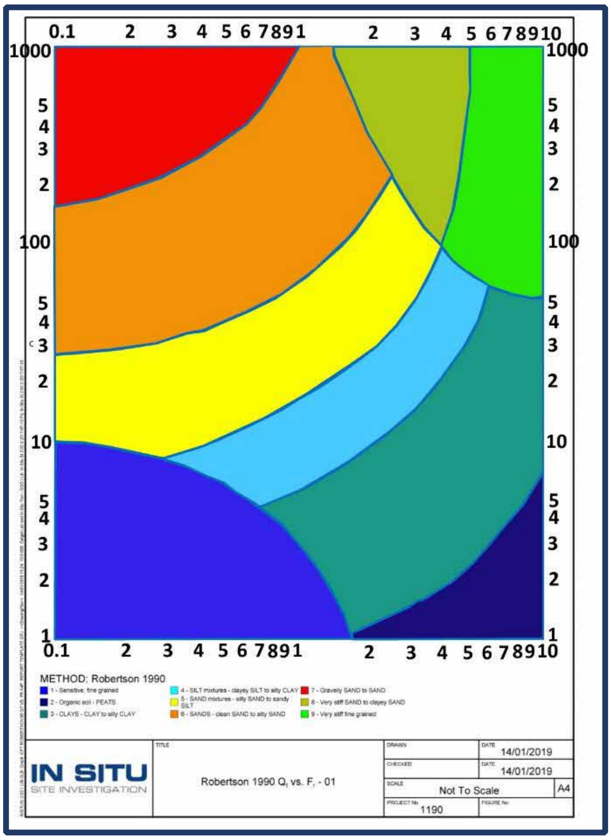


Figure 4.1: *Robertson 1990 soil behaviour type chart.*

The soil behaviour type index, I_c, can then be defined using *Robertson (2010)* formula, given below:

$$= ((3.47 - \quad)^2 + (\quad + 1.22)^2)^{0.5}$$

where

Q_t is the normalized cone resistance which represents the simple normalization with a stress exponent (n) of *1.0*, which applies well to clay-like soils

F_R is the normalized friction ratio, in *%*

The boundaries of soil behaviour type are then given in terms of the index, I_c, presented in *Table 4.1* below.

The soils behaviour type index does not apply to zones *1*, *8* and *9*. The profiles of I_c provide a simple guide to the continuous variation of soil behaviour type in a given soil profile based on CPTU results, with a reliability greater than *80%* compared with soil samples *(Robertson, 2015).*

Zone	Soil Behaviour Type	I_c
1	Sensitive fine grained	N/A
2	Organic Soils – clay	>3.6
3	Clays – silty clay to clay	2.95 – 3.6
4	Silt mixtures – clayey silt to silty clay	2.60 – 2.95
5	Sand mixtures – silty sand to sandy silt	2.05 – 2.6
6	Sands – clean sand to silty sand	1.31 – 2.05
7	Gravelly sand to dense sand	<1.31
8	Very stiff sand to clayey sand*	N/A
9	Very stiff fine grained *	N/A

** Heavily over consolidated or cemented*

Table 4.1: *Normalized CPTU Soil Behaviour Type (SBT_n) Index values, I_c.(Robertson, 2010)*

4.2 N VALUE OF STANDARD PENETRATION TEST (SPT) (N_{60})

The derived *N* value of *SPT,* N_{60}, is strongly and directly related to the cone resistance, q_c.

In this report the N_{60} value is derived using the following correlations, developed by *Robertson and Wride (1998)*, *Jefferies and Davies (1998)* and Robertson (2012):

1) *Robertson & Wride (1998)*

$$_{60} = \frac{}{8.5 \cdot \quad 1 - 4.6}$$

2) *Jefferies and Davies (1993)*

$$_{60} = \frac{}{0.85 \cdot \ 1 - \frac{}{4.75}}$$

3) *Robertson (2012)*

$$_{60} = \frac{}{10^{1.1268-0.2817}}$$

where

q_c	is the cone resistance
p_a	is the atmospheric pressure equal to *100 kPa*
I_c	is the soil behaviour type index calculated as given in *section 4.1*

It is suggested that these methods provide a better estimation of the N_{60} value than the actual measured *N*, due to the poor repeatability of SPT test. However, in fine grained soil with high sensitivity these methods may overestimate N_{60} *(Jefferies and Davies, 1991).* The third method suggested by *Robertson (2012)* provides improved estimates of N_{60} for insensitive clays.

4.3 RELATIVE DENSITY (D_r)

Relative density, D_r, is an intermediate parameter for coarse grained soils, widely used to describe sand deposits. All the research on deriving the relative density from CPTU tests results are carried out for ***clean predominantly quartz sands***. The studies have shown that CPTU resistance in granular soils is controlled by sand relative density, in situ effective stresses and compressibility. The more compressible sands tend to give lower penetration resistance for a given relative density then less compressible sands.

In this report relative density is calculated using the methods suggested by *Baldi et al., (1986)*, *Jamiolkowski et al., (2001)* and *Kulhawy and Mayne (1990)* as shown in the equations below:

1) Baldi et al., (1986)

$$= \frac{1}{2} \cdot \frac{\cdot h}{{}_1 \cdot ({}'_0)^{0.55}} \cdot 100$$

where

C$_1$ is a consolidation coefficient which is *157* for normally consolidated soils and *181* for over consolidated soils

C$_2$ is a consolidation coefficient which is *2.41* for normally consolidated soils and *2.46* for over consolidated soils

Wehr is a correction coefficient for calcareous soils

2) Jamiolkowski et al., (2001)

$$= 100 \cdot 0.268 \cdot \frac{/}{{}'_0 /} + {}_1$$

where

C$_1$ is a compressibility coefficient which is *-0.675* for average compressible soils, ≤*1.0* for high compressible soils and carbonate or calcareous sands and ≥*-2.0* for low compressible soils

q$_t$ is corrected cone resistance

σ_{atm} is the atmospheric pressure

3) Kulhawy and Mayne, (1990)

$$= \left[\frac{1}{305 \cdot {}_1 \cdot {}^{0.18} \cdot 1.2 + 0.05 \cdot (/100)}\right]^{0.5} \cdot 100$$

where

q_{c1} is the cone resistance corrected for initial vertical effective stress and atmospheric pressure, calculated by the following formula

$${}_1 = \frac{}{{}'_0 \cdot}$$

where

q_c is the cone resistance in *kPa*
σ'_{v0} is the initial vertical effective stress in *kPa*

C$_1$ is a compressibility coefficient which is *-0.91* for low compressible sands, *1.0* for medium compressible sands and *1.09* for high compressible sands
t is time in years

4.4 FRICTION ANGLE (φ')

Friction angle, *φ*', is used to express the shear strength of uncemented, coarse grained soils. In this report friction angle is derived by the correlations of *Mayne and Campanella (2005)*, *Robertson and Campanella (1983)* and *Kulhawy and Mayne (1990)*.

1) Mayne and Campanella, (2005)

$$' = 29.5^0 \cdot \quad ^{0.121} \cdot \quad 0.256 + 0.336 \cdot \quad +$$

where

B_q is the pore pressure ratio, calculated as in Session 3.3

Q_t is the normalized cone resistance

2) Robertson and Campanella, (1983)

$$' = \tan^{-1} \quad 0.1 + 0.38 \cdot \quad {}'_{0}$$

where

q_c is the cone resistance in *kPa*
σ'_{v0} is the initial vertical effective stress in *kPa*

3) Kulhawy and Mayne, (1990)

$$' = 17.6^0 + 11.0^0 \cdot \quad (\; _1)$$

where

q_{t1} is the corrected cone resistance corrected for initial vertical effective stress and atmospheric pressure, calculated by the following formula

$$_1 = \frac{}{{}'_0 \cdot}$$

The method suggested by *Mayne and Campanella (2005)* will not provide reliable results for heavily over consolidated soils, fissured geomaterials and highly cemented or structures clays. This approach gives reliable results when pore pressure is positive and varies $0.1 < B_q < 1.0$. The correlation suggested by *Robertson and Campanella (1983)* estimates the peak friction angle for uncemented, unaged, moderately compressible, predominately quartz sands. For sands of higher compressibility, the method will tend to predict low friction angles. The method suggested by *Kulhawy and Mayne (1990)* is an alternate relationship for clean, rounded, uncemented, quartz sands.

4.5 FINES CONTENT (*FC*)

The fines content, *FC*, in this report is estimated using two different methods, one from *Robertson and Wride (1998)* and the other, *Suzuki et al. (1998)* as presented below:

1) Robertson and Wride (1998)

$$< 1.26: \quad = 0$$

$$1.26 \leq \quad \leq 3.5: \quad (\%) = 1.75 \; ^{3.25} - 3.7$$

$$3.5 < \quad : \quad = 100\%$$

2) Suzuki et al. (1998)

$$(\%) = 2.8 \; ^{2.6}$$

where

I_c is the soil behaviour type index, calculated as in section 4.1

4.6 UNDRAINED SHEAR STRENGTH (s_u)

Estimation of undrained shear strength, s_u, from CPTU tests using corrected cone resistance is carried out using the following correlation from *Lunne et al. (1981)*:

$$= \frac{(\quad - \quad _0)}{}$$

where

N_{kt} is the empirical cone factor, which varies from *10* (*6* for very soft sensitive fine grained soils) to *20*. In this report 3 values are considered: *15*, *17.5* and *20*. N_{kt} tends to increase with increasing plasticity and decrease with increasing soil sensitivity. It decreases as B_q increases. (*Lunne et al., 1997*)

$_{vo}$ = total overburden stress.

This report only presents the undrained shear strength data on soils with soil behaviour type index, I_c values greater than *2.60*.

The value of undrained shear strength, s_u to be used in analysis depends on the design problem. In general, the simple shear in the direction of loading often represents the average undrained strength. For larger, moderate to high risk projects, where high quality field and laboratory data may be available, site specific correlations should be developed based on appropriate and reliable values of s_u.

4.7 SENSITIVITY (S_t)

The sensitivity, S_t of clays is defined as the ratio of undisturbed peak undrained shear strength to totally remoulded undrained shear strength.

In this report S_t is calculated using two correlations developed by *Schmertmann (1978)* and *Mayne (2007)*.

1) Schmertmann (1978)

$$= \frac{\quad}{(\quad)} = \quad \frac{\quad}{\quad} \quad (\frac{1}{\quad})$$

where

$s_{u(rem)}$ is the remoulded undrained shear strength. It can be assumed equal to the sleeve resistance, f_s.

2) Mayne (2007)

$$= \frac{0.073 \cdot (\quad \frac{\quad}{\quad} \quad _0)}{\quad}$$

For relatively sensitive clays, $S_t > 10$, the value of f_s can be very low and not very accurate, hence the estimate of sensitivity should be used as a guide only.

4.8 SOIL UNIT WEIGHT (γ)

Soil unit weight, γ in this report is calculated by using one method for sands, considered under dry conditions and two methods for clays, considered under saturated conditions. These relationships are developed by *Mayne (2007)* and the equations are presented below:

Dry unit weight for sands:

$$= 1.89 \cdot \quad (\quad _1) + 11.82$$

Saturated unit weight for clays method 1

$$= 8.32 \cdot \quad (\quad) - 1.61 \cdot \quad (\quad)$$

Saturated unit for clays method 2

$$= 2.60 \cdot \quad (\quad) + 15 \cdot \quad - 26.5$$

where

q_{t1} is the corrected cone resistance corrected for initial vertical effective stress and atmospheric pressure, calculated by the following formula:

$$_1 = \frac{\quad}{\quad _0 \cdot}$$

z is the depth

V_s is the shear wave velocity, calculated as $= 118.8 \cdot \quad + 18.5$

G_s is the specific gravity of solids, typically between *2.40* and *2.90*

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APPENDIX A

APPENDIX A1 – Project Summary Sheet

Piezocone Tests Summary Sheet

HOLE ID	Final Depth (m)	Date of Test	Cone Used	Test Remarks
CPT101	8.77	06/09/2023	S15-CFIP.1867	Test refused on total pressure.
CPT102	12.72	05/09/2023	S15-CFIP.1867	Test refused on total pressure.
CPT103	17.22	06/09/2023	S15-CFIP.1867	Test refused on total pressure.
CPT104	6.72	06/09/2023	S15-CFIP.1867	Test refused on total pressure.
CPT105	0.05	05/09/2023	S15-CFIP.1867	Test refused on total pressure.
CPT105A	16.56	06/09/2023	S15-CFIP.1867	Test refused on total pressure.
CPT106	0.30	06/09/2023	S15-CFIP.1867	Test refused on total pressure.
CPT107	0.05	05/09/2023	S15-CFIP.1867	Test refused on total pressure.
CPT107A	16.24	05/09/2023	S15-CFIP.1867	Test refused on total pressure.
CPT108	0.07	05/09/2023	S15-CFIP.1867	Test refused on total pressure.
CPT108A	0.18	05/09/2023	S15-CFIP.1867	Test refused on total pressure.
CPT108B	0.07	05/09/2023	S15-CFIP.1867	Test refused on total pressure.
CPT109	0.31	05/09/2023	S15-CFIP.1867	Test refused on total pressure.
CPT109A	0.27	05/09/2023	S15-CFIP.1867	Test refused on total pressure.
CPT109B	0.11	05/09/2023	S15-CFIP.1867	Test refused on total pressure.
CPT110	24.94	05/09/2023	S15-CFIP.1867	Test completed at target depth.

APPENDIX A2 – CPT Rig Datasheet

RIGS

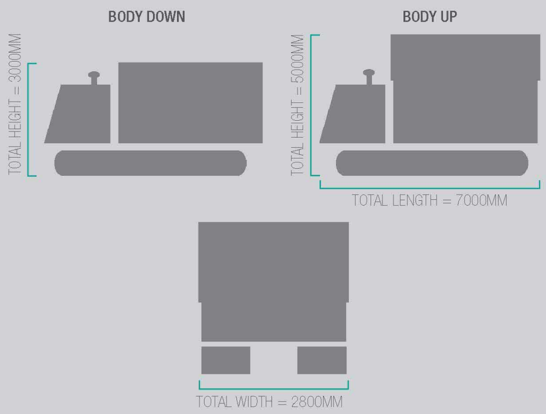
20 TONNE CPT TRACK MOUNTED RIG (CPT007)

We have a variety of rigs giving us the capacity to meet our clients' needs and specifications for each individual project.

This rubber tracked rig weighs 20 tonnes and is able to push up to a depth of 40 metres, depending on the ground conditions. It has low ground bearing pressure and is ideal for soft, boggy sites which are inaccessible for our wheeled rigs.

CPT RIG DETAILS	
DRIVE SYSTEM	RUBBER TRACKED
TOTAL WEIGHT	20 TONNES
GROUND BEARING PRESSURE	35KPA
CPT RAM THRUST CAPACITY	20 TONNES
MAXIMUM PENETRATION	30-40M DEPENDING ON THE GROUND CONDITIONS.
PERFORMANCE RATES	100-150M OF TESTING A DAY, DEPENDING ON ACCESS TO POSITIONS.
TYPICAL SITES FOR THIS RIG	SOFT BOGGY SITES, THE RIG HAS LOW GROUND BEARING PRESSURE.

CPT RIG DIMENSIONS



Burnley

Glasgow

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APPENDIX A3 – Cone Datasheet

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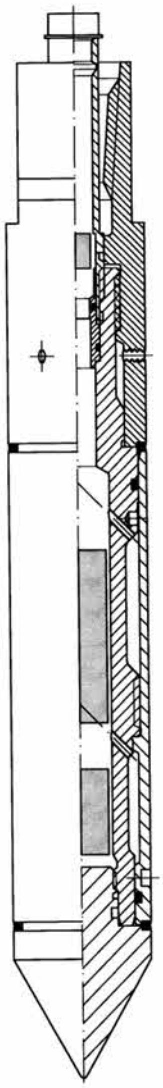
BTW nr. : NL806331677B01



SPECIFICATIONS
S15 SERIES
ELECTRICAL CONES

The electronic subtraction cones have been developed to address the durability problems inherent in other cone designs. The unit consists of a single element temperature compensated strain gauge transducer for measuring both cone resistance and local sleeve friction. This design is therefore more robust than a compression type cone. The cone support electronics package is located directly behind the transducer. The precision strain gauge amplifiers and power supply eliminate the effects of cable resistance on the measurements. A standard subtraction cone is capable of measuring simultaneously the following channels: Tip, Local friction, Pore pressure, Temperature and Inclination.

GENERAL SPECIFICATIONS

Cone Tip Section Area	1,500 mm2
Friction Sleeve Surface	22,500 mm2
Total Length	325 mm
Weight	4200 g
Power Supply	± 15 VDC, 100 mA.
Output	0 – 10 VDC*
Working Temperature	0 - 60˚C
Storage Temperature	- 40 to + 85˚C
Connector	Lemo 10 pins (others on request)

TIP RESISTANCE

Range	100/150* kN
Accuracy	0.25 % FS
Maximum Load	150 % of range
Cone Area Ratio	0.75

LOCAL SLEEVE FRICTION

Range	100/150* kN
Accuracy	0.50 % FS
Maximum Load	150 %
Sleeve Area Ratio	1.0 (EA)

PORE PRESSURE

Range	1/2/5/10* MPa
Accuracy	0.5 % FS
Maximum Load	150 % of range

INCLINATION

Range	25 ˚ (biaxial)
Accuracy	< 2 ˚

All our equipment complies with the ISSMGE, ASTM, DIN and NEN Standards.

**Other output and voltage ranges available on request. Loadcells may be calibrated for lower ranges.*