

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x5 Dilution

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 23/11408

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details				
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.				
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry); WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified				
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.				
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013	PM0	No preparation is required.				
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.				
TM76	Modified US EPA method 120.1 (1982). Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.				
TM149	Determination of Pesticides by Large Volume Injection on GC Triple Quad MS, based upon USEPA method 8270D v5:2014	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				

Tier Environmental
Suite 414, Chadwick House
Warrington Rd
Birchwood
Warrington
United Kingdom
WA3 6AE



Attention :	Adrian Read
Date :	8th August, 2023
Your reference :	TE1750
Our reference :	Test Report 23/11409 Batch 1
Location :	Bryn Lane
Date samples received :	12th July, 2023
Status :	Final report
Issue :	1

One sample was received for analysis on 12th July, 2023 and was scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:



Phil Sommerton BSc

Senior Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Tier Environmental
Reference: TE1750
Location: Bryn Lane
Contact: Adrian Read
EMT Job No: 23/11409

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

[illegible]

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Client Name: Tier Environmental
Reference: TE1750
Location: Bryn Lane
Contact: Adrian Read
EMT Job No: 23/11409

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
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EMT Sample No.	13-18										Please see attached notes for all abbreviations and acronyms		
Sample ID	WS112												
Depth	2.50												
COC No / misc													
Containers	V H H N P G												
Sample Date	12/07/2023												
Sample Type	Liquid												
Batch Number	1												
Date of Receipt	12/07/2023										LOD/LOR	Units	Method No.
Pesticides													
Organophosphorus Pesticides													
Azinphos ethyl	<0.01										<0.01	ug/l	TM149/PM30
Azinphos methyl	<0.05 ^{AA}										<0.01	ug/l	TM149/PM30
Carbophenothion	<0.01										<0.01	ug/l	TM149/PM30
Chlorfenvinphos	<0.01										<0.01	ug/l	TM149/PM30
Chlorpyrifos	<0.01										<0.01	ug/l	TM149/PM30
Chlorpyrifos-methyl	<0.01										<0.01	ug/l	TM149/PM30
Diazinon	<0.01										<0.01	ug/l	TM149/PM30
Dichlorvos	<0.01										<0.01	ug/l	TM149/PM30
Disulfoton	<0.01										<0.01	ug/l	TM149/PM30
Dimethoate	<0.01										<0.01	ug/l	TM149/PM30
Ethion	<0.01										<0.01	ug/l	TM149/PM30
Ethyl Parathion (Parathion)	<0.01										<0.01	ug/l	TM149/PM30
Etrimphos	<0.01										<0.01	ug/l	TM149/PM30
Fenitrothion	<0.01										<0.01	ug/l	TM149/PM30
Fenthion	<0.01										<0.01	ug/l	TM149/PM30
Malathion	<0.01										<0.01	ug/l	TM149/PM30
Methyl Parathion	<0.01										<0.01	ug/l	TM149/PM30
Mevinphos	<0.01										<0.01	ug/l	TM149/PM30
Phosalone	<0.01										<0.01	ug/l	TM149/PM30
Pirimiphos Methyl	<0.01										<0.01	ug/l	TM149/PM30
Propetamphos	<0.01										<0.01	ug/l	TM149/PM30
Triazophos	<0.01										<0.01	ug/l	TM149/PM30
MTBE	<5										<5	ug/l	TM36/PM12
Benzene	<5										<5	ug/l	TM36/PM12
Toluene	<5										<5	ug/l	TM36/PM12
Ethylbenzene	<5										<5	ug/l	TM36/PM12
m/p-Xylene	<5										<5	ug/l	TM36/PM12
o-Xylene	<5										<5	ug/l	TM36/PM12
TPH CWG													
Aliphatics													
>C5-C6	<10										<10	ug/l	TM36/PM12
>C6-C8	<10										<10	ug/l	TM36/PM12
>C8-C10	<10										<10	ug/l	TM36/PM12
>C10-C12	<5										<5	ug/l	TM5/PM16/PM30
>C12-C16	<10										<10	ug/l	TM5/PM16/PM30
>C16-C21	<10										<10	ug/l	TM5/PM16/PM30
>C21-C35	<10										<10	ug/l	TM5/PM16/PM30
>C35-C40	<10										<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-40	<10										<10	ug/l	TM5/PM16/PM30/PM30

Element Materials Technology

Client Name: Tier Environmental
Reference: TE1750
Location: Bryn Lane
Contact: Adrian Read
EMT Job No: 23/11409

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
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Sample Type	Liquid												
Batch Number	1												
Date of Receipt	12/07/2023												
Please see attached notes for all abbreviations and acronyms											LOD/LOR	Units	Method No.
TPH CWG													
Aromatics													
>C5-EC7	<10										<10	ug/l	TM36/PM12
>EC7-EC8	<10										<10	ug/l	TM36/PM12
>EC8-EC10	<10										<10	ug/l	TM36/PM12
>EC10-EC12	<5										<5	ug/l	TM5/PM16/PM30
>EC12-EC16	<10										<10	ug/l	TM5/PM16/PM30
>EC16-EC21	<10										<10	ug/l	TM5/PM16/PM30
>EC21-EC35	<10										<10	ug/l	TM5/PM16/PM30
>EC35-EC40	<10										<10	ug/l	TM5/PM16/PM30
Total aromatics C5-40	<10										<10	ug/l	TM5/PM16/PM30
Total aliphatics and aromatics(C5-40)	<10										<10	ug/l	TM5/PM16/PM30
Total Phenols HPLC	<0.15										<0.15	mg/l	TM26/PM0
Sulphate as SO4	901.2										<0.5	mg/l	TM38/PM0
Ortho Phosphate as PO4	<0.06										<0.06	mg/l	TM38/PM0
Ortho Phosphate as PO4	0.04										<0.03	mg/l	TM38/PM0
Total Ammonia as N	0.14										<0.03	mg/l	TM38/PM0
Electrical Conductivity @25C	2359										<2	uS/cm	TM76/PM0
pH	7.79										<0.01	pH units	TM73/PM0

Client Name: Tier Environmental

Reference: TE1750

Location: Bryn Lane

Contact: Adrian Read

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 23/11409

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

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APPENDIX E - GEOTECHNICAL IN SITU FIELDWORK AND LABORATORY RESULTS

TEST REPORT

Client Tier Environmental Ltd

Address Suite 513
Chadwick House
Warrington Road
Birchwood
WA3 6AE

Contract TE1750 -
Bryn Lane Detailed Planning

Job Number MRN 4625/33
Date of Issue 16 August 2023
Page 1 of 65

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.
- 5 The results included within the report are representative of the samples submitted for analysis.
- 6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.



Andrew House, Hadfield Street, Dukinfield, Cheshire SK16 4QX Tel: 0161 475 0870
Email: enquiries@murrayrix.com Website: www.murrayrix.com

Also at: London: 020 8523 1999

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TEST CERTIFICATE
PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

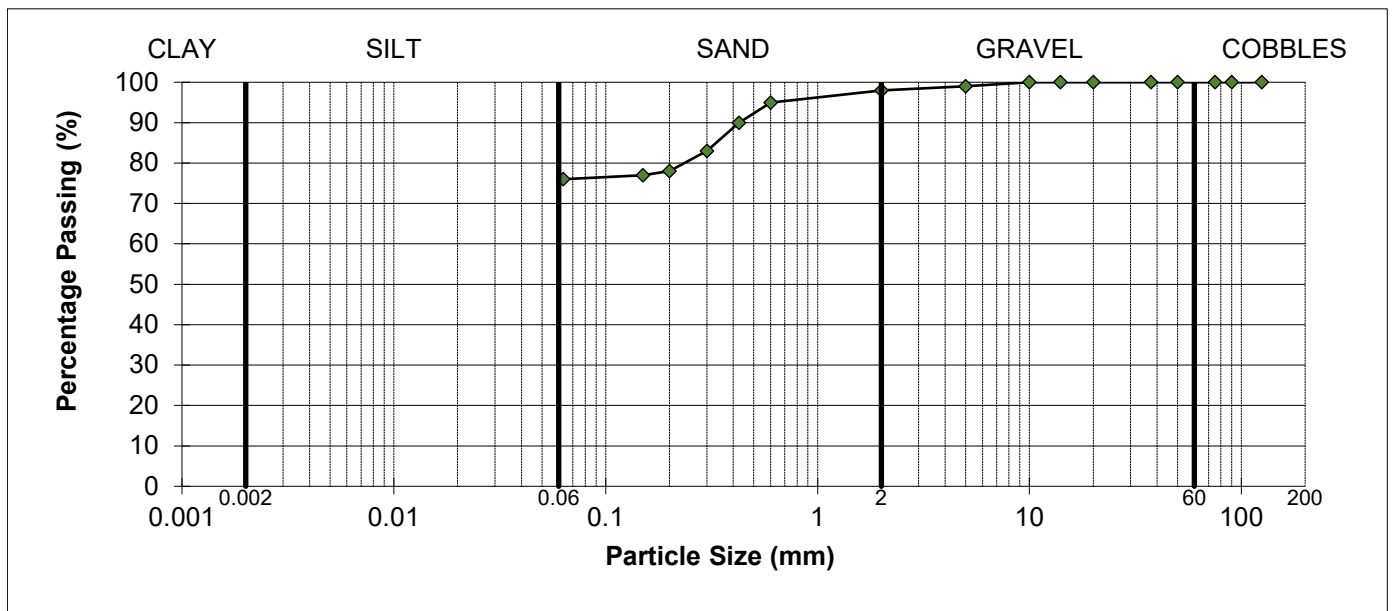
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	TP112 0.5 B	DATE SAMPLED	Not advised
LAB SAMPLE No	126897	DATE RECEIVED	16-Jun-23
DATE TESTED	06-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		5	99	
90	100		2	98	
75	100		0.6	95	
50	100		0.425	90	
37.5	100		0.3	83	
20	100		0.2	78	
14	100		0.15	77	
10	100		0.063	76	



REMARKS

SIGNED



NAME

O.P. Davies BA (Hons)
(Laboratory Manager)

DATE

16-Aug-23

TEST CERTIFICATE
PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

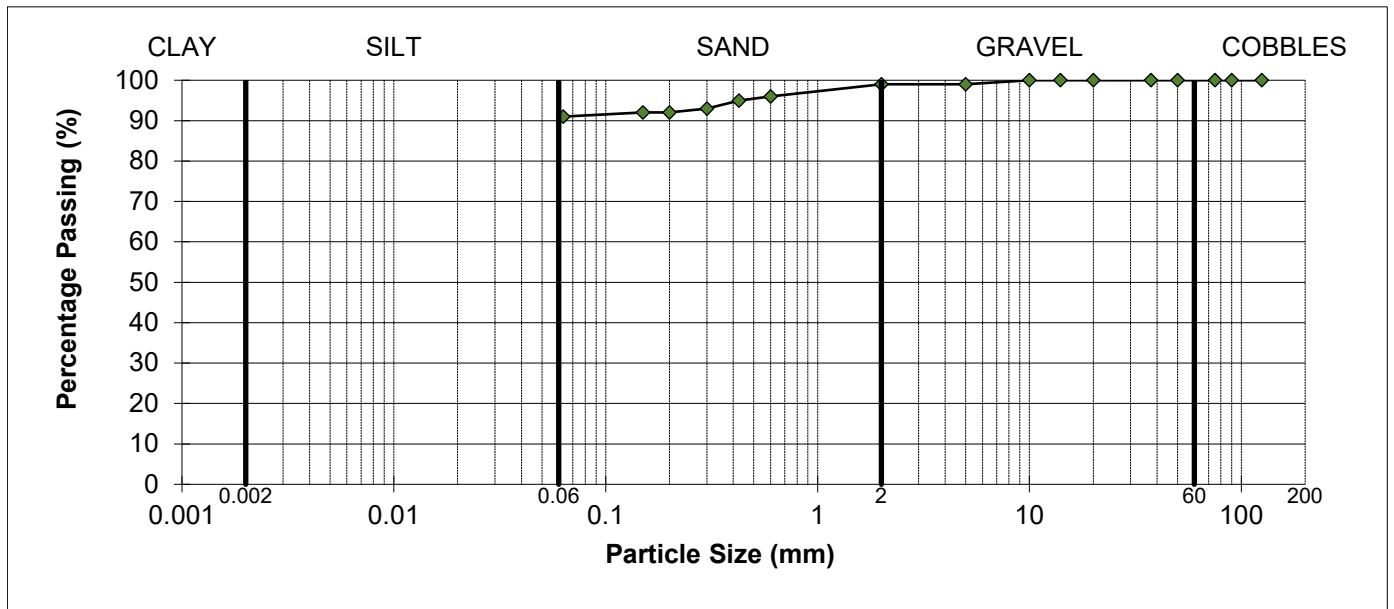
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	TP115 0.7 B	DATE SAMPLED	Not advised
LAB SAMPLE No	126901	DATE RECEIVED	16-Jun-23
DATE TESTED	06-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		5	99	
90	100		2	99	
75	100		0.6	96	
50	100		0.425	95	
37.5	100		0.3	93	
20	100		0.2	92	
14	100		0.15	92	
10	100		0.063	91	



REMARKS

SIGNED



NAME

O.P. Davies BA (Hons)
(Laboratory Manager)

DATE

16-Aug-23

TEST CERTIFICATE
PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

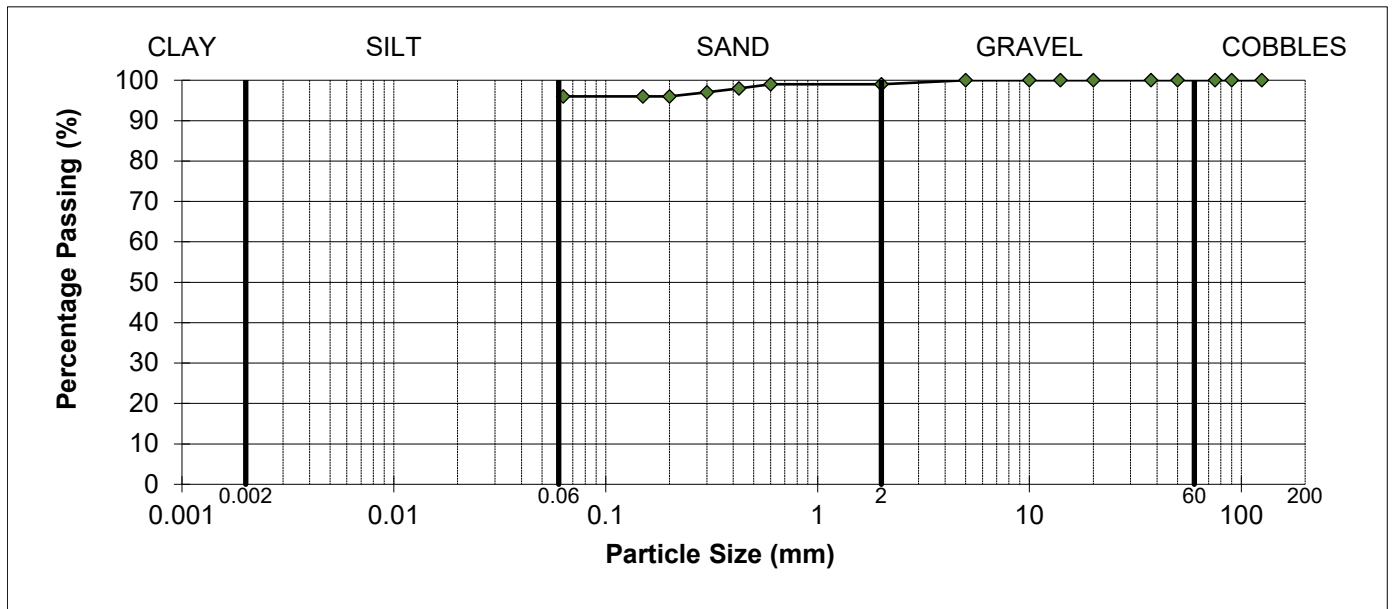
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	TP121 1.8 B	DATE SAMPLED	Not advised
LAB SAMPLE No	126908	DATE RECEIVED	16-Jun-23
DATE TESTED	06-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		5	100	
90	100		2	99	
75	100		0.6	99	
50	100		0.425	98	
37.5	100		0.3	97	
20	100		0.2	96	
14	100		0.15	96	
10	100		0.063	96	



REMARKS

SIGNED



NAME

O.P. Davies BA (Hons)
(Laboratory Manager)

DATE

16-Aug-23

TEST CERTIFICATE
PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

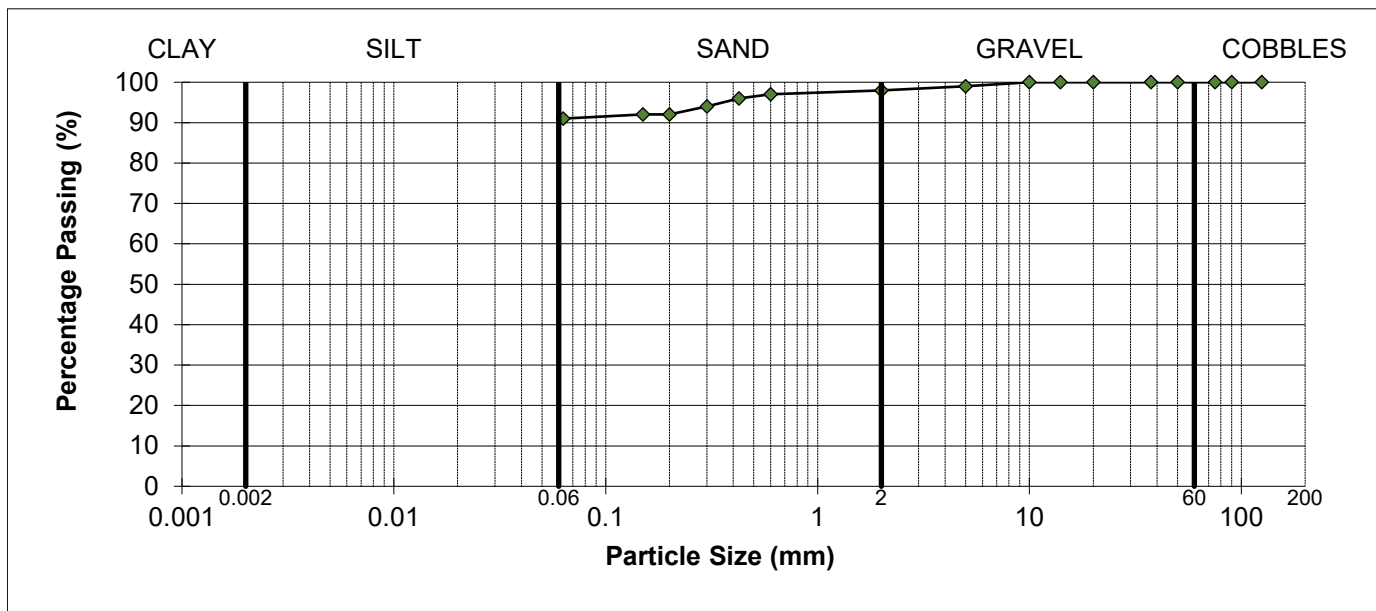
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	CP101 11.7-12.00 B	DATE SAMPLED	Not advised
LAB SAMPLE No	126919	DATE RECEIVED	16-Jun-23
DATE TESTED	06-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		5	99	
90	100		2	98	
75	100		0.6	97	
50	100		0.425	96	
37.5	100		0.3	94	
20	100		0.2	92	
14	100		0.15	92	
10	100		0.063	91	



REMARKS

SIGNED



NAME

O.P. Davies BA (Hons)
(Laboratory Manager)

DATE

16-Aug-23

TEST CERTIFICATE
PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

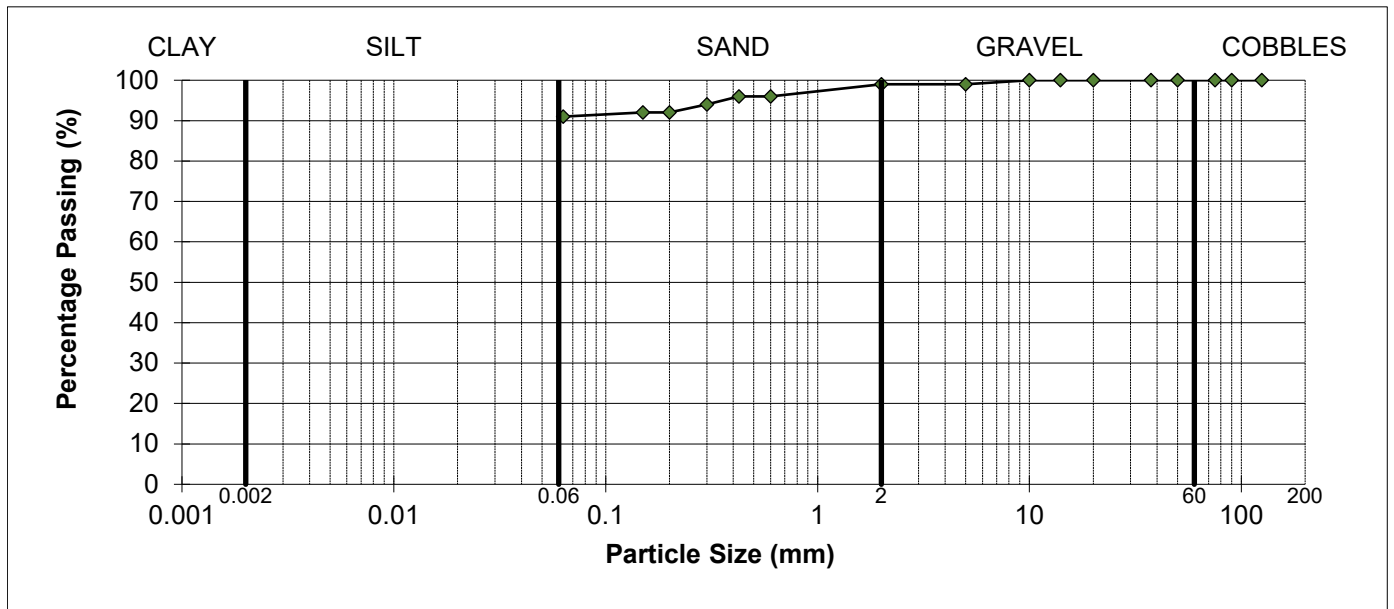
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	TP105 1 B	DATE SAMPLED	Not advised
LAB SAMPLE No	126559	DATE RECEIVED	08-Jun-23
DATE TESTED	06-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		5	99	
90	100		2	99	
75	100		0.6	96	
50	100		0.425	96	
37.5	100		0.3	94	
20	100		0.2	92	
14	100		0.15	92	
10	100		0.063	91	



REMARKS

SIGNED



NAME

O.P. Davies BA (Hons)
(Laboratory Manager)

DATE

16-Aug-23

TEST CERTIFICATE
PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

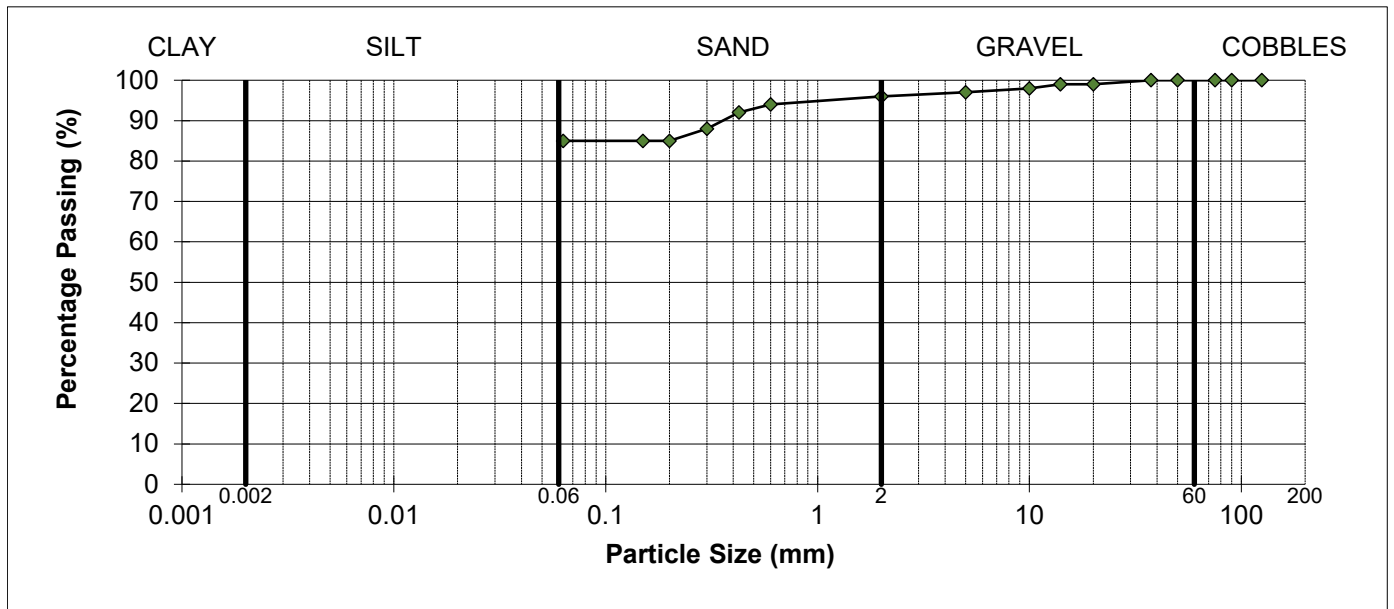
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	CP107 5.5-5.8 B	DATE SAMPLED	Not advised
LAB SAMPLE No	126597	DATE RECEIVED	08-Jun-23
DATE TESTED	06-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		5	97	
90	100		2	96	
75	100		0.6	94	
50	100		0.425	92	
37.5	100		0.3	88	
20	99		0.2	85	
14	99		0.15	85	
10	98		0.063	85	



REMARKS

SIGNED



NAME

O.P. Davies BA (Hons)
(Laboratory Manager)

DATE

16-Aug-23

TEST CERTIFICATE
PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

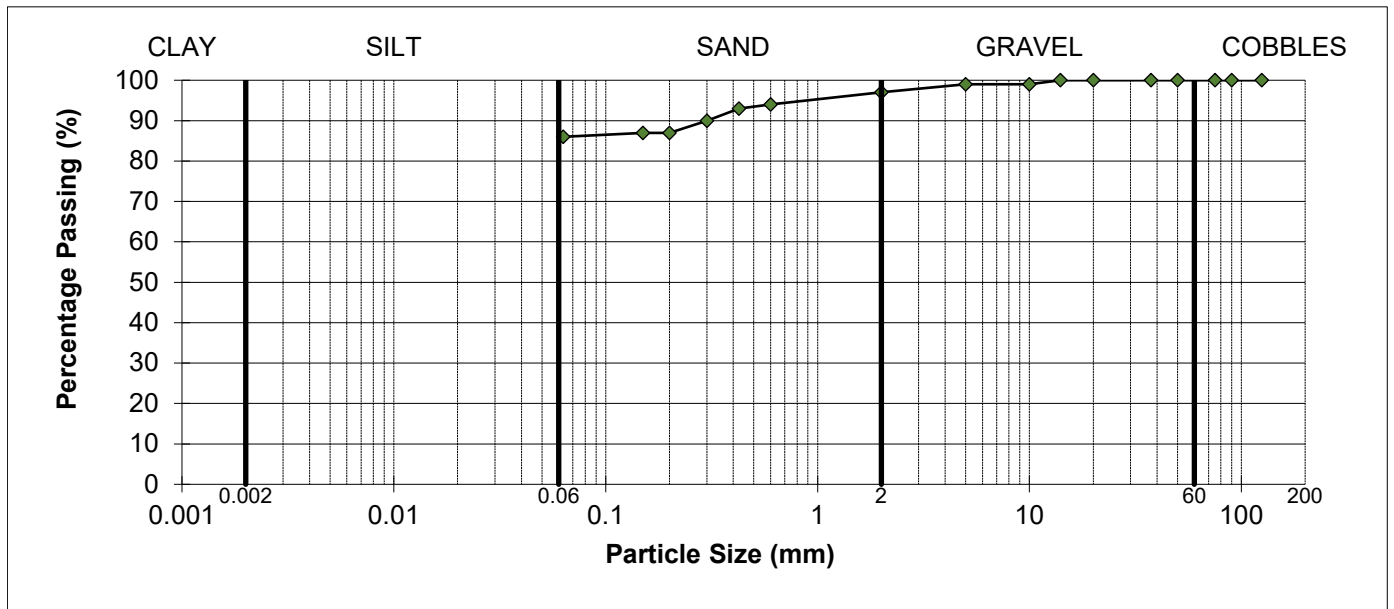
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	TP107 0.9-1.1	DATE SAMPLED	Not advised
LAB SAMPLE No	126561	DATE RECEIVED	08-Jun-23
DATE TESTED	06-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		5	99	
90	100		2	97	
75	100		0.6	94	
50	100		0.425	93	
37.5	100		0.3	90	
20	100		0.2	87	
14	100		0.15	87	
10	99		0.063	86	



REMARKS

SIGNED



NAME

O.P. Davies BA (Hons)
(Laboratory Manager)

DATE

16-Aug-23

TEST CERTIFICATE
PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

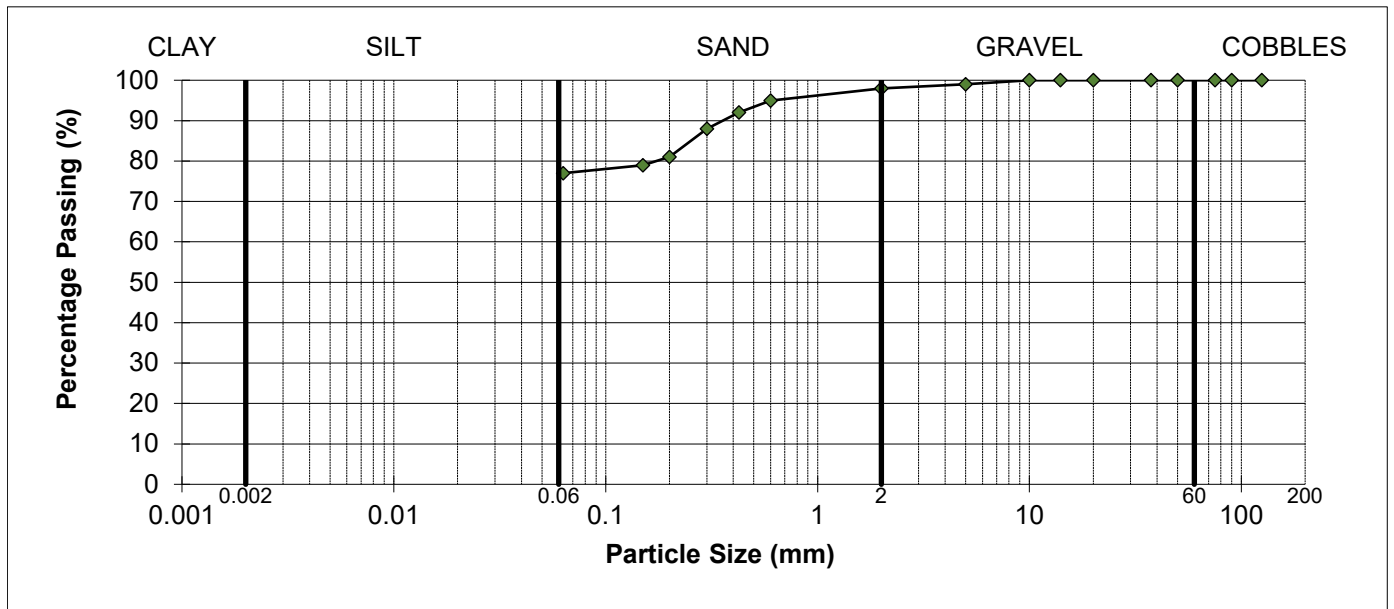
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	TP111 0.3 B	DATE SAMPLED	Not advised
LAB SAMPLE No	126896	DATE RECEIVED	16-Jun-23
DATE TESTED	06-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		5	99	
90	100		2	98	
75	100		0.6	95	
50	100		0.425	92	
37.5	100		0.3	88	
20	100		0.2	81	
14	100		0.15	79	
10	100		0.063	77	



REMARKS

SIGNED



NAME

O.P. Davies BA (Hons)
(Laboratory Manager)

DATE

16-Aug-23

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP 2.5kg RAMMER

BS 1377-2:2022 Cl.11

PARTICLE DENSITY METHOD BS 1377-2:2022 Cl.9.2

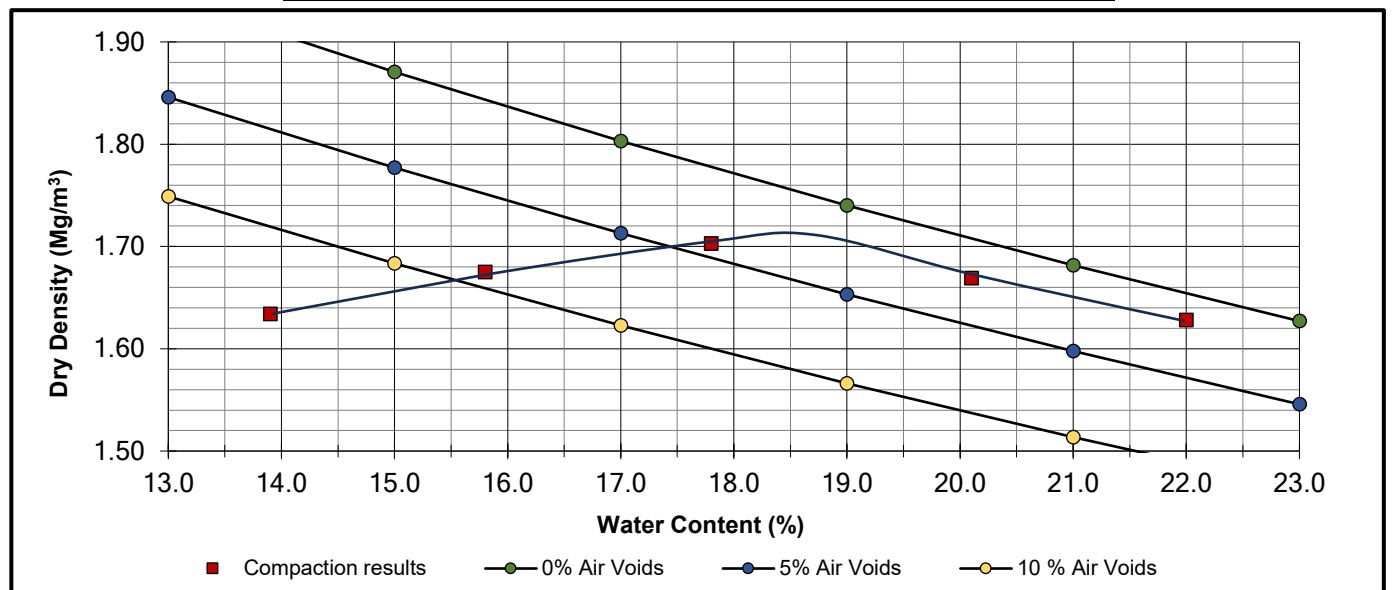
CLIENT	Tier Environmental Ltd
SITE	TE1749 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/32

SAMPLE LABEL	TP112 0.5 B	DATE SAMPLED	Not advised
SAMPLE NUMBER	126897	DATE RECEIVED	16-Jun-23
DATE TESTED	07-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY
ADVISED SOURCE	Site Investigation Sample
PRE TREATMENT	Air Dried / Single Sample

RETAINED 37.5mm	0 %	GRADING ZONE	Zone 4
RETAINED 20mm	0 %	PARTICLE DENSITY	2.60 Mg/m ³ (Assumed)

POINT NUMBER	WATER CONTENT (%)	DRY DENSITY (Mg/m ³)
1	13.9	1.634
2	15.8	1.675
3	17.8	1.703
4	20.1	1.669
5	22.0	1.628



OPTIMUM WATER CONTENT	19 (%)
MAXIMUM DRY DENSITY	1.71 (Mg/m ³)

REMARKS

As received water content = 13.9%

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

SIGNED

DATE 16-Aug-23

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP 2.5kg RAMMER

BS 1377-2:2022 Cl.11

PARTICLE DENSITY METHOD BS 1377-2:2022 Cl.9.2

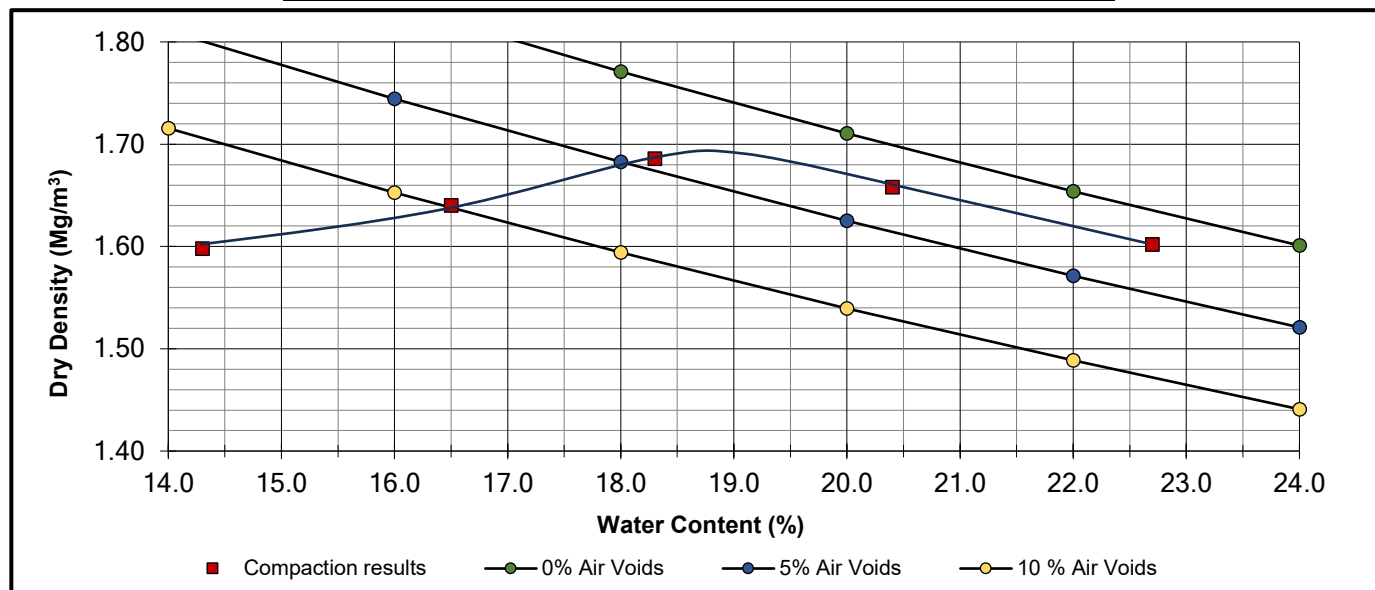
CLIENT	Tier Environmental Ltd		
SITE	TE1749 - Bryn Lane Detailed Planning		
JOB NUMBER	MRN 4625/32		

SAMPLE LABEL	TP115 0.7 B	DATE SAMPLED	Not advised
SAMPLE NUMBER	126901	DATE RECEIVED	16-Jun-23
DATE TESTED	07-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		
PRE TREATMENT	Air Dried / Single Sample		

RETAINED 37.5mm	0	%	GRADING ZONE	Zone 1	
RETAINED 20mm	0	%	PARTICLE DENSITY	2.60	Mg/m3 (Assumed)

POINT NUMBER	WATER CONTENT (%)	DRY DENSITY (Mg/m ³)
1	14.3	1.598
2	16.5	1.640
3	18.3	1.686
4	20.4	1.658
5	22.7	1.602



OPTIMUM WATER CONTENT	21	(%)
MAXIMUM DRY DENSITY	1.62	(Mg/m ³)

REMARKS

As received water content = 16.9%

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

SIGNED

DATE 16-Aug-23

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP 2.5kg RAMMER

BS 1377-2:2022 Cl.11

PARTICLE DENSITY METHOD BS 1377-2:2022 Cl.9.2

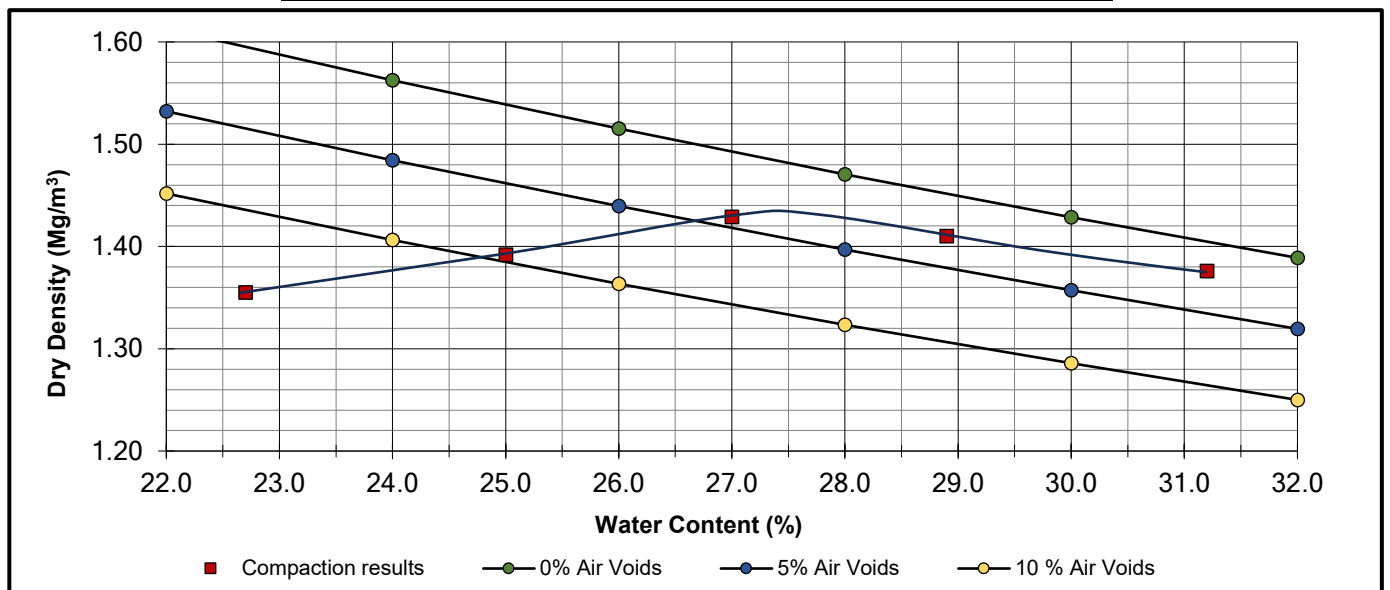
CLIENT	Tier Environmental Ltd		
SITE	TE1749 - Bryn Lane Detailed Planning		
JOB NUMBER	MRN 4625/32		

SAMPLE LABEL	TP117 0.7 B	DATE SAMPLED	Not advised
SAMPLE NUMBER	126903	DATE RECEIVED	16-Jun-23
DATE TESTED	07-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly organic CLAY		
ADVISED SOURCE	Site Investigation Sample		
PRE TREATMENT	Air Dried / Single Sample		

RETAINED 37.5mm	0	%	GRADING ZONE	Zone 1	
RETAINED 20mm	0	%	PARTICLE DENSITY	2.50	Mg/m ³ (Assumed)

POINT NUMBER	WATER CONTENT (%)	DRY DENSITY (Mg/m ³)
1	22.7	1.355
2	25.0	1.392
3	27.0	1.429
4	28.9	1.410
5	31.2	1.376



OPTIMUM WATER CONTENT	27	(%)
MAXIMUM DRY DENSITY	1.43	(Mg/m ³)

REMARKS

As received water content = 67.0%

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

SIGNED

DATE 16-Aug-23

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TEL 0161 475 0870



TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP 2.5kg RAMMER

BS 1377-2:2022 Cl.11

PARTICLE DENSITY METHOD BS 1377-2:2022 Cl.9.2

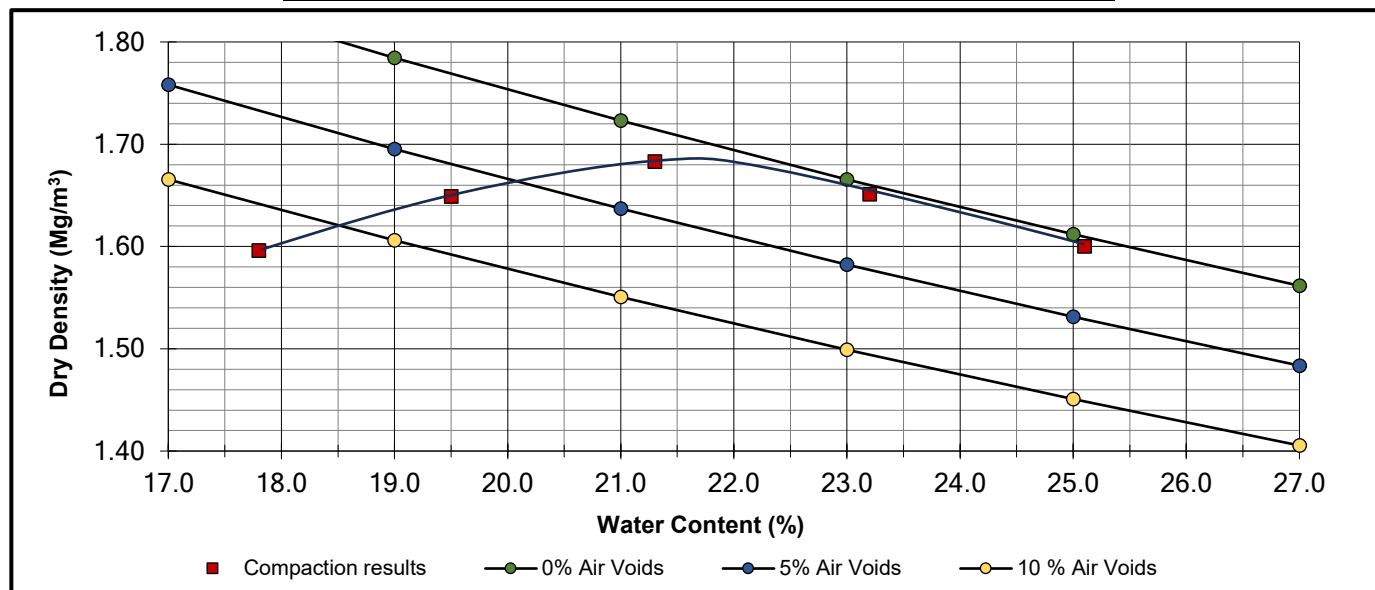
CLIENT	Tier Environmental Ltd		
SITE	TE1749 - Bryn Lane Detailed Planning		
JOB NUMBER	MRN 4625/32		

SAMPLE LABEL	TP121 1.8 B	DATE SAMPLED	Not advised
SAMPLE NUMBER	126908	DATE RECEIVED	16-Jun-23
DATE TESTED	07-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		
PRE TREATMENT	Air Dried / Single Sample		

RETAINED 37.5mm	0	%	GRADING ZONE	Zone 1	
RETAINED 20mm	0	%	PARTICLE DENSITY	2.70	Mg/m3 (Assumed)

POINT NUMBER	WATER CONTENT (%)	DRY DENSITY (Mg/m ³)
1	17.8	1.596
2	19.5	1.649
3	21.3	1.683
4	23.2	1.651
5	25.1	1.600



OPTIMUM WATER CONTENT	22	(%)
MAXIMUM DRY DENSITY	1.68	(Mg/m ³)

REMARKS

As received water content = 20.2%

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

SIGNED

DATE 16-Aug-23

MURRAY RIX

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TEL 0161 475 0870



TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP 2.5kg RAMMER

BS 1377-2:2022 Cl.11

PARTICLE DENSITY METHOD BS 1377-2:2022 Cl.9.2

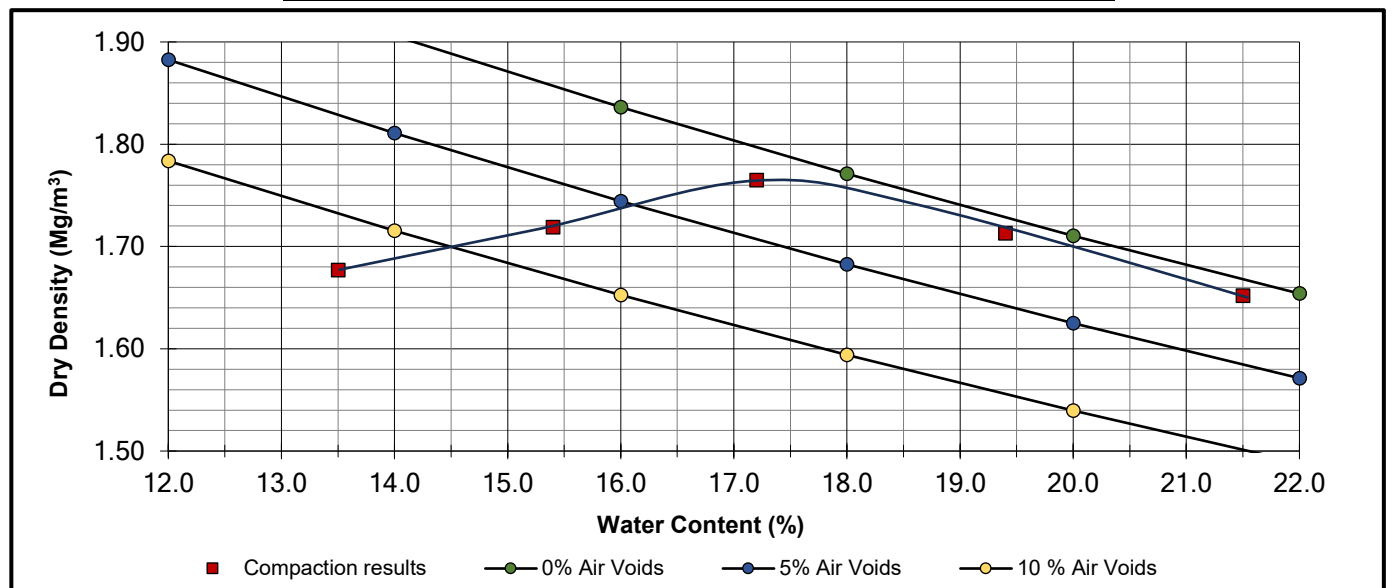
CLIENT	Tier Environmental Ltd		
SITE	TE1749 - Bryn Lane Detailed Planning		
JOB NUMBER	MRN 4625/32		

SAMPLE LABEL	CP101 11.7-12.00 B	DATE SAMPLED	Not advised
SAMPLE NUMBER	126919	DATE RECEIVED	16-Jun-23
DATE TESTED	07-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		
PRE TREATMENT	Air Dried / Single Sample		

RETAINED 37.5mm	0	%	GRADING ZONE	Zone 1	
RETAINED 20mm	0	%	PARTICLE DENSITY	2.60	Mg/m ³ (Assumed)

POINT NUMBER	WATER CONTENT (%)	DRY DENSITY (Mg/m ³)
1	13.5	1.677
2	15.4	1.719
3	17.2	1.765
4	19.4	1.713
5	21.5	1.652



OPTIMUM WATER CONTENT	17	(%)
MAXIMUM DRY DENSITY	1.76	(Mg/m ³)

REMARKS

As received water content = 16.9%

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

SIGNED

DATE 16-Aug-23

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP 2.5kg RAMMER

BS 1377-2:2022 Cl.11

PARTICLE DENSITY METHOD BS 1377-2:2022 Cl.9.2

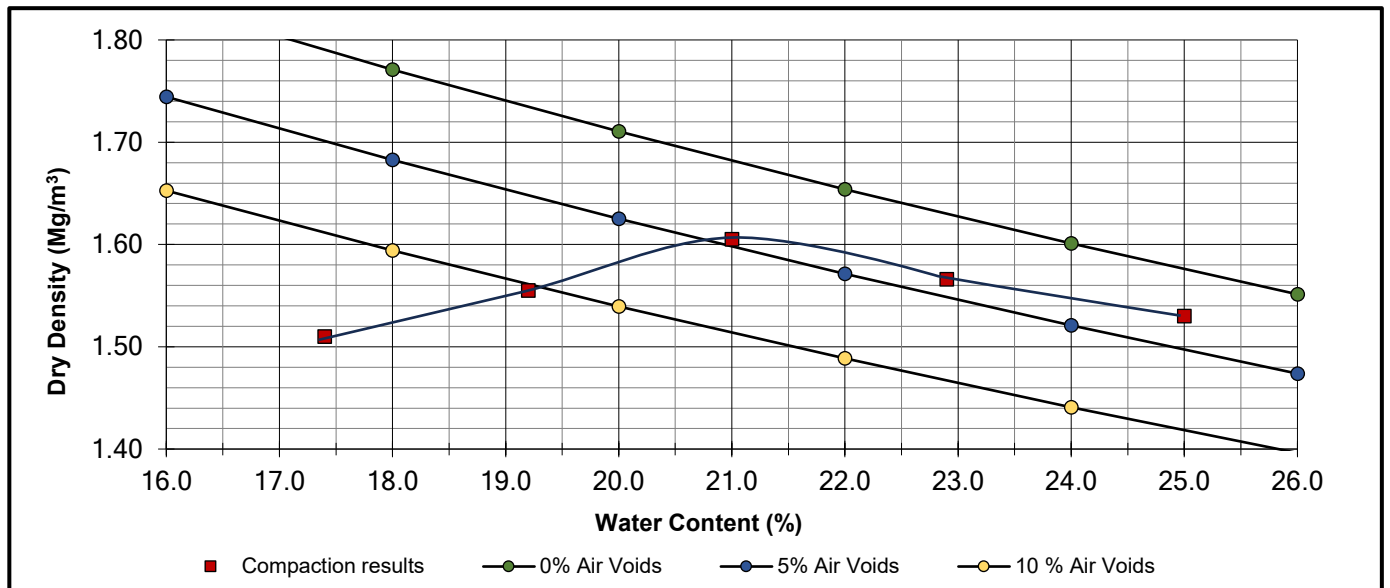
CLIENT	Tier Environmental Ltd		
SITE	TE1749 - Bryn Lane Detailed Planning		
JOB NUMBER	MRN 4625/32		

SAMPLE LABEL	TP105 1 B	DATE SAMPLED	Not advised
SAMPLE NUMBER	126559	DATE RECEIVED	08-Jun-23
DATE TESTED	07-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		
PRE TREATMENT	Air Dried / Single Sample		

RETAINED 37.5mm	0	%	GRADING ZONE	Zone 1	
RETAINED 20mm	0	%	PARTICLE DENSITY	2.60	Mg/m ³ (Assumed)

POINT NUMBER	WATER CONTENT (%)	DRY DENSITY (Mg/m ³)
1	17.4	1.510
2	19.2	1.555
3	21.0	1.605
4	22.9	1.566
5	25.0	1.530



OPTIMUM WATER CONTENT	21	(%)
MAXIMUM DRY DENSITY	1.60	(Mg/m ³)

REMARKS

As received water content = 21.8%

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

SIGNED

DATE 16-Aug-23

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TEL 0161 475 0870



TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP 2.5kg RAMMER

BS 1377-2:2022 Cl.11

PARTICLE DENSITY METHOD BS 1377-2:2022 Cl.9.2

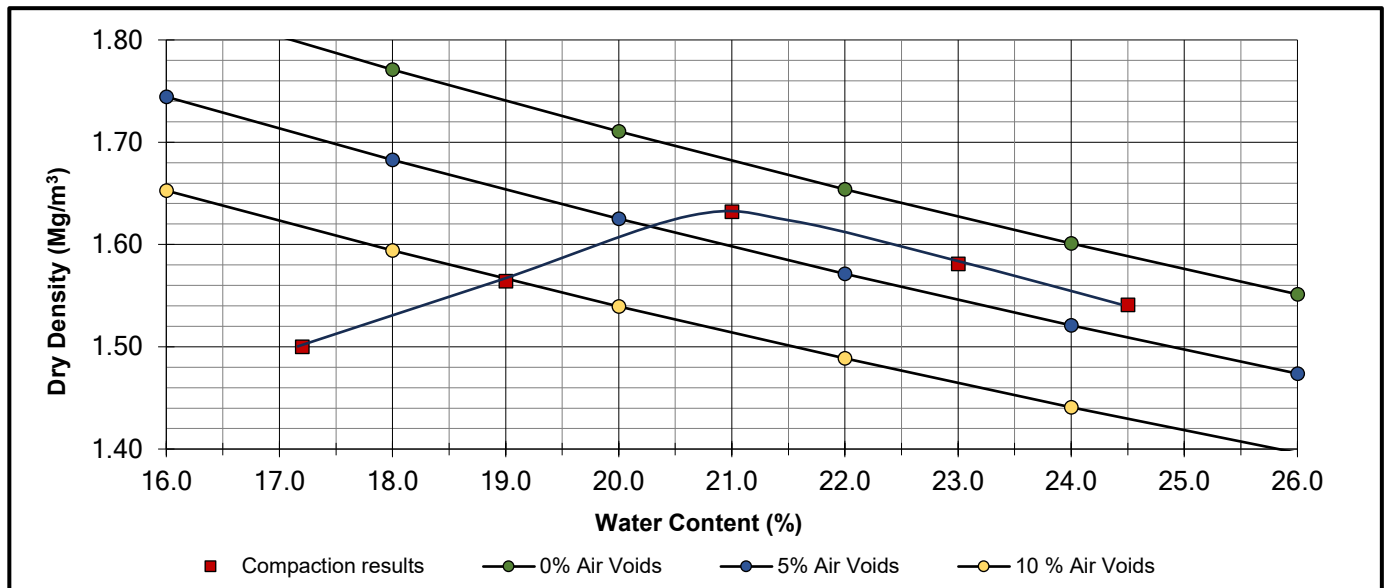
CLIENT	Tier Environmental Ltd
SITE	TE1749 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/32

SAMPLE LABEL	CP107 5.5-5.8 B	DATE SAMPLED	Not advised
SAMPLE NUMBER	126597	DATE RECEIVED	08-Jun-23
DATE TESTED	07-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY
ADVISED SOURCE	Site Investigation Sample
PRE TREATMENT	Air Dried / Single Sample

RETAINED 37.5mm	0 %	GRADING ZONE	Zone 2
RETAINED 20mm	1 %	PARTICLE DENSITY	2.60 Mg/m ³ (Assumed)

POINT NUMBER	WATER CONTENT (%)	DRY DENSITY (Mg/m ³)
1	17.2	1.500
2	19.0	1.564
3	21.0	1.632
4	23.0	1.581
5	24.5	1.541



OPTIMUM WATER CONTENT	21 (%)
MAXIMUM DRY DENSITY	1.63 (Mg/m ³)

REMARKS

As received water content = 19.5%

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

SIGNED

DATE 16-Aug-23

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TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP 2.5kg RAMMER

BS 1377-2:2022 Cl.11

PARTICLE DENSITY METHOD BS 1377-2:2022 Cl.9.2

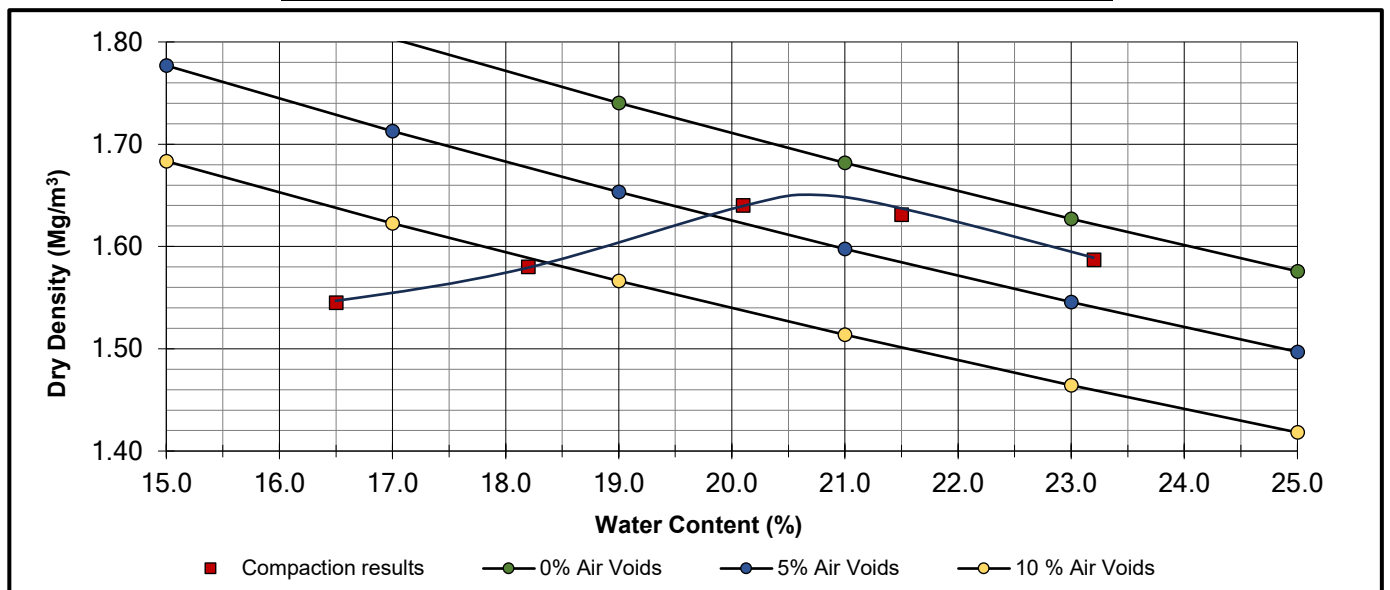
CLIENT	Tier Environmental Ltd		
SITE	TE1749 - Bryn Lane Detailed Planning		
JOB NUMBER	MRN 4625/32		

SAMPLE LABEL	TP107 0.9-1.1	DATE SAMPLED	Not advised
SAMPLE NUMBER	126561	DATE RECEIVED	08-Jun-23
DATE TESTED	07-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		
PRE TREATMENT	Air Dried / Single Sample		

RETAINED 37.5mm	0	%	GRADING ZONE	Zone 1	
RETAINED 20mm	0	%	PARTICLE DENSITY	2.60	Mg/m3 (Assumed)

POINT NUMBER	WATER CONTENT (%)	DRY DENSITY (Mg/m ³)
1	16.5	1.545
2	18.2	1.580
3	20.1	1.640
4	21.5	1.631
5	23.2	1.587



OPTIMUM WATER CONTENT	21	(%)
MAXIMUM DRY DENSITY	1.65	(Mg/m ³)

REMARKS

As received water content = 22.4%

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

SIGNED

DATE 16-Aug-23

MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP 2.5kg RAMMER

BS 1377-2:2022 Cl.11

PARTICLE DENSITY METHOD BS 1377-2:2022 Cl.9.2

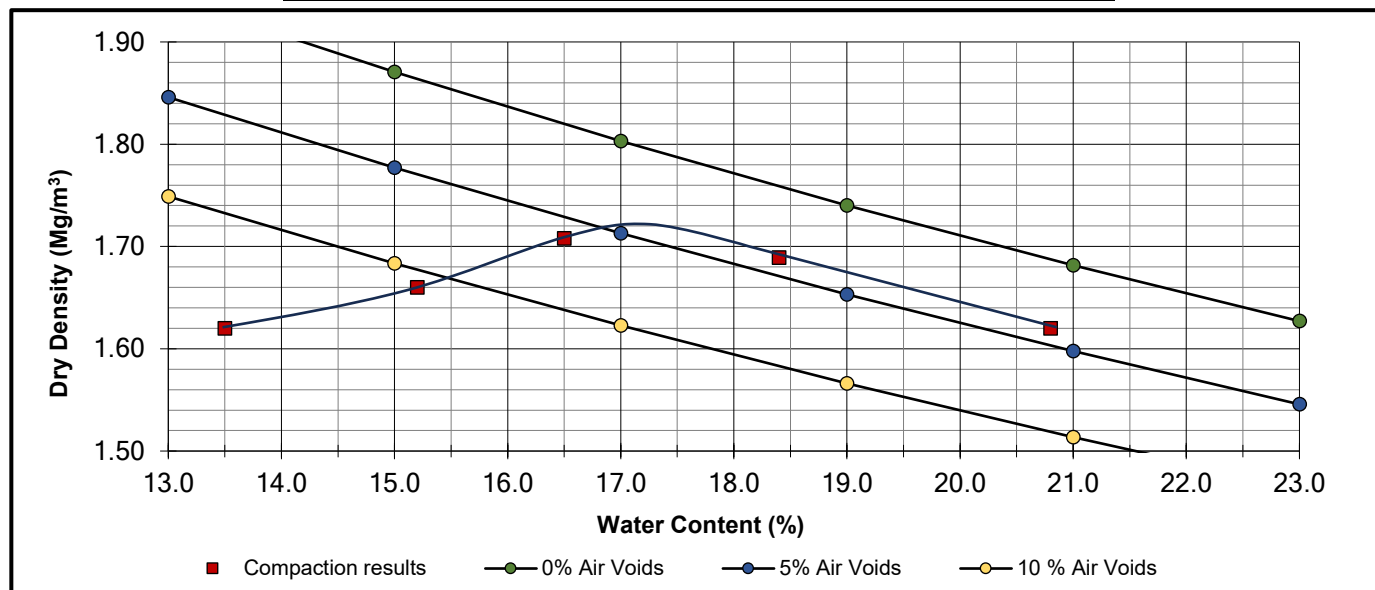
CLIENT	Tier Environmental Ltd
SITE	TE1749 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/32

SAMPLE LABEL	TP111 0.3 B	DATE SAMPLED	Not advised
SAMPLE NUMBER	126896	DATE RECEIVED	16-Jun-23
DATE TESTED	07-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY
ADVISED SOURCE	Site Investigation Sample
PRE TREATMENT	Air Dried / Single Sample

RETAINED 37.5mm	0 %	GRADING ZONE	Zone 1
RETAINED 20mm	0 %	PARTICLE DENSITY	2.60 Mg/m ³ (Assumed)

POINT NUMBER	WATER CONTENT (%)	DRY DENSITY (Mg/m ³)
1	13.5	1.620
2	15.2	1.660
3	16.5	1.708
4	18.4	1.689
5	20.8	1.620



OPTIMUM WATER CONTENT	17 (%)
MAXIMUM DRY DENSITY	1.72 (Mg/m ³)

REMARKS

As received water content = 13.8%

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

SIGNED

DATE 16-Aug-23

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP 2.5kg RAMMER

BS 1377-2:2022 Cl.11

PARTICLE DENSITY METHOD BS 1377-2:2022 Cl.9.2

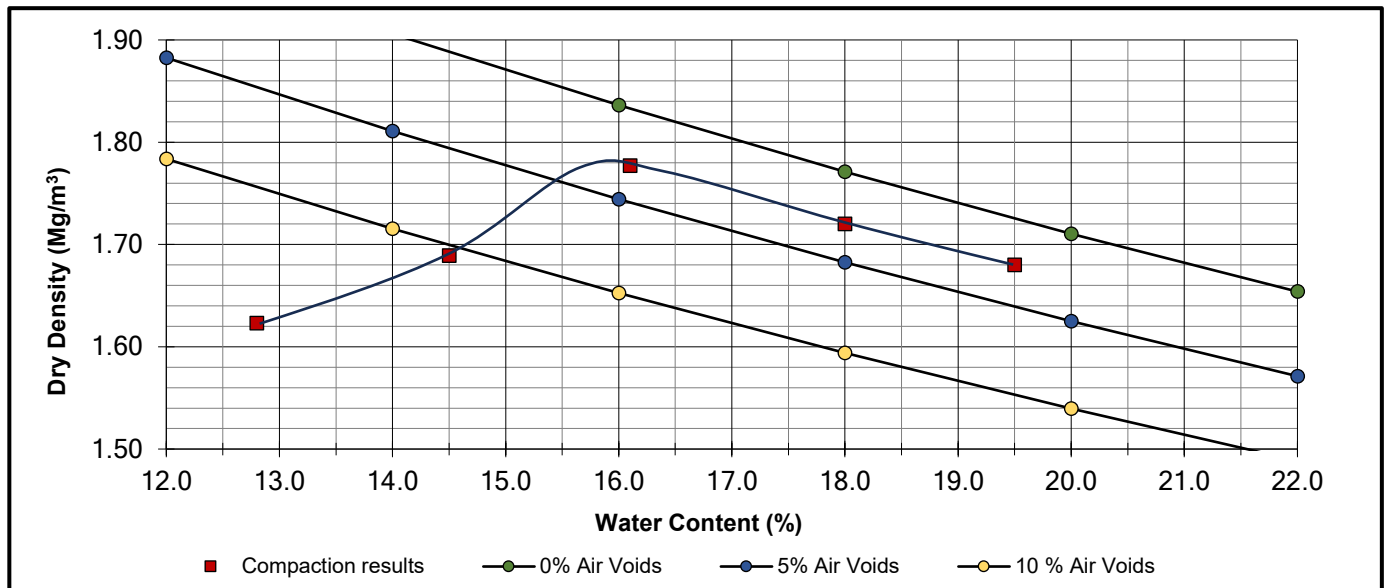
CLIENT	Tier Environmental Ltd		
SITE	TE1749 - Bryn Lane Detailed Planning		
JOB NUMBER	MRN 4625/32		

SAMPLE LABEL	CP109 0.5-0.8 B	DATE SAMPLED	Not advised
SAMPLE NUMBER	127604	DATE RECEIVED	27-Jun-23
DATE TESTED	07-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		
PRE TREATMENT	Air Dried / Single Sample		

RETAINED 37.5mm	0	%	GRADING ZONE	Zone 1	
RETAINED 20mm	0	%	PARTICLE DENSITY	2.60	Mg/m3 (Assumed)

POINT NUMBER	WATER CONTENT (%)	DRY DENSITY (Mg/m ³)
1	12.8	1.623
2	14.5	1.689
3	16.1	1.777
4	18.0	1.720
5	19.5	1.680



OPTIMUM WATER CONTENT	16	(%)
MAXIMUM DRY DENSITY	1.78	(Mg/m ³)

REMARKS

As received water content = 15.9%

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

SIGNED

DATE 16-Aug-23

MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP 2.5kg RAMMER

BS 1377-2:2022 Cl.11

PARTICLE DENSITY METHOD BS 1377-2:2022 Cl.9.2

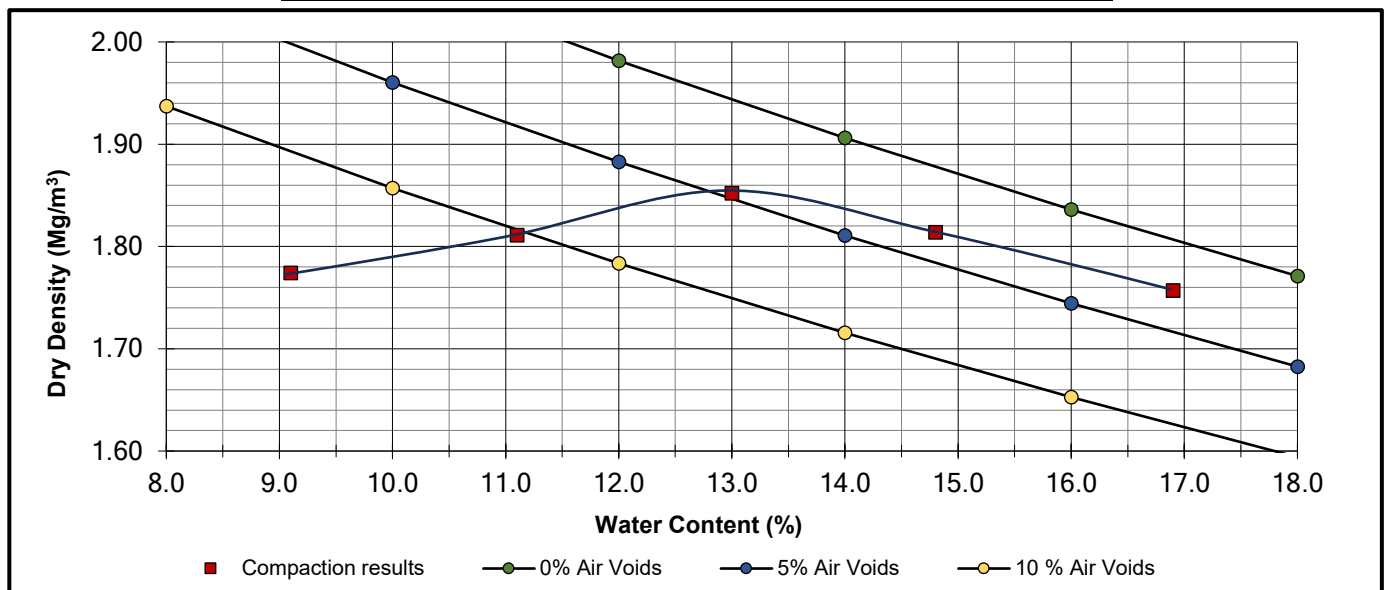
CLIENT	Tier Environmental Ltd		
SITE	TE1749 - Bryn Lane Detailed Planning		
JOB NUMBER	MRN 4625/32		

SAMPLE LABEL	TP104 0.4-0.6 B	DATE SAMPLED	Not advised
SAMPLE NUMBER	126550	DATE RECEIVED	08-Jun-23
DATE TESTED	07-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		
PRE TREATMENT	Air Dried / Single Sample		

RETAINED 37.5mm	0	%	GRADING ZONE	Zone 1	
RETAINED 20mm	0	%	PARTICLE DENSITY	2.60	Mg/m ³ (Assumed)

POINT NUMBER	WATER CONTENT (%)	DRY DENSITY (Mg/m ³)
1	9.1	1.774
2	11.1	1.811
3	13.0	1.852
4	14.8	1.814
5	16.9	1.757



OPTIMUM WATER CONTENT	13	(%)
MAXIMUM DRY DENSITY	1.85	(Mg/m ³)

REMARKS

As received water content = 18.1%

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

SIGNED

DATE 16-Aug-23

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
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TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP 2.5kg RAMMER

BS 1377-2:2022 Cl.11

PARTICLE DENSITY METHOD BS 1377-2:2022 Cl.9.2

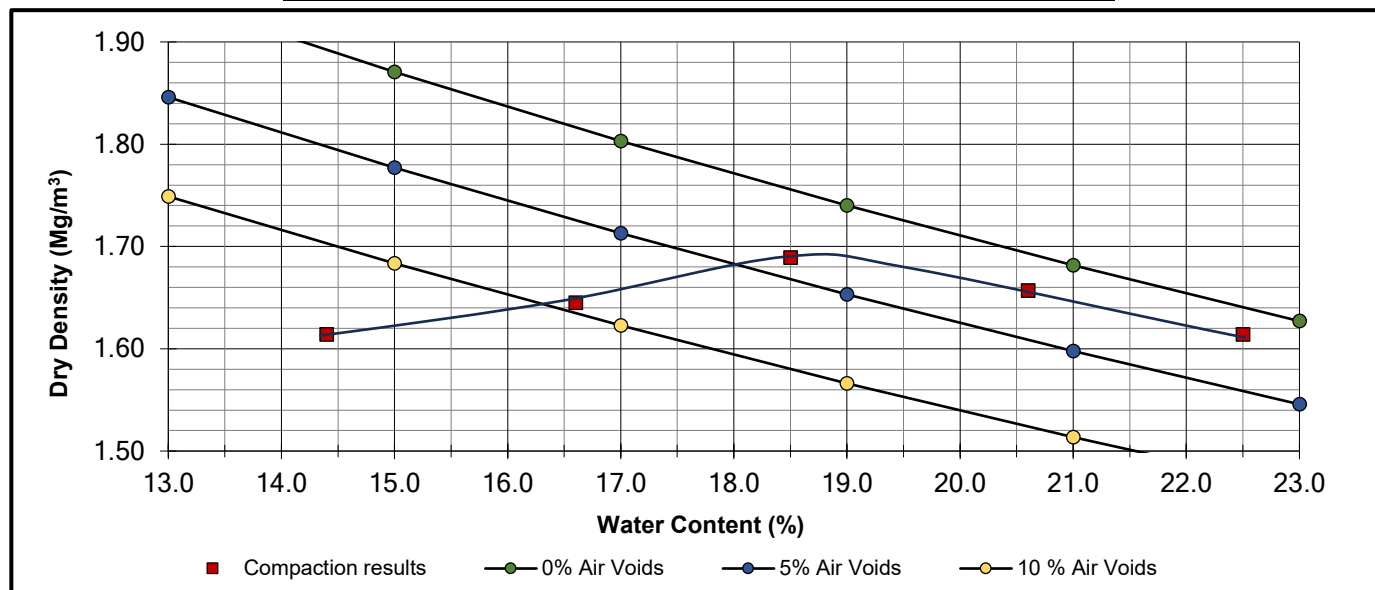
CLIENT	Tier Environmental Ltd		
SITE	TE1749 - Bryn Lane Detailed Planning		
JOB NUMBER	MRN 4625/32		

SAMPLE LABEL	TP114 1.5 B	DATE SAMPLED	Not advised
SAMPLE NUMBER	126900	DATE RECEIVED	16-Jun-23
DATE TESTED	07-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		
PRE TREATMENT	Air Dried / Single Sample		

RETAINED 37.5mm	0	%	GRADING ZONE	Zone 1	
RETAINED 20mm	0	%	PARTICLE DENSITY	2.60	Mg/m ³ (Assumed)

POINT NUMBER	WATER CONTENT (%)	DRY DENSITY (Mg/m ³)
1	14.4	1.614
2	16.6	1.645
3	18.5	1.689
4	20.6	1.657
5	22.5	1.614



OPTIMUM WATER CONTENT	19	(%)
MAXIMUM DRY DENSITY	1.69	(Mg/m ³)

REMARKS

As received water content = 18.6%

NAME O.P. Davies BA (Hons)
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DATE 16-Aug-23

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TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

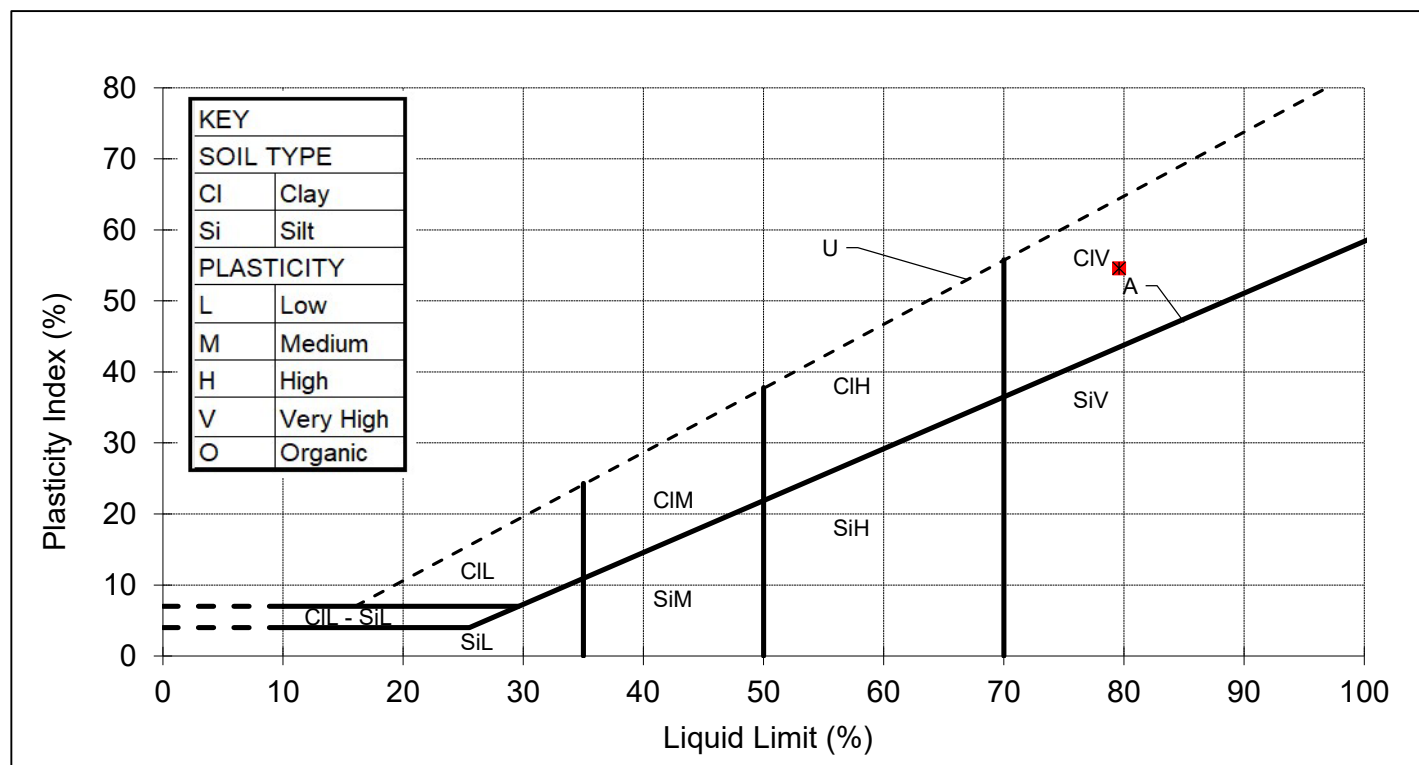
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	TP117 0.7 B	DATE SAMPLED	Not advised
SAMPLE No.	126903	DATE RECEIVED	16-Jun-23
DATE TESTED	15-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly organic CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Moisture Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	19.5	78.9	1.009	
Determination 2 (avg)	19.6	78.9		

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
67.0	80	25	55	95



REMARKS

SIGNED

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O.P. Davies BA (Hons)
(Laboratory Manager)

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16-Aug-23

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TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

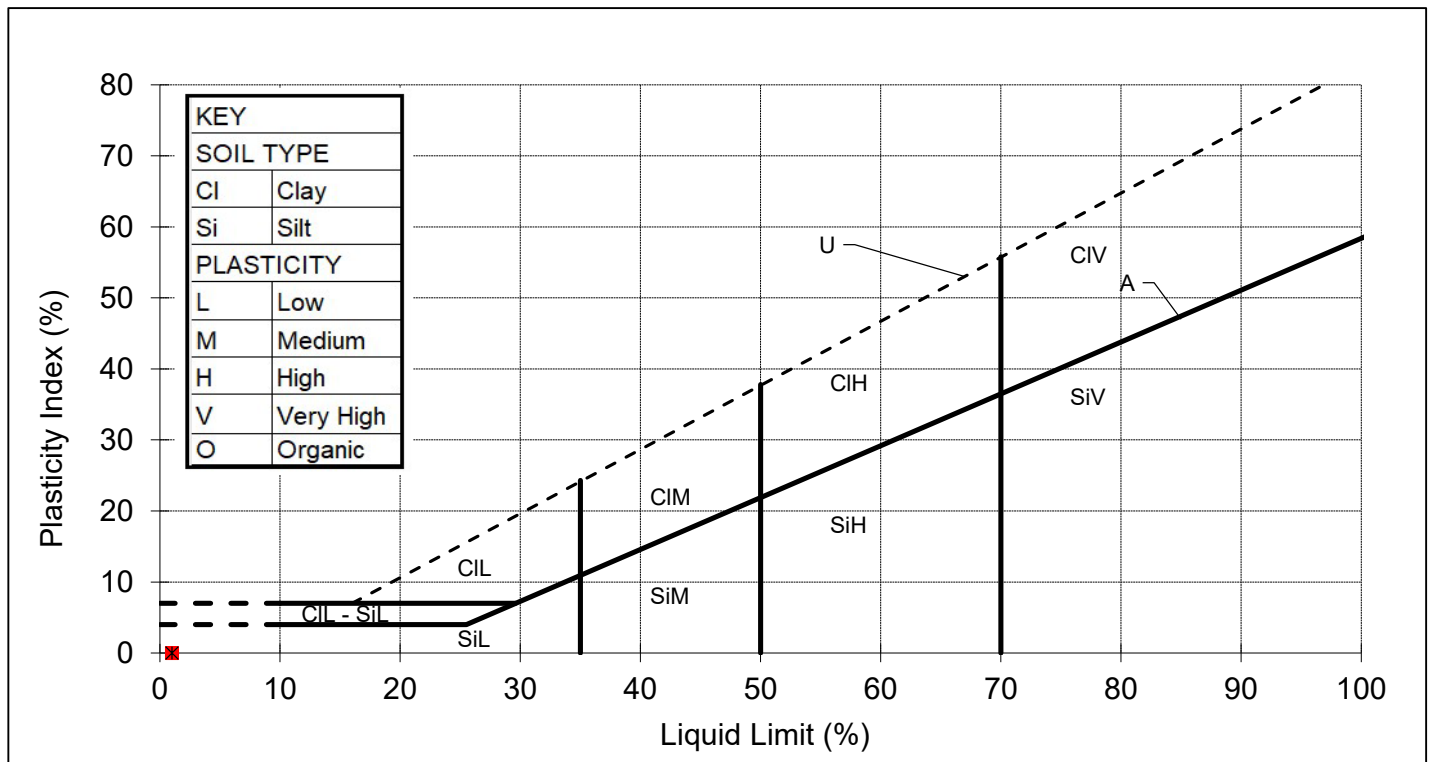
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	TP118 0.5 D	DATE SAMPLED	Not advised
SAMPLE No.	126904	DATE RECEIVED	16-Jun-23
DATE TESTED	15-Jul-23	SAMPLED BY	Client

MATERIAL	Topsoil		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)	Moisture Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	N/A	N/A	
Determination 2 (avg)	N/A	N/A	

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
416	N/A	Non Plastic	N/A	67



REMARKS

Sample did contain some plastic material but due to the amount of fine sand & silt was found to be non plastic

SIGNED

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LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

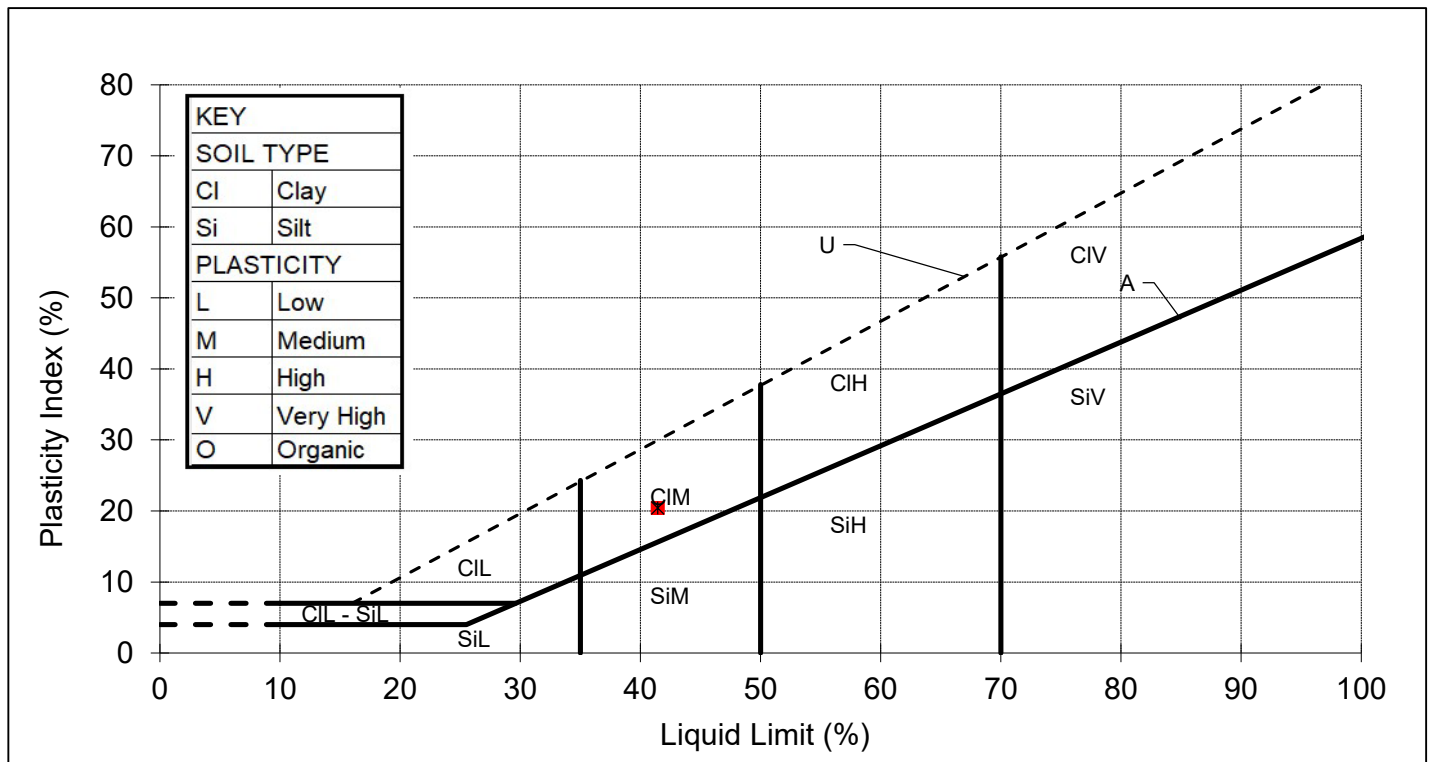
CLIENT	Tier Environmental Ltd		
SITE	TE1750 - Bryn Lane Detailed Planning		
JOB NUMBER	MRN 4625/33		

SAMPLE LABEL	TP121 1.8 B	DATE SAMPLED	Not advised
SAMPLE No.	126908	DATE RECEIVED	16-Jun-23
DATE TESTED	15-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Moisture Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	21.0	42.1	0.984	
Determination 2 (avg)	21.0	42.1		

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
20.2	41	21	20	98



REMARKS

SIGNED

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LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

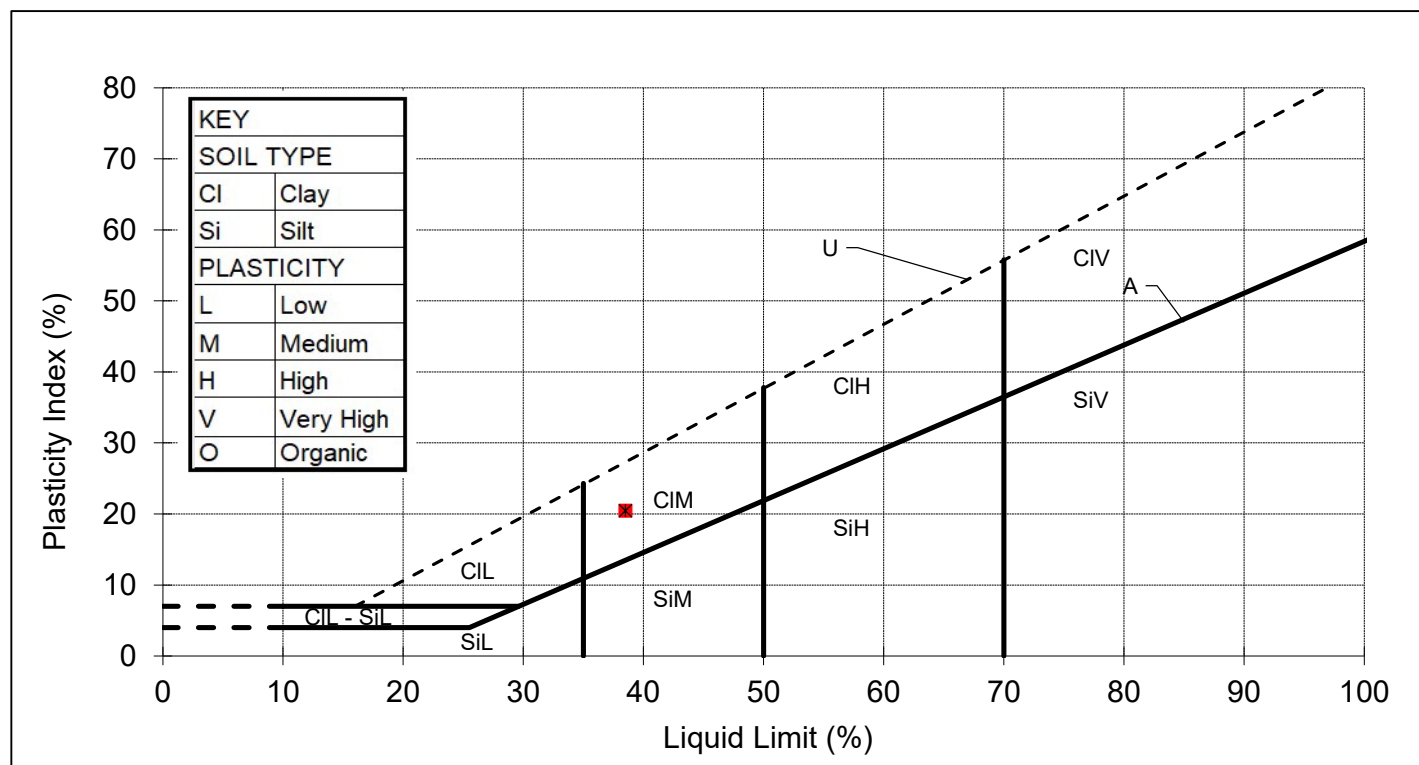
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	CP103 0.6-0.9 B	DATE SAMPLED	Not advised
SAMPLE No.	126925	DATE RECEIVED	16-Jun-23
DATE TESTED	15-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)	Moisture Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	19.2	37.9	
Determination 2 (avg)	19.1	37.8	

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
18.2	38	18	20	95



REMARKS

SIGNED

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TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

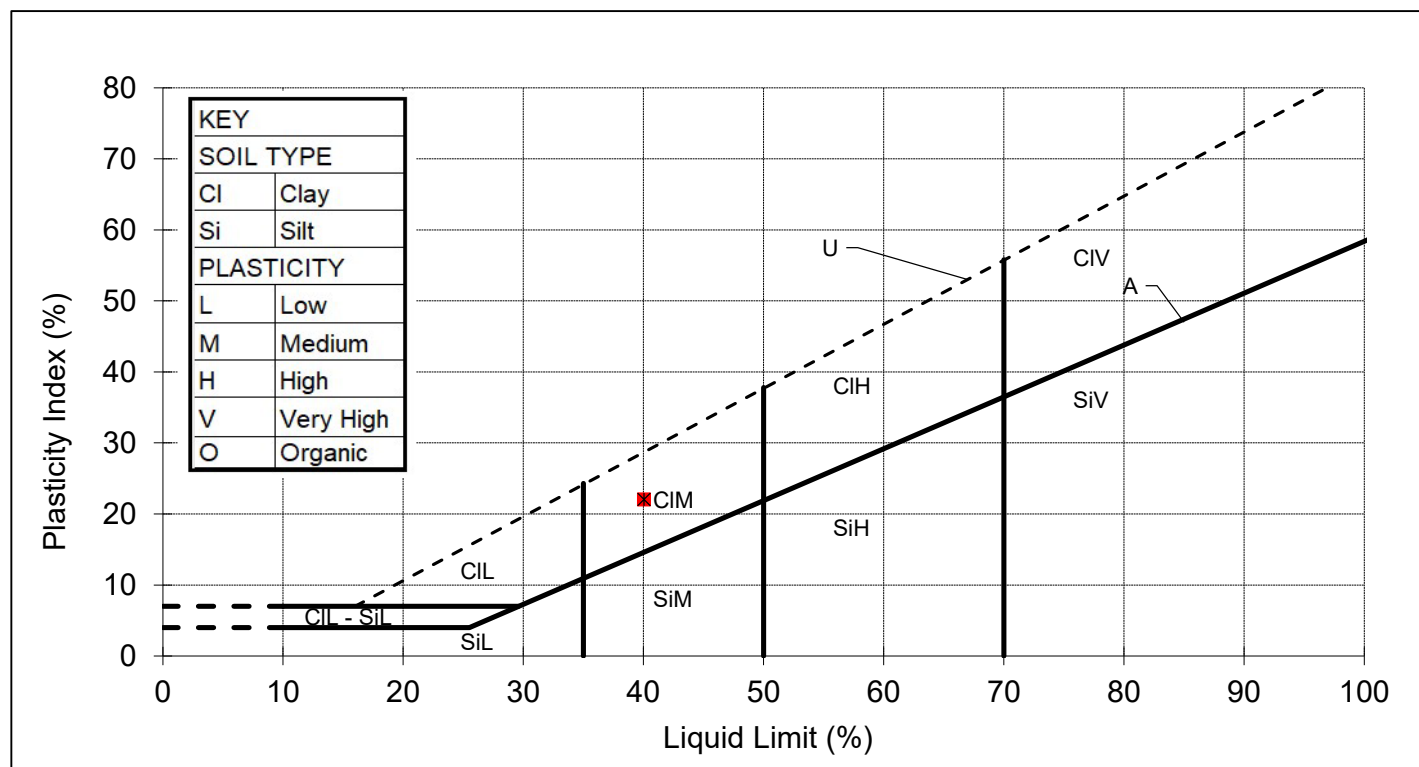
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	TP103 3-3.3 B	DATE SAMPLED	Not advised
SAMPLE No.	126556	DATE RECEIVED	16-Jun-23
DATE TESTED	15-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)	Moisture Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	20.0	40.0	
Determination 2 (avg)	20.0	40.0	

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
20.4	40	18	22	96



REMARKS

SIGNED

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LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

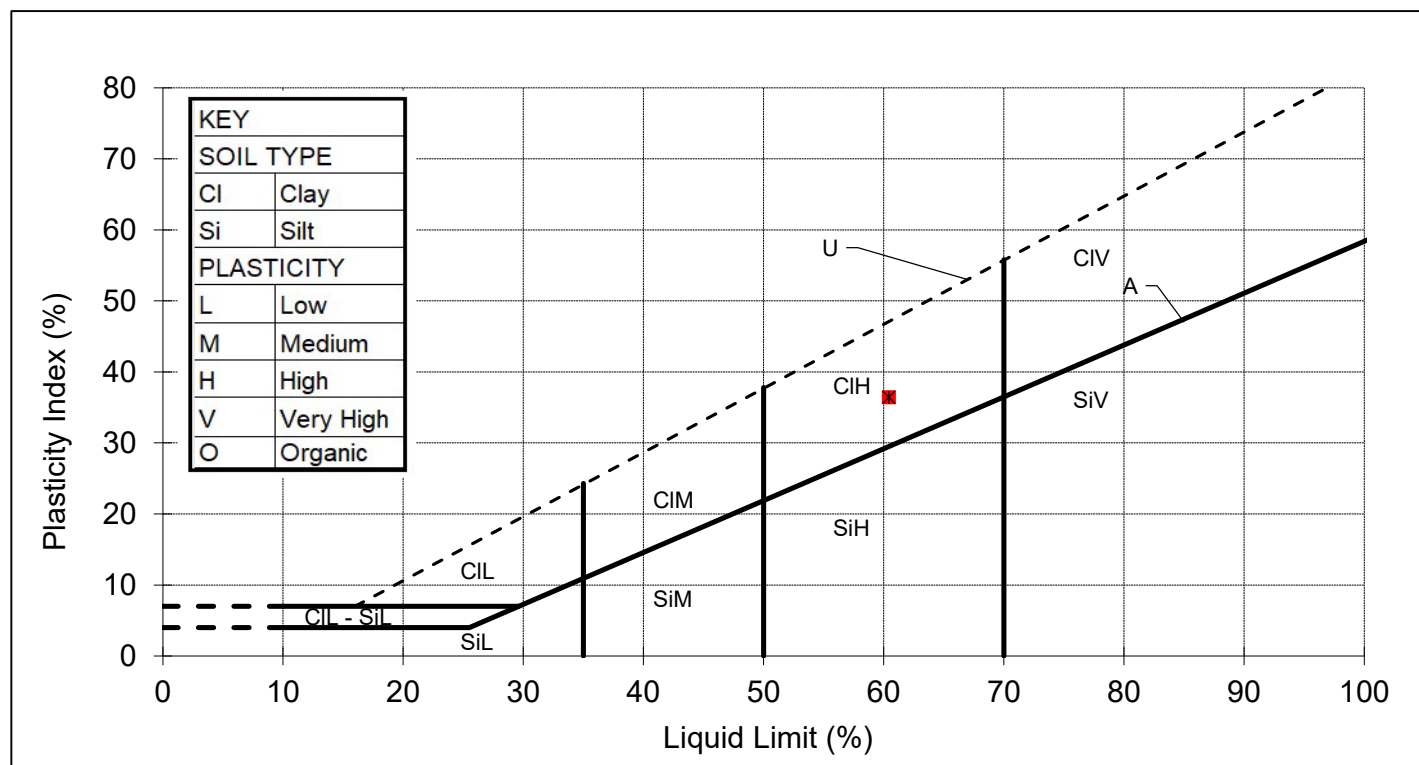
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	CP105 8.1 B	DATE SAMPLED	Not advised
SAMPLE No.	127614	DATE RECEIVED	27-Jun-23
DATE TESTED	15-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly organic CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)	Moisture Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	17.5	57.9	
Determination 2 (avg)	17.5	57.7	

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
44.2	60	24	36	100



REMARKS

SIGNED

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TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD
PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5
WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

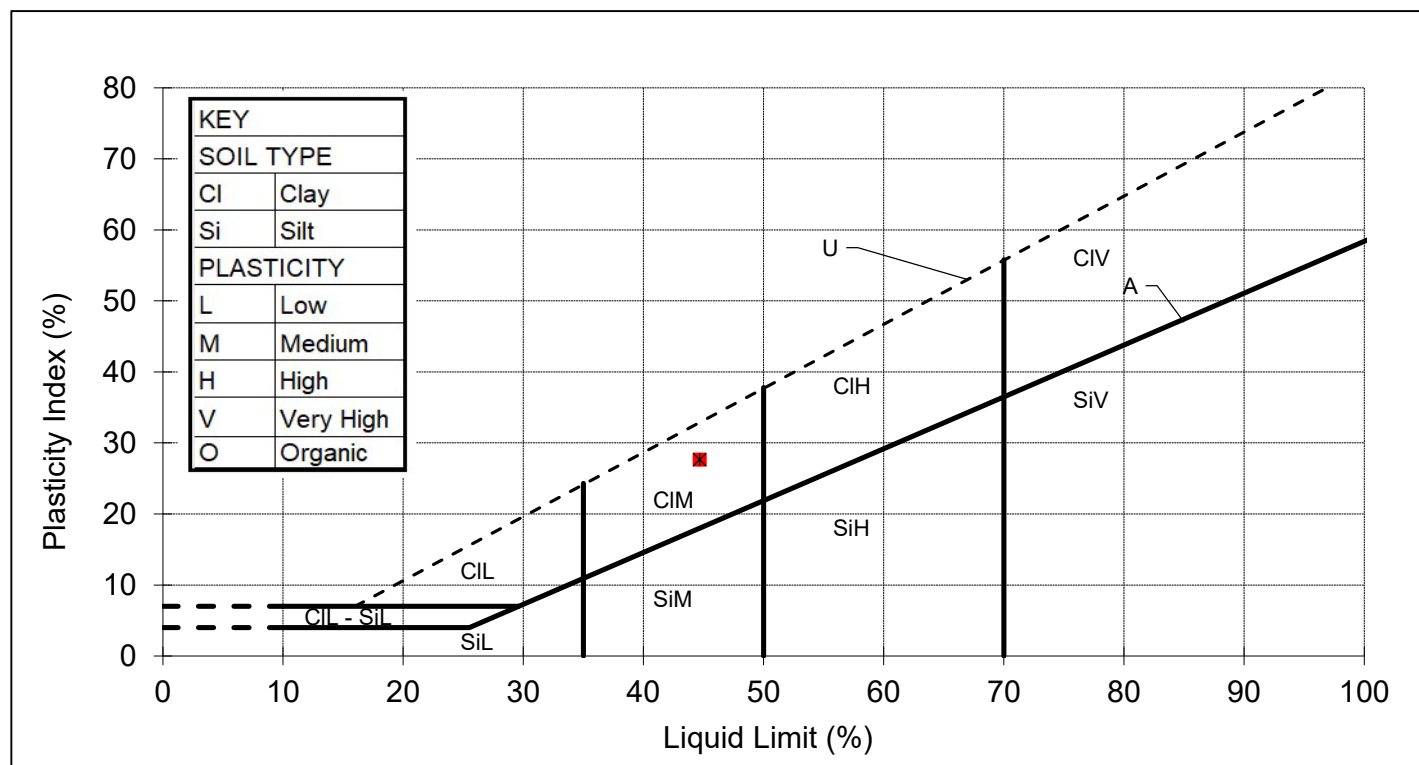
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	CP109 0.5-0.8 B	DATE SAMPLED	Not advised
SAMPLE No.	127604	DATE RECEIVED	27-Jun-23
DATE TESTED	15-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Moisture Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	18.1	43.2	1.038	
Determination 2 (avg)	18.0	42.9		

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
15.9	45	17	28	97



REMARKS

SIGNED

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DATE

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TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

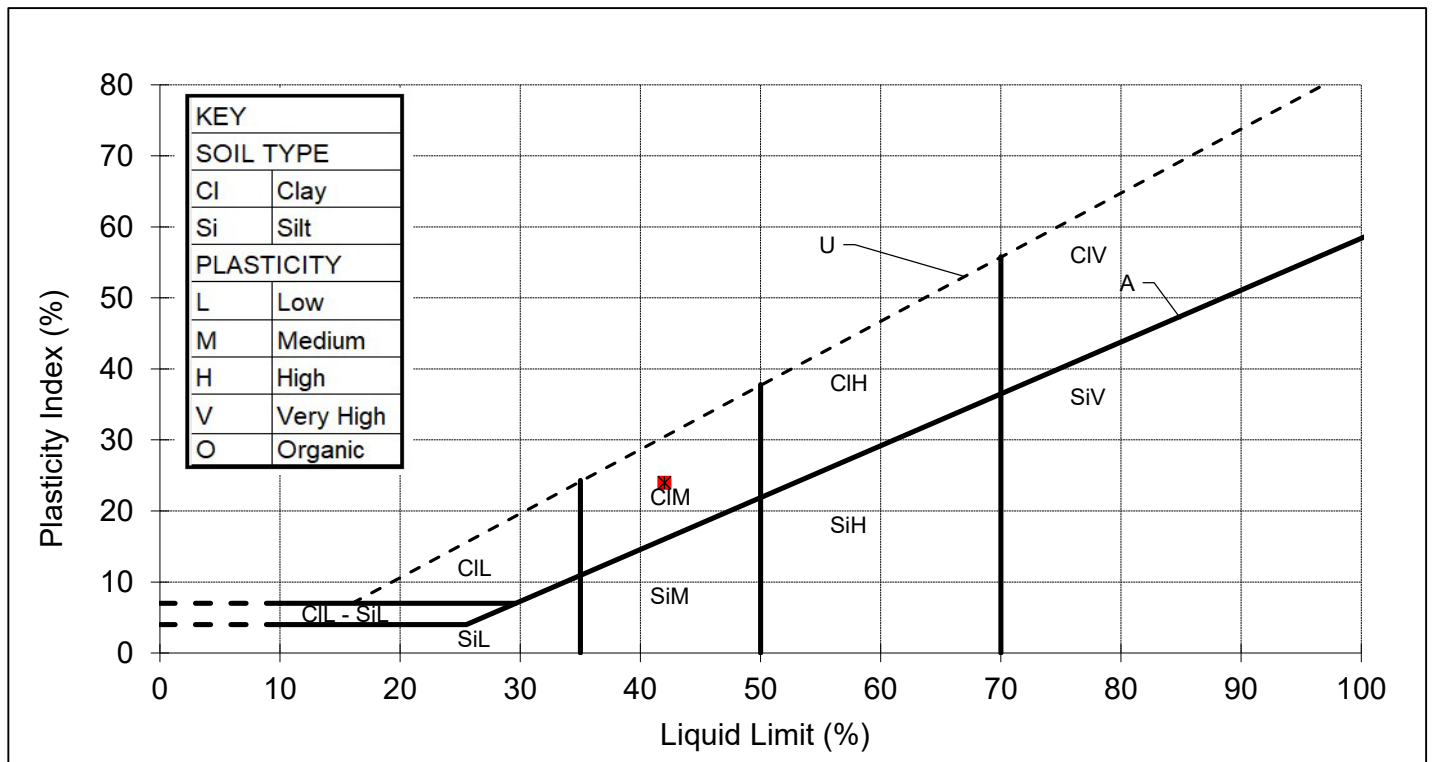
CLIENT	Tier Environmental Ltd		
SITE	TE1750 - Bryn Lane Detailed Planning		
JOB NUMBER	MRN 4625/33		

SAMPLE LABEL	TP101 0.2-0.3 B	DATE SAMPLED	Not advised
SAMPLE No.	126548	DATE RECEIVED	08-Jun-23
DATE TESTED	15-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Moisture Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	19.7	41.7	1.007	
Determination 2 (avg)	19.6	41.7		

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
22.4	42	18	24	98



REMARKS

SIGNED

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DATE

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TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

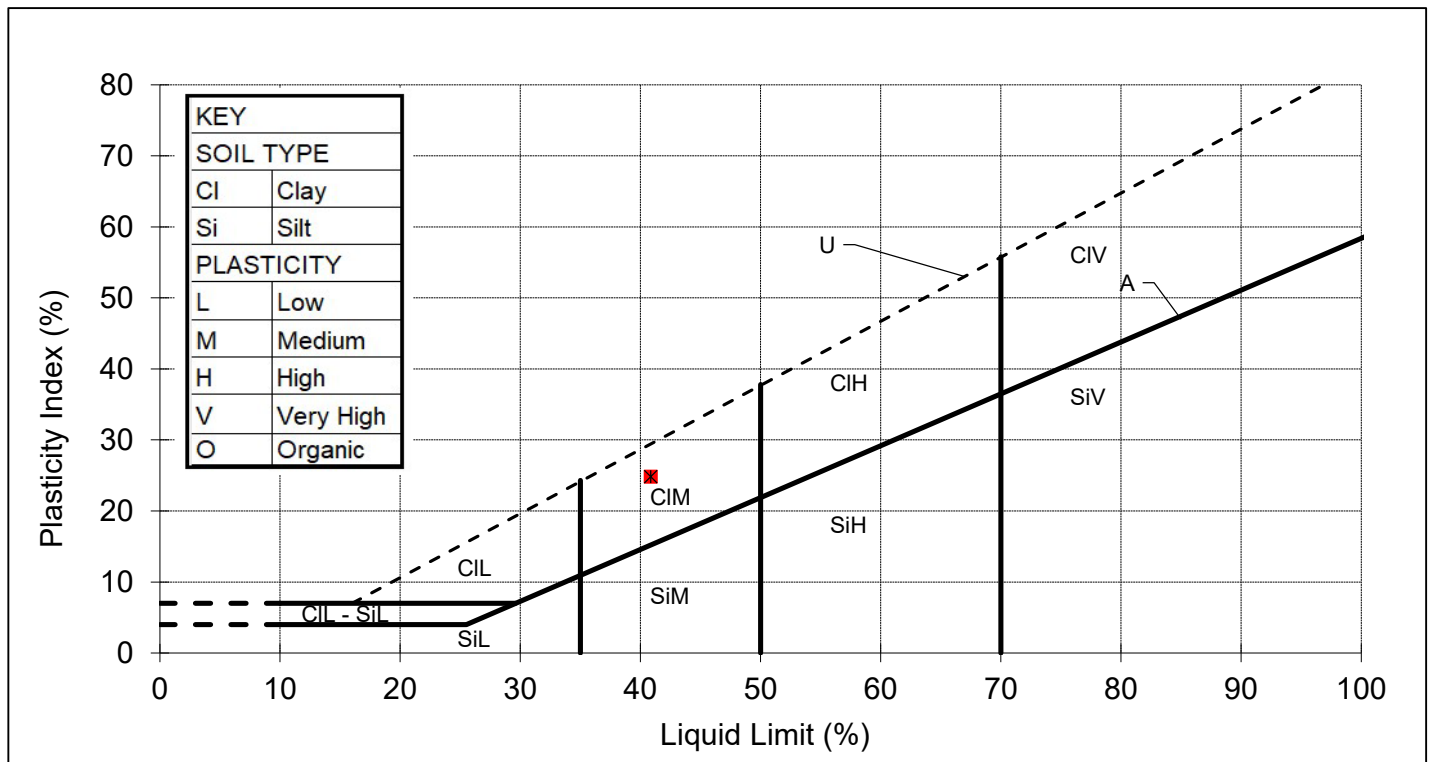
CLIENT	Tier Environmental Ltd		
SITE	TE1750 - Bryn Lane Detailed Planning		
JOB NUMBER	MRN 4625/33		

SAMPLE LABEL	TP102 1.3-1.6 B	DATE SAMPLED	Not advised
SAMPLE No.	126552	DATE RECEIVED	08-Jun-23
DATE TESTED	15-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Moisture Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	18.8	40.0	1.020	
Determination 2 (avg)	18.8	40.1		

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
18.2	41	16	25	96



REMARKS

SIGNED

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(Laboratory Manager)

DATE

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TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

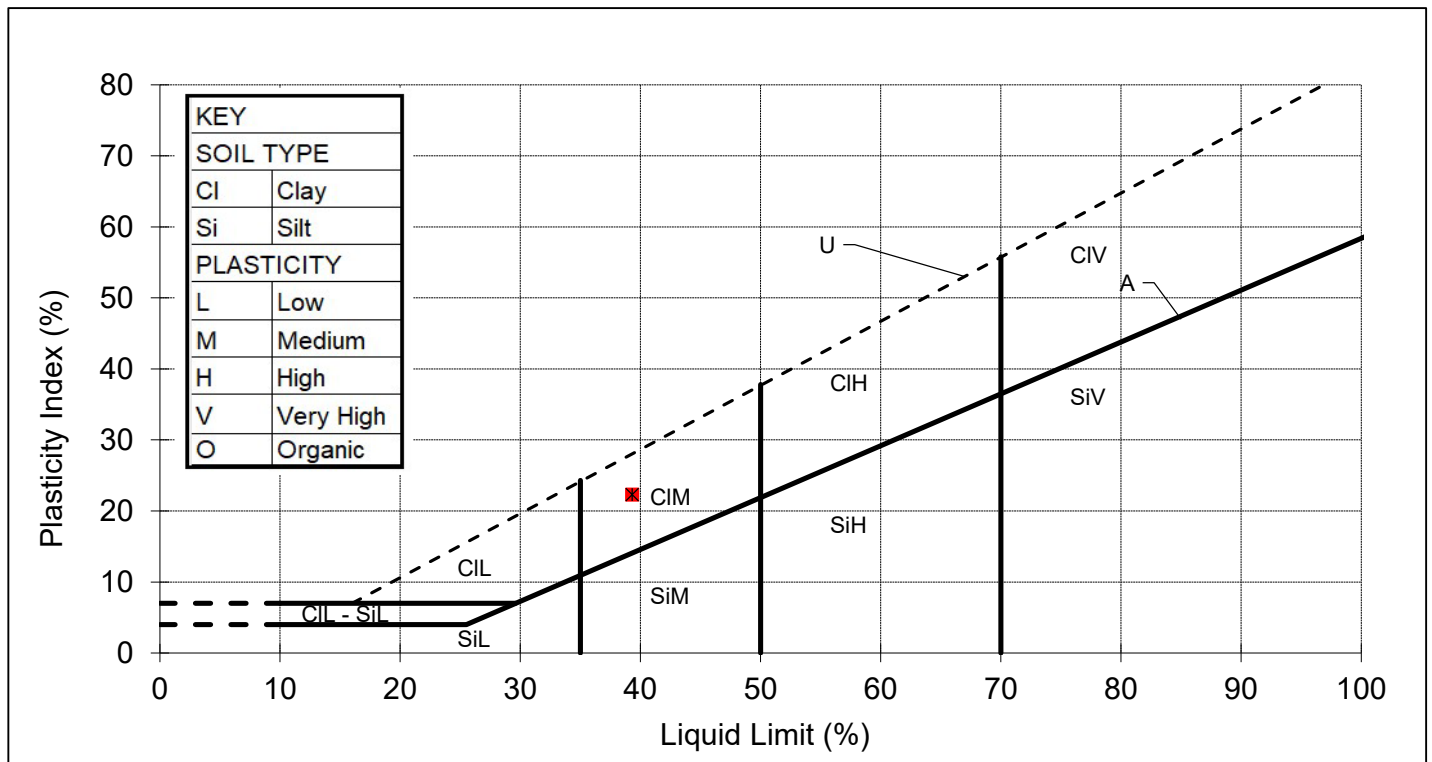
CLIENT	Tier Environmental Ltd		
SITE	TE1750 - Bryn Lane Detailed Planning		
JOB NUMBER	MRN 4625/33		

SAMPLE LABEL	TP104 0.4-0.6 B	DATE SAMPLED	Not advised
SAMPLE No.	126550	DATE RECEIVED	08-Jun-23
DATE TESTED	15-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Moisture Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	19.2	38.7	1.017	
Determination 2 (avg)	19.1	38.6		

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
18.1	39	17	22	99



REMARKS

SIGNED

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(Laboratory Manager)

DATE

16-Aug-23

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LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

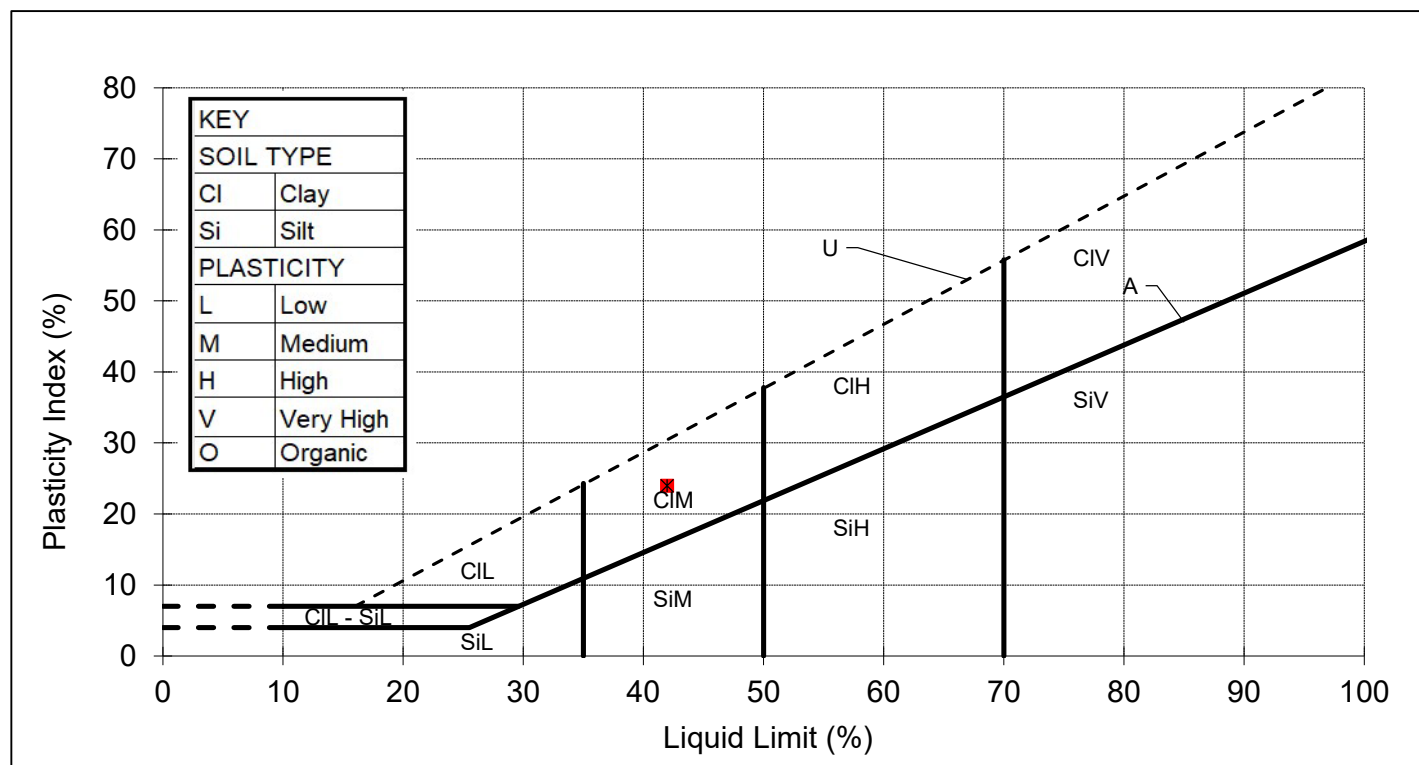
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	TP108 2.2 B	DATE SAMPLED	Not advised
SAMPLE No.	126562	DATE RECEIVED	08-Jun-23
DATE TESTED	15-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)	Moisture Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	18.7	41.1	
Determination 2 (avg)	18.9	41.2	

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
17.6	42	18	24	98



REMARKS

SIGNED

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TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

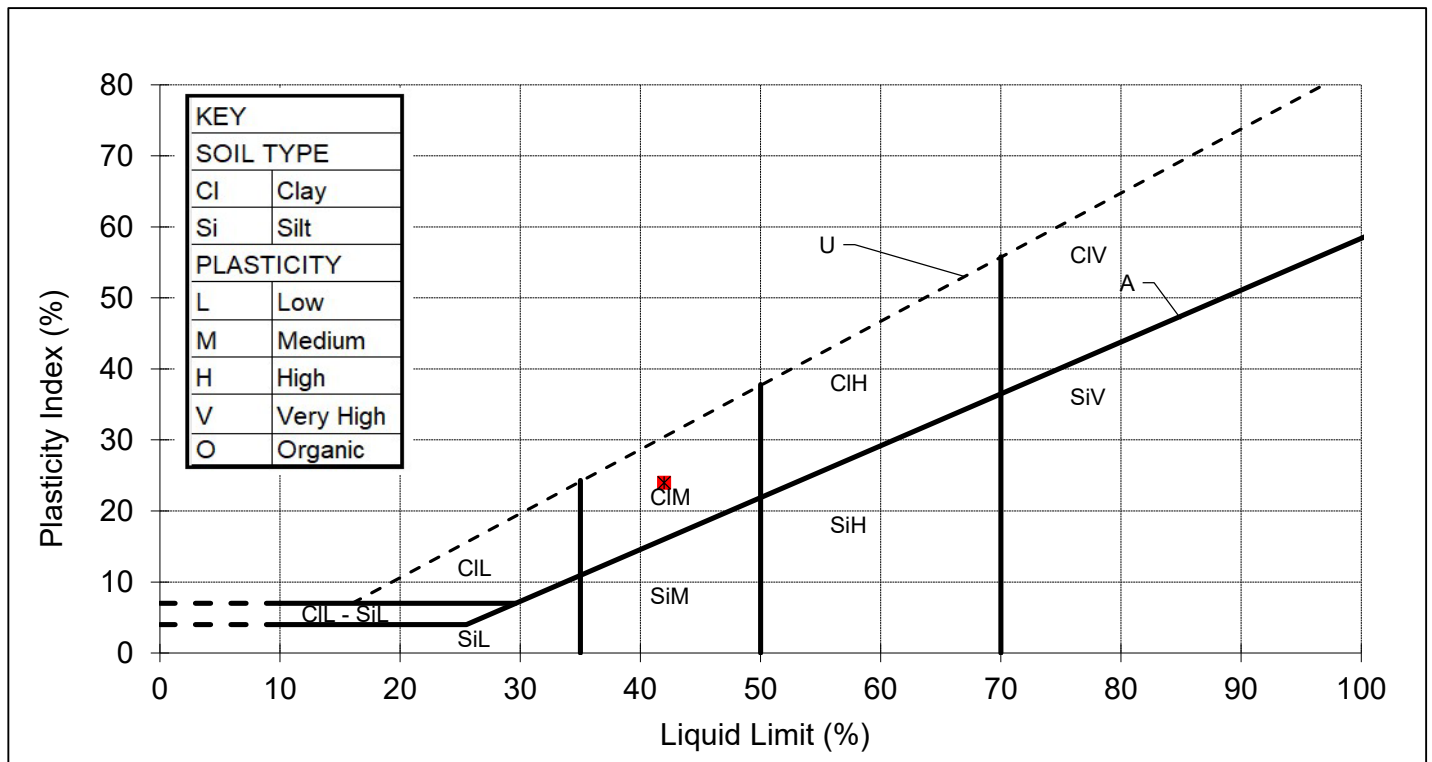
CLIENT	Tier Environmental Ltd		
SITE	TE1750 - Bryn Lane Detailed Planning		
JOB NUMBER	MRN 4625/33		

SAMPLE LABEL	TP114 1.5 B	DATE SAMPLED	Not advised
SAMPLE No.	126900	DATE RECEIVED	16-Jun-23
DATE TESTED	15-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Moisture Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	18.7	41.1	1.020	
Determination 2 (avg)	18.9	41.2		

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
18.6	42	18	24	99



REMARKS

SIGNED

NAME

O.P. Davies BA (Hons)
(Laboratory Manager)

DATE

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TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

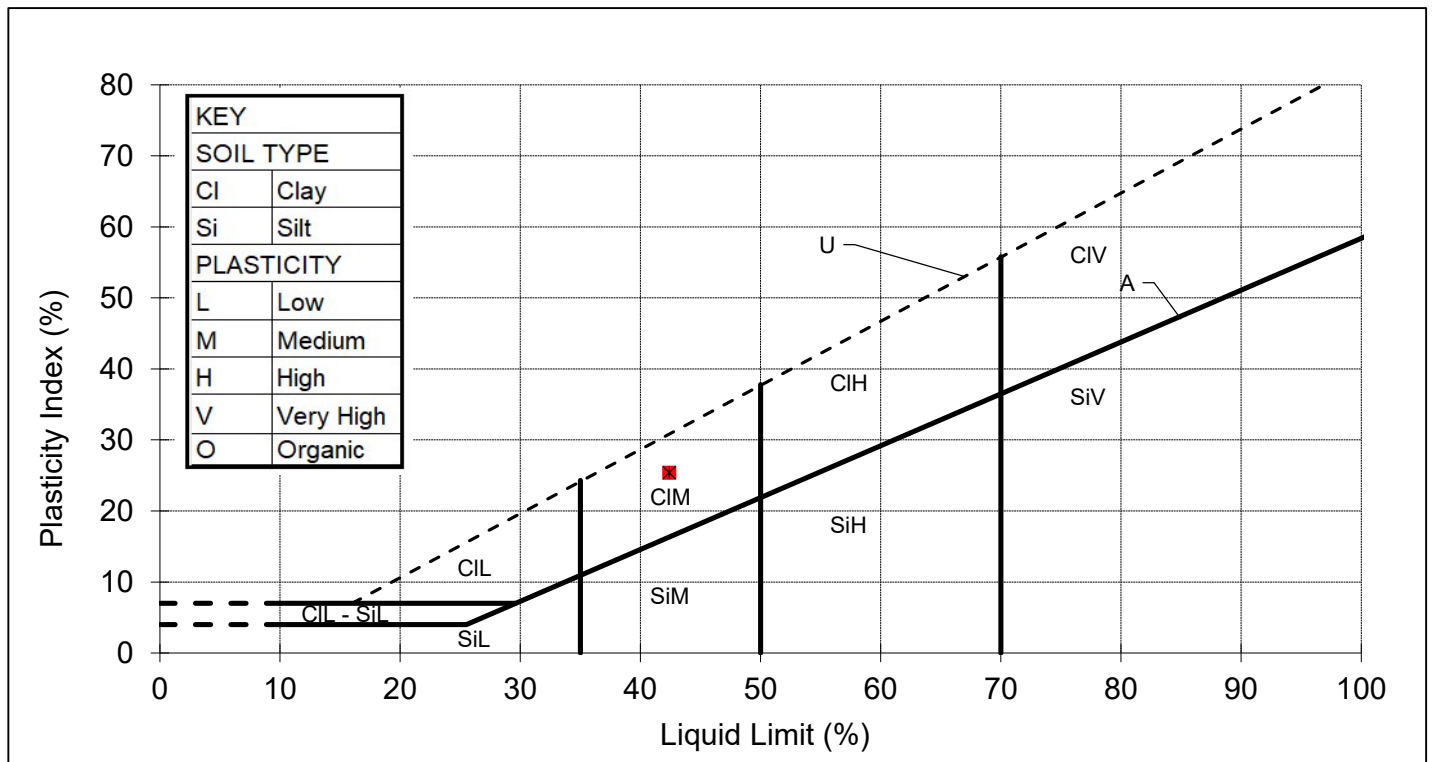
CLIENT	Tier Environmental Ltd		
SITE	TE1750 - Bryn Lane Detailed Planning		
JOB NUMBER	MRN 4625/33		

SAMPLE LABEL	TP116 1.6 B	DATE SAMPLED	Not advised
SAMPLE No.	126902	DATE RECEIVED	16-Jun-23
DATE TESTED	15-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Moisture Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	17.4	40.4	1.050	
Determination 2 (avg)	17.2	40.4		

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
18.3	42	17	25	95



REMARKS

SIGNED

NAME

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(Laboratory Manager)

DATE

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TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

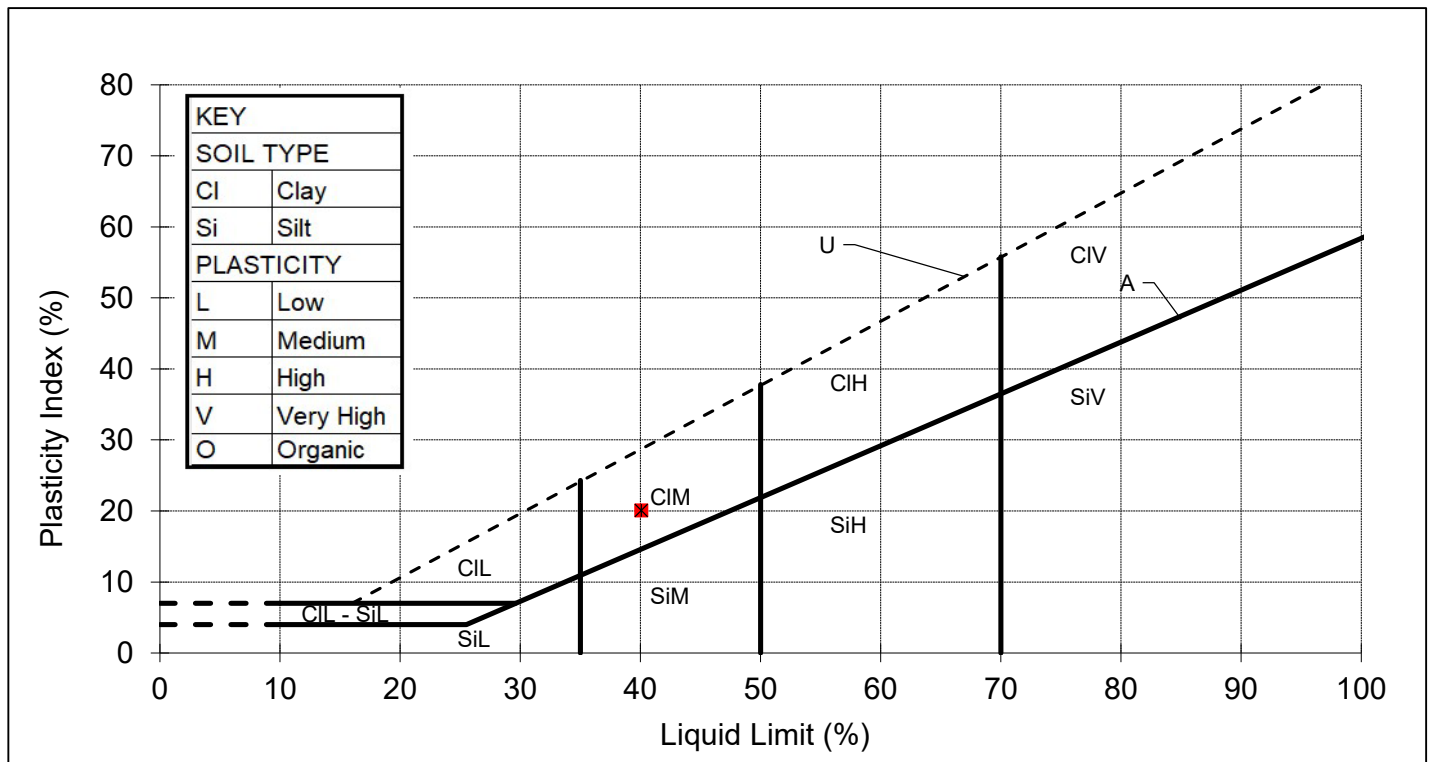
CLIENT	Tier Environmental Ltd		
SITE	TE1750 - Bryn Lane Detailed Planning		
JOB NUMBER	MRN 4625/33		

SAMPLE LABEL	TP120 1.3 B	DATE SAMPLED	Not advised
SAMPLE No.	126907	DATE RECEIVED	16-Jun-23
DATE TESTED	15-Jul-23	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Moisture Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	18.6	38.9	1.023	
Determination 2 (avg)	18.7	39.4		

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
23.4	40	20	20	99



REMARKS

SIGNED

NAME

O.P. Davies BA (Hons)
(Laboratory Manager)

DATE

16-Aug-23

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS 1377 : PART 7: Clause 9 Multi Stage

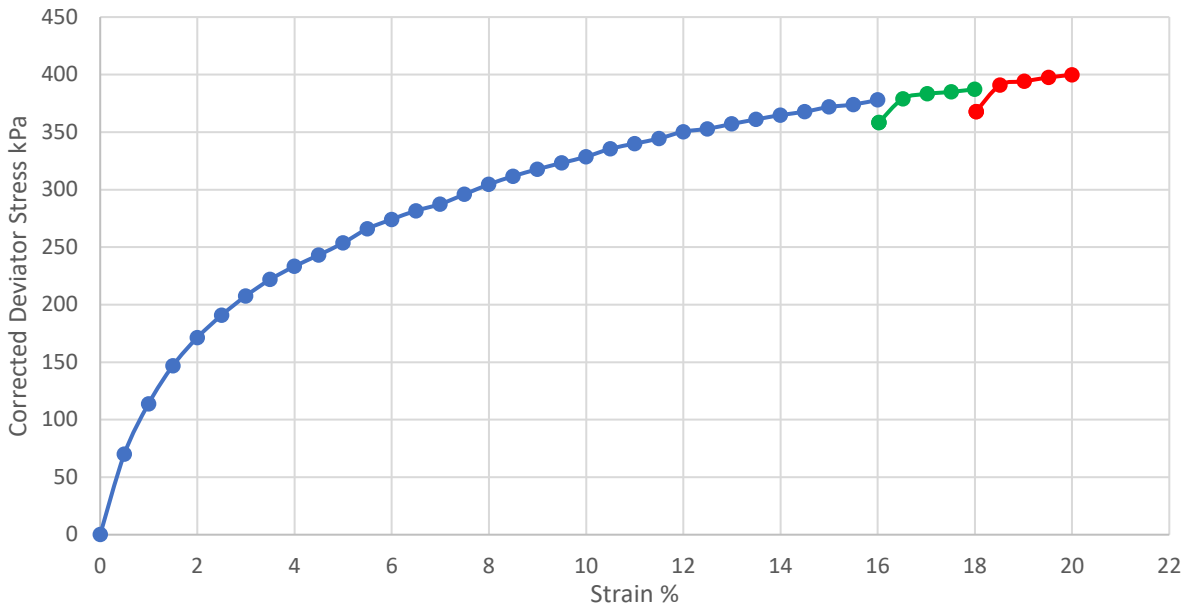
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	CP101 2.2-2.65 U	DATE SAMPLED	Not advised
LAB SAMPLE No.	126966	DATE RECEIVED	16-Jun-23
DATE TESTED	17-Jul-23	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

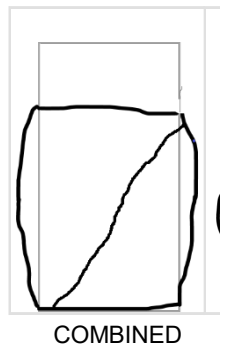
Specimen Location	Sample Length (mm)	350	Specimen depth from top of Sample (mm)	30
	Sample Orientation	Vertical	Specimen Condition	Undisturbed
	Specimen Length (mm)	190	Specimen Moisture Content (%)	17.2
	Specimen Diameter (mm)	101	Specimen Bulk Density (Mg/m ³)	1.99
	Membrane Thickness (mm)	0.40	Specimen Dry Density (Mg/m ³)	1.70
	Membrane Correction	1.27	1.38	1.50

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
MULTI STAGE

SKETCH OF
SPECIMEN AT
FAILURE



Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength C_u (kPa)
20	16	2	373.9	187
45	18	2	385.0	192
90	20	2	397.6	199

Remarks/Abnormalities

Name O.P Davies BA (Hons)
(Laboratory Manager)

Signed

Date 16 August 2023

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS 1377 : PART 7: Clause 9 Multi Stage

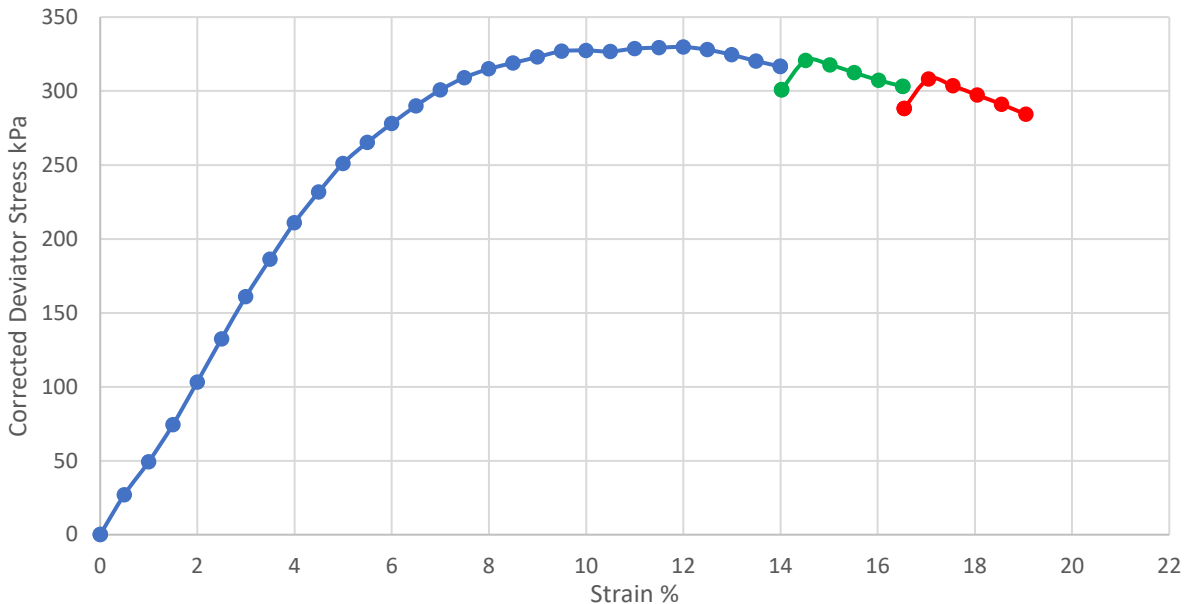
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	CP101 9.7-10.15 U	DATE SAMPLED	Not advised
LAB SAMPLE No.	126969	DATE RECEIVED	16-Jun-23
DATE TESTED	24-Jul-23	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

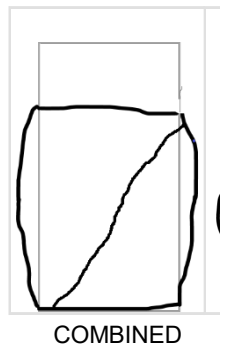
Specimen Location	Sample Length (mm)	450	Specimen depth from top of Sample (mm)	90
	Sample Orientation	Vertical	Specimen Condition	Undisturbed
	Specimen Length (mm)	203	Specimen Moisture Content (%)	17.4
	Specimen Diameter (mm)	101	Specimen Bulk Density (Mg/m ³)	2.17
	Membrane Thickness (mm)	0.40	Specimen Dry Density (Mg/m ³)	1.85
	Membrane Correction	1.15	1.30	1.49

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
MULTI STAGE

SKETCH OF
SPECIMEN AT
FAILURE



Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
95	12	2	329.8	165
195	15	2	320.7	160
390	17	2	308.2	154

Remarks/Abnormalities

Name O.P Davies BA (Hons)
(Laboratory Manager)

Signed

Date 16 August 2023

MURRAY RIX

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TEL 0161 475 0870



TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS 1377 : PART 7: Clause 9 Multi Stage

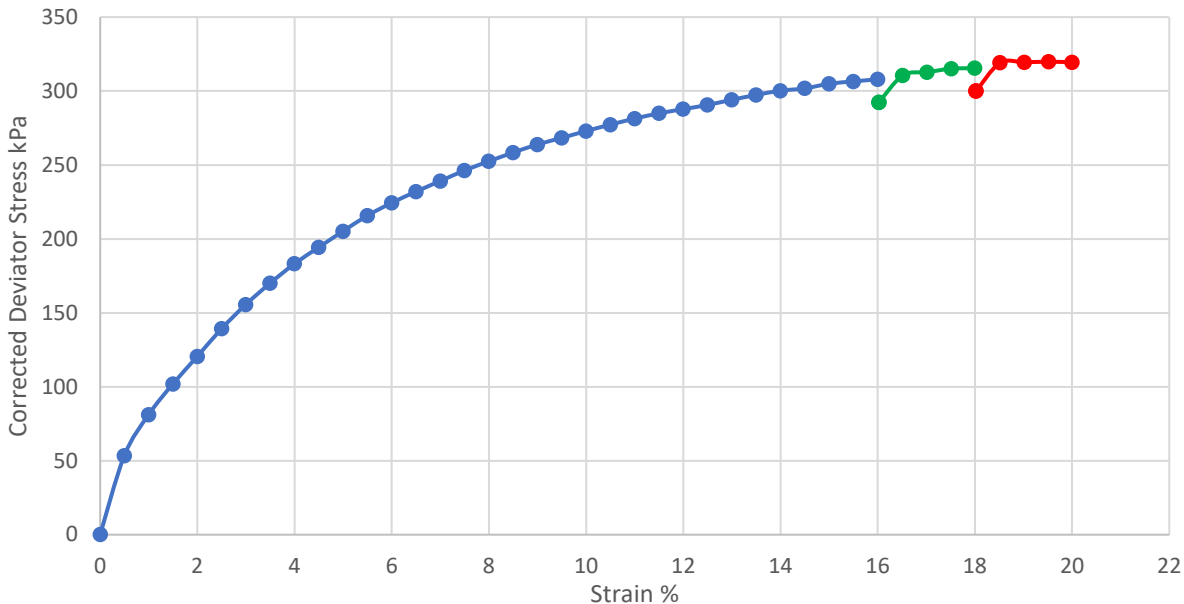
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	CP102 3.3-3.75 U	DATE SAMPLED	Not advised
LAB SAMPLE No.	126971	DATE RECEIVED	16-Jun-23
DATE TESTED	31-Jul-23	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

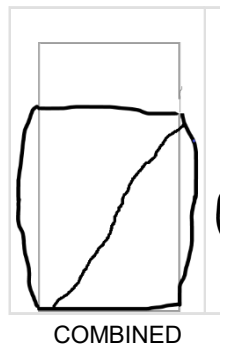
Specimen Location	Sample Length (mm)	390	Specimen depth from top of Sample (mm)	60
	Sample Orientation	Vertical	Specimen Condition	Undisturbed
	Specimen Length (mm)	201	Specimen Moisture Content (%)	22.7
	Specimen Diameter (mm)	99	Specimen Bulk Density (Mg/m ³)	1.91
	Membrane Thickness (mm)	0.40	Specimen Dry Density (Mg/m ³)	1.56
	Membrane Correction	1.29	1.41	1.53

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
MULTI STAGE

SKETCH OF
SPECIMEN AT
FAILURE



Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
35	16	2	306.5	153
70	18	2	315.1	158
140	20	2	319.8	160

Remarks/Abnormalities

Name O.P Davies BA (Hons)
(Laboratory Manager)

Signed

Date 16 August 2023

MURRAY RIX

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TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS 1377 : PART 7: Clause 9 Multi Stage

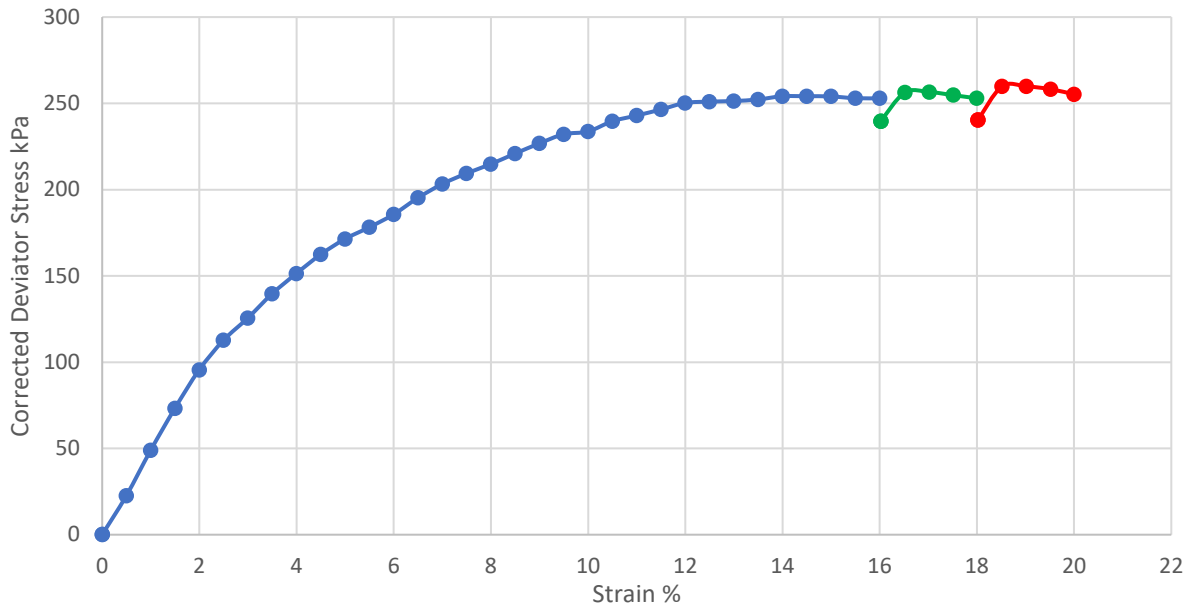
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	CP102 8.3-8.75 U	DATE SAMPLED	Not advised
LAB SAMPLE No.	126974	DATE RECEIVED	16-Jun-23
DATE TESTED	25-Jul-23	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

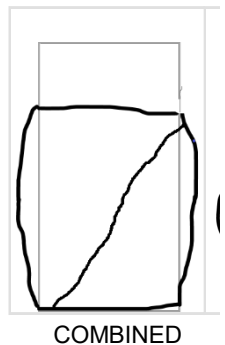
Specimen Location	Sample Length (mm)	410	Specimen depth from top of Sample (mm)	50
	Sample Orientation	Vertical	Specimen Condition	Undisturbed
	Specimen Length (mm)	200	Specimen Moisture Content (%)	17.7
	Specimen Diameter (mm)	99	Specimen Bulk Density (Mg/m3)	2.06
	Membrane Thickness (mm)	0.40	Specimen Dry Density (Mg/m3)	1.75
	Membrane Correction	1.29	1.40	1.52

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
MULTI STAGE

SKETCH OF SPECIMEN AT FAILURE



Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
80	15	2	254.1	127
165	17	2	256.6	128
330	19	2	259.9	130

Remarks/Abnormalities

Name O.P Davies BA (Hons)
(Laboratory Manager)

Signed

Date 16 August 2023

MURRAY RIX

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TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS 1377 : PART 7: Clause 9 Multi Stage

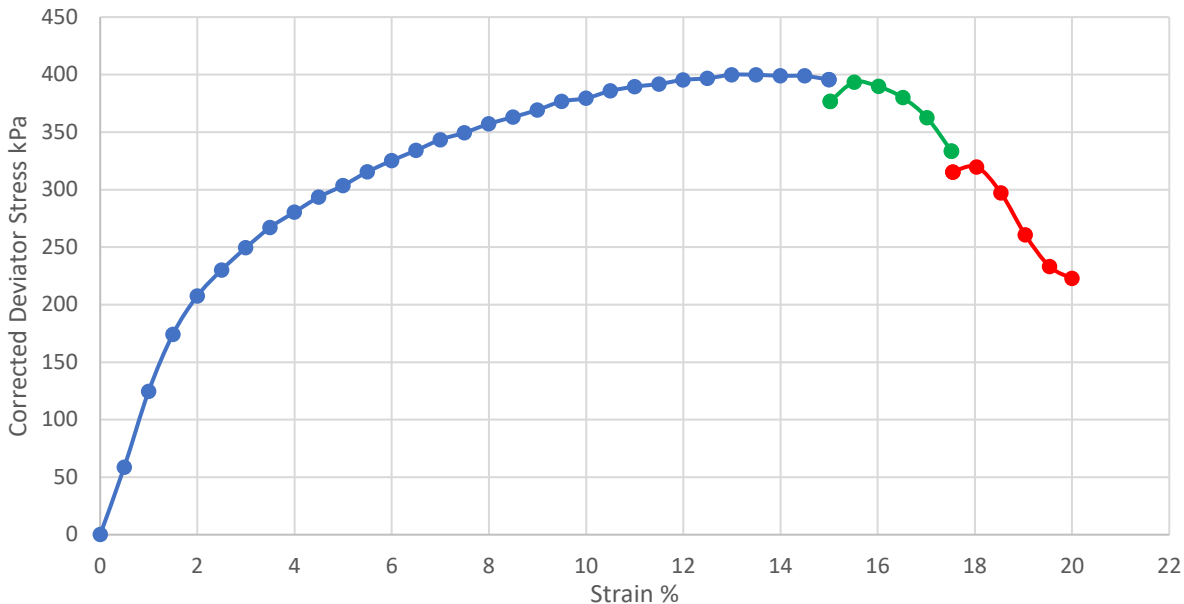
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	CP103 2.3-2.75 U	DATE SAMPLED	Not advised
LAB SAMPLE No.	126975	DATE RECEIVED	16-Jun-23
DATE TESTED	25-Jul-23	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

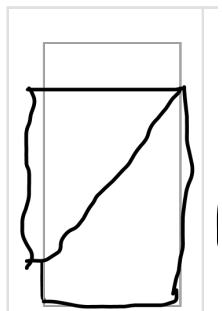
Specimen Location	Sample Length (mm)	450	Specimen depth from top of Sample (mm)	120
	Sample Orientation	Vertical	Specimen Condition	Undisturbed
	Specimen Length (mm)	200	Specimen Moisture Content (%)	17.8
	Specimen Diameter (mm)	101	Specimen Bulk Density (Mg/m ³)	1.82
	Membrane Thickness (mm)	0.40	Specimen Dry Density (Mg/m ³)	1.54
	Membrane Correction	1.21	1.35	1.49

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
MULTI STAGE

SKETCH OF
SPECIMEN AT
FAILURE



SIMPLE_SHEAR

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
25	13	2	399.9	200
50	16	2	393.4	197
100	18	2	319.7	160

Remarks/Abnormalities

Name O.P Davies BA (Hons)
(Laboratory Manager)

Signed

Date 16 August 2023

MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS 1377 : PART 7: Clause 9 Multi Stage

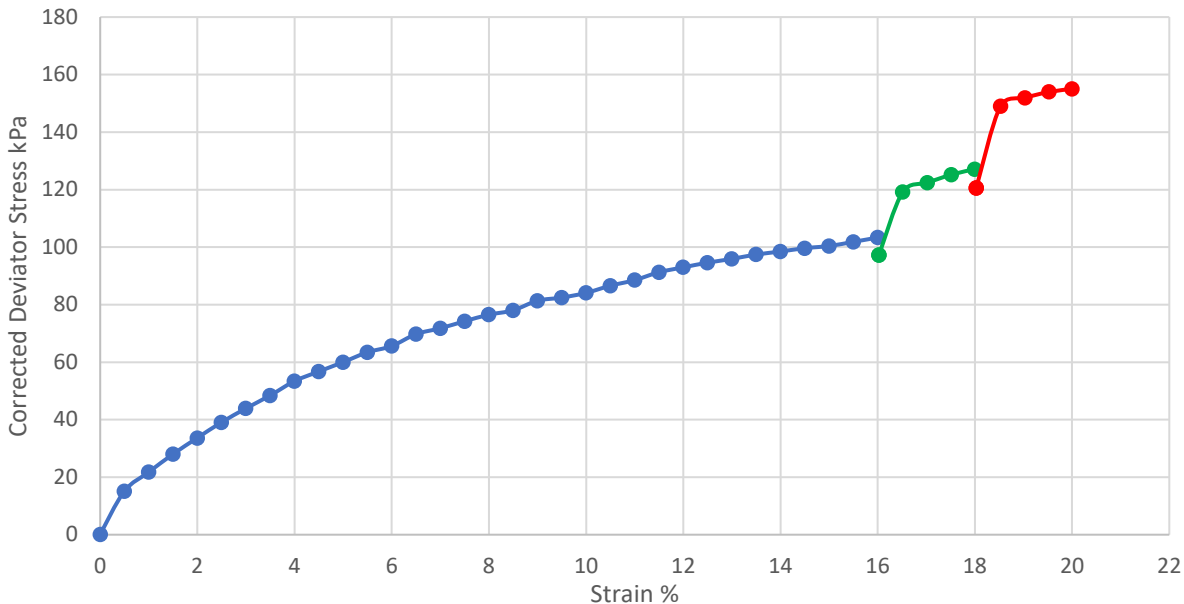
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	CP103 13.1-13.55 U	DATE SAMPLED	Not advised
LAB SAMPLE No.	126977	DATE RECEIVED	16-Jun-23
DATE TESTED	25-Jul-23	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

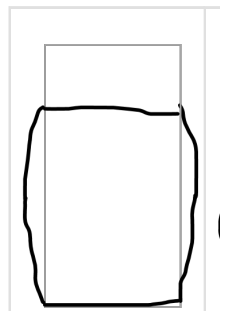
Specimen Location	Sample Length (mm)	370	Specimen depth from top of Sample (mm)	90
	Sample Orientation	Vertical	Specimen Condition	Undisturbed
	Specimen Length (mm)	200	Specimen Moisture Content (%)	18.1
	Specimen Diameter (mm)	100	Specimen Bulk Density (Mg/m ³)	2.21
	Membrane Thickness (mm)	0.40	Specimen Dry Density (Mg/m ³)	1.87
	Membrane Correction	1.28	1.39	1.51

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
MULTI STAGE

SKETCH OF
SPECIMEN AT
FAILURE



PLASTIC

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
130	16	2	101.8	51
265	18	2	125.2	63
530	20	2	154.0	77

Remarks/Abnormalities

Name O.P Davies BA (Hons)
(Laboratory Manager)

Signed

Date 16 August 2023

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS 1377 : PART 7: Clause 9 Multi Stage

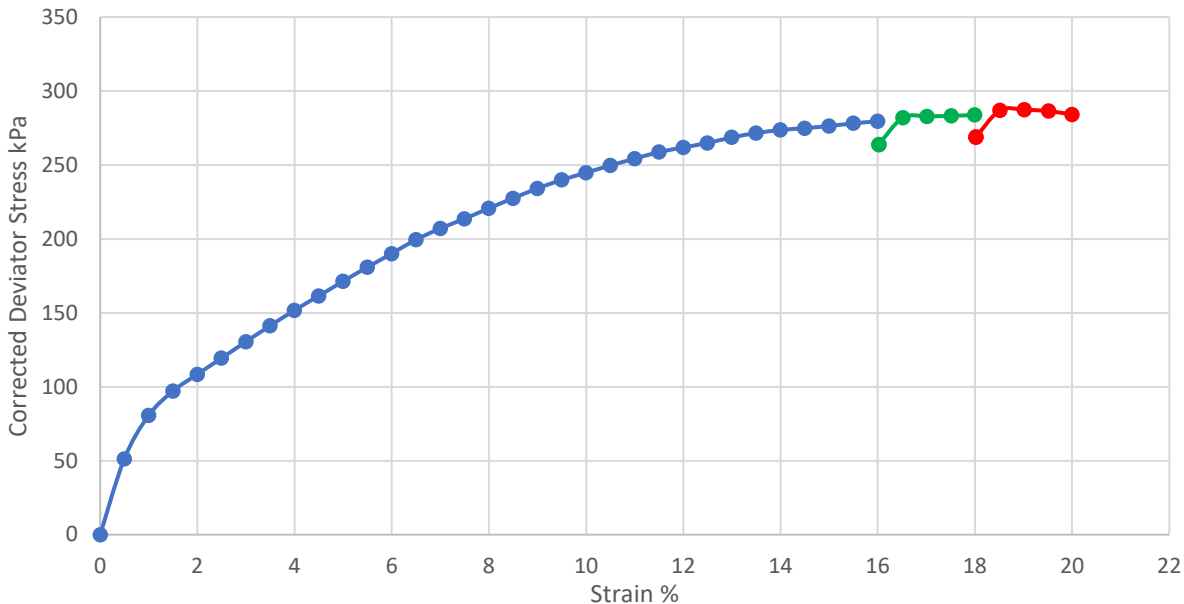
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	CP104 4.4-4.85 U	DATE SAMPLED	Not advised
LAB SAMPLE No.	127554	DATE RECEIVED	27-Jun-23
DATE TESTED	25-Jul-23	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

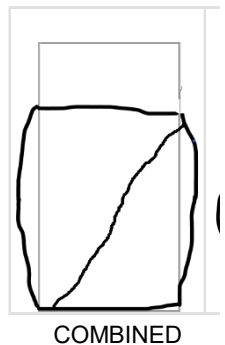
Specimen Location	Sample Length (mm)	360	Specimen depth from top of Sample (mm)	100
	Sample Orientation	Vertical	Specimen Condition	Undisturbed
	Specimen Length (mm)	200	Specimen Moisture Content (%)	16.6
	Specimen Diameter (mm)	100	Specimen Bulk Density (Mg/m ³)	2.20
	Membrane Thickness (mm)	0.40	Specimen Dry Density (Mg/m ³)	1.89
	Membrane Correction	1.28	1.39	1.51

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
MULTI STAGE

SKETCH OF
SPECIMEN AT
FAILURE



Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength c_u (kPa)
45	16	2	278.1	139
90	18	2	283.1	142
180	19	2	287.3	144

Remarks/Abnormalities

Name O.P Davies BA (Hons)
(Laboratory Manager)

Signed

Date 16 August 2023

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS 1377 : PART 7: Clause 9 Multi Stage

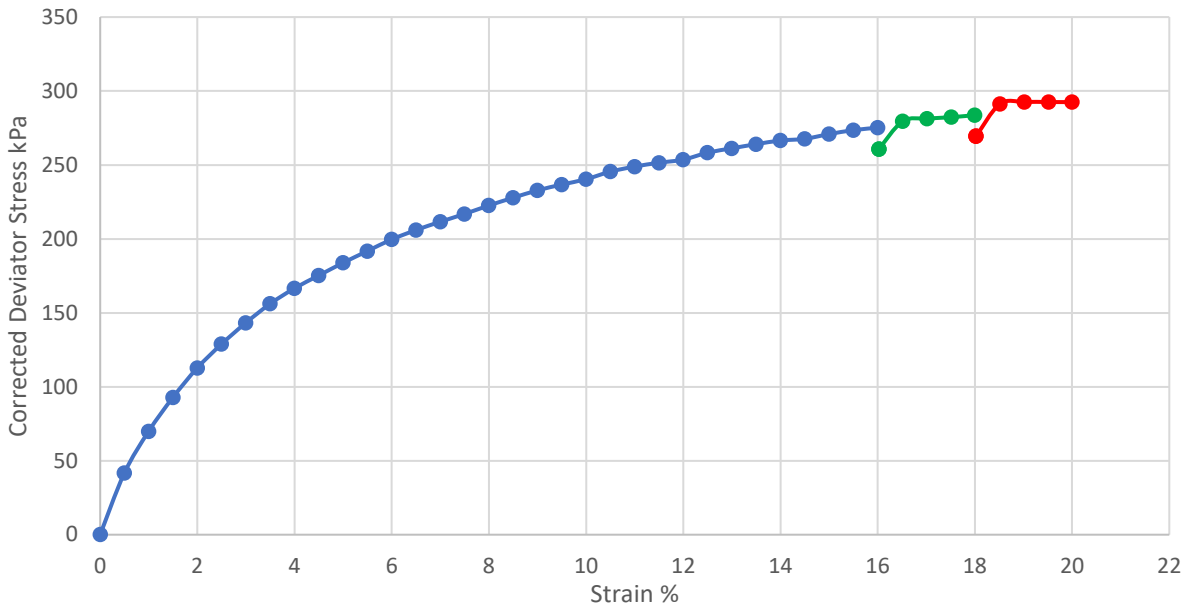
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	CP104 7.1-7.55 U	DATE SAMPLED	Not advised
LAB SAMPLE No.	127555	DATE RECEIVED	27-Jun-23
DATE TESTED	25-Jul-23	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

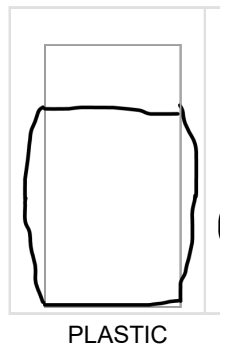
Specimen Location	Sample Length (mm)	400	Specimen depth from top of Sample (mm)	110
	Sample Orientation	Vertical	Specimen Condition	Undisturbed
	Specimen Length (mm)	200	Specimen Moisture Content (%)	17.9
	Specimen Diameter (mm)	101	Specimen Bulk Density (Mg/m ³)	2.16
	Membrane Thickness (mm)	0.40	Specimen Dry Density (Mg/m ³)	1.83
	Membrane Correction	1.27	1.38	1.50

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
MULTI STAGE

SKETCH OF
SPECIMEN AT
FAILURE



Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength C_u (kPa)
70	16	2	273.5	137
145	18	2	282.3	141
290	19	2	292.6	146

Remarks/Abnormalities

Name O.P Davies BA (Hons)
(Laboratory Manager)

Signed

Date 16 August 2023

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
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TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS 1377 : PART 7: Clause 9 Multi Stage

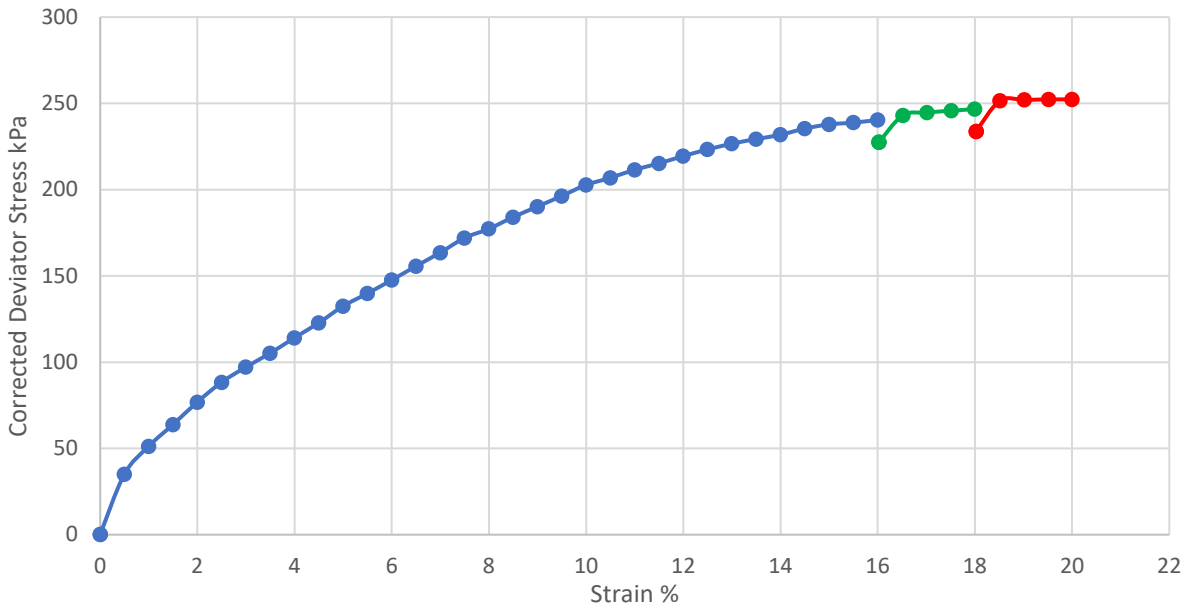
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	CP105 4.3-4.75 U	DATE SAMPLED	Not advised
LAB SAMPLE No.	127558	DATE RECEIVED	27-Jun-23
DATE TESTED	26-Jul-23	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

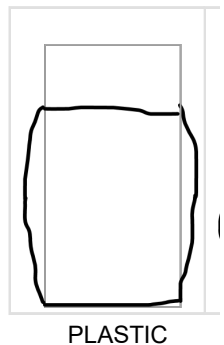
Specimen Location	Sample Length (mm)	450	Specimen depth from top of Sample (mm)	160
	Sample Orientation	Vertical	Specimen Condition	Undisturbed
	Specimen Length (mm)	199	Specimen Moisture Content (%)	24.2
	Specimen Diameter (mm)	101	Specimen Bulk Density (Mg/m ³)	2.11
	Membrane Thickness (mm)	0.40	Specimen Dry Density (Mg/m ³)	1.70
	Membrane Correction	1.27	1.39	1.50

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
MULTI STAGE

SKETCH OF
SPECIMEN AT
FAILURE



Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength C_u (kPa)
45	16	2	238.8	119
90	18	2	245.7	123
180	20	2	252.3	126

Remarks/Abnormalities

Name O.P Davies BA (Hons)
(Laboratory Manager)

Signed

Date 16 August 2023

MURRAY RIX

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TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS 1377 : PART 7: Clause 9 Multi Stage

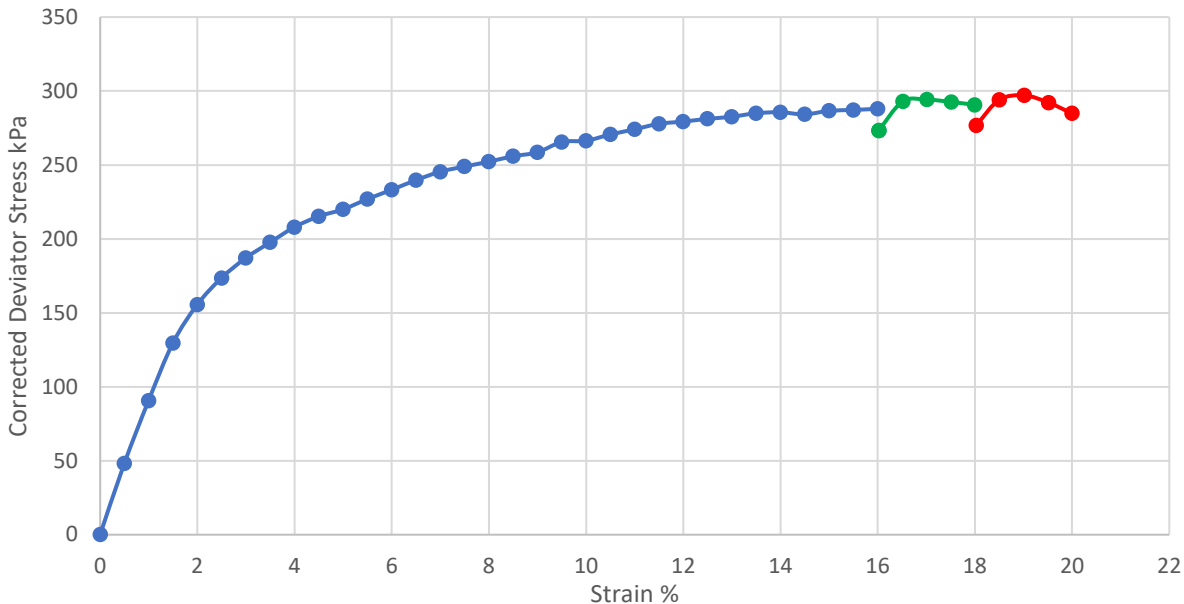
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	CP105 9.60-10.05 U	DATE SAMPLED	Not advised
LAB SAMPLE No.	127560	DATE RECEIVED	27-Jun-23
DATE TESTED	26-Jul-23	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

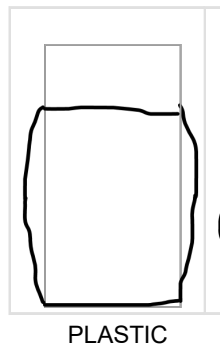
Specimen Location	Sample Length (mm)	70	Specimen depth from top of Sample (mm)	80
	Sample Orientation	Vertical	Specimen Condition	Undisturbed
	Specimen Length (mm)	199	Specimen Moisture Content (%)	25.1
	Specimen Diameter (mm)	100	Specimen Bulk Density (Mg/m ³)	2.15
	Membrane Thickness (mm)	0.40	Specimen Dry Density (Mg/m ³)	1.72
	Membrane Correction	1.28	1.39	1.51

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
MULTI STAGE

SKETCH OF
SPECIMEN AT
FAILURE



Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
95	16	2	287.2	144
195	17	2	294.2	147
390	19	2	297.0	149

Remarks/Abnormalities

Name O.P Davies BA (Hons)
(Laboratory Manager)

Signed

Date 16 August 2023

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TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS 1377 : PART 7: Clause 9 Multi Stage

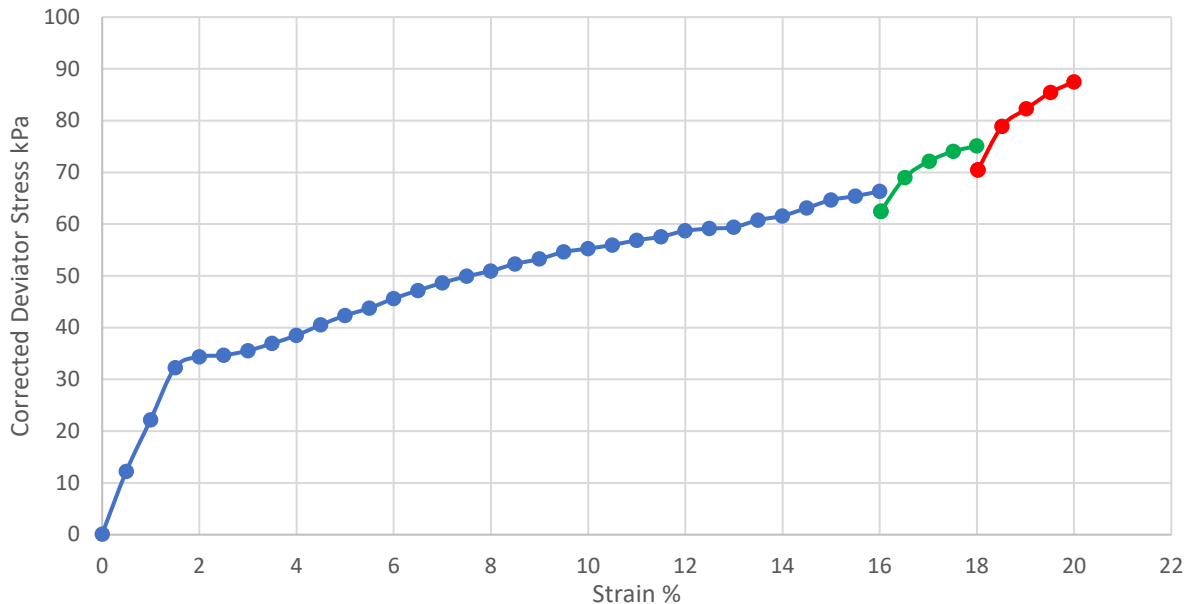
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	CP106 1.2-1.65 U	DATE SAMPLED	Not advised
LAB SAMPLE No.	127561	DATE RECEIVED	27-Jun-23
DATE TESTED	26-Jul-23	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

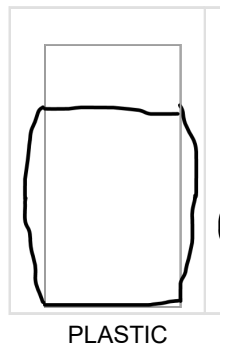
Specimen Location	Sample Length (mm)	450	Specimen depth from top of Sample (mm)	10
	Sample Orientation	Vertical	Specimen Condition	Undisturbed
	Specimen Length (mm)	183	Specimen Moisture Content (%)	23.9
	Specimen Diameter (mm)	100	Specimen Bulk Density (Mg/m ³)	1.91
	Membrane Thickness (mm)	0.40	Specimen Dry Density (Mg/m ³)	1.54
	Membrane Correction	1.28	1.39	1.51

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
MULTI STAGE

SKETCH OF SPECIMEN AT FAILURE



Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
15	16	2	65.4	33
25	18	2	74.1	37
50	20	2	85.4	43

Remarks/Abnormalities

Name O.P Davies BA (Hons)
(Laboratory Manager)

Signed

Date 16 August 2023

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TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS 1377 : PART 7: Clause 9 Multi Stage

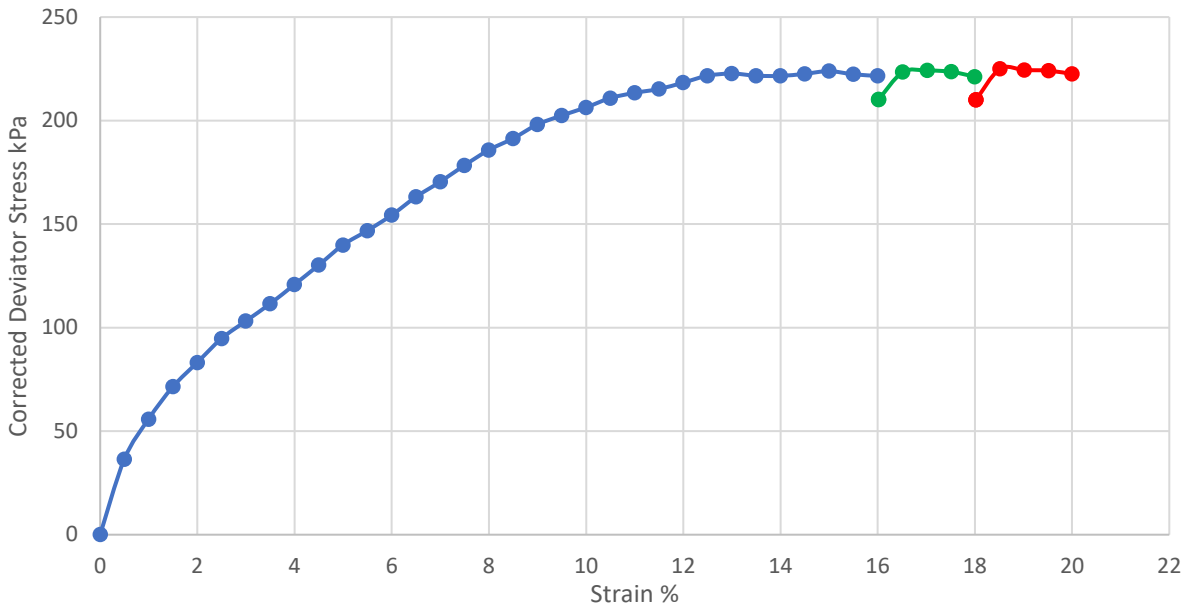
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	CP106 5.3-5.75 U	DATE SAMPLED	Not advised
LAB SAMPLE No.	127563	DATE RECEIVED	27-Jun-23
DATE TESTED	26-Jul-23	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

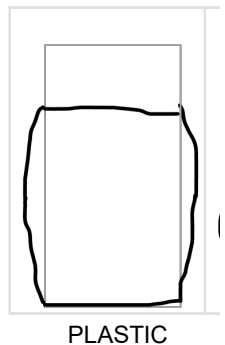
Specimen Location	Sample Length (mm)	300	Specimen depth from top of Sample (mm)	100
	Sample Orientation	Vertical	Specimen Condition	Undisturbed
	Specimen Length (mm)	200	Specimen Moisture Content (%)	24.8
	Specimen Diameter (mm)	98	Specimen Bulk Density (Mg/m3)	2.21
	Membrane Thickness (mm)	0.40	Specimen Dry Density (Mg/m3)	1.77
	Membrane Correction	1.31	1.43	1.55

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
MULTI STAGE

SKETCH OF SPECIMEN AT FAILURE



PLASTIC

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
55	15	2	223.9	112
110	17	2	224.2	112
220	19	2	225.0	113

Remarks/Abnormalities

Name O.P Davies BA (Hons)
(Laboratory Manager)

Signed

Date 16 August 2023

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS 1377 : PART 7: Clause 9 Multi Stage

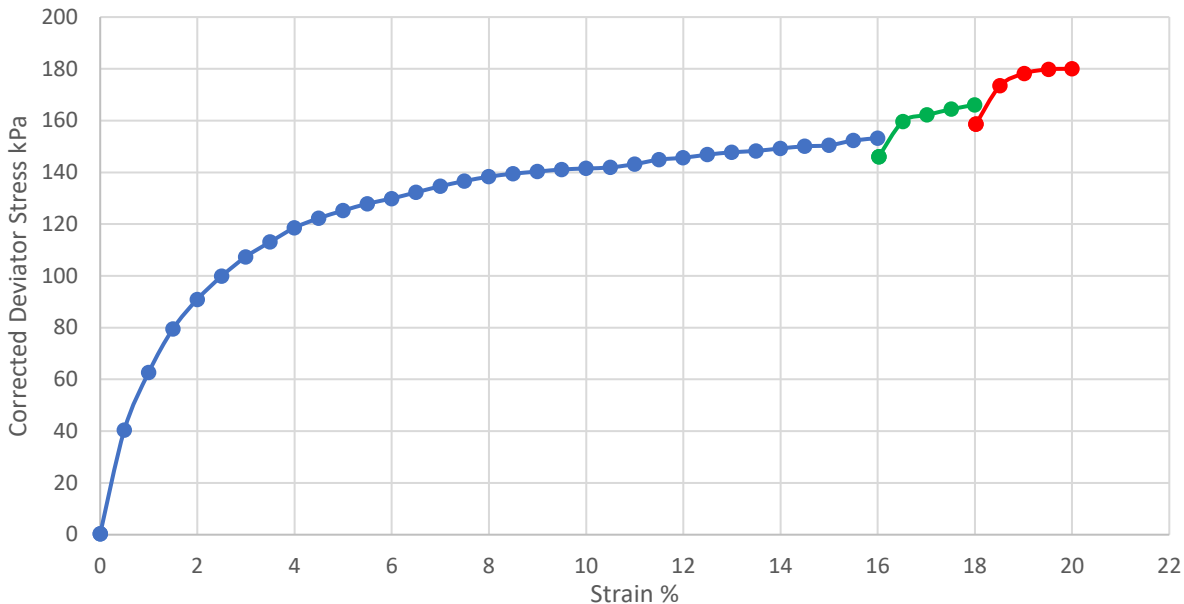
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	CP107 2.2-2.65 U	DATE SAMPLED	Not advised
LAB SAMPLE No.	127565	DATE RECEIVED	27-Jun-23
DATE TESTED	26-Jul-23	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

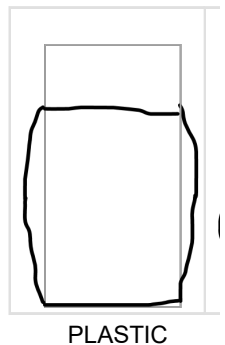
Specimen Location	Sample Length (mm)	450	Specimen depth from top of Sample (mm)	10
	Sample Orientation	Vertical	Specimen Condition	Undisturbed
	Specimen Length (mm)	196	Specimen Moisture Content (%)	23.9
	Specimen Diameter (mm)	102	Specimen Bulk Density (Mg/m ³)	1.96
	Membrane Thickness (mm)	0.40	Specimen Dry Density (Mg/m ³)	1.58
	Membrane Correction	1.26	1.37	1.49

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
MULTI STAGE

SKETCH OF
SPECIMEN AT
FAILURE



PLASTIC

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
20	16	2	152.3	76
45	18	2	164.4	82
90	20	2	179.8	90

Remarks/Abnormalities

Name O.P Davies BA (Hons)
(Laboratory Manager)

Signed

Date 16 August 2023

MURRAY RIX

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TEL 0161 475 0870



TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS 1377 : PART 7: Clause 9 Multi Stage

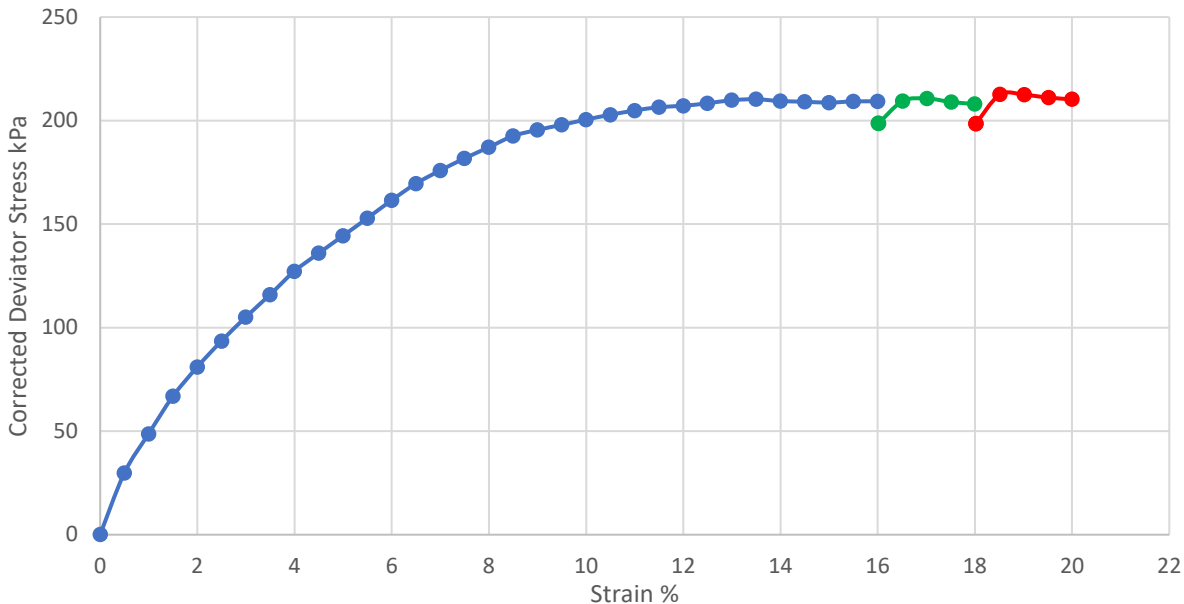
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	CP107 6.5-6.95 U	DATE SAMPLED	Not advised
LAB SAMPLE No.	127567	DATE RECEIVED	27-Jun-23
DATE TESTED	26-Jul-23	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

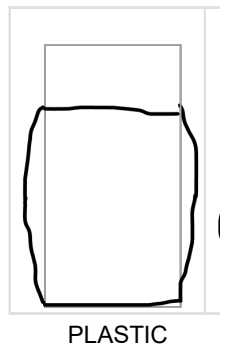
Specimen Location	Sample Length (mm)	400	Specimen depth from top of Sample (mm)	30
	Sample Orientation	Vertical	Specimen Condition	Undisturbed
	Specimen Length (mm)	200	Specimen Moisture Content (%)	24.0
	Specimen Diameter (mm)	100	Specimen Bulk Density (Mg/m ³)	2.10
	Membrane Thickness (mm)	0.40	Specimen Dry Density (Mg/m ³)	1.69
	Membrane Correction	1.25	1.40	1.52

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
MULTI STAGE

SKETCH OF
SPECIMEN AT
FAILURE



PLASTIC

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
65	14	2	210.3	105
130	17	2	210.7	105
260	19	2	212.6	106

Remarks/Abnormalities

Name O.P Davies BA (Hons)
(Laboratory Manager)

Signed

Date 16 August 2023

MURRAY RIX

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TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS 1377 : PART 7: Clause 9 Multi Stage

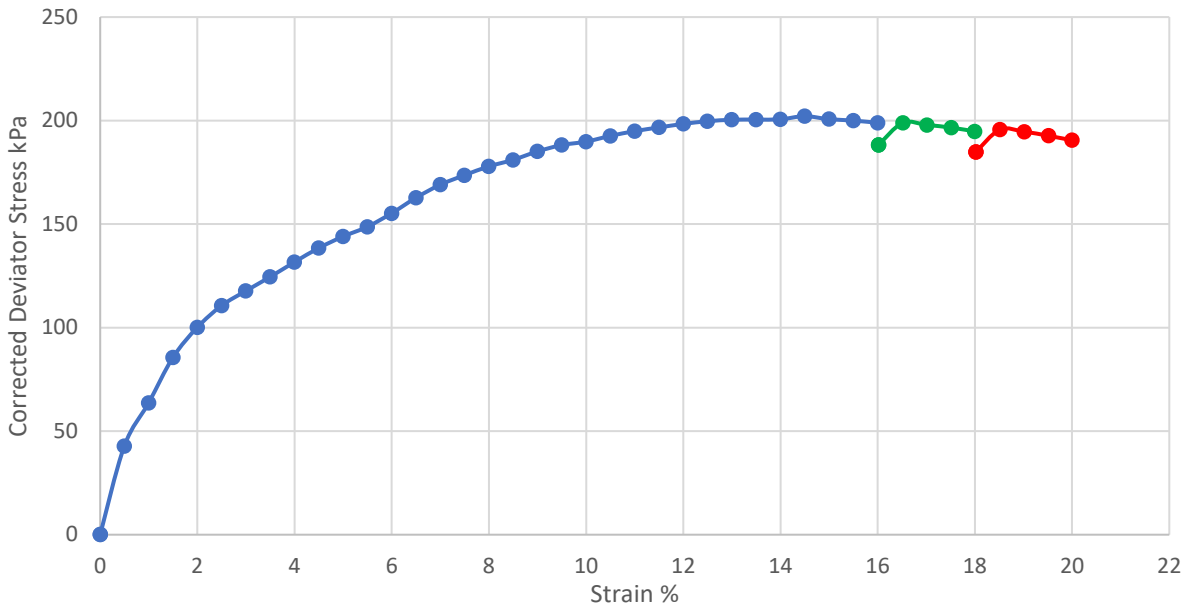
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	CP108 4.5-4.95 U	DATE SAMPLED	Not advised
LAB SAMPLE No.	127571	DATE RECEIVED	27-Jun-23
DATE TESTED	25-Jul-23	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

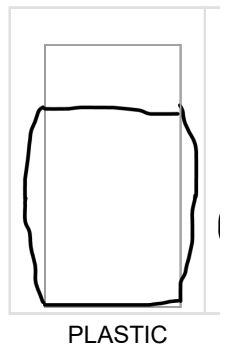
Specimen Location	Sample Length (mm)	350	Specimen depth from top of Sample (mm)	40
	Sample Orientation	Vertical	Specimen Condition	Undisturbed
	Specimen Length (mm)	200	Specimen Moisture Content (%)	20.7
	Specimen Diameter (mm)	100	Specimen Bulk Density (Mg/m ³)	2.01
	Membrane Thickness (mm)	0.40	Specimen Dry Density (Mg/m ³)	1.67
	Membrane Correction	1.29	1.40	1.52

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
MULTI STAGE

SKETCH OF
SPECIMEN AT
FAILURE



Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength C_u (kPa)
45	15	2	202.1	101
90	17	2	199.0	99
180	19	2	195.7	98

Remarks/Abnormalities

Name O.P Davies BA (Hons)
(Laboratory Manager)

Signed

Date 16 August 2023

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TEL 0161 475 0870



TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS 1377 : PART 7: Clause 9 Multi Stage

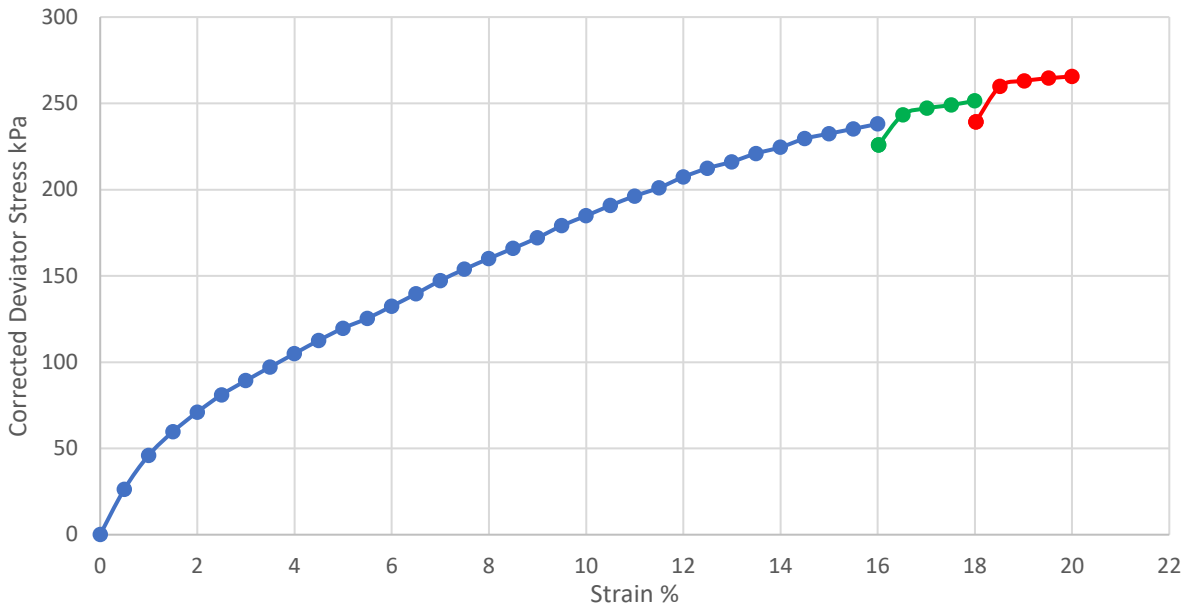
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	CP108 6.9-7.35 U	DATE SAMPLED	Not advised
LAB SAMPLE No.	127572	DATE RECEIVED	27-Jun-23
DATE TESTED	31-Jul-23	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

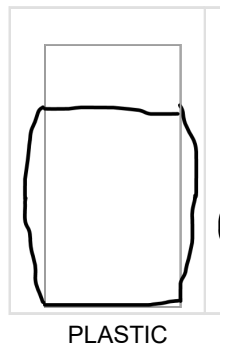
Specimen Location	Sample Length (mm)	385	Specimen depth from top of Sample (mm)	90
	Sample Orientation	Vertical	Specimen Condition	Undisturbed
	Specimen Length (mm)	202	Specimen Moisture Content (%)	19.3
	Specimen Diameter (mm)	101	Specimen Bulk Density (Mg/m ³)	2.11
	Membrane Thickness (mm)	0.40	Specimen Dry Density (Mg/m ³)	1.77
	Membrane Correction	1.27	1.38	1.50

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
MULTI STAGE

SKETCH OF
SPECIMEN AT
FAILURE



PLASTIC

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength C_u (kPa)
70	16	2	235.2	118
140	18	2	249.0	125
280	20	2	264.6	132

Remarks/Abnormalities

Name O.P Davies BA (Hons)
(Laboratory Manager)

Signed

Date 16 August 2023

MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS 1377 : PART 7: Clause 9 Multi Stage

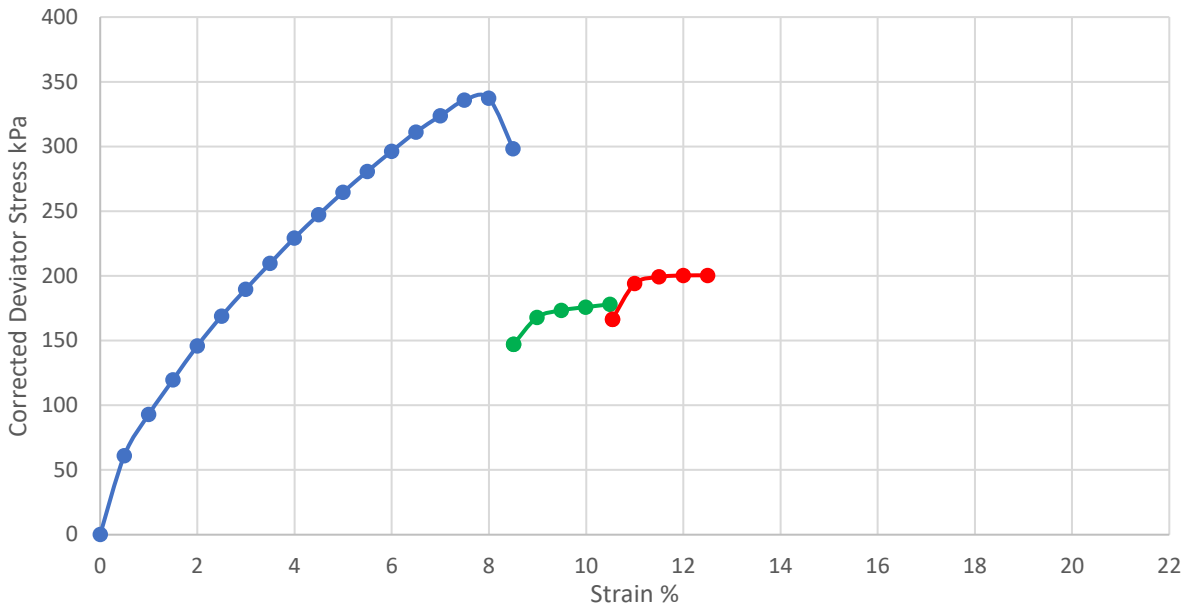
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	CP109 2.2-2.65 U	DATE SAMPLED	Not advised
LAB SAMPLE No.	127573	DATE RECEIVED	27-Jun-23
DATE TESTED	31-Jul-23	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

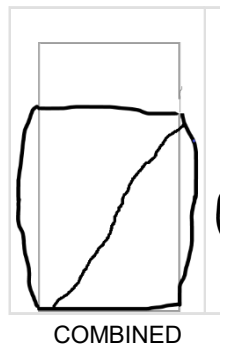
Specimen Location	Sample Length (mm)	410	Specimen depth from top of Sample (mm)	90
	Sample Orientation	Vertical	Specimen Condition	Undisturbed
	Specimen Length (mm)	199	Specimen Moisture Content (%)	19.3
	Specimen Diameter (mm)	101	Specimen Bulk Density (Mg/m3)	2.17
	Membrane Thickness (mm)	0.40	Specimen Dry Density (Mg/m3)	1.82
	Membrane Correction	0.90	1.19	1.50

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
MULTI STAGE

SKETCH OF
SPECIMEN AT
FAILURE



COMBINED

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
20	8	2	337.2	169
45	11	2	178.0	89
90	13	2	200.4	100

Remarks/Abnormalities

Name O.P Davies BA (Hons)
(Laboratory Manager)

Signed

Date 16 August 2023

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS 1377 : PART 7: Clause 9 Multi Stage

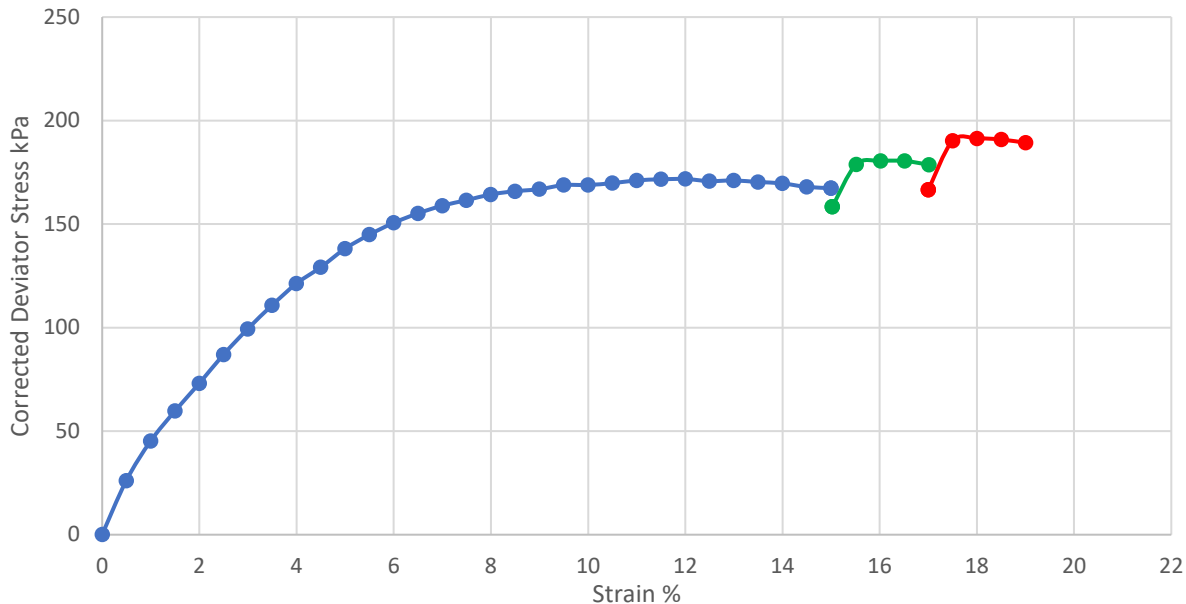
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	CP109 9.6-10.05 U	DATE SAMPLED	Not advised
LAB SAMPLE No.	127576	DATE RECEIVED	27-Jun-23
DATE TESTED	31-Jul-23	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

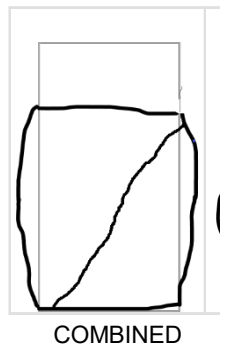
Specimen Location	Sample Length (mm)	285	Specimen depth from top of Sample (mm)	80
	Sample Orientation	Vertical	Specimen Condition	Undisturbed
	Specimen Length (mm)	200	Specimen Moisture Content (%)	17.2
	Specimen Diameter (mm)	100	Specimen Bulk Density (Mg/m ³)	2.25
	Membrane Thickness (mm)	0.40	Specimen Dry Density (Mg/m ³)	1.92
	Membrane Correction	1.23	1.40	1.52

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
MULTI STAGE

SKETCH OF
SPECIMEN AT
FAILURE



Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
95	12	2	171.8	86
190	16	2	180.5	90
380	18	2	191.4	96

Remarks/Abnormalities

Name O.P Davies BA (Hons)
(Laboratory Manager)

Signed

Date 16 August 2023

MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX
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TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS 1377 : PART 7: Clause 9 Multi Stage

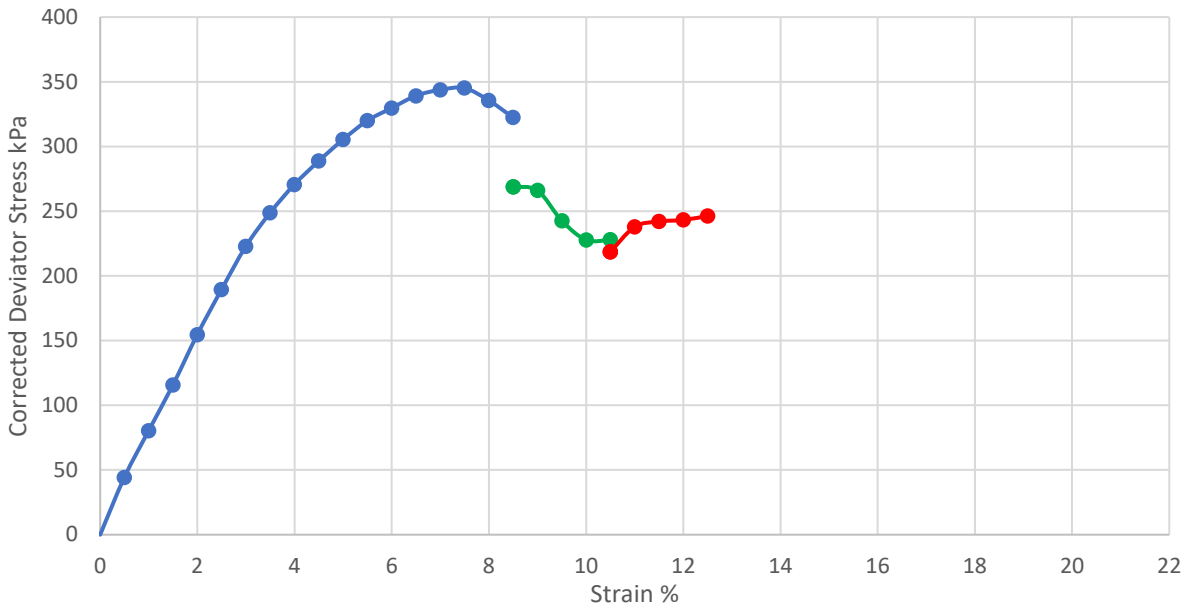
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	CP110 1.2-1.65 U	DATE SAMPLED	Not advised
LAB SAMPLE No.	127577	DATE RECEIVED	27-Jun-23
DATE TESTED	31-Jul-23	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

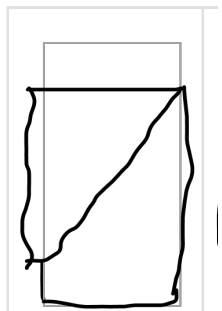
Specimen Location	Sample Length (mm)	450	Specimen depth from top of Sample (mm)	80
	Sample Orientation	Vertical	Specimen Condition	Undisturbed
	Specimen Length (mm)	200	Specimen Moisture Content (%)	19.7
	Specimen Diameter (mm)	99	Specimen Bulk Density (Mg/m ³)	2.22
	Membrane Thickness (mm)	0.40	Specimen Dry Density (Mg/m ³)	1.85
	Membrane Correction	0.88	0.99	1.53

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
MULTI STAGE

SKETCH OF
SPECIMEN AT
FAILURE



SIMPLE_SHEAR

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
10	8	2	345.1	173
25	9	2	268.8	134
50	13	2	256.6	128

Remarks/Abnormalities

Name O.P Davies BA (Hons)
(Laboratory Manager)

Signed

Date 16 August 2023

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
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TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS 1377 : PART 7: Clause 9 Multi Stage

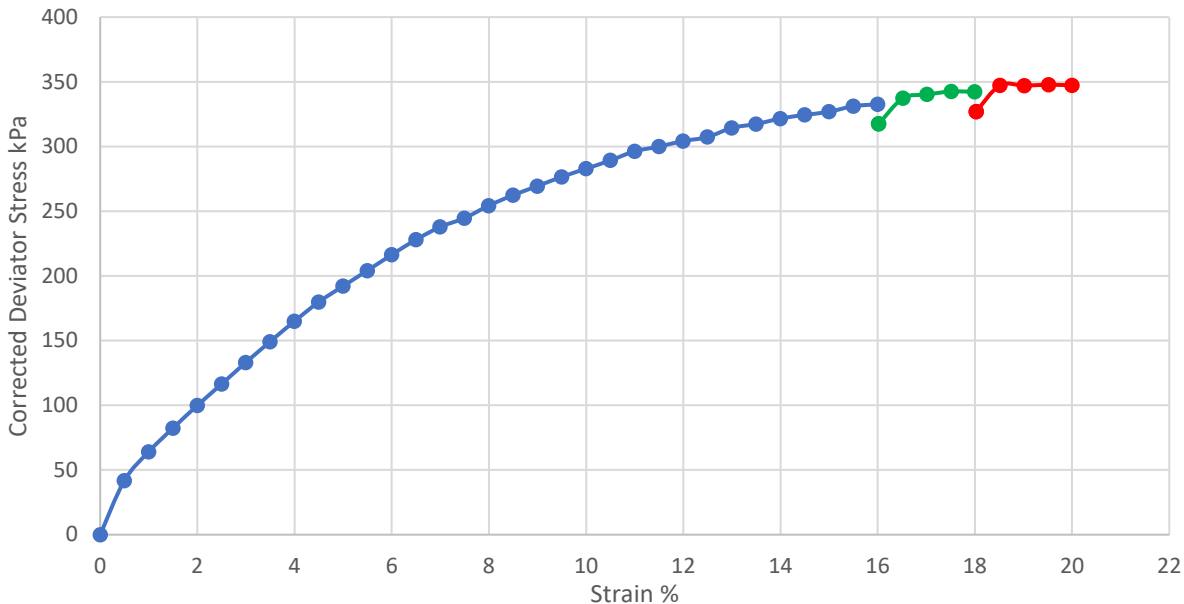
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	CP110 5.6-6.05 U	DATE SAMPLED	Not advised
LAB SAMPLE No.	127579	DATE RECEIVED	27-Jun-23
DATE TESTED	13-Jul-23	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

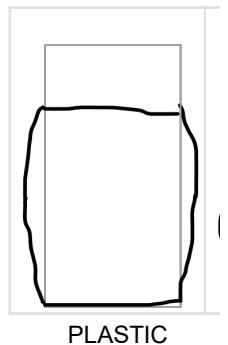
Specimen Location	Sample Length (mm)	450	Specimen depth from top of Sample (mm)	60
	Sample Orientation	Vertical	Specimen Condition	Undisturbed
	Specimen Length (mm)	202	Specimen Moisture Content (%)	15.6
	Specimen Diameter (mm)	102	Specimen Bulk Density (Mg/m ³)	2.17
	Membrane Thickness (mm)	0.40	Specimen Dry Density (Mg/m ³)	1.88
	Membrane Correction	1.26	1.37	1.49

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
MULTI STAGE

SKETCH OF
SPECIMEN AT
FAILURE



Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
55	16	2	331.1	166
110	18	2	342.5	171
220	20	2	347.7	174

Remarks/Abnormalities

Name O.P Davies BA (Hons)
(Laboratory Manager)

Signed

Date 16 August 2023

MURRAY RIX

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TEL 0161 475 0870



TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS 1377 : PART 7: Clause 9 Multi Stage

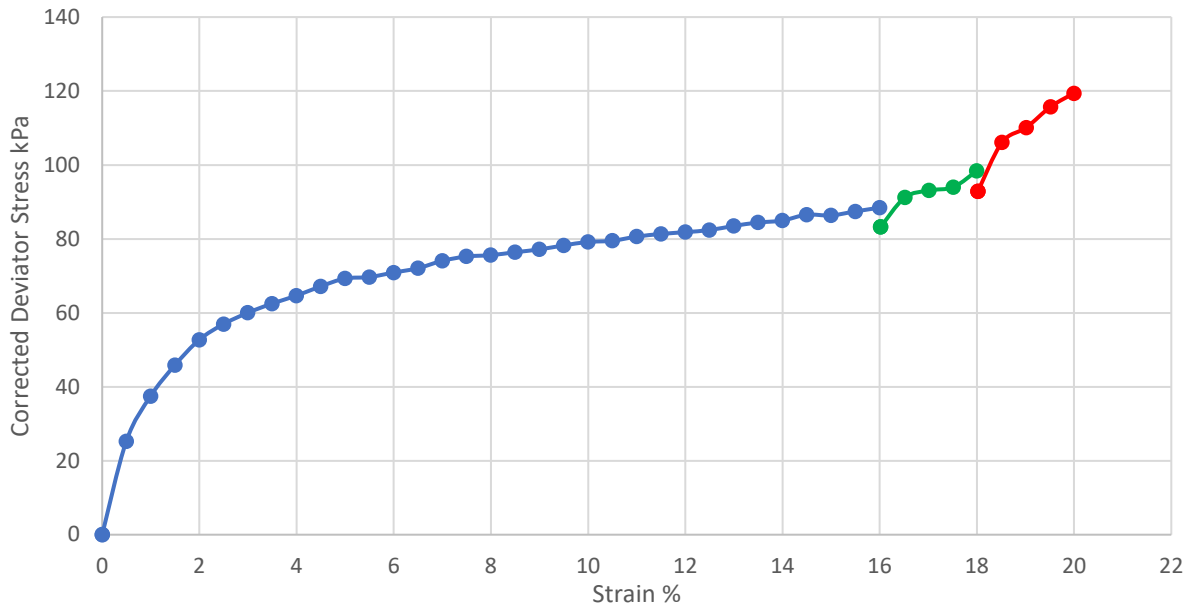
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	CP111 3.40 U	DATE SAMPLED	Not advised
LAB SAMPLE No.	127584	DATE RECEIVED	27-Jun-23
DATE TESTED	13-Jul-23	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

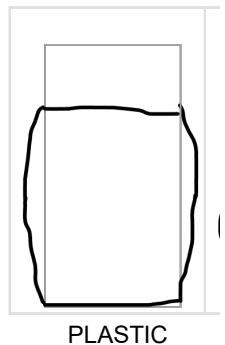
Specimen Location	Sample Length (mm)	450	Specimen depth from top of Sample (mm)	135
	Sample Orientation	Vertical	Specimen Condition	Undisturbed
	Specimen Length (mm)	203	Specimen Moisture Content (%)	20.7
	Specimen Diameter (mm)	102	Specimen Bulk Density (Mg/m ³)	2.04
	Membrane Thickness (mm)	0.40	Specimen Dry Density (Mg/m ³)	1.69
	Membrane Correction	1.26	1.37	1.48

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
MULTI STAGE

SKETCH OF SPECIMEN AT FAILURE



Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
35	16	2	87.4	44
70	18	2	94.0	47
140	20	2	115.7	58

Remarks/Abnormalities

Name O.P Davies BA (Hons)
(Laboratory Manager)

Signed

Date 16 August 2023

MURRAY RIX

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TEL 0161 475 0870



TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS 1377 : PART 7: Clause 9 Multi Stage

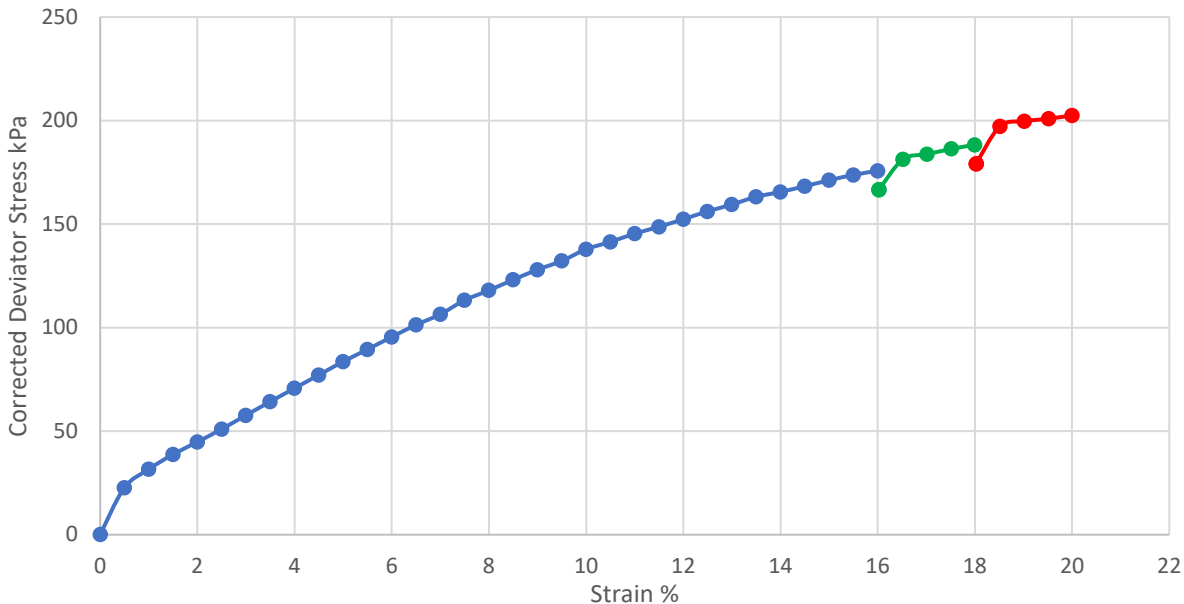
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	CP111 8.50 U	DATE SAMPLED	Not advised
LAB SAMPLE No.	127586	DATE RECEIVED	27-Jun-23
DATE TESTED	13-Jul-23	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

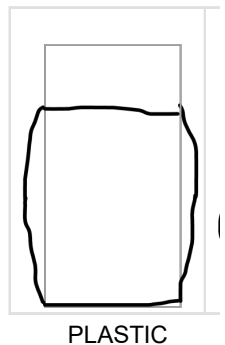
Specimen Location	Sample Length (mm)	290	Specimen depth from top of Sample (mm)	70
	Sample Orientation	Vertical	Specimen Condition	Undisturbed
	Specimen Length (mm)	202	Specimen Moisture Content (%)	17.5
	Specimen Diameter (mm)	100	Specimen Bulk Density (Mg/m ³)	2.17
	Membrane Thickness (mm)	0.40	Specimen Dry Density (Mg/m ³)	1.85
	Membrane Correction	1.28	1.40	1.52

CORRECTED DEVIATOR STRESS vs AXIAL STRAIN



TEST TYPE
MULTI STAGE

SKETCH OF
SPECIMEN AT
FAILURE



Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength C_u (kPa)
85	16	2	173.8	87
170	18	2	186.3	93
340	20	2	200.9	100

Remarks/Abnormalities

Name O.P Davies BA (Hons)
(Laboratory Manager)

Signed

Date 16 August 2023

MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE INCREMENTAL LOADING OEDOMETER TEST BS EN ISO 17892-5:2017

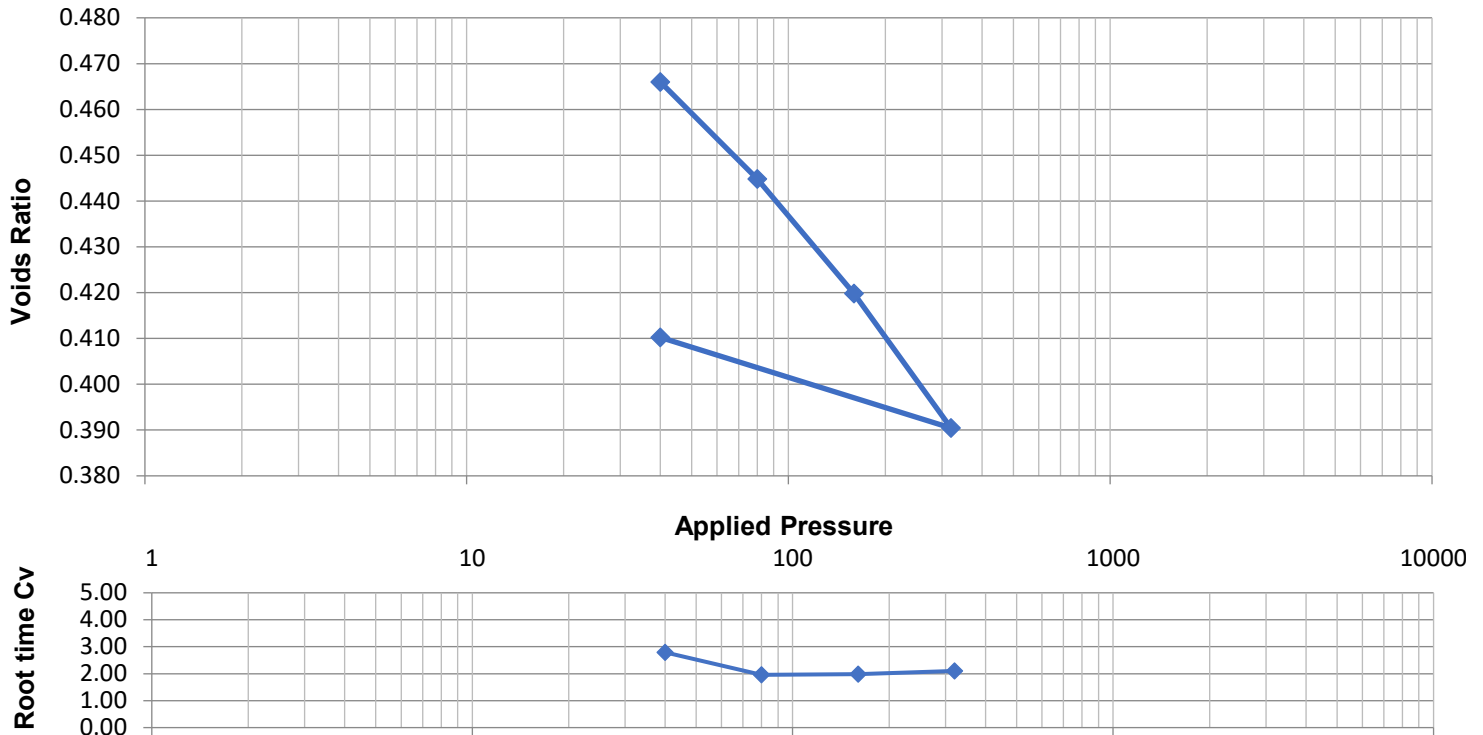
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	CP101 2.2-2.65 U	DATE SAMPLED	Not advised
LAB SAMPLE No.	126966	DATE RECEIVED	16-Jun-23
DATE TESTED	05-Jul-23	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

Specimen Location	Sample Length (mm)	350	Specimen depth from top of Sample (mm)	250
	Sample Orientation	Vertical	Specimen Condition	Undisturbed

INITIAL CONDITIONS					Load No.	Applied Pressure kPa	Sample Height mm	Voids Ratio	Mv m ² /MN	Temp °C	Cv t90 root m ² /yr	Cv t50 log m ² /yr
Height	20.1	mm	Particle density	2.60 Ass	1	40	19.20	0.466	1.07	20	2.79	1.43
Diameter	70.1	mm	Initial void ratio	0.53	2	80	18.92	0.445	0.36	20	1.96	1.45
Weight wet	154.1	g	Deg. of sat.	85 %	3	160	18.59	0.420	0.22	20	1.99	1.64
Water cont.*	17.4	%	Swell. press.	0 kN/m ²	4	320	18.21	0.390	0.13	20	2.11	1.97
Bulk Density	1.99	Mg/m ³	Dry density	1.70 Mg/m ³	5	40	18.47	0.410	0.05	20		
					6							
					7							

*determined from specimen trimmings



Remarks/Abnormalities

Name O.P Davies BA (Hons)
(Laboratory Manager)

Signed

Date 16 August 2023

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE INCREMENTAL LOADING OEDOMETER TEST BS EN ISO 17892-5:2017

CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

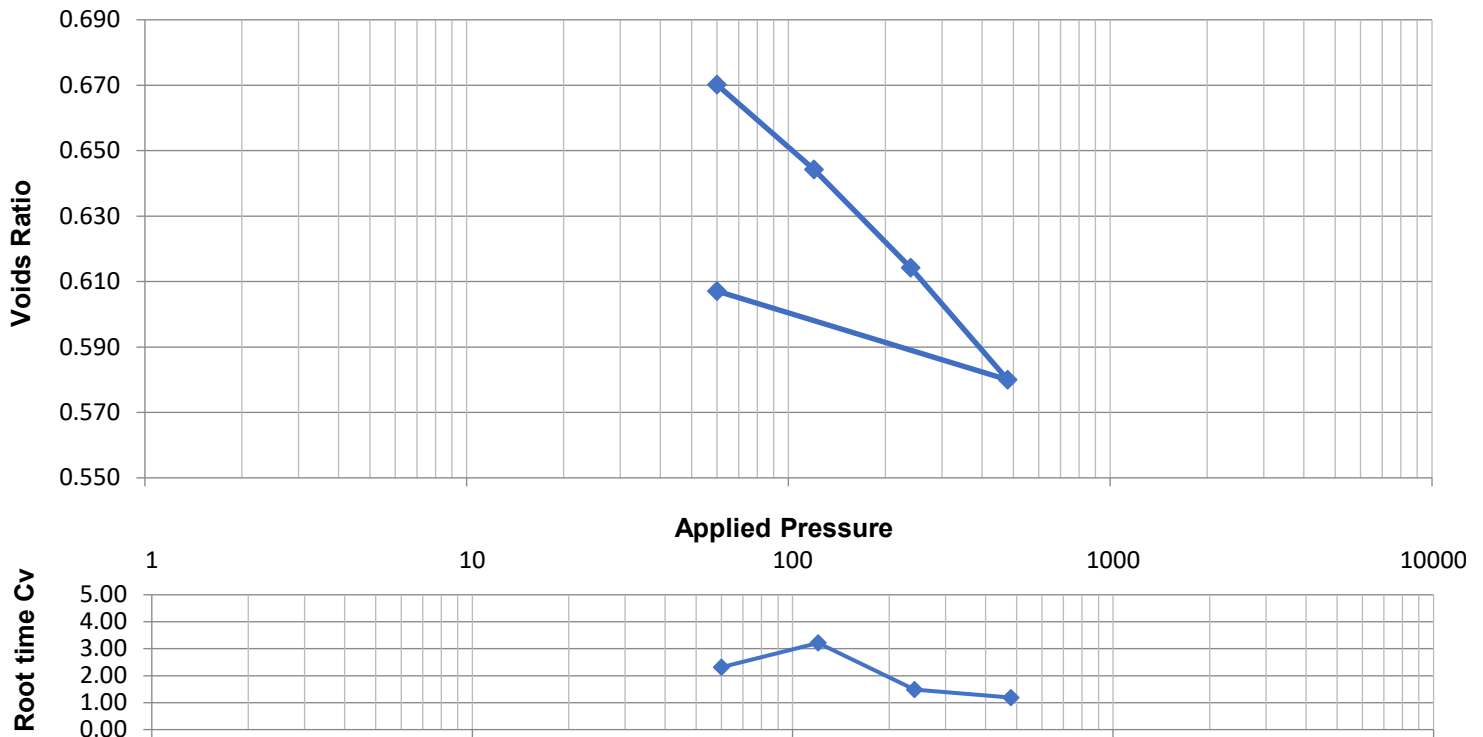
SAMPLE LABEL	CP102 3.3-3.75 U	DATE SAMPLED	Not advised
LAB SAMPLE No.	126971	DATE RECEIVED	16-Jun-23
DATE TESTED	05-Jul-23	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

Specimen Location	Sample Length (mm)	390	Specimen depth from top of Sample (mm)	300
	Sample Orientation	Vertical	Specimen Condition	Undisturbed

INITIAL CONDITIONS

Height	20.6 mm	Particle density	2.60 Ass	Load No.	Applied Pressure kPa	Sample Height mm	Voids Ratio	Mv m ² /MN	Temp °C	Cv t90 root m ² /yr	Cv t50 log m ² /yr
Diameter	69.1 mm	Initial void ratio	0.68	1	60	20.55	0.670	0.06	20	2.31	1.29
Weight wet	147.9 g	Deg. of sat.	90 %	2	120	20.23	0.644	0.26	20	3.21	1.94
Water cont.*	23.4 %	Swell. press.	0 kN/m ²	3	240	19.86	0.614	0.15	20	1.48	0.91
Bulk Density	1.91 Mg/m ³	Dry density	1.55 Mg/m ³	4	480	19.44	0.580	0.09	20	1.19	0.98
				5	60	19.77	0.607	0.04	20		
				6							
				7							

*determined from specimen trimmings



Remarks/Abnormalities

Name O.P Davies BA (Hons)
(Laboratory Manager)

Signed

Date 16 August 2023

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE INCREMENTAL LOADING OEDOMETER TEST BS EN ISO 17892-5:2017

CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

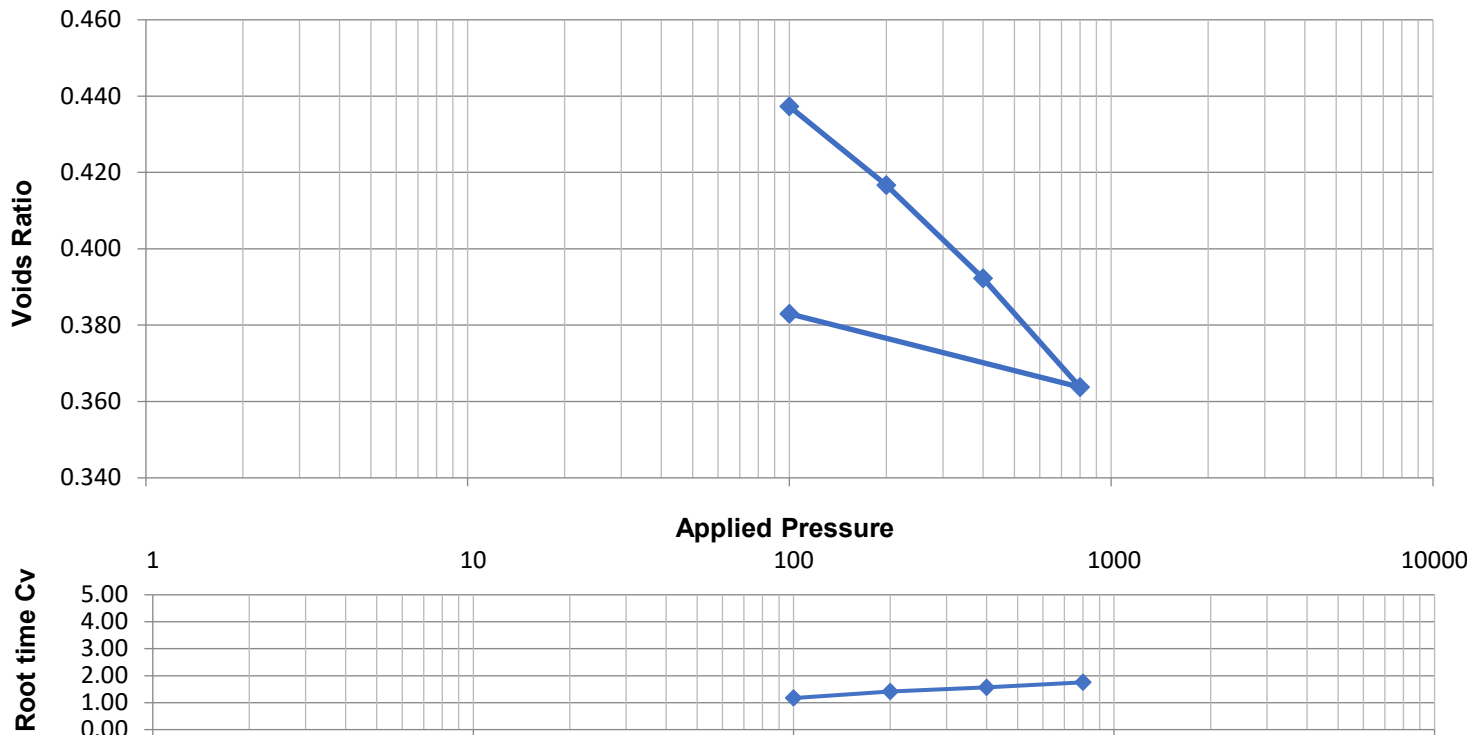
SAMPLE LABEL	CP102 8.3-8.75 U	DATE SAMPLED	Not advised
LAB SAMPLE No.	126974	DATE RECEIVED	16-Jun-23
DATE TESTED	06-Jul-23	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

Specimen Location	Sample Length (mm)	410	Specimen depth from top of Sample (mm)	300
	Sample Orientation	Vertical	Specimen Condition	Undisturbed

INITIAL CONDITIONS

Height	20.2 mm	Particle density	2.60 Ass	Load No.	Applied Pressure kPa	Sample Height mm	Voids Ratio	Mv m ² /MN	Temp °C	Cv t90 root m ² /yr	Cv t50 log m ² /yr
Diameter	70.0 mm	Initial void ratio	0.50	1	100	19.34	0.437	0.43	20	1.17	1.39
Weight wet	159.5 g	Deg. of sat.	95 %	2	200	19.06	0.417	0.14	20	1.42	1.30
Water cont.*	18.4 %	Swell. press.	0 kN/m ²	3	400	18.73	0.392	0.09	20	1.57	1.54
Bulk Density	2.05 Mg/m ³	Dry density	1.73 Mg/m ³	4	800	18.35	0.364	0.05	20	1.75	1.88
				5	100	18.61	0.383	0.02	20		
				6							
				7							

*determined from specimen trimmings



Remarks/Abnormalities

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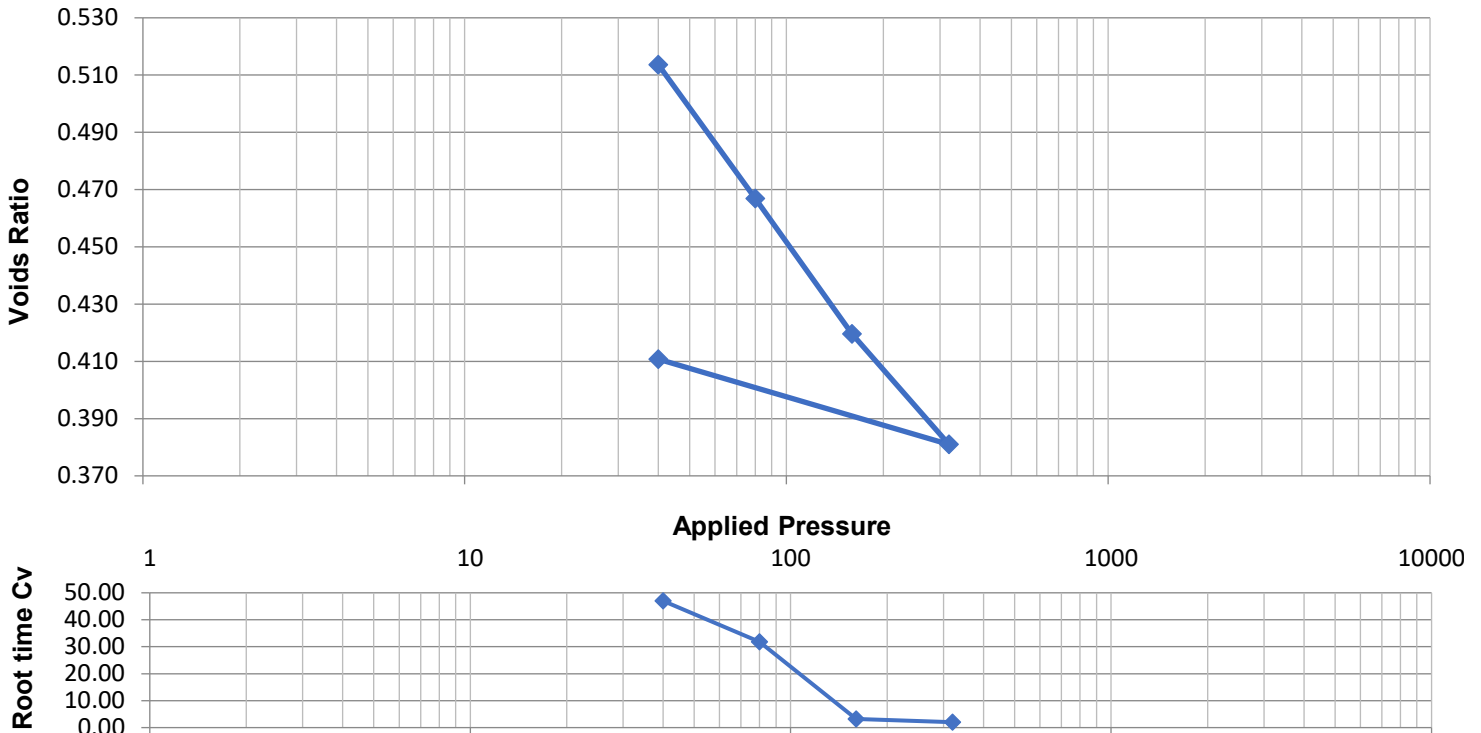
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	CP103 2.3-2.75 U	DATE SAMPLED	Not advised
LAB SAMPLE No.	126975	DATE RECEIVED	16-Jun-23
DATE TESTED	03-Aug-23	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

Specimen Location	Sample Length (mm)	450	Specimen depth from top of Sample (mm)	20
	Sample Orientation	Vertical	Specimen Condition	Undisturbed

INITIAL CONDITIONS					Load No.	Applied Pressure	Sample Height	Void Ratio	Mv	Temp	Cv t90 root	Cv t50 log
					kPa	mm		m ² /MN	°C	m ² /yr	m ² /yr	
Height	20.1	mm	Particle density	2.60	Ass	1	40	18.08	0.514	2.47	46.98	47.27
Diameter	70.1	mm	Initial void ratio	0.68		2	80	17.52	0.467	0.77	31.77	32.95
Weight wet	141.0	g	Deg. of sat.	68	%	3	160	16.95	0.420	0.40	3.23	2.56
Water cont.*	17.8	%	Swell. press.	0	kN/m ²	4	320	16.49	0.381	0.17	2.01	1.34
Bulk Density	1.82	Mg/m ³	Dry density	1.55	Mg/m ³	5	40	16.85	0.411	0.08		
*determined from specimen trimmings						6						
						7						

*determined from specimen trimmings



Remarks/Abnormalities

Name O.P Davies BA (Hons)
(Laboratory Manager)

Signed

Date 16 August 2023

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TEST CERTIFICATE

INCREMENTAL LOADING OEDOMETER TEST
BS EN ISO 17892-5:2017

CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

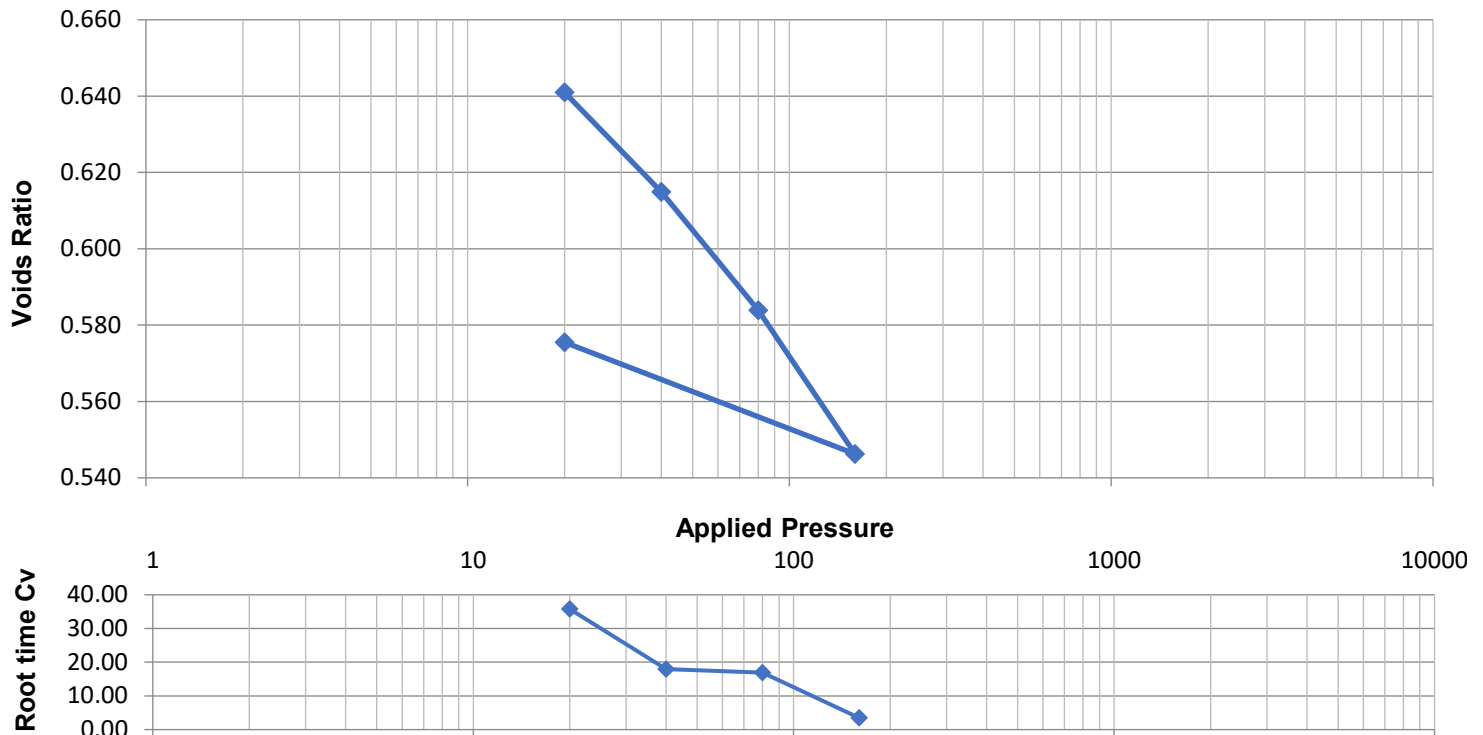
SAMPLE LABEL	CP106 1.2-1.65 U	DATE SAMPLED	Not advised
LAB SAMPLE No.	127561	DATE RECEIVED	27-Jun-23
DATE TESTED	06-Jul-23	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

Specimen Location	Sample Length (mm)	450	Specimen depth from top of Sample (mm)	210
	Sample Orientation	Vertical	Specimen Condition	Undisturbed

INITIAL CONDITIONS

Height	20.2 mm	Particle density	2.60 Ass	Load No.	Applied Pressure kPa	Sample Height mm	Voids Ratio	Mv m ² /MN	Temp °C	Cv t90 root m ² /yr	Cv t50 log m ² /yr
Diameter	70.0 mm	Initial void ratio	0.68	1	20	19.74	0.641	1.14	20	35.78	37.03
Weight wet	148.4 g	Deg. of sat.	89 %	2	40	19.43	0.615	0.79	20	17.93	16.17
Water cont.*	23.2 %	Swell. press.	0 kN/m ²	3	80	19.05	0.584	0.48	20	16.93	15.73
Bulk Density	1.91 Mg/m ³	Dry density	1.55 Mg/m ³	4	160	18.60	0.546	0.30	20	3.49	2.81
				5	20	18.95	0.576	0.14	20		
				6							
				7							

*determined from specimen trimmings



Remarks/Abnormalities

Name O.P Davies BA (Hons)
(Laboratory Manager)

Signed

Date 16 August 2023

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TEST CERTIFICATE INCREMENTAL LOADING OEDOMETER TEST BS EN ISO 17892-5:2017

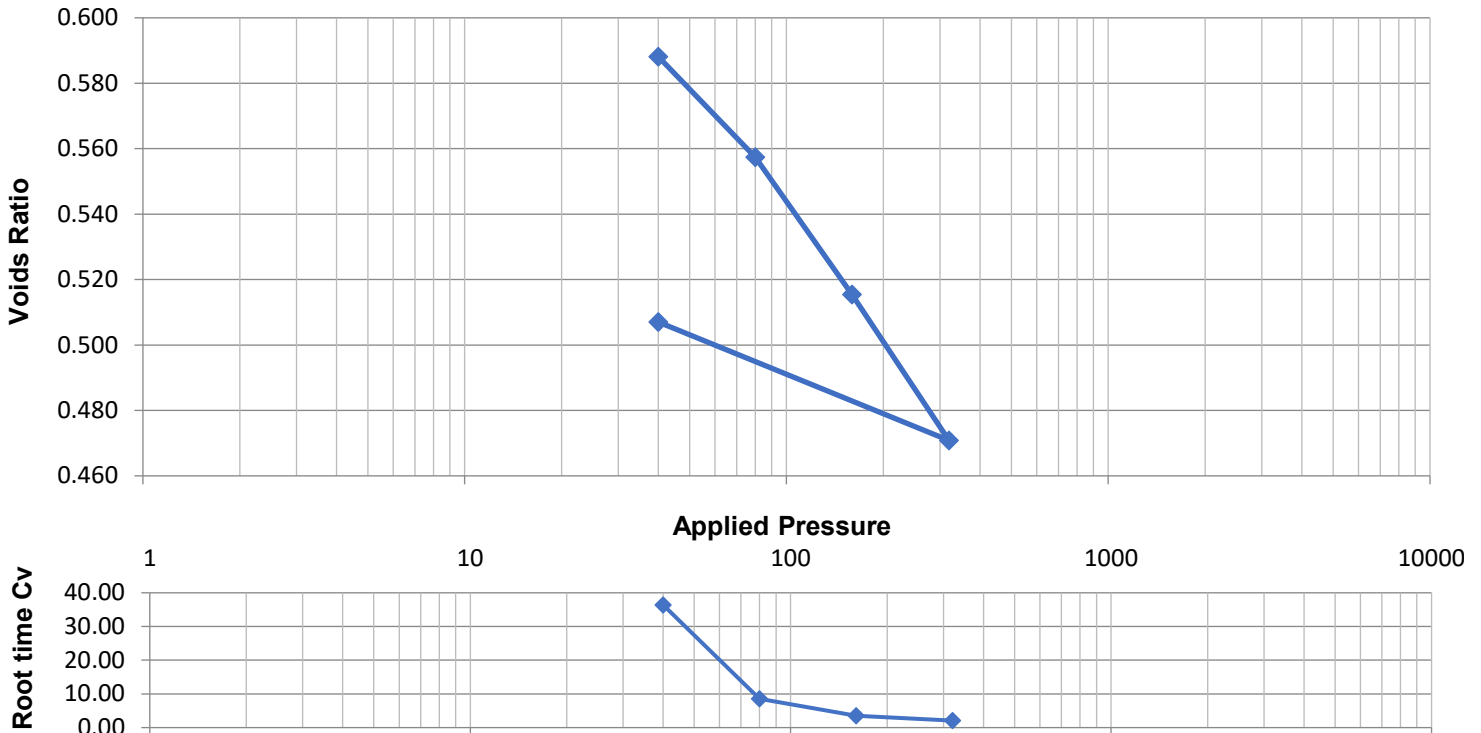
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	CP107 2.2-2.65 U	DATE SAMPLED	Not advised
LAB SAMPLE No.	127565	DATE RECEIVED	27-Jun-23
DATE TESTED	17-Jul-23	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

Specimen Location	Sample Length (mm)	450	Specimen depth from top of Sample (mm)	230
	Sample Orientation	Vertical	Specimen Condition	Undisturbed

INITIAL CONDITIONS					Load No.	Applied Pressure	Sample Height	Void Ratio	Mv	Temp	Cv t90 root	Cv t50 log	
					kPa	mm		m ² /MN	°C	m ² /yr	m ² /yr		
Height	20.1	mm	Particle density	2.60	Ass	1	40	19.32	0.588	0.93	20	36.40	35.99
Diameter	70.1	mm	Initial void ratio	0.65		2	80	18.94	0.557	0.48	20	8.55	8.34
Weight wet	150.6	g	Deg. of sat.	94	%	3	160	18.43	0.515	0.34	20	3.47	2.30
Water cont.*	23.5	%	Swell. press.	0	kN/m ²	4	320	17.89	0.471	0.18	20	2.07	0.94
Bulk Density	1.95	Mg/m ³	Dry density	1.58	Mg/m ³	5	40	18.33	0.507	0.09	20		
*determined from specimen trimmings						6							
						7							

*determined from specimen trimmings



Remarks/Abnormalities

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(Laboratory Manager)

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Date 16 August 2023

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DUKINFIELD, CHESHIRE SK16 4QX
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TEST CERTIFICATE INCREMENTAL LOADING OEDOMETER TEST BS EN ISO 17892-5:2017

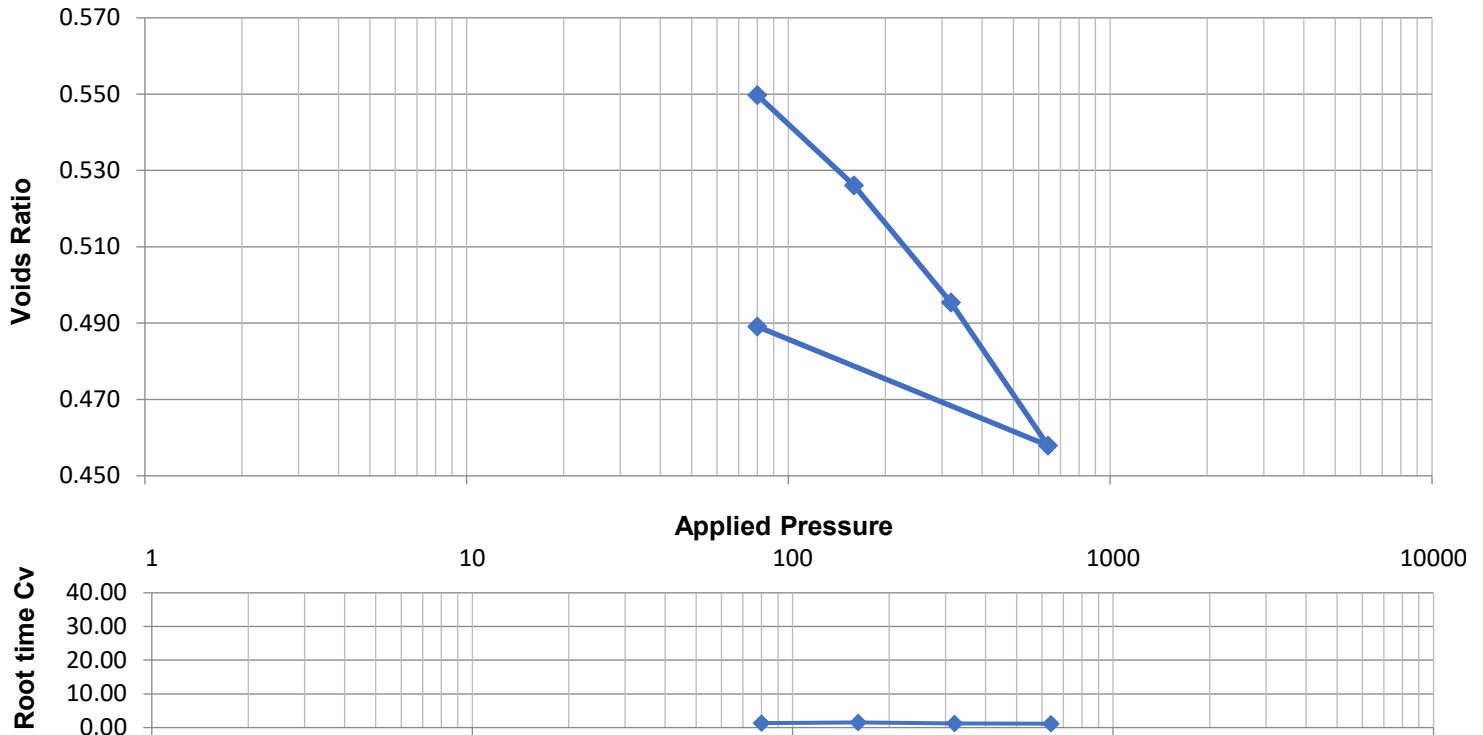
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	CP108 4.5-4.95 U	DATE SAMPLED	Not advised
LAB SAMPLE No.	127571	DATE RECEIVED	27-Jun-23
DATE TESTED	17-Jul-23	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

Specimen Location	Sample Length (mm)	450	Specimen depth from top of Sample (mm)	270
	Sample Orientation	Vertical	Specimen Condition	Undisturbed

INITIAL CONDITIONS					Load No.	Applied Pressure kPa	Sample Height mm	Void Ratio	Mv m ² /MN	Temp °C	Cv t90 root m ² /yr	Cv t50 log m ² /yr
Height	20.6 mm	Particle density	2.60	Ass	1	80	20.41	0.550	0.13	20	1.35	0.95
Diameter	69.1 mm	Initial void ratio	0.57		2	160	20.10	0.526	0.19	20	1.53	1.00
Weight wet	155.5 g	Deg. of sat.	97 %		3	320	19.70	0.495	0.13	20	1.25	0.96
Water cont.*	21.2 %	Swell. press.	0 kN/m ²		4	640	19.20	0.458	0.08	20	1.16	1.06
Bulk Density	2.01 Mg/m ³	Dry density	1.66 Mg/m ³		5	80	19.61	0.489	0.04	20		
					6							
					7							

*determined from specimen trimmings



Remarks/Abnormalities

Name O.P Davies BA (Hons)
(Laboratory Manager)

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Date 16 August 2023

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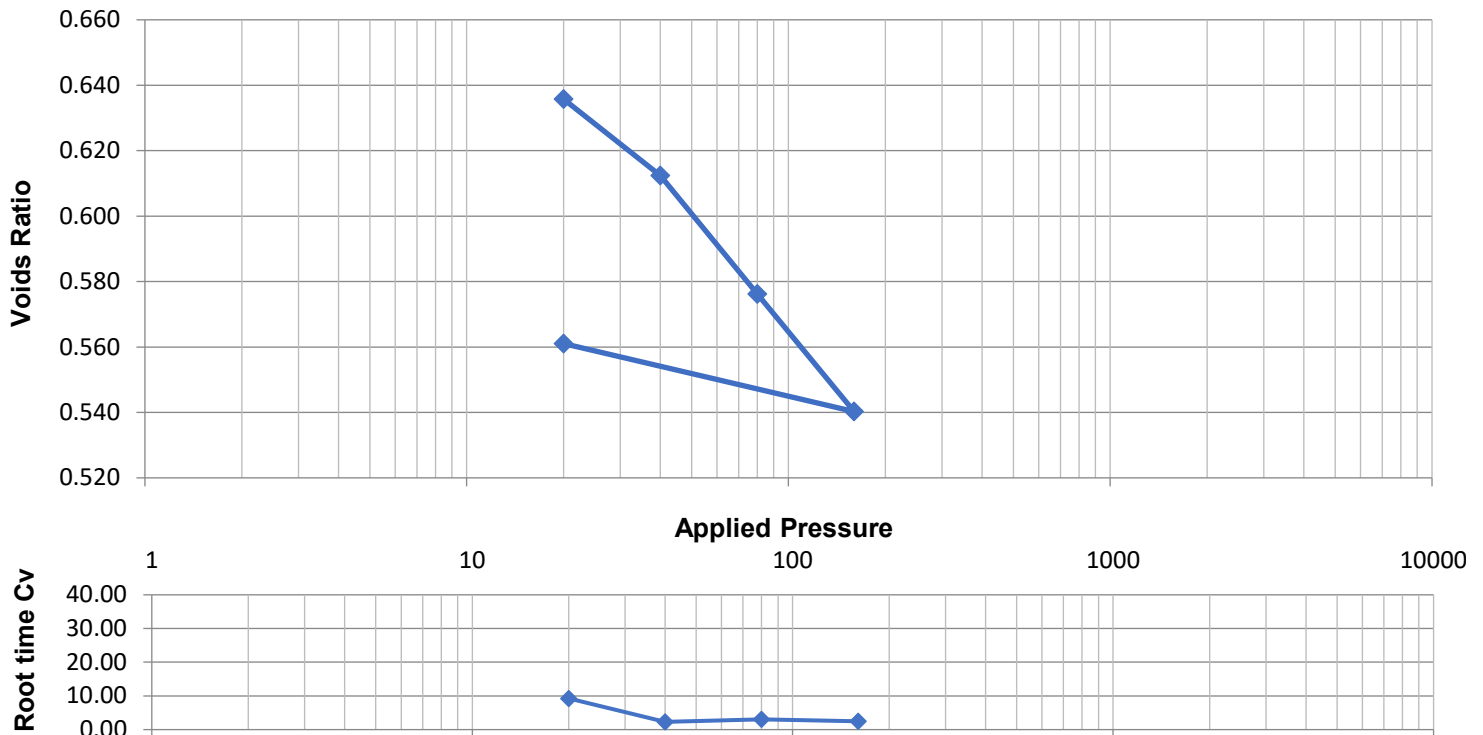
CLIENT	Tier Environmental Ltd
SITE	TE1750 - Bryn Lane Detailed Planning
JOB NUMBER	MRN 4625/33

SAMPLE LABEL	CP111 1.20-1.65 U	DATE SAMPLED	Not advised
LAB SAMPLE No.	127583	DATE RECEIVED	27-Jun-23
DATE TESTED	24-Jul-23	SAMPLED BY	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

Specimen Location	Sample Length (mm)	450	Specimen depth from top of Sample (mm)	20
	Sample Orientation	Vertical	Specimen Condition	Undisturbed

INITIAL CONDITIONS					Load No.	Applied Pressure kPa	Sample Height mm	Void Ratio	Mv m ² /MN	Temp °C	Cv t90 root m ² /yr	Cv t50 log m ² /yr
Height	20.6 mm	Particle density	2.60	Ass	1	20	20.13	0.636	1.21	20	9.26	8.55
Diameter	69.1 mm	Initial void ratio	0.68		2	40	19.84	0.612	0.71	20	2.29	2.50
Weight wet	142.6 g	Deg. of sat.	73 %		3	80	19.40	0.576	0.56	20	3.06	2.57
Water cont.*	18.9 %	Swell. press.	0 kN/m ²		4	160	18.96	0.540	0.28	20	2.48	1.14
Bulk Density	1.84 Mg/m ³	Dry density	1.55 Mg/m ³		5	20	19.21	0.561	0.10	20		
					6							
					7							

*determined from specimen trimmings



Remarks/Abnormalities

Name O.P Davies BA (Hons)
(Laboratory Manager)

Signed

Date 16 August 2023

APPENDIX F - GROUNDWATER AND GAS MONITORING RESULTS

Job No:	TE1750		
Visit No:	1	of	4
Operator:	HC		
Project Manager:	SL		

O ₂	21.4
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	Snow
	Strong
	Overcast
	Heavy
1014	After
	Rising

☐ Frozen

Pressure Trend

Monitoring Point	Flow Data		Gas Concentrations										Well and Water Data				Response Zone	Comments
	Flow rate (l/hr)		Methane (%v/v)		Carbon dioxide (%v/v)		Oxygen (%v/v)		Carbon monoxide (ppm)		Hydrogen sulphide (ppm)		Water Depth (mbgl)	Depth of Well (mbgl)	Ground Level (mAOD)	Water Level (mAOD)		
	Peak	Steady	CH4 Peak	CH4 Steady	CO2 Peak	CO2 Steady	O2 Lowest	O2 Steady	CO Peak	CO Steady	H2S Peak	H2S Steady						
CP101	0.2	0.2	0.2	0.1	1.4	1.4	17.2	17.8	ND	ND	ND	ND	1.40	13.40			TIII	
CP102																	TIII	Well head stuck
CP103	0.4	0.4	ND	ND	3.0	2.9	17.0	17.0	ND	ND	ND	ND	6.68	14.56			TIII	
CP104	1.1	1.1	ND	ND	2.9	2.9	16.1	16.1	ND	ND	ND	ND	6.19	9.73			TIII	
CP105	0.3	0.3	0.6	ND	0.8	0.8	16.0	16.0	ND	ND	ND	ND	0.80	9.32			TIII	
CP106	ND	ND	ND	ND	0.1	0.1	20.8	20.8	ND	ND	ND	ND	7.03	9.78			TIII	
CP107	0.2	0.2	ND	ND	0.1	0.1	20.1	20.2	1	1	ND	ND	0.86	10.66			TIII	Water level checked prior to taking gas readings.
CP108	ND	ND	ND	ND	1.5	1.5	17.5	17.5	ND	ND	ND	ND	5.59	9.56			TIII	Water level checked prior to taking gas readings.
CP109	0.3	0.3	6.0	ND	1.2	1.2	20.3	20.3	ND	ND	ND	ND	7.28	9.96			TIII	
CP110	0.3	0.3	ND	ND	0.1	0.1	20.3	20.8	1	1	ND	ND	2.01	12.70			TIII	
CP111	0.3	0.3	ND	ND	0.7	0.7	19.6	19.6	1	1	ND	ND	7.30	9.89			TIII	
WS101	0.2	0.2	ND	ND	2.9	2.8	18.0	18.0	ND	ND	ND	ND	0.39	4.02			TIII	
WS105	0.3	0.3	22.6	5.9	8.8	2.4	13.5	18.5	1	1	ND	ND	0.27	3.75			MG	
WS107	0.2	0.2	ND	ND	1.9	1.9	19.0	19.0	1	1	ND	ND	3.20	3.84			TIII	
WS108	0.3	0.3	ND	ND	1.3	1.3	19.2	19.2	1	1	ND	ND	0.90	4.27			TIII	
WS111	0.2	0.2	ND	ND	2.6	2.6	17.3	17.3	ND	ND	ND	ND	2.66	4.22			TIII	
WS112	0.3	0.3	ND	ND	1.2	1.2	19.6	19.6	ND	ND	ND	ND	1.60	3.63			TIII	
Min	0.1	0.1	0.1	0.1	0.1	0.1	13.5	16.0	ND	ND	ND	ND	0.27	3.63				
Max	1.1	1.1	22.6	5.9	8.8	2.9	20.8	20.8	1	1	ND	ND	7.30	14.56				

APPENDIX G - PHOTOGRAPHS

Project Name	BRYN LANE, WREXHAM	Photographic Record	Borehole ID
Project No.	TE1750		TP101
Engineer	EVE ROWLAND		
Client	NET WORLD SPORTS		

	
Pit	

	
Spoil	

Photographed By		Date	
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Project Name BRYN LANE, WREXHAM Project No. TE1750 Engineer EVE ROWLAND Client NET WORLD SPORTS		Photographic Record	Borehole ID TP102
			Pit
			Spoil
Photographed By		Date	

Project Name BRYN LANE, WREXHAM Project No. TE1750 Engineer EVE ROWLAND Client NET WORLD SPORTS		Photographic Record	Borehole ID TP103
			Pit
			Spoil
Photographed By			Date

Project Name	BRYN LANE, WREXHAM	Photographic Record	Borehole ID
Project No.	TE1750		TP104
Engineer	EVE ROWLAND		
Client	NET WORLD SPORTS		

		
		Pit

		
		Spoil

Photographed By		Date	