

SLADEN ASSOCIATES

**REPORT ON GEOTECHNICAL
INVESTIGATION
Proposed Commercial Development
Site at Station Road
Cheddleton
Staffordshire**

**Prepared for
G and E Property Ltd**

Date: July 2025

Job No: 25 2728-2

**REPORT ON GEOTECHNICAL INVESTIGATION
Proposed Commercial Development
Site at Station Road
Cheddleton
Staffordshire**

Prepared for: G and E Property Ltd

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REPORT No 25 2728-2

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REPORT ON GEOTECHNICAL INVESTIGATION
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Site at Station Road
Cheddleton
Staffordshire

1 INTRODUCTION

D20-ONE Structural Design Ltd, acting on behalf of G and E Property Ltd, has instructed Sladen Associates to carry out a ground investigation for the site of a proposed commercial development to the south of Station Road in Cheddleton, Staffordshire.

A Phase 1 Geo-Environmental Study for the site has previously been undertaken by others and reported as follows:

Phase 1 Site Investigation. Unit 1 Station Road, Cheddleton, Leek, Staffordshire.
Prepared for L M Bateman and Co Ltd by Peak Environmental Solutions Ltd.
Report No: 42337R1, April 2024.

The Phase 1 report included a description of the site, a review of the site history, environmental and geological setting, and development of a preliminary conceptual model of potential pollution linkages.

A ground investigation was subsequently undertaken and reported as follows:

Phase 2 Site Investigation. Unit 1 Station Road, Cheddleton, Leek, Staffordshire.
Prepared for L M Bateman and Co Ltd by Peak Environmental Solutions Ltd.
Report No: 42337R2, October 2024.

The Phase 2 report included intrusive investigation by means of boreholes put down using a mini-rig should be read in conjunction with the present report.

The present investigation included an intrusive investigation by means of boreholes put down using a 'shell and auger' drilling rig, as well as subsequent laboratory testing of samples. This report presents the factual results of the investigation together with recommendations relevant to the geotechnical aspects of development. Potential geo-environmental issues have been addressed in the Phase 2 Report.

2 THE SITE

2.1 LOCATION AND SURFACE CONDITIONS

The site is located on the southern side of Station Road and at the northern edge of the Churnetside Business Park, a little way to the northeast of the village of Cheddleton, at National Grid Reference 3977 3526, see Figures 1 & 2. At the time of the recent fieldwork, the site comprised a mostly gravel surfaced yard area and was being used for general storage. There is an existing building in the western site area and there are two circular concrete bases in the northeastern site area.

There is other commercial development to the southeast and southwest of the site and further to the east. Immediately to the east of the site there is an undeveloped area and there is residential development along the northern side of Station Road. The wider area to the north comprises mostly undeveloped agricultural land. The River Churnet, flowing

roughly eastwards at this point, passes some 150 m to the south of the site and the Caldon Canal passes immediately to the south of the river.

2.2 PROPOSED DEVELOPMENT

It is currently proposed construct a new industrial building in the eastern site area with some associated yard and vehicle parking areas. The currently proposed development layout is shown on Figure 3.

3 FIELD AND LABORATORY PROGRAMME

3.1 FIELDWORK

The recent fieldwork comprised two boreholes put down using cable-percussive 'shell and auger' drilling techniques (CPA & CPB). In situ 'SPT' testing was undertaken at regular depth intervals in the boreholes. The exploration hole locations are shown on the site layout plan, Figure 2, which also shows the Phase 2 borehole locations.

Samples were recovered from the boreholes for the purposes of classification and laboratory testing. The fieldwork was undertaken on 11th and 12th June 2025.

Detailed logs of the boreholes are included in Appendix A. Reference should be made to the logs for details of ground conditions at these locations but a generalised summary is provided in Section 4 'Ground Conditions', below.

3.2 LABORATORY TESTING

Selected soil samples were tested to determine sulphate and pH conditions. The detailed results of the laboratory testing are included in Appendix B. One sample of cohesive soil was tested to determine geotechnical index properties and two additional samples were tested for natural moisture content. The detailed results of this work are included in Appendix B.

Some geotechnical testing was undertaken as part of the Phase 2 Report.

4 GROUND CONDITIONS

4.1 GENERAL

Ground conditions at the borehole locations were found to comprise a layer made ground, overlying recent alluvium, which was in turn found to be underlain by glacial deposits. Weathered Chester Formation bedrock was encountered below 6.5 m in both recent boreholes.

This is consistent with the findings of the previous mini-rig boreholes, although, depth to bedrock was not proved in any of the mini-rig boreholes.

4.2 MADE GROUND

Made ground was present at both recent exploratory hole locations and extended to a maximum depth of 2.1 m in CPB.

The made ground in the recent boreholes was entirely granular in nature and ranged in consistency from 'loose' to 'dense' gravel or sand and gravel, sometimes with cobbles.

The coarse fraction of the made ground included, variously, brick, sandstone, limestone, concrete, ash, slag, clinker and carbonaceous fragments.

4.3 ALLUVIUM

Natural strata considered to be alluvium, were encountered below the made ground in both of the recent boreholes.

The alluvium typically comprised units of 'soft', locally 'very soft' silty clay along with occasional units of peat. The peat layers were variable in thickness and were described as 'plastic' and 'pseudo-fibrous' (CPA) or amorphous (CPB). A single unit of 'medium dense' sand was encountered within the alluvium in CPB.

The alluvium was proved down to a maximum depth of 3.8 m in CPB.

4.4 GLACIAL STRATA

Glacial deposits were encountered in both recent boreholes, and these comprised predominantly granular units, considered to be fluvioglacial deposits. A single unit of cohesive glacial strata, considered to be glacial clay till, was encountered in CPA.

The fluvioglacial deposits were typically described as 'medium dense' sand, with varying proportions of gravel constituents and occasionally with cobbles (CPB). The glacial till in CPA was described as 'firm' very sandy clay.

The glacial strata were proved down to 6.5 m in both recent boreholes.

4.5 CHESTER FORMATION BEDROCK

Natural granular soils, considered to be weathered Chester Formation bedrock, were encountered in both recent boreholes below the glacial deposits. Immediately below the glacial strata, the weathered bedrock had the consistency of 'dense' becoming 'very dense' sand. Both recent boreholes were terminated on 'very weak' sandstone bedrock.

The bedrock strata were proved to a maximum depth of 8.35 m in CPB.

4.6 GROUNDWATER

Free groundwater was struck at depths in the range 1.0 m to 4.0 m during drilling. Shallow groundwater at the site was anticipated considering the sites location with respect to the River Churnet. This is consistent with the results of groundwater monitoring undertaken as part of the previous Phase 2 Report.

4.7 CONTAMINATION

Generally, apart from the local presence of ash, slag and clinker within the made ground, no visual evidence of potentially significant ground contamination was observed in the recent boreholes, and no detectable VOC concentrations were recorded during PID screening. Exceptions were as follows:

CPA 1.5 to 2.6 m Very slight creosote-like odour, PID VOC = <0.1 ppm

CPB 2.5 to 2.6 m Very slight odour of hydrocarbons, PID VOC = <0.1 ppm

5 GEOTECHNICAL CONSIDERATIONS

5.1 FOUNDATION CONDITIONS

It is not recommended that foundations be placed in the unimproved made ground or soft alluvial soils at the site. In view of the depth to the base of the alluvium and shallow groundwater table, it is not considered that conventional spread or trench fill foundations would be feasible. Accordingly, consideration should be given to the use of some form of piled foundations taken down to the bedrock strata to support structural loads. In view of the presence of soft alluvial soils and peat, ground improvement by vibro-replacement is

unlikely to be practicable. The advice of a specialist contractor should be sought concerning the most cost-effective pile type and final design of piled foundations.

Testing to determine index properties undertaken on a sample of the cohesive soil from the site suggest that, according to the classification proposed by the NHBC, the material would be classified as 'high' shrinkability soil. However, the near surface made ground is granular in nature and the shallow water table would reduce the potential for desiccation of deeper clay layers. Accordingly, it is considered that 'low' shrinkability may be assumed for foundation design. This is consistent with the recommendations of the previous Phase 2 Report.

5.2 RAISED GROUND LEVELS

Selected samples of peat from the alluvium were tested to determine the natural moisture content. Moisture content was below the plastic limit in the sample from the recent boreholes which was also tested to determine Atterberg Limits. However, for the previous boreholes, moisture content was generally high and close to the liquid limit in the samples which were also tested to determine Atterberg Limits. Very high moisture contents, as high as 376%, were recorded in the samples of peat from the site which were tested as part of the previous Phase 2 Report.

The peat layers, and to a lesser extent the clay units of the alluvium, would be highly compressible in response to even modest increases in effective stress, as may be induced by lowering of the water table or surface surcharge. This could result in potentially significant surface settlement. As the thickness of peat units often varies significantly over short lateral distances, high differential settlements can occur.

It is recommended that no drainage or dewatering of the site soils should take place as part of the development, as this could result in significant volume loss within the peat and potentially significant settlement.

If any raising of ground levels in excess of 250 mm is proposed or the proposed yard areas are to experience significant and sustained loading, some additional precautions, such as pre-loading, may be required.

Any preloading should be designed by a suitably qualified engineer and involve placement of fill over the area and maintaining the fill in place until settlement monitoring suggests that the design settlement magnitude/rate has been accomplished. The treatment may be required in any area where ground levels are to be raised significantly or surface loading is expected, not just over the footprint of proposed structures. The final design of the pre-loading should consider the area of the site being treated, the magnitude of ground level rise and the nature and expected loadings from any proposed structures or storage but in general preload levels should be such as to impose at least two times the anticipated final stress that will be imposed on the ground by ground raising and surface loading.

5.3 FLOOR SLABS

In view of the variable thickness and nature of the made ground and alluvial soils, consideration should be given to the use of structurally supported floors.

5.4 BURIED CONCRETE

Tests to determine the water-soluble sulphate content of soils gave values in the range of 0.011 to 0.208 g/l. These can be compared to the level of 0.5 g/l suggested by BRE Special Digest 1 (2005 Revision) as the level above which special precautions to protect buried concrete from sulphate attack in natural ground may be appropriate. The measured pH values were in the range 7.7 to 8.7, indicating that acidic conditions are not

generally present on site. Accordingly, it is considered that DS-1/AC-1 conditions, as defined in Special Digest 1, may be adopted for design of buried concrete. This is consistent with the recommendations from the previous Phase 2 Report.

Further guidance with regard to the design of buried concrete can be found in BRE Special Digest 1.

5.5 UTILITY CONNECTIONS

Some differential movement between pile supported structures and the surrounding ground could occur, even if no significant ground raising is undertaken, in response to, for example, seasonal changes in groundwater level. Flexible connections should be adopted where utilities pass from pile-supported structures to the surrounding ground. Consideration should be given to adopting gradients somewhat greater than the minimum normally required for any gravity drains to allow for some differential ground movement.

5.6 GENERAL

The recent investigation has confirmed the geotechnical feasibility of the proposed development, subject to certain precautions discussed in the present report.

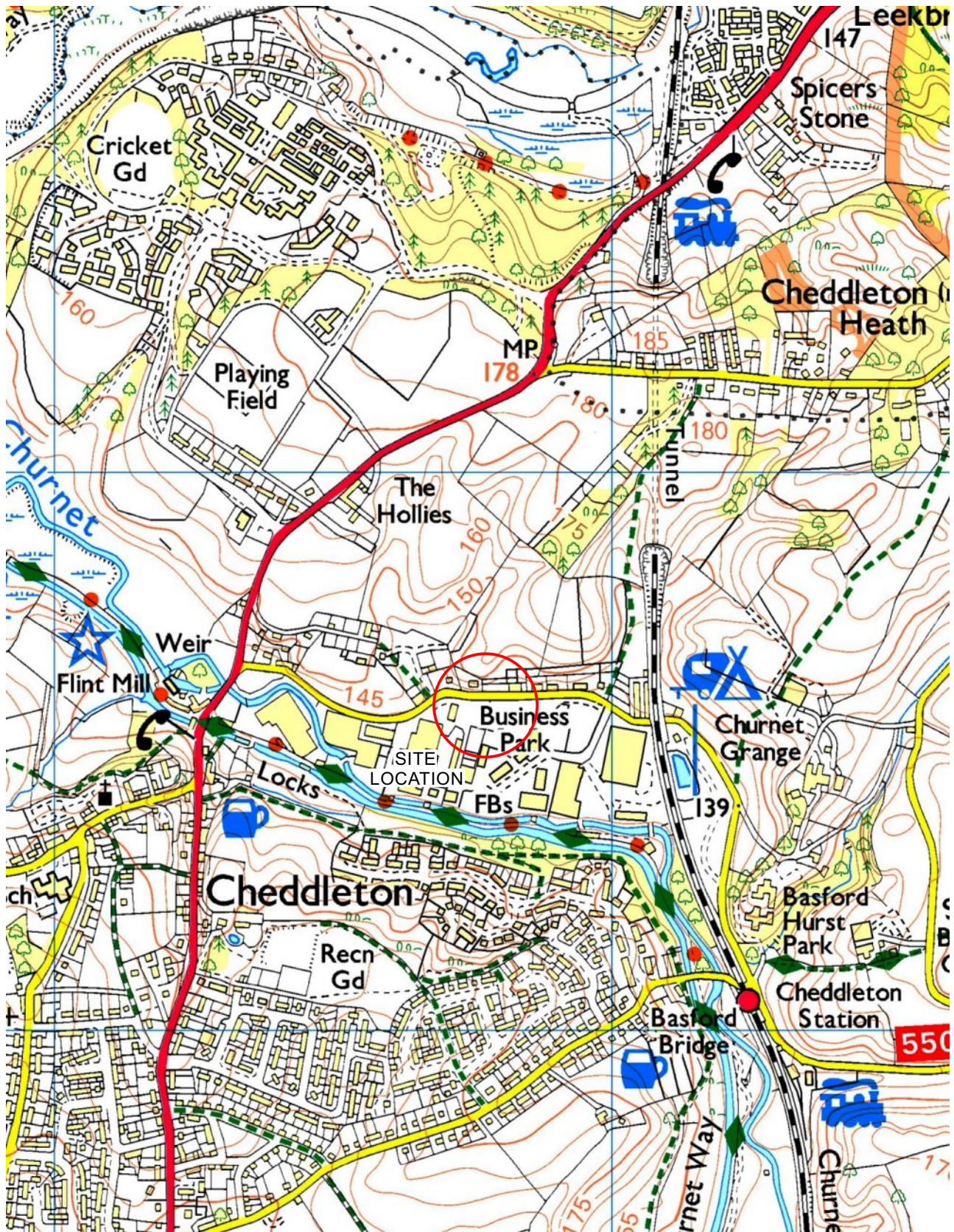
There is the potential for ground conditions to be present on site between exploration holes that are different from those encountered during a ground investigation. Should significantly different ground conditions be encountered the relevance of recommendations included in the present report should be reviewed in the light of any new information.

It is recommended that design details for the proposed development be discussed with the authority that will be responsible for building control, and if appropriate warranty, prior to finalisation of design details. The appropriate utility providers should be consulted with regard to any special precautions that may be required to protect buried services.

REFERENCES

Building Research Establishment (BRE). 2005. Concrete in Aggressive Ground. Special Digest No 1.

FIGURES



Reproduced from the Ordnance Survey map
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Majesty's Stationery Office,
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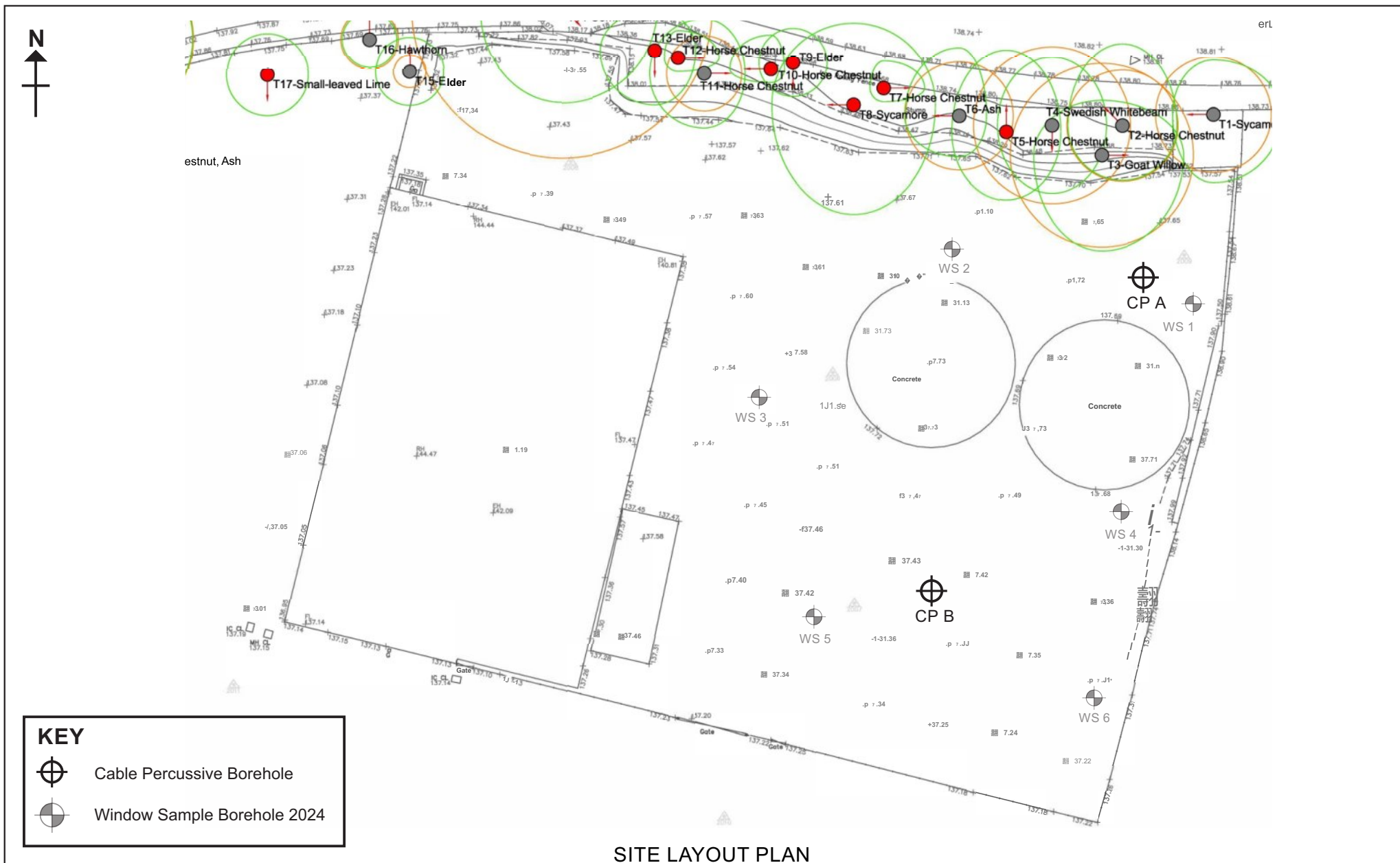
SITE LOCATION PLAN

**SLADEN
ASSOCIATES**

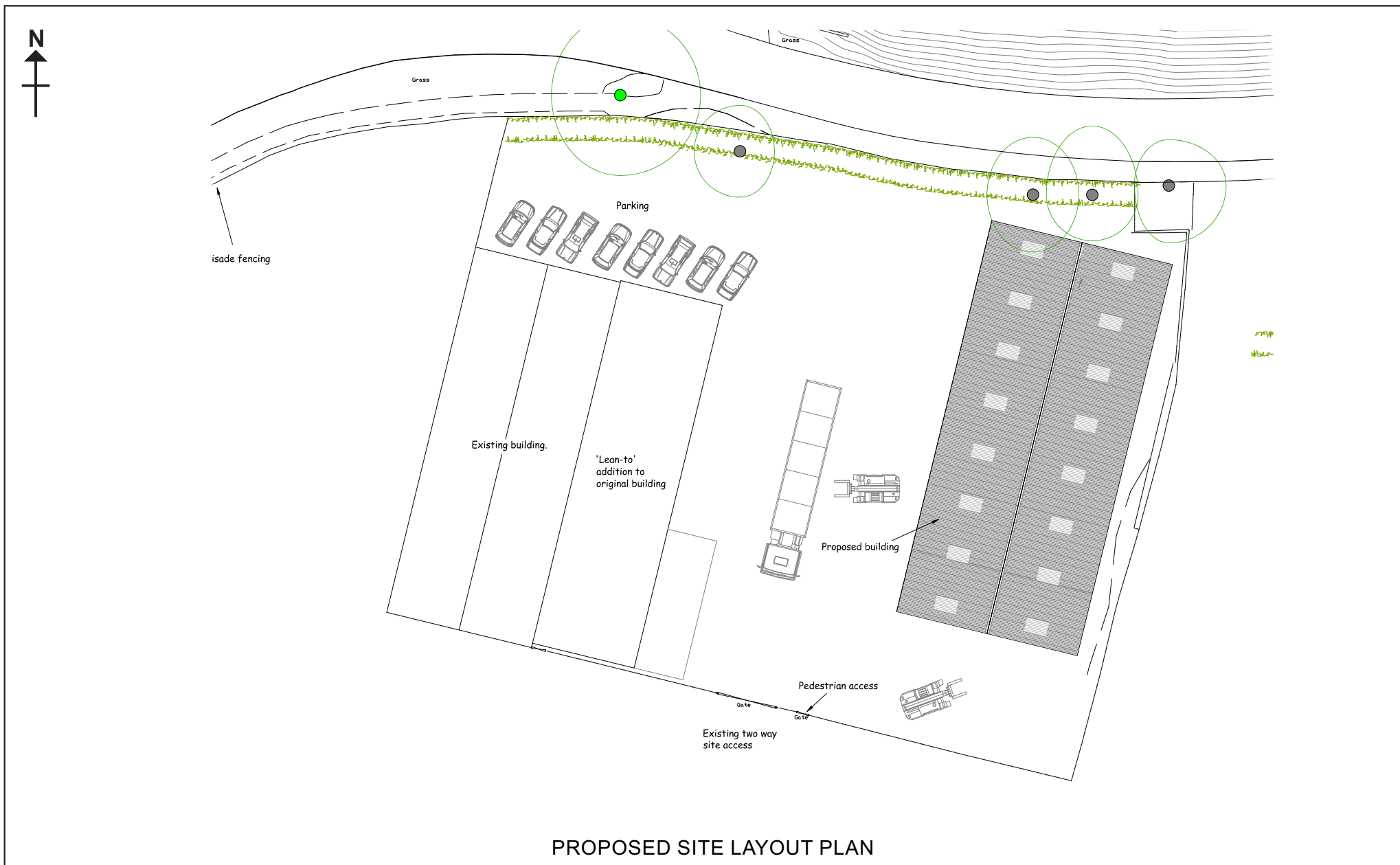
Report No
25-2728-2

Project
Site at Station Road
Cheddleton
Staffordshire

Figure
1



SLADEN ASSOCIATES	Report No 25-2728-2	Project Site at Station Road, Cheddleton	Figure 2
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APPENDIX A BOREHOLE LOGS

Unit 5, Netherton Workshops, Highley, Bridgnorth, Shropshire, WV16 6NN Tel:01746 860222 Fax:01746 862330

Page 1 of 1

Equipment & Methods			Job No: 25-2728-2					
Cable Tool			Project: Site at Station Road, Cheddleton					
Carried out for			Ground Level		Coordinates			Date
G & E Property Ltd			0		E N			11-06-25
Descriptions	Legend	Depth	Reduced Level	Samples/Tests/Notes				Field Records
				Depth	Sample		Test	
Type	No.							
Roadstone [driller's description]. (MADE GROUND)		0.10	-0.10					
Medium dense grey to dark grey SAND & GRAVEL with some cobbles. Gravels are fine to coarse angular brick, sandstone, limestone and concrete. Cobbles are angular brick. (MADE GROUND)		0.80	-0.80	0.30 to 0.40	B	1	PID	<0.1 ppm
Recovered as: dense grey sandy GRAVEL. Gravel is fine to coarse angular concrete. (MADEGROUND)		1.00	-1.00	0.80 to 1.00	B	2	PID	<0.1 ppm
No recovery.		1.50	-1.50	1.00 to 1.45	SPT	3	N=2	3,2,1,0,1,0
Soft, locally very soft silty CLAY with occasional pockets of peat. (ALLUVIUM) Very slight creosote like odour.				1.50 to 1.60	Note	4	Shear Vane	20 kPa
				1.50 to 1.60	B	5	PID	<0.1 ppm
				2.00 to 2.45	SPT	6	N=3	2,2,1,0,1,1
				2.30 to 2.40	Note	7	Shear Vane	18 kPa
				2.30 to 2.40	B	8	PID	<0.1 ppm
				2.60 to 2.70	B	9	PID	<0.1 ppm
Plastic dark brown to black pseudo fibrous PEAT. (ALLUVIUM)		2.60	-2.60	3.00 to 3.45	SPT	10	N=7	1,1,1,1,2,3
Medium dense brown gravelly fine to medium SAND. Gravel is fine to coarse rounded quartz. (FLUVIOGLACIAL)		3.30	-3.30	3.50 to 3.60	B	11	PID	<0.1 ppm
				4.00 to 4.45	SPT	12	N=22	3,4,6,5,5,6
				4.50 to 4.60	B	13	PID	<0.1 ppm
Medium dense reddish brown slightly gravelly fine SAND. Gravel is fine to coarse rounded quartz. (FLUVIOGLACIAL)		4.80	-4.80	4.80 to 4.90	B	14	PID	<0.1 ppm
				5.00 to 5.45	SPT	15	N=23	3,4,4,5,6,8
Firm reddish brown very sandy CLAY. (GLACIAL TILL)		5.50	-5.50	5.50 to 5.60	Note	16	Shear Vane	50 kPa
				5.50 to 5.60	B	17	PID	<0.1 ppm
				6.00 to 6.45	SPT	18	N=14	2,2,3,3,4,4
Dense, becoming very dense, reddish brown fine to medium SAND. (WEATHERED CHESTER FORMATION)		6.50	-6.50	6.50 to 6.60	B	19	PID	<0.1 ppm
Very weak reddish brown SANDSTONE. (CHESTER FORMATION)		7.00	-7.00	7.00 to 7.17	SPT	20	N=>50	25/100:50 blows for 70mm
				7.50 to 7.60	B	21	PID	<0.1 ppm
End of Borehole		8.00	-8.00	8.00 to 8.14	SPT	22	N=>50	25/70:50 blows for 70mm
Additional Comments								Logged by
Cased to 8.0m.								ADNS
Groundwater: struck 1.0 & 3.0m, sealed 2.0m. No recovery SPT 1.0-1.45m.								Figure

Borehole No: CP B

Page 1 of 1

Equipment & Methods		Job No: 25-2728-2						
Cable Tool		Project: Site at Station Road, Cheddleton						
Carried out for		Ground Level		Coordinates				Date
G & E Property Ltd		0		E N				12-06-25
Descriptions		Depth	Reduced Level	Samples/Tests/Notes				Field Records
				Depth	Sample		Test	
					Type	No.		
Recovered as: dense light grey to cream sandy GRAVEL. Gravel is fine to coarse angular limestone. (MADE GROUND)		0.20	-0.20	0.10 to 0.20	B	1	PID	<0.1 ppm
				0.40 to 0.50	B	2	PID	<0.1 ppm
Medium dense dark brown to dark grey SAND & GRAVEL with many cobbles. Gravels are fine to coarse angular brick, limestone and concrete with occasional ash and carbonaceous fragments. Cobbles are angular brick. (MADE GROUND)		1.00	-1.00	1.00 to 1.45	SPT	3	N=5	2,2,2,1,1,1
				1.50 to 1.60	B	4	PID	<0.1 ppm
Loose dark grey to black very sandy GRAVEL. Gravels are fine to coarse angular ash, slag and clinker. (MADE GROUND)		2.10	-2.10	2.00 to 2.45	SPT	5	N=3	2,1,1,0,1,1
				2.50 to 2.60	Note	6	Shear Vane	20 kPa
Soft, locally very soft, dark grey to dark brown silty CLAY with occasional pockets of peat. (ALLUVIUM) Very slight odour of hydrocarbons 2.5-2.6m.				2.50 to 2.60	B	7	PID	<0.1 ppm
		3.00	-3.00	3.00 to 3.45	SPT	8	N=14	1,2,2,3,4,5
Medium dense grey fine to medium SAND. (ALLUVIUM)		3.45	-3.45	3.50 to 3.60	B	9	PID	<0.1 ppm
		3.80	-3.80	3.80 to 3.90	B	10	PID	<0.1 ppm
Plastic dark brown to black sandy amorphous PEAT. (ALLUVIUM)				4.00 to 4.45	SPT	11	N=19	1,2,4,4,5,6
Medium dense brown gravelly, locally very gravelly, fine to medium SAND with occasional cobbles. Gravel is fine to coarse rounded quartz. Cobbles are rounded quartz. (FLUVIOGLACIAL)				4.50 to 4.60	B	12	PID	<0.1 ppm
				5.00 to 5.45	SPT	13	N=32	3,5,7,7,8,10
				5.50 to 5.60	B	14	PID	<0.1 ppm
				6.00 to 6.45	SPT	15	N=37	3,5,7,8,10,12
		6.50	-6.50	6.50 to 6.60	B	16	PID	<0.1 ppm
Dense, becoming very dense, reddish brown to brown slightly gravelly fine to medium SAND. Gravel is fine to medium rounded quartz. (WEATHERED CHESTER FORMATION)		7.00	-7.00	7.00 to 7.43	SPT	17	N=>50	4,8,12,13,15,10 blows for 56mm
				7.50 to 7.60	B	18	PID	<0.1 ppm
Very weak brown to reddish brown SANDSTONE with occasional quartz inclusions. (CHESTER FORMATION)				8.00 to 8.35	SPT	19	N=>50	8,14,17,18,15 blows for 50mm
		8.35	-8.35					
End of Borehole								
Additional Comments Cased to 8.0m. Groundwater: struck 1.0 & 4.0m, sealed 2.5m.								Logged by ADNS
								Figure

APPENDIX B
LABORATORY TEST RESULTS



CERTIFICATE OF ANALYSIS

Validated

SDG: 250619-42
Client Ref.: 25-2728-2

Report Number: 768935
Location: Station Road, Cheddleton

Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
31693006	CP A		2.60 - 2.70	11/06/2025
31693010	CP A		5.50 - 5.60	11/06/2025
31693014	CP A		7.50 - 7.60	11/06/2025
31693021	CP B		1.50 - 1.60	12/06/2025
31693026	CP B		2.50 - 2.60	12/06/2025
31693035	CP B		4.50 - 4.60	12/06/2025

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

Validated

SDG: 250619-42
Client Ref.: 25-2728-2

Report Number: 768935

Superseded Report:

Location: Station Road, Cheddleton

Results Legend



Test


No Determination
Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water
Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)

Customer
Sample Reference

AGS Reference

Depth (m)

Container

Sample Type

Anions by Kone (soil)

All

NDPs: 0
Tests: 6

X X X X X X

pH

All

NDPs: 0
Tests: 6

X X X X X X

Sample description

All

NDPs: 0
Tests: 6

X X X X X X

31693035
31693026
31693021
31693014
31693010
31693006

CP B
CP B
CP B
CP A
CP A
CP A

4.50 - 4.60
2.50 - 2.60
1.50 - 1.60
7.50 - 7.60
5.50 - 5.60
2.60 - 2.70

1 kg TUB with
Handle (ALE260)
1 kg TUB with
Handle (ALE260)
1 kg TUB with
Handle (ALE260)
1 kg TUB with
Handle (ALE260)
1 kg TUB with
Handle (ALE260)

S
S
S
S
S
S



CERTIFICATE OF ANALYSIS

Validated

SDG: 250619-42
Client Ref.: 25-2728-2

Report Number: 768935
Location: Station Road, Cheddleton

Superseded Report:

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm
-----------	----------	------	-----------------	--------	-------------	--------	------------	-------------	-------

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
31693006	CP A	2.60 - 2.70	Dark Brown	Silty Clay Loam	Vegetation	None
31693010	CP A	5.50 - 5.60	Light Brown	Sandy Clay Loam	Stones	None
31693014	CP A	7.50 - 7.60	Light Brown	Sand	None	None
31693021	CP B	1.50 - 1.60	Dark Brown	Sand	Stones	Brick
31693026	CP B	2.50 - 2.60	Dark Brown	Sandy Clay Loam	Stones	None
31693035	CP B	4.50 - 4.60	Light Brown	Sand	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.



CERTIFICATE OF ANALYSIS

Validated

SDG: 250619-42
Client Ref.: 25-2728-2

Report Number: 768935
Location: Station Road, Cheddleton

Superseded Report:

Table of Results - Appendix

Method No	Description
PM024	Soil preparation including homogenisation, moisture, screens of soils for Asbestos Containing Material
TM133	Determination of pH in Soil and Water using the GLpH pH Meter
TM243	Mixed Anions In Soils By Kone

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).



CERTIFICATE OF ANALYSIS

Validated

SDG: 250619-42
Client Ref.: 25-2728-2

Report Number: 768935
Location: Station Road, Cheddleton

Superseded Report:

Test Completion Dates

Lab Sample No(s)	31693006	31693010	31693014	31693021	31693026	31693035
Customer Sample Ref.	CP A	CP A	CP A	CP B	CP B	CP B
AGS Ref.						
Depth	2.60 - 2.70	5.50 - 5.60	7.50 - 7.60	1.50 - 1.60	2.50 - 2.60	4.50 - 4.60
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	24-Jun-2025	24-Jun-2025	24-Jun-2025	24-Jun-2025	24-Jun-2025	24-Jun-2025
pH	23-Jun-2025	23-Jun-2025	23-Jun-2025	23-Jun-2025	23-Jun-2025	23-Jun-2025
Sample description	20-Jun-2025	20-Jun-2025	20-Jun-2025	20-Jun-2025	20-Jun-2025	20-Jun-2025



CERTIFICATE OF ANALYSIS

SDG: 250619-42
Client Ref: 25-2728-2

Report Number: 768935
Location: Station Road, Cheddleton

Superseded Report:

Appendix

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 15 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of 15 days after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur - e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

General

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Matrix interference
♦	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to late arrival of instructions or samples
§	Sampled on date not provided

20. Asbestos

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

If during the search of the two 'pinch' samples by PLM only 1 or 2 fibres or fibre bundles are seen and identified as asbestos, the term 'trace asbestos identified' is reported.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials and soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Potentially respirable fibres are identified by using a Phase Contrast Microscope.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

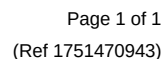
21. 6:2 FTAB

Recovery of 6:2 FTAB in the quality control samples has been observed to be <50% of the target value. Please note the 6:2 FTAB result is supplied as indicative only.

Test Type:	2 - 4 point 80g / 30° fall cone method.	Sample condition:	1 - As Received 2 - Air Dried 3 - Washed & Air Dried
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J A Reynolds - Director
02/07/2025

STATION ROAD, CHEDDLETON



LIQUID AND PLASTIC LIMITS

Location CP A
Depth (m) 2.30
Sample Type D

Description:

Dark grey organic CLAY with rare fine gravel.

Preparation : Sample as received with discrete coarse particles removed by hand.

Water Content : (BS EN ISO 17892-1:2014+A1:2022) 64.1 %

Estimated percentage passing 425µm sieve : 97 %

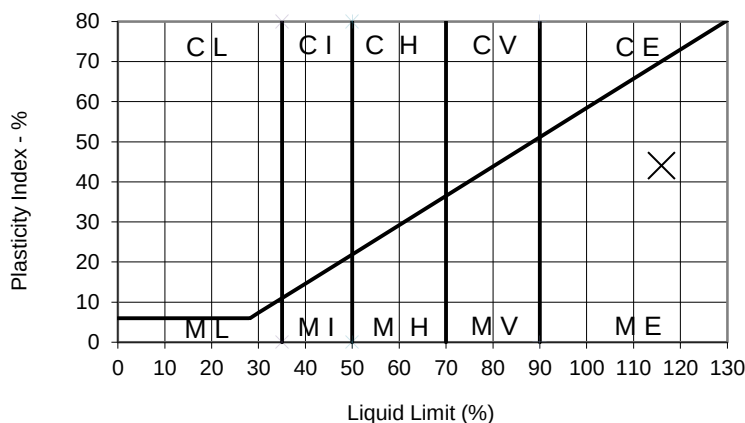
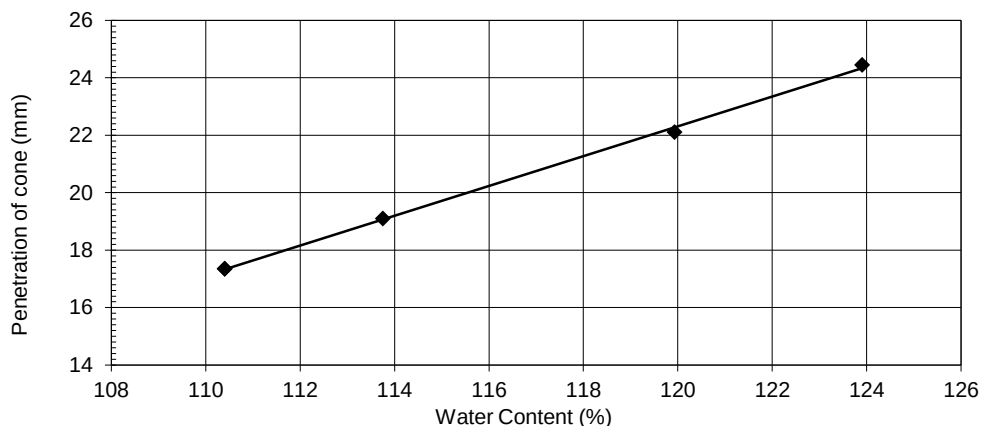
Liquid Limit - Fall Cone 4 point Method (cone angle 30°) with decreasing water content : 116 %

Plastic Limit : 72 %

Plasticity Index : 44 %

Equivalent Water Content of material passing 425µm sieve : 66.3 %

Liquidity Index : -0.13



Tested by AJ
Checked and Approved by

J A Reynolds

J A Reynolds - Director
02/07/2025

Project Number:

GEO / 42774

Project Name:

STATION ROAD, CHEDDLETON

GEOLABS

