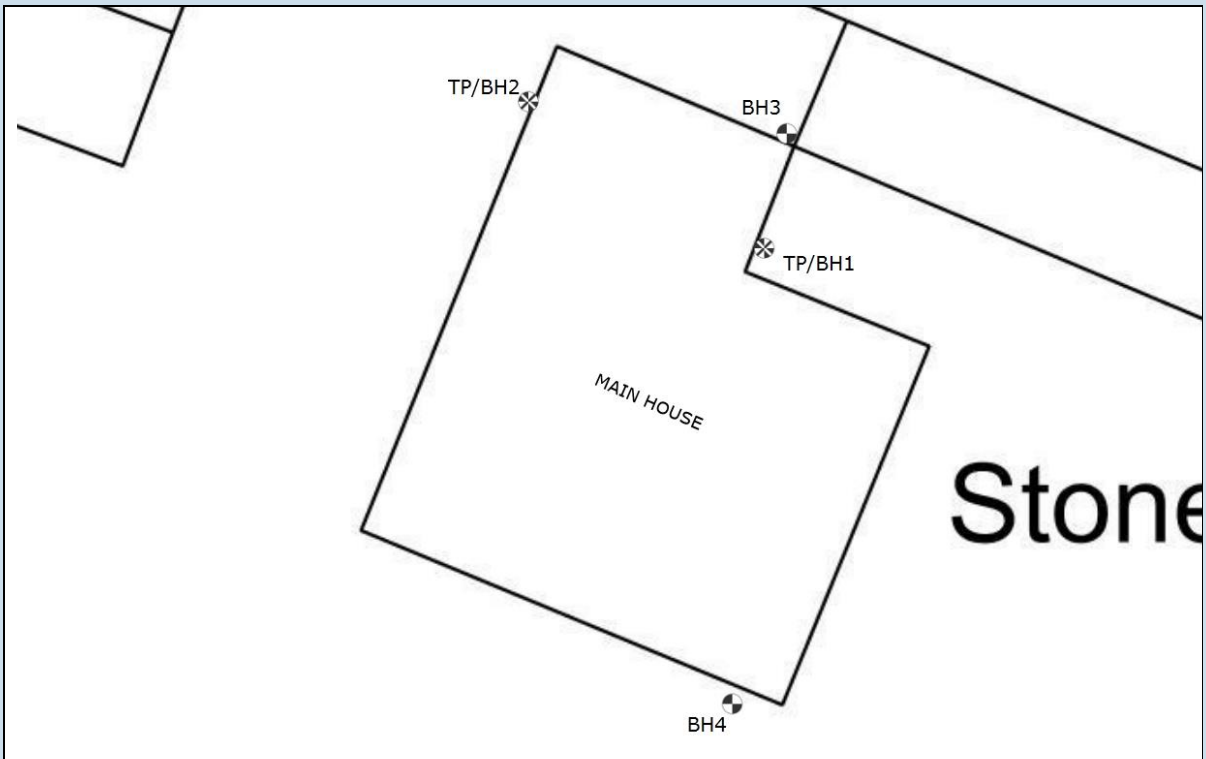
GEOTECHNICAL
for Subsidence Management Services

Stonehurst, Green Road, Barnsley, Dodworth, South Yorkshire, S75 3RP

Client:	Subsidence Management Services
Client Contact:	Mauro Loscalzo
Client Ref:	IFS-AXA-SUB-22-0104873
Policy Holder:	[redacted]
Report Date:	5 June 2023
Our Ref:	C68789G32814

Site Plan



	Borehole		Foul Water Drain	FMH	Foul Manhole		Foul Rodding Point		Foul Vent Pipe
	Trial Pit / Borehole		Surface Water Drain	RMH	Rain Water Manhole		Surface Rodding Point		Rain Water Gully
	Trial Pit		Combined Drain	MH	Combined Manhole				

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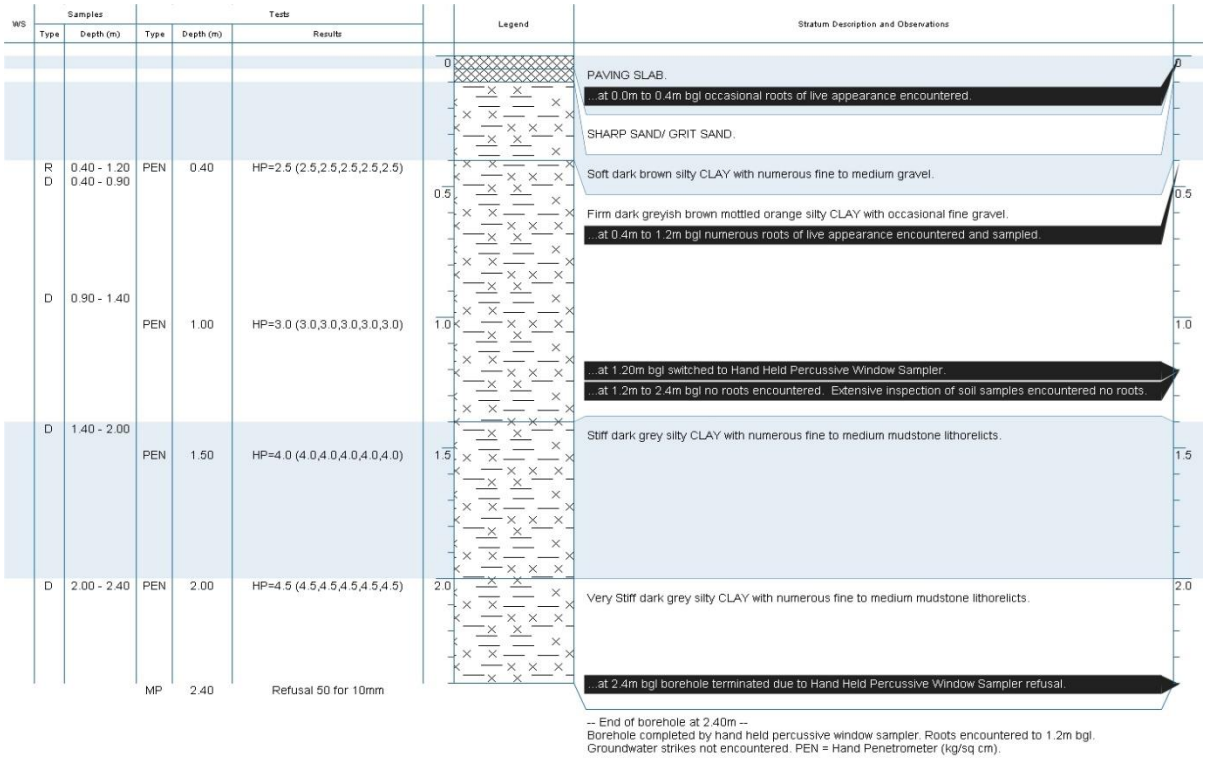
BH3 Borehole Log



-- End of borehole at 2.40m --
Borehole completed by hand held percussive window sampler. Roots encountered to 1.2m bgl.
Groundwater strikes not encountered. PEN = Hand Penetrometer (kg/sq cm).

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BH4 Borehole Log

WS	Samples Type	Samples Depth (m)	Tests Type	Tests Depth (m)	Tests Results	Legend	Stratum Description and Observations
						0	TOPSOIL. ...at 0.00m to 2.6m bgl no roots encountered. Extensive inspection of soil samples encountered no roots.
						0.5	Firm dark brown silty CLAY with numerous fine to medium gravel and numerous fine to medium sandstone.
						1.0	
	D	1.30 - 1.80	PEN	1.30	HP=4.5 (4.5,4.5,4.5,4.5,4.5)	1.5	Very stiff dark grey silty CLAY with numerous fine to medium mudstone lithorelicts. ...at 1.5m bgl switched to Hand Held Percussive Window Sampler.
	D	1.80 - 2.30					
			PEN	2.00	HP=4.5 (4.5,4.5,4.5,4.5,4.5)	2.0	
	D	2.30 - 2.60					
			PEN	2.50	HP=4.5 (4.5,4.5,4.5,4.5,4.5)	2.5	
			MP	2.60	Refusal 50 for 0mm		...at 2.6m bgl borehole terminated due to Hand Held Percussive Window Sampler refusal.

-- End of borehole at 2.60m --
Borehole completed by hand held percussive window sampler. Roots not encountered. Extensive inspection of soil samples encountered no roots. Groundwater strikes not encountered. PEN = Hand Penetrometer (kg/sq cm).

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Site Observations

GENERAL:
Site Investigation works (BH 3) (BH4) undertaken on 30 May 2023 during dry weather (i.e. no rain).

HEALTH AND SAFETY:
Negative signal obtained in Power, Radio and Genny mode on the Cable Avoidance Tool (CAT) (BH3).
Negative signal obtained in Power, Radio and Genny mode on the Cable Avoidance Tool (CAT) (BH4).

BOREHOLE:
At 1.20m bgl switched to Hand Held Percussive Window Sampler in BH3.
At 2.4m bgl borehole terminated due to Hand Held Percussive Window Sampler refusal in BH3.
Hand Held Percussive Window Sampler and Mackintosh Probe refusal at 2.4m bgl due to density within the rock (BH 3).
Borehole terminated. No further works undertaken.
At 1.5m bgl switched to Hand Held Percussive Window Sampler in BH4.
At 2.6m bgl borehole terminated due to Hand Held Percussive Window Sampler refusal in BH4.
Hand Held Percussive Window Sampler and Mackintosh Probe refusal at 2.6m bgl due to density within the rock (BH 4).
Borehole terminated. hand held percussive window sampler and Mackintosh Probe.

ROOTS:
At 0.0m to 0.4m bgl occasional roots of live appearance encountered in BH3.
At 0.4m to 1.2m bgl numerous roots of live appearance encountered and sampled in BH3.
At 1.2m to 2.4m bgl no roots encountered. Extensive inspection of soil samples encountered no roots in BH3.
At 0.00m to 2.6m bgl no roots encountered. Extensive inspection of soil samples encountered no roots in BH4.

IN SITU TESTING:
Hand Penetrometer (PEN) undertaken at 0.4m bgl (BH 3) within the hand excavated trial pit and thereafter in the window sampler at maximum 0.50m intervals. Mackintosh Probe (MP) test undertaken at 2.4m bgl (BH 3) within the window sample borehole only with no further Mackintosh Probe (MP) testing undertaken.
Hand Penetrometer (PEN) undertaken at 1.30m bgl (BH 3) within the hand excavated trial pit and thereafter in the window sampler at maximum 0.50m intervals. Mackintosh Probe (MP) test undertaken at 2.6m bgl (BH 3) within the window sample borehole only with no further Mackintosh Probe (MP) testing undertaken.

WATER STRIKES:
No water strikes (NWS) encountered (BH 3).
No water strikes (NWS) encountered (BH 4).

The groundwater observations do not necessarily indicate equilibrium conditions. It should be appreciated that groundwater levels are subject to both seasonal and weather induced variations. Other effects such as construction activities may also change groundwater levels.

Environmental Services

SOIL ANALYSIS

for Subsidence Management Services

Stonehurst, South Yorkshire, S75 3RP

Client: Subsidence Management Services

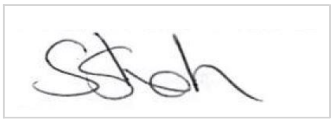
Claim Number: 12517951H

Policy Holder: [redacted]

Report Date: 28/06/2023

Our Ref: L26122

Compiled By:

Name	Position	Signature
Saira Dougan	Laboratory Technician	

Checked By:

Name	Position	Signature
Bob Walker	Laboratory Manager	

Date samples received: 02-Jun-23
Water Content Test Date: 09-Jun-23
Atterberg Limits Test Date: 23-Jun-23

UKAS TESTING

9265

Environmental Services

Notes relating to soils testing

Unless otherwise stated, all soil testing was undertaken by Environmental Services at unit 10H Maybrook Business Park, B76 1AL for SubsNetUK of Unit 4 Linnet Court, Cawledge Business Park, Alnwick, NE66 2GD

Soil samples have been prepared in accordance with BS1377:Part 1: 2016 Section 7

Descriptions of soil samples within the laboratory have been undertaken generally in accordance with BS5930:2015. Descriptions of soil samples fall outside of the scope of UKAS accreditation and may have been shortened to remove tertiary components for ease of reference.

The graphical representation of 40% of the LL and the numerical representation of the modified plasticity index (mod. PI) fall outside of the scope of UKAS accreditation.

Following the issue of this soil analysis report, samples will be retained for at least 28 days should additional testing, or referencing, be required. It should be noted that any tests undertaken on soils retained subsequent to the issue of this report may not give an accurate indication of the in-situ conditions of the sample.

The results contained herein relate only to items tested and no others. Additionally as the laboratory is not responsible for the sampling process it takes no responsibility for the condition of the samples and all samples are tested "as received".

Where samples of the same test type are not tested on the same day, or the testing spans multiple days, the test date states the day of the final test or the test date of the final sample.

All information above the laboratory reference on the cover page of this report are as provided by the customer and the laboratory is not responsible for any errors or omissions therein.

Water Content Tests are undertaken in accordance with ISO 17892:Part 1:2014

The Liquid Limit test is undertaken in accordance with BS1377:Part 2:1990 Section 4.4 using an 80g cone with a 30° tip. Sieve percentages reported in blue denote that the sample has been sieved otherwise it has been prepared from its natural state. Sieve percentage reported in BOLD denote that the sample has been oven-dried prior to testing.
Unless otherwise specified herein, the one-point cone penetrometer method has been used with increasing water content. Atterberg results depicted in green have not been tested and are duplicates of the preceding sample, included for reference only.

The Plastic Limit test and the determination of the Plasticity Index is undertaken in accordance with BS1377:Part 2:1990. Where a plastic limit has been denoted with an asterisk (*) then it has been derived from the liquid limit and has not been tested.

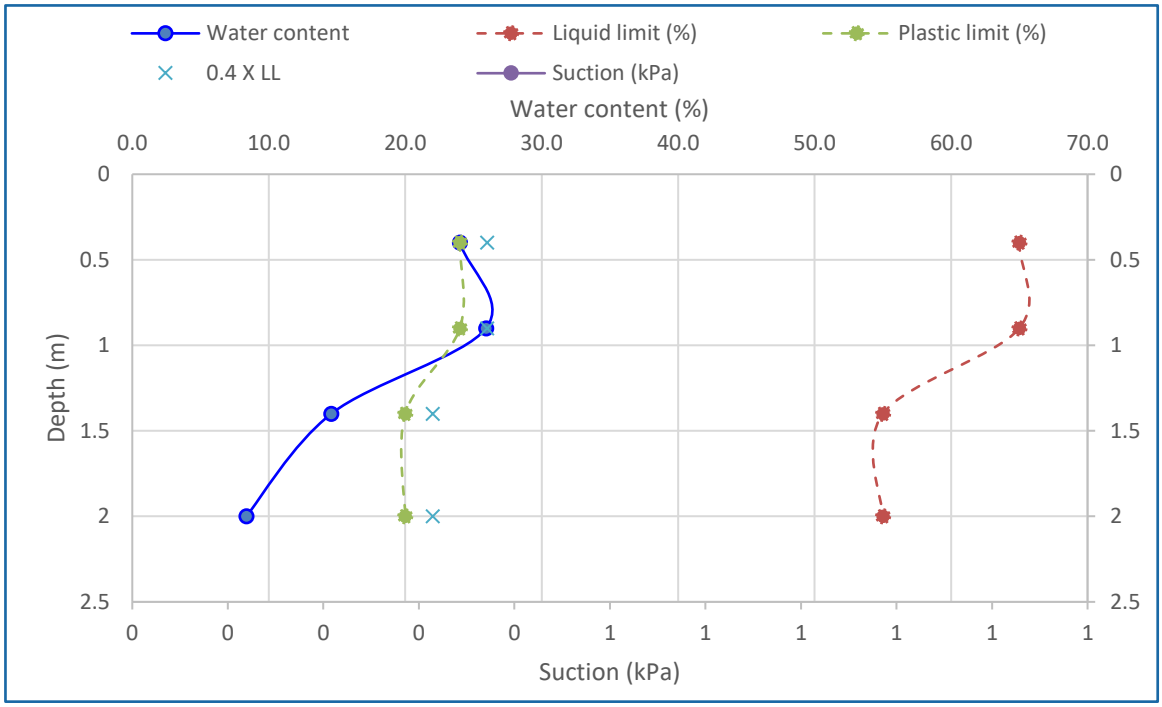
If you would like to provide feedback on this report or any laboratory services or performance, please complete the form below. All appropriate feedback will be used in the continual improvement of laboratory services.

Laboratory feedback form

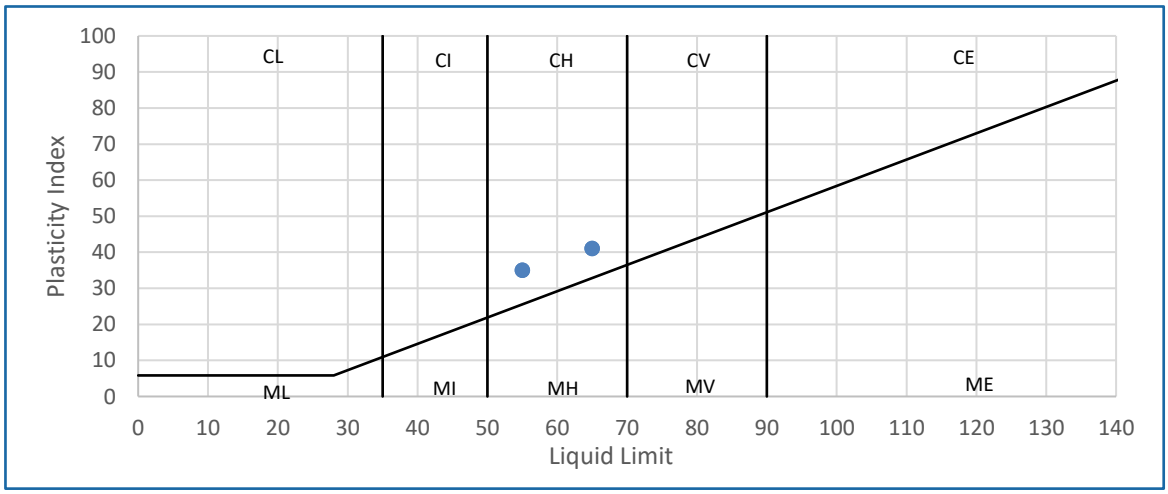
Environmental Services

Samples from BH3

Lab Ref	Depth (m)	WC (%)	LL (%)	PL (%)	PI (%)	.425 mm(%)	mod. PI (%)	Av. Suc. (kPa)	Description
1	0.4	24.0	65	24	41	100	41		Soft to firm grey-brown silty CLAY with rare gravel. Gravel is fine and medium.
2	0.9	25.9	65	24	41	100	41		Soft to firm grey-brown silty CLAY with rare gravel. Gravel is fine and medium.
3	1.4	14.6	55	20	35	71	25		Dry grey slihgtly gravelly SILT with rare pockets of clay. Gravel is fine and medium.
4	2	8.4	55	20	35	71	25		Dry grey slihgtly gravelly SILT with rare pockets of clay. Gravel is fine and medium.



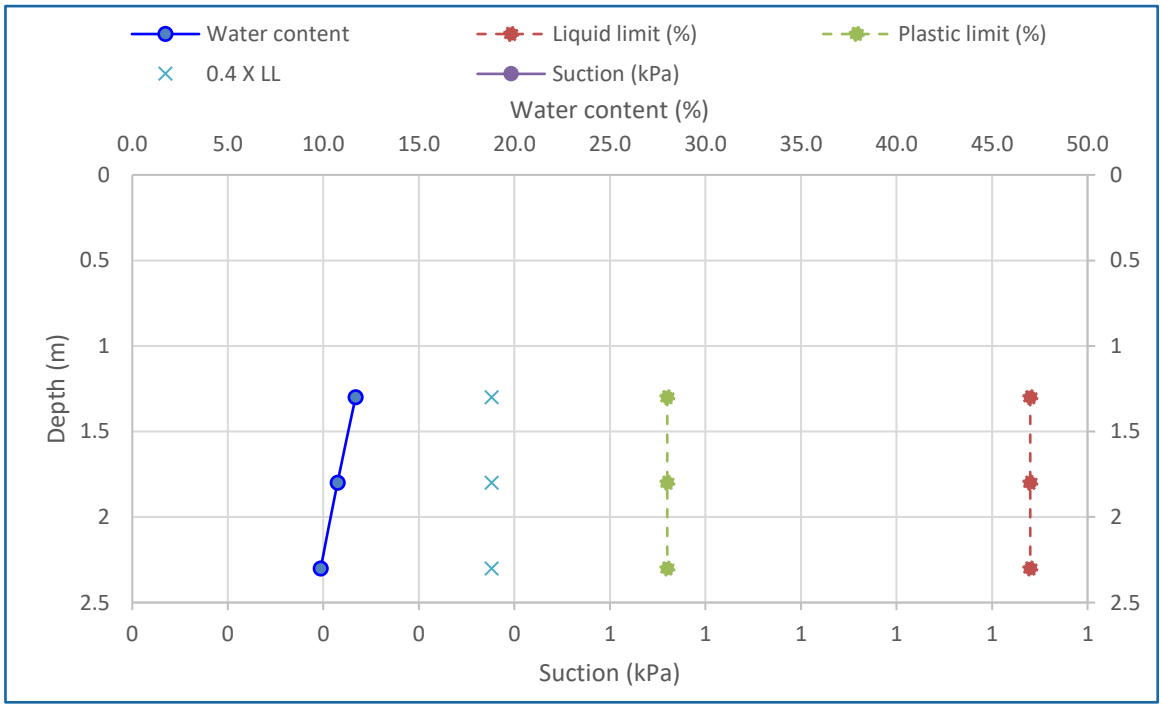
Plasticity Chart for Casagrande Classification



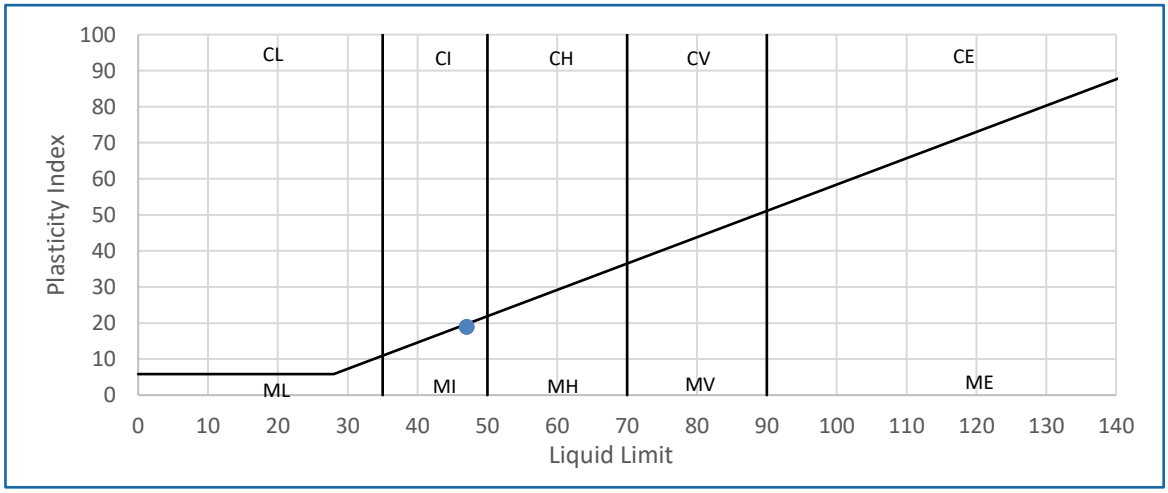
Environmental Services

Samples from BH4

Lab Ref	Depth (m)	WC (%)	LL (%)	PL (%)	PI (%)	.425 mm(%)	mod. PI (%)	Av. Suc. (kPa)	Description
5	1.3	11.7	47	28	19	32	6		Dry grey gravelly SILT with rare pockets of clay. Gravel is fine and medium.
6	1.8	10.7	47	28	19	32	6		Dry grey gravelly SILT with rare pockets of clay. Gravel is fine and medium.
7	2.3	9.9	47	28	19	32	6		Dry grey gravelly SILT with rare pockets of clay. Gravel is fine and medium.



Plasticity Chart for Casagrande Classification



Deviating Samples

The table below details any samples deviating from laboratory procedure or deviating in condition to an extent whereby the validity of results may be affected. A test denoted "I" is likely to have had testing abandoned but where a test result has been provided a non-standard procedure may have been used, details of which will be provided upon request.

LAB REF	CONDITION	WC	ATT	SUC	OED
1					
2					
3					
4					
5					
6					
7					

Key

D	Delay in sample receipt
C	Contaminated sample
B	Sample not bagged correctly
S	Sample too sandy (unsuitable for testing)
G	Sample too gravelly (unsuitable for testing)
V	Sample too soft (unsuitable for preparation)
L	Sample too silty
I	Insufficient sample
O	Too much organic content (unsuitable for testing)
N	Non-standard procedure used
H	Sample depth too shallow
X	Testing result too similar to above sample

References

The following provides a brief interpretation of the test results by comparison of the results to published classifications. The Atterberg Limit test may be used to classify the plasticity of soils; the plasticity classes defined in BS5930:2015 "Code of Practice for Site Investigations" are as follows.

CL (ML)	CLAY and CLAY/SILT of Low plasticity
CI (MI)	CLAY and CLAY/SILT of Intermediate plasticity
CH (MH)	CLAY and CLAY/SILT of High plasticity
CV (MV)	CLAY and CLAY/SILT of Very High plasticity
CE (ME)	CLAY and CLAY/SILT of Extremely High plasticity
O	The letter O is added to prefixes to symbolise a significant proportion of organic matter.
NP	Non-plastic

The Plasticity Index (PI) Result obtained from the Atterberg Limit tests may also be used to classify the potential for volume change of fine soils, in accordance with the National House Building Council's standards - Chapter 4.2 (2003) "Building Near Trees", as summarised below.

Modified PI < 10	Non Classified.
Modified PI = 10 to <20	Low volume change potential.
Modified PI = 20 to <40	Medium volume change potential.
Modified PI = 40 or greater	High volume change potential.

The 2003 edition of Chapter 4.2 also permits use of the Plasticity Index without modification. The classifications for this are grouped by soil type (soils with similar visual soils description and using unmodified Plasticity Indices.

ROOT IDENTIFICATION

for Subsidence Management Services

Stonehurst, Green Road, Barnsley, Dodworth, S75 3RP

Client:	Subsidence Management Services
Client Contact:	Mauro Loscalzo
Claim Number:	12517951H
Client Reference:	IFS-AXA-SUB-22-0104873
Policy Holder:	[redacted]
Report Date:	5 June 2023
Our Ref:	R52877

Intec
Parc Menai, Bangor,
Gwynedd, North Wales
LL57 4FG
Tel: 01248 672652

Sub Sample	Species Identified		Root Diameter	Starch
BH3:				
0.4-1.2m	*Acer* spp.	1	1.5 mm	Abundant
0.4-1.2m	probably *Quercus* spp. but possibly *Castanea* spp.	2	1.5 mm	Abundant

Comments:

1 - Plus 1 other also identified as *Acer* spp.
2 - Plus 1 other the same.

Acer spp. are maples, including sycamore, Norway maple, and Japanese maples.
Quercus spp. are oaks. *Castanea* spp. include sweet chestnut.

Signed: R. Shaw

Unless we are otherwise instructed in writing, the above sample material will normally be disposed of 6 years after the date of this report.

SubsNetUK