

SOIL ANALYSIS

for Subsidence Management Services

The Yews, Jarvis 's Gate, Spalding, Lincolnshire, PE12 0EP

Client: Subsidence Management Services
Client Contact: Stephen Palmer
Claim Number: 17WCI000382
Policy Holder: Mr Mark Campling
Report Date: 9 June 2017
Our Ref: C11464S34945
Laboratory Ref: L12413

Compiled By:



Checked By:



Date samples received: 30 May 2017
Moisture Content Test Date: 30 May 2017
Atterberg Limits Test Date: 2 May 2017
Oedometer Test Date: 6 May 2017

Notes relating to soils testing

Unless otherwise stated, all soils testing was undertaken at Environmental Services' soils laboratory at unit 10H Maybrook Business Park, B76 1AL.

Soil samples have been prepared in accordance with BS1377:Part 1: 1990 Section 7

Descriptions of soil samples within the laboratory have been undertaken generally in accordance with BS5930:1999

Following the issue of this soil analysis report, samples will be retained for 1 month 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.

Natural Moisture 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

The Plastic Limit test and the determination of the Plasticity Index is undertaken in accordance with BS1377:Part 2:1990 Section 5

The Oedometer swell/strain test method is based upon BS1377:Part 5:1990 Section 4.4 'Determination of swelling and collapse characteristics' and unless otherwise stated is undertaken on a remoulded, disturbed, sample.

The Oedometer Swell/Strain Test is undertaken in a controlled environment within a temperature range of 16°C and 24°C

The uncertainty of measurement for the displacement transducers is within 0.002mm, typically 0.1% of the range of consolidation and swell of a sample, and the deformation of the consolidation apparatus typically at around 0.15% of the consolidation of a sample and adding these to other human factors the accuracy of the quoted strain measurement in an individual test is deemed to be within +/- 2.5%.

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Note

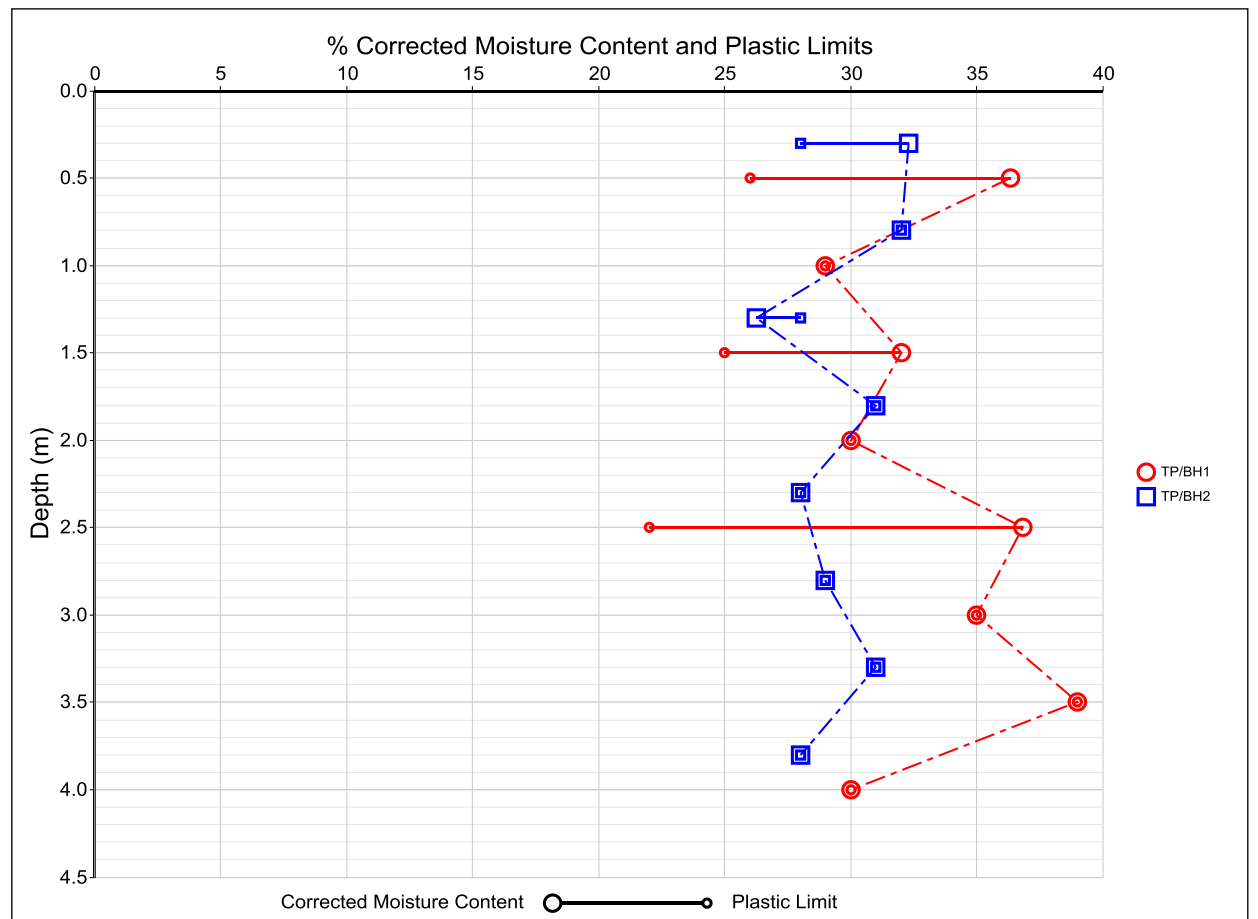
Where appropriate moisture contents have been corrected to demonstrate the equivalent moisture content following the sample being passed through a .425 mm sieve for comparison with the Liquid & Plastic Limit. Where this is not available, uncorrected moisture contents have been used in the graph on the following page.

Deviations to testing schedule:

All testing has been undertaken in line with the soils testing schedule provided

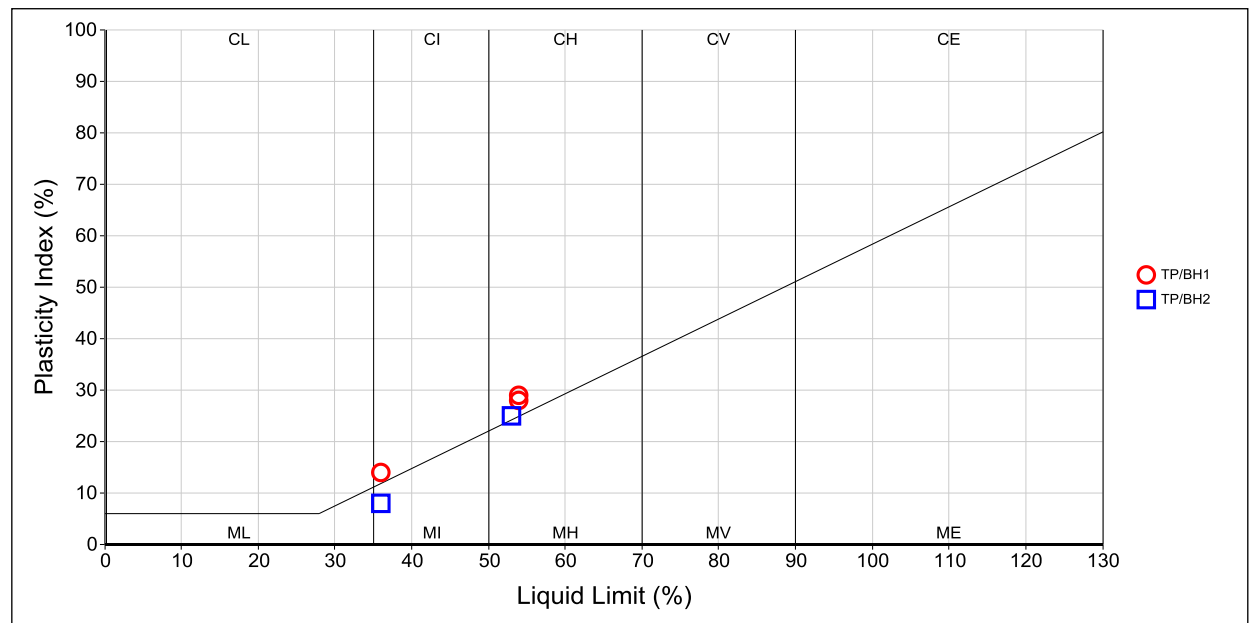
Lab Ref	Depth (m)	MC (%)	Corr MC (%)	LL (%)	PL (%)	PI (%)	% Passing .425mm
Samples from TP/BH1							
001	0.50	36	36	54	26	28	99
002	1.00	29					
003	1.50	32	32	54	25	29	100
004	2.00	30					
005	2.50	35	37	36	22	14	95
006	3.00	35					
007	3.50	39	39	34	NP		100
008	4.00	30					
Samples from TP/BH2							
009	0.30	32	32	53	28	25	99
010	0.80	32					
011	1.30	26	26	36	28	8	99
012	1.80	31					
013	2.30	28	28	34	NP		100
014	2.80	29					
015	3.30	31	31	35	NP		100
016	3.80	28					

Corrected Moisture Content and Plastic Limits Graph



Lab Ref	Depth (m)	Description	BS:5930	NHBC Chapter 4.2
Samples from TP/BH1				
001	0.50	Soft brown CLAY with rare gravel and sand. Gravel is fine	CH	Medium
002	1.00	Soft brown slightly sandy CLAY with rare gravel. Gravel is fine		
003	1.50	Soft brown slightly sandy CLAY with rare gravel. Gravel is fine	CH	Medium
004	2.00	Soft brown slightly sandy CLAY with rare gravel and sand. Gravel is fine		
005	2.50	Very soft brown mottled sandy CLAY with rare gravel including shell fragments. Gravel is fine.	CI	Low
006	3.00	Wet brown mottled SAND		
007	3.50	Wet brown mottled SAND		
008	4.00	Wet brown SAND		
Samples from TP/BH2				
009	0.30	Soft to firm brown mottled slightly sandy CLAY with rare gravel. Gravel is fine and medium.	CH	Medium
010	0.80	Soft brown mottled slightly sandy CLAY with rare gravel. Gravel is fine and medium.		
011	1.30	Wet brown mottled slightly clayey SAND with rare gravel. Gravel is fine	MI	Non Classified
012	1.80	Wet brown SAND with rare gravel. Gravel is fine		
013	2.30	Wet brown SAND		
014	2.80	Wet brown SAND		
015	3.30	Wet brown SAND		
016	3.80	Moist brown SAND with rare gravel. Gravel is fine		

Plasticity Chart for Casagrande Classification



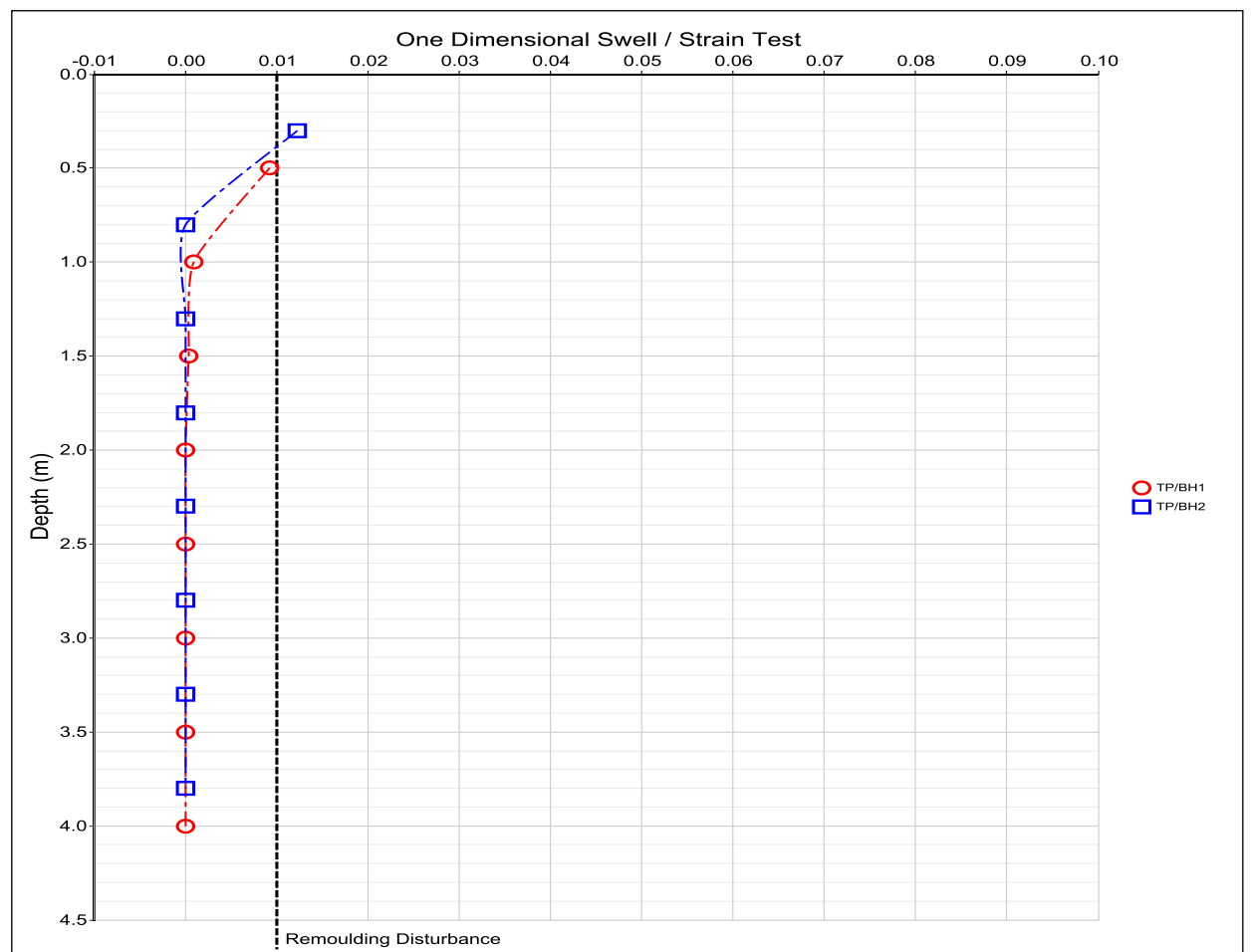
Summary of Oedometer Testing

Lab Ref	Depth (m)	Strain	Dd (mm)	Remarks
Samples from TP/BH1				
001	0.50	0.0093	2.3	
002	1.00	0.0009	0.2	
003	1.50	0.0004	0.1	
004	2.00	0.0000	0.0	
005	2.50			Sample unsuitable for preparation
006	3.00			Sample unsuitable for preparation
007	3.50			Sample unsuitable for preparation
008	4.00			Sample unsuitable for preparation
Samples from TP/BH2				
009	0.30	0.0123	1.8	
010	0.80			Sample unsuitable for preparation
011	1.30			Sample unsuitable for preparation
012	1.80			Sample unsuitable for preparation
013	2.30			Sample unsuitable for preparation
014	2.80			Sample unsuitable for preparation
015	3.30			Sample unsuitable for preparation
016	3.80			Sample unsuitable for preparation

TP/BH1 Dd Total: 2.7mm

TP/BH2 Dd Total: 1.8mm

Oedometer Strain



References and Interpretation

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 BS5930:1999 "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.