



Geotechnical Survey Report

FSI Ref:	26255
Issue Date:	March 2023
Risk Address:	34 Lakewood Road Eastleigh Hampshire SO53 1EW
Engineer:	Neil Crawford
Company:	Crawford
Claim Ref:	SU2206173

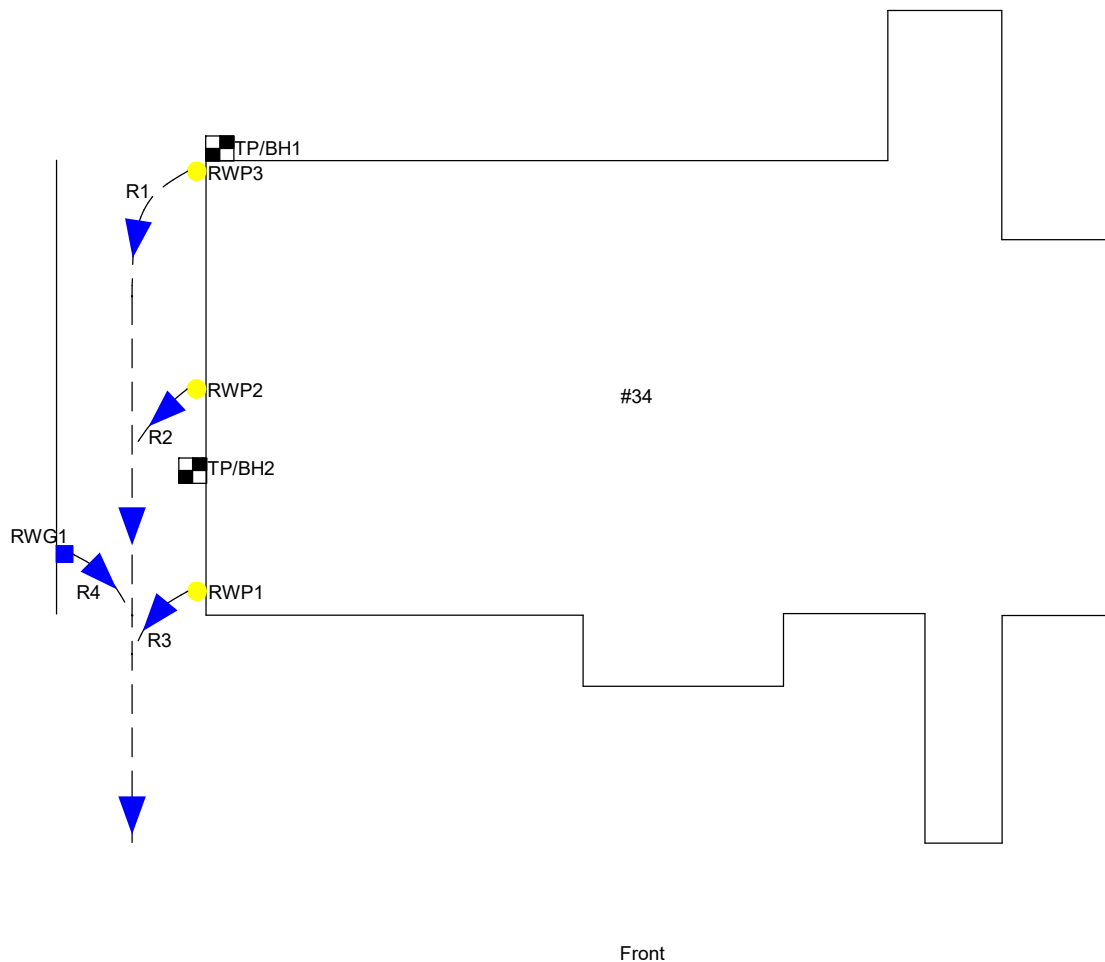
Managing Director:	Martin Rush MSc FGS
Finance Director:	Louise Banks BSc (Hons)
Geotechnical Compliance & Logistics Supervisor:	Perry Martin MCIHT
Laboratory Manager:	Jade McLellan
Senior Geologist:	Scott Parker BSc (Hons) FGS
Assistant Geologist:	Sarah Brand
Geotechnical Assistant:	Bradley Webb

SITE PLAN

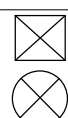
Property Address: 34 Lakewood Road, Eastleigh, Hampshire, SO53 1EW

Client Claim Ref: SU2206173

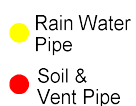
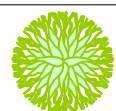
Survey date: 27/03/2023

Operative: SE2

Scale:
NTS

Drawn by:
BW

Key:


Manholes

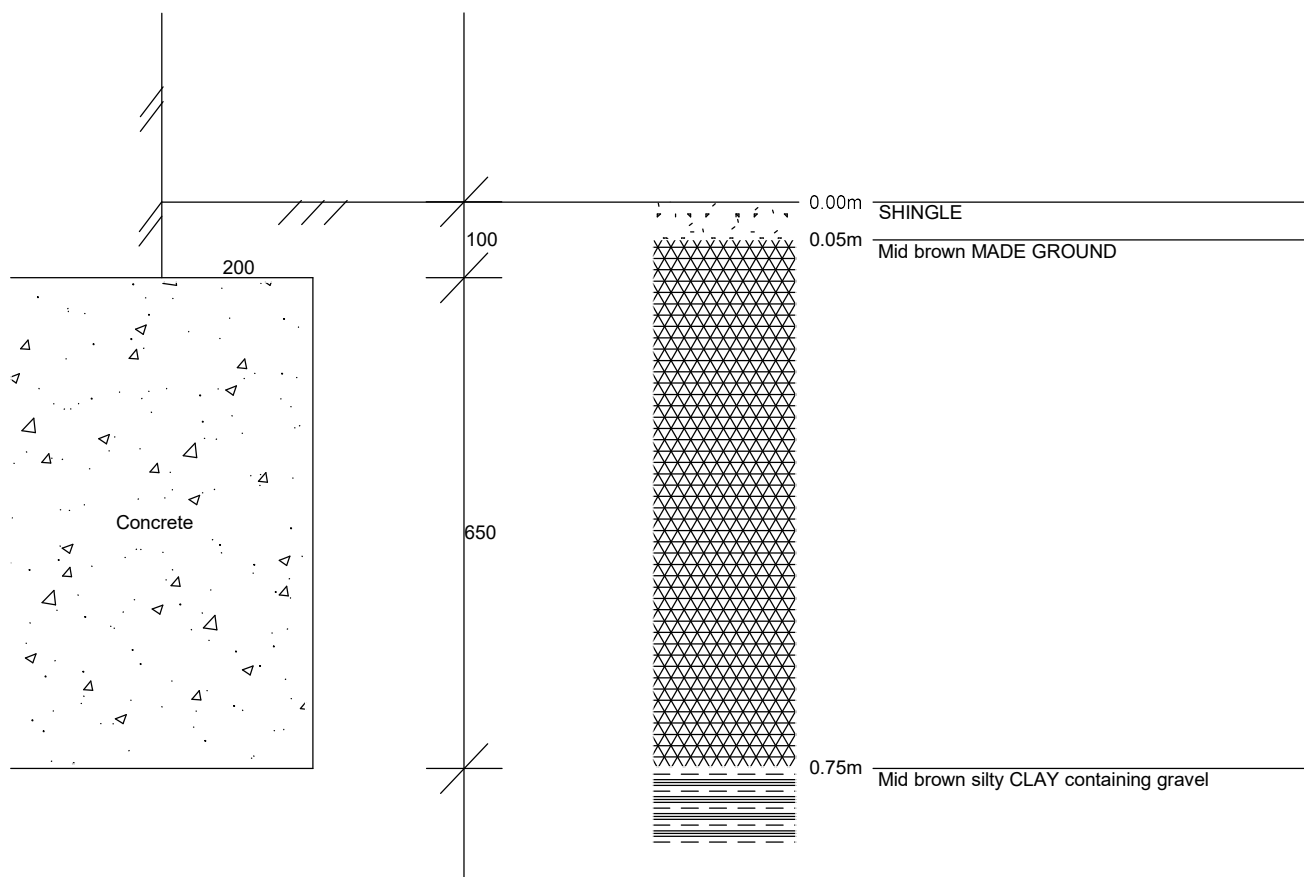

Tree
(Conifer)

Tree
(Deciduous)

TRIAL PIT 1

Property Address: 34 Lakewood Road, Eastleigh, Hampshire, SO53 1EW

Client Claim Ref: SU2206173

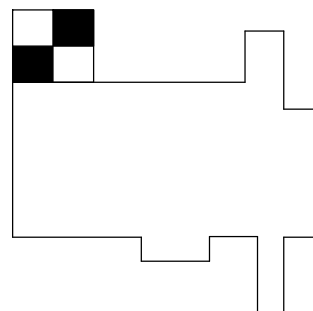
Survey date: 27/03/2023

Operative: SE2


D1 @ F.L. (0.75m)

V = 58-65kPa

Founding strata: Mid brown silty CLAY containing gravel

Trial Pit Location:

Drawn by:

BW

Scale:

1:10

D= small disturbed sample, B= large bulk sample, U= undisturbed sample,
MP= mackintosh probe blow counts, V= shear vane reading (kPa)



Fastrack Site Investigations Ltd
Unit 9, Tyndales Farm
Southend Road
Maldon CM9 6TQ

Borehole Log

Borehole No.

BH1

Sheet 1 of 1

Project Name: SU2206173

Project No.
26255

Site Date: 27/03/2023

Hole Type
BH

Location: 34 Lakewood Road, Eastleigh, Hampshire, SO53 1EW

Scale
1:17

Client: Crawford

Logged By
SE2

Water Strikes	Sample and In Situ Testing			Depth (m)	Legend	Stratum Description	
	Depth (m)	Type	Results				
	0.05			0.05		SHINGLE Mid brown MADE GROUND <i>Foundation top-0.10m (concrete construct projecting 200mm with a thickness of 650mm)</i>	
	0.75	D	V (kPa) = 58 V (kPa) = 65	0.75		Mid brown silty CLAY containing gravel <i>Foundation level-0.75m</i> <i>1-2mm roots noted at F/L</i>	1
	1.50	D	V (kPa) = 66 V (kPa) = 71	1.50		Mid brown/orange CLAY containing sand & gravel <i>1-2mm roots noted at 1.50m</i>	
	2.00	D	V (kPa) = 76 V (kPa) = 81	2.00		<i>1-2mm roots noted at 2.00m</i>	2
	2.50	D	V (kPa) = 88 V (kPa) = 93	2.50		Orange sandy CLAY containing gravel	
	3.00	D	V (kPa) = 100 V (kPa) = 95	3.00		End of Borehole at 3.000m	3

Key: D - Disturbed Sample V - Insitu Vane Test MP - Mackintosh Probe Test

Remarks: Borehole closed at 3.00m on completion.

Borehole noted to contain standing water at 3.00m on completion.

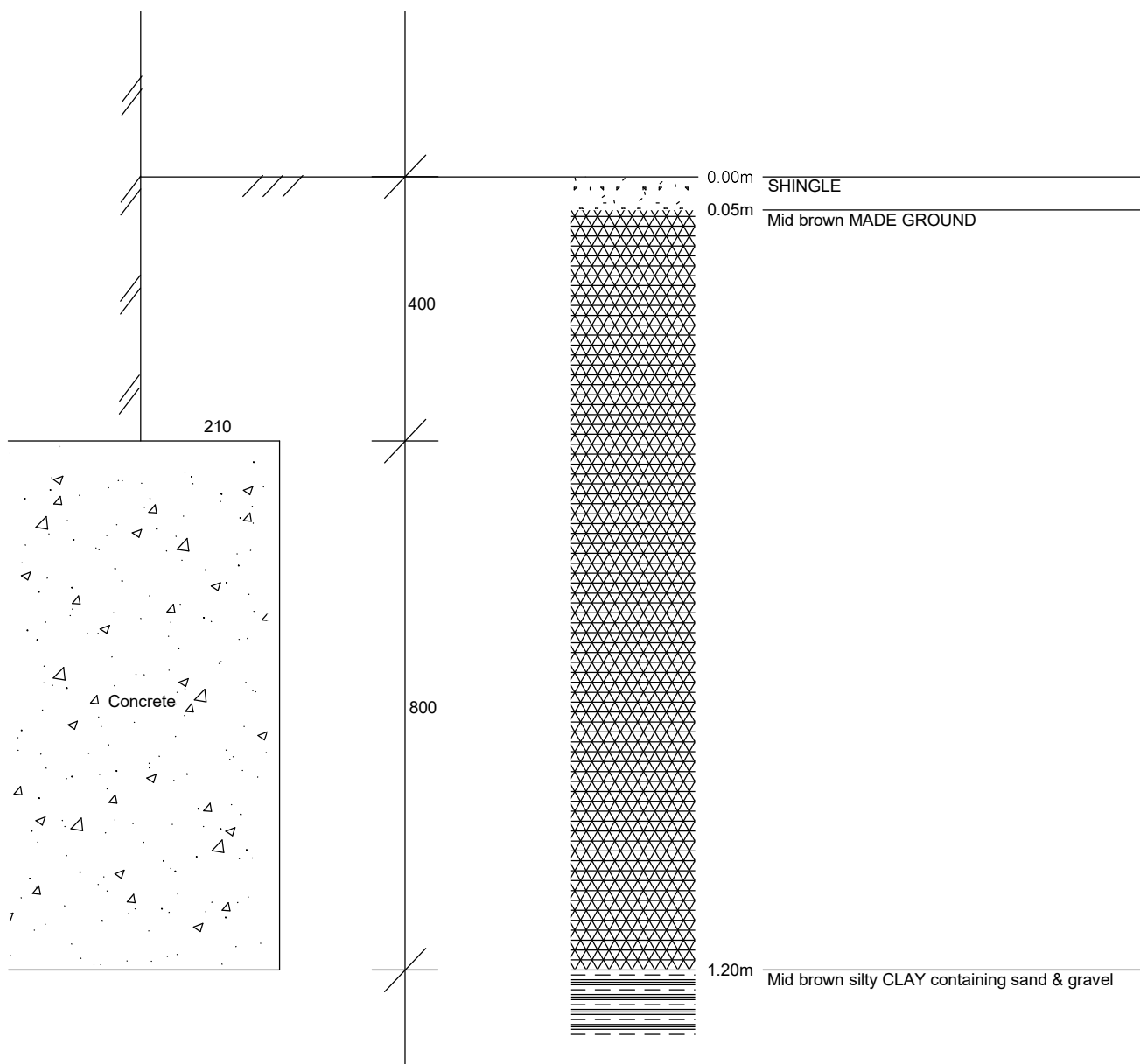


TRIAL PIT 2

Property Address: 34 Lakewood Road, Eastleigh, Hampshire, SO53 1EW

Client Claim Ref: SU2206173

Survey date: 27/03/2023

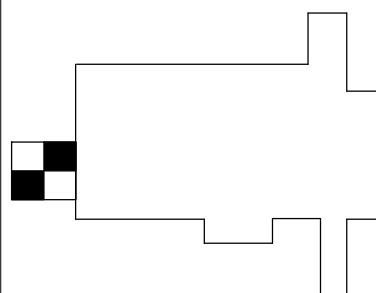
Operative: SE2


D1 @ F.L. (1.20m)

V = 54-59kPa

Founding strata: Mid brown silty CLAY containing gravel and sand

D= small disturbed sample, B= large bulk sample, U= undisturbed sample,
MP= mackintosh probe blow counts, V= shear vane reading (kPa)

Trial Pit Location:

Drawn by:

BW

Scale:

1:10



Fastrack Site Investigations Ltd
Unit 9, Tyndales Farm
Southend Road
Maldon CM9 6TQ

Borehole Log

Borehole No.

BH2

Sheet 1 of 1

Project Name: SU2206173

Project No.
26255

Site Date: 27/03/2023

Hole Type
BH

Location: 34 Lakewood Road, Eastleigh, Hampshire, SO53 1EW

Scale
1:17

Client: Crawford

Logged By
SE2

Water Strikes	Sample and In Situ Testing			Depth (m)	Legend	Stratum Description	
	Depth (m)	Type	Results				
				0.05		SHINGLE Mid brown MADE GROUND	
						<u>Foundation top-0.40m (concrete construct projecting 210mm with a thickness of 800mm)</u>	
	1.20	D	V (kPa) = 54 V (kPa) = 59	1.20		Mid brown silty CLAY containing sand & gravel <u>Foundation level-1.20m</u> <u>1-2mm roots noted at F/L</u>	1
	1.50	D	V (kPa) = 61 V (kPa) = 66			<u>1-2mm roots noted at 1.50m</u>	
	2.00	D	V (kPa) = 85 V (kPa) = 90	2.00		Orange/brown CLAY containing sand <u>1-2mm roots noted at 2.00m</u>	2
	2.50	D	V (kPa) = 88 V (kPa) = 93			<u>CLAY noted to be orange/grey in colour and containing sand & gravel</u>	
	3.00	D	V (kPa) = 101 V (kPa) = 107	3.00		End of Borehole at 3.000m	3

Key: D - Disturbed Sample V - Insitu Vane Test MP - Mackintosh Probe Test

Remarks: Borehole closed at 3.00m on completion.

Borehole noted to contain standing water at 3.00m on completion.





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Appendix No: 3
FSI Ref: 26255

LABORATORY RESULTS

Property Address: 34 Lakewood Road, Eastleigh, Hampshire, SO53 1EW
Client Claim Ref: SU2206173 **Client:** Crawford & Company

SAMPLE DETAILS		ANALYSIS REQUESTED			
Investigation date:	27/03/2023	Moisture Content	☒	PSD	☐
Sample details:	Bags as received	Liquid Limit	☒	Soil Suction	☒
Samples received:	31/03/2023	Plastic Limit	☒	Shear Strength	☐
Schedule recieved:	31/03/2023	Plasticity Index	☒	Contamination	☐
Samples tested:	03/04/2023-11/04/2023	Root ID	☒	Root/Tree DNA	☐
Results reported:	11/04/2023			Roots obtained	

TEST DETAILS

General

Sample descriptions were written in accordance with BS 5930:1999.

Samples were prepared in accordance with BS 1377: Part 1: 1990, section 7

Samples from this contract will be retained for 1 calendar month following the issue of this report unless otherwise notified

Written approval is required from Fastrack Site Investigations Limited to reproduce report in full. The results shown within this report only relate to the samples tested

Moisture Content

Samples were tested in accordance with BS 1377: Part 2: 1990, section 3.2 (Oven drying method)

In accordance with Note 1 to paragraph 3.2.4 of BS 1377 Part 2 1990; these moisture contents have been corrected to give the equivalent moisture content of the fraction passing the 425µm sieve, to enable comparison with the liquid & plastic limits. (If condition of test is 'natural' the retained percentage is an estimated value, if condition is 'washed' the percentage is a measured value).

Samples are dried at 105-110°C unless otherwise stated.

Atterberg Limits

Samples were tested in accordance with BS 1377: Part 2: 1990, section 4.3 (4 drop LL), 4.4 (1 drop LL), 5.3 (PL) and 5.4 (PI)

Test results on samples with a sand content, may show less accurate results. If condition of test is 'washed' results relate to the fraction passing the 425µm sieve only.

* Driscoll's rules deem the soil to be desiccated where the moisture content is less than the value calculated using driscoll's rule 1 and/or 2

Particle Size Distribution

Samples were tested in accordance with BS 1377: Part 2: 1990 section 9.2 (Wet sieving method)

Undrained Shear Strength

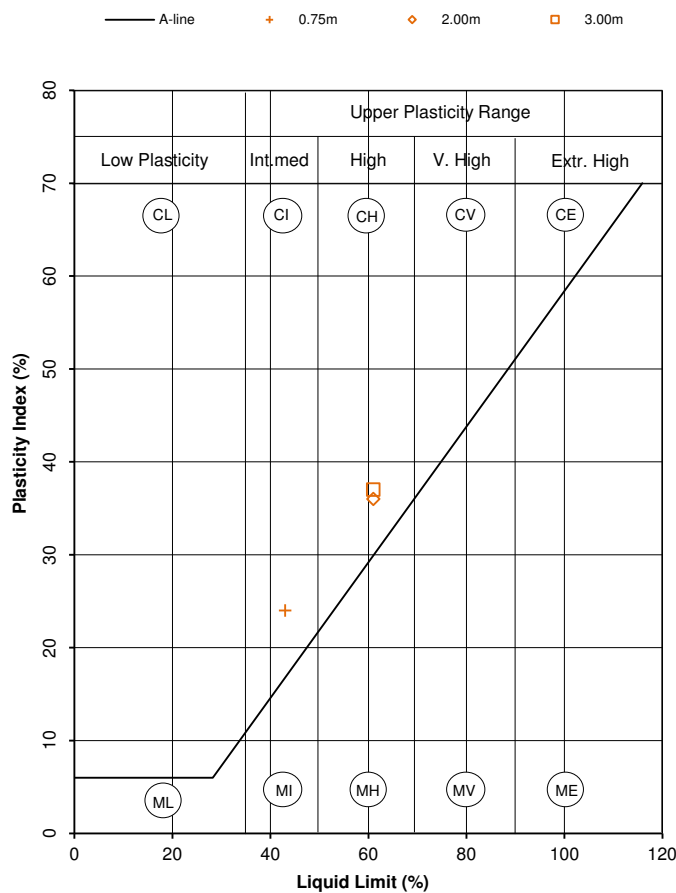
Samples were prepared in accordance with BS 1377: Part 7: 1990 section 8.3 and testing in accordance with BS 1377: Part 7: 1990: section 8.4 (undrained shear strength in triaxial compression without measurement of pore pressure (UU))

Soil Suction

Samples were prepared and tested based on the BRE digest No:IP4/93 (Corrected). 'A method of determining the state of desiccation in clay soils.' (Filter paper method).

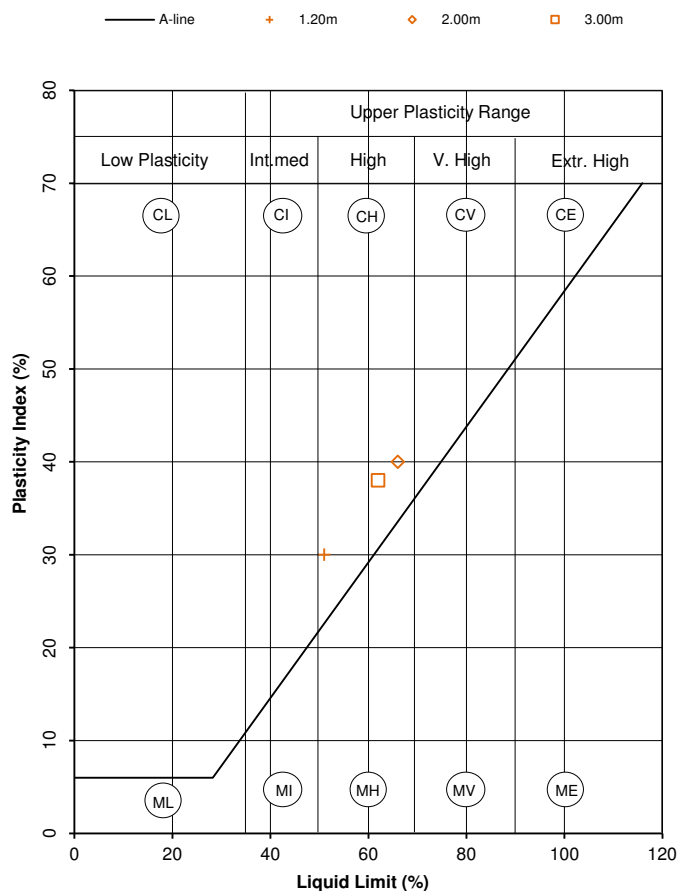
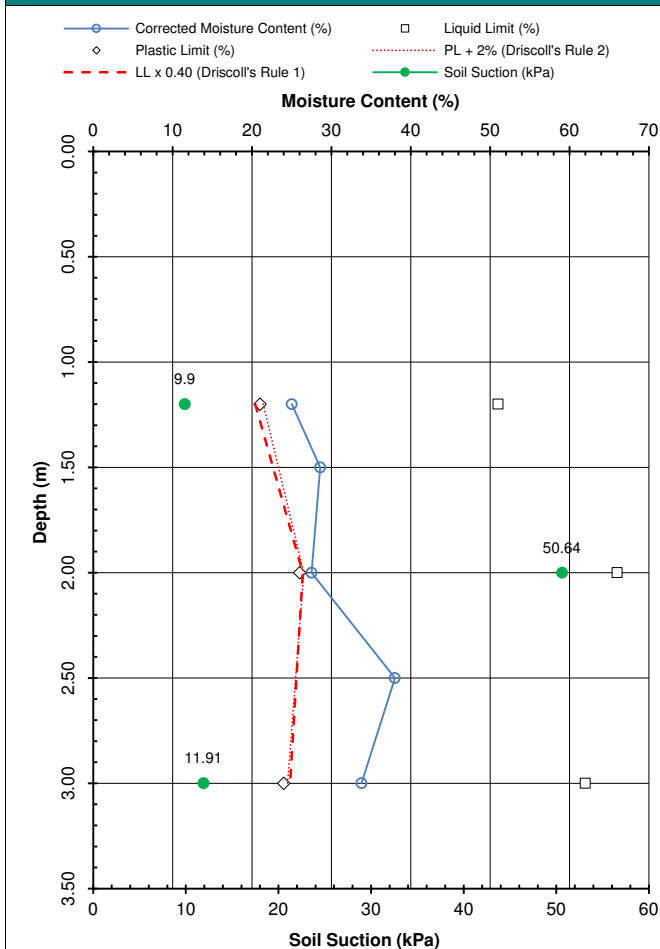
Test results on samples with a sand or silt content, may show less accurate results. Deviation to standard procedure - Polythene bags are not used from weighing filter papers.

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Client Claim Ref:	SU2206173

[illegible]

Ted Smith

Property Address:	34 Lakewood Road, Eastleigh, Hampshire, SO53 1EW
Client Claim Ref:	SU2206173

[illegible]

Comments:

Reported by: Issy Acerbis

Checked by:

Ted Smith



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Section: 1
FSI Ref: 26255

HEAVE CALCULATION REPORT

Property Address: 34 Lakewood Road, Eastleigh, Hampshire, SO53 1EW
Client Claim Ref: SU2206173 **Survey date:** 27/03/2023 **Operative:** SE2

Heave Calculation

In accordance with your instructions we visited the above site on 27th March 2023 in order to examine the subsoil conditions, and we have used these findings to provide information on potential heave that might occur following tree removal in a desiccated soil profile.

Selected samples were tested in accordance with BS1377, method of tests for soil for Civil Engineering purposes: 1990. Samples were tested for their full moisture content profile, with selected samples tested for the Atterberg limits. Selected samples were also tested in the laboratory for filter paper method testing for soil suction. All laboratory results can be found within Appendix 3.

A normal undesiccated soil profile will show a linear trend, with an increase in suction with depth. A desiccated soil will show a clear bulge effect with the soil suction increasing to a certain depth before returning back to a stable increase of suction with depth.

Sample suction profiles can be used to estimate the amount of ground heave that might occur following tree removal in a desiccated soil profile. The heave prediction is normally based on the soil suction profile compared to a control borehole. However, it is possible to determine heave potential using an estimated equilibrium line (Ko2.5). This is based on a high plasticity London Clay; therefore, different stratas may give inaccurate results.

Other factors used in this equation are plasticity index, layer thickness and the insitu effective stress. We would note that results obtained are only estimates and should only be used to obtain an approximate magnitude of any potential heave.

The calculated heave potential for Boreholes 1 & 2 using the equilibrium line (Ko2.5) is:

BH1	Depth (m)	Heave potential (mm)	Layer Heave (mm)	BH2	Depth (m)	Heave potential (mm)	Layer Heave (mm)
BH1	0.75	-15	-7	BH2	1.2	-18	-5
BH1	2.0	-8	-5	BH2	2.0	-13	-8
BH1	3.0	-3	-3	BH2	3.0	-5	-5

NB: The results shown in the tables are cumulative

The comments and opinions expressed within this report are based on the conditions encountered and on the subsequent laboratory testing. Therefore, it is possible that some special conditions prevailing on site have not been taken into account.

FASTRACK SITE INVESTIGATIONS Ltd

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ROOT IDENTIFICATION

34 Lakewood Road,

Client Reference: 26255
Report Date: 11 April 2023
Our Ref: R52017

Sub Sample	Species Identified		Root Diameter	Starch
BH1:				
0.75m	Cupressaceae spp.		1 mm	Low
0.75m	either <i>Quercus</i> spp. or <i>Castanea</i> spp.	1	<1 mm	Absent
1.5m	Cupressaceae spp.		1 mm	Abundant
BH2:				
1.2m	<i>Prunus</i> spp.		3 mm	Abundant
1.5m	either <i>Quercus</i> spp. or <i>Castanea</i> spp.	1	<1 mm	Absent
2m	either <i>Quercus</i> spp. or <i>Castanea</i> spp.	1	<1 mm	Absent

Comments:

1 - Rather juvenile.

Cupressaceae spp. include Lawson cypress, western red cedar, Monterey cypress, Leyland cypress and junipers.

Quercus spp. are oaks. *Castanea* spp. include sweet chestnut.

Prunus spp. include blackthorn, cherry, cherry-laurel, Portuguese laurel, peach, plum, and related species.

Signed: M D Mitchell

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





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Appendix No:

4

FSI Ref:

26255

DRAINAGE SURVEY

Property Address: 34 Lakewood Road, Eastleigh, Hampshire, SO53 1EW

Client Claim Ref: SU2206173

Survey date: 27/03/2023

Operative: SE2

Following your recent instruction we attended the above property and carried out a cctv camera survey and hydraulic testing of the drainage, in accordance with procedures detailed in the WRc Drain Repair Book.

Manhole / Inspection chamber Summary:

Node	Invert Level (m)	Manhole Construction	Pipe Size	Pipe Material	Manhole Condition	Type of Cover	Size of Cover

Hydraulic Testing Summary:

Run	From	To	Result	Remarks
1				
2				
3				
4				
5				
6				

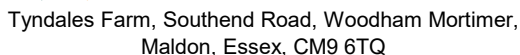
Serviceability:

1	Is the system failing to discharge normal household flows to the sewer system? (i.e. recurrence of blockage)	No
2	Is there evidence of leakage occurring (infiltration or exfiltration)?	No
3	Is there intermittent storm-water flooding?	Undetermined
4	Has a hydraulic leakage test failed?	N/A
5	Do observed defects make the drain unserviceable?	No

Comments:

Recommendations for Repair:

Run	Grade	Recommended action
1	A	None required
2	A	None required
3	A	None required
4	A	None required
5		
6		



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26255

Property Address:	34 Lakewood Road, Eastleigh, Hampshire, SO53 1EW
Client Claim Ref:	SU2206173

Run	From	To	Pipe Diameter	Pipe Materials	Duty	Direction	Ownership
1	RWP1	Main sewer	100mm	Clay	Storm	Downstream	Private
2	RWP2	Main sewer	100mm	Clay	Storm	Downstream	Private
3	RWP3	Main sewer	100mm	Clay	Storm	Downstream	Private
4	RWG1	Main sewer	100mm	Clay	Storm	Downstream	Private
5							
6							

Grade A	Condition grade A: <i>Structurally sound with no leakage evident. Slight crack/defects permitted.</i>
Grade B	Condition grade B: <i>Cracks and/or fractures observed but pipe provides sufficient arching support. Some leakage may be evident.</i>
Grade C	Condition grade C: <i>Structurally unsound with insufficient arching support. Total collapse/blockage likely in the future.</i>

[illegible]