Cunningham Lindsey

Subsidence Scanning Centre, Woodhead House, Centre 27 Business Park, Woodhead Rd Birstall WF17 9TD
Telephone 01924 428691 Facsimile 01924 428603

Mr D Barton
Southway Housing Trust (Manch)
825 Wilmslow Road
Manchester
Lancs
M20 2SN

17 January 2012

Our Ref: LBHPA/DCT/4198661

Dear Mr Barton

Insurance Claim - Subsidence Damage at 5 Fosbrook Avenue

Following the recent site investigations and receipt of results I am now able to make a final diagnosis on the cause of damage, sufficient to recommend measures that are likely to prevent the damage from getting worse.

As can be seen in the attached Engineering Appraisal Report, it is my view that the damage has been caused by root exacerbated clay shrinkage subsidence.

Normally in cases such as this the property will stabilise if the damaging influence can be removed. In this case, my recommendation is to remove the sycamore at the front of the property, although there is a TPO in force and permission will be needed from the Local Authority.

I have also noted that the policy excludes subsidence damage which originated before the policy was taken out. In the notes on the repair history it states that the cracking which was reported on 6 September 2011 had been looked at previously. I can see no other reference to this in the history, which dates back to 18 February 2009, and need clarification as to whether this had been looked at prior to this date. If so then the problem had started prior to the start of the policy on 26 November 2010, and the claim would be declined. In this case you would need to report it to your previous insurers.

Please can you clarify when the cracking had been previously inspected by yourselves?

Southway Housing Trust
19 JAN 2012
RECEIVED

I trust that the information I have been able to give you has clearly explained the cause of damage to your property and what now needs to be done to stop it getting worse. Once you have had an opportunity to consider this information please do not hesitate to contact me if there are any matters that you wish to discuss.

Yours sincerely
For Cunningham Lindsey

D.C. Thomp

Robert Loxham BSc (Hons) PGCE CEng MICE Dip CII (Claims)
Engineering Manager
Direct dial: 01924 428691
E-mail: pmsleeds@cl-uk.com

Enc CET Report and Engineering Appraisal Report

c.c. This Housing

Cunningham Lindsey

Subsidence Scanning Centre, Woodhead House, Centre 27 Business Park, Woodhead Rd Birstall WF17 9TD
Telephone 01924 428691 Facsimile 01924 428603

Policyholder: Southway Housing Trust (Manch)

Subject Property Address:

5 Fosbrook Avenue

Manchester

Lancs

M20 6HY

INSURANCE CLAIM

CONCERNING SUSPECTED SUBSIDENCE

ENGINEERING APPRAISAL REPORT

This report is prepared on behalf of Brit Insurance for the purpose of investigating a claim for subsidence. It is not intended to cover any other aspect of structural inadequacy or building defect that may otherwise have been in existence at the time of inspection.

Date: 17/1/2012

Cunningham Lindsey Ref: LBHPA/DCT/4198661

INTRODUCTION

The technical aspects of this claim are being overseen by our Engineering Manager Robert Loxham, BSc (Hons) PGCE CEng MICE Dip CII (Claims), in accordance with our Project Managed Service.

DESCRIPTION OF BUILDING

The subject property is a mid terrace house in a residential estate location on a plot that is level. The overall layout is recorded on our site plan.

DISCOVERY OF DAMAGE

The damage was discovered some time ago but was not considered to be of any significance. The Policyholder then advised Insurers after the damage had worsened.

NATURE AND EXTENT OF DAMAGE

Description and Mechanism

The main area of damage is to the front of the property and takes the form of 5mm tapering diagonal cracks, sloping floors, sloping windows, and sloping doors.

This pattern of damage indicates a mechanism of downwards movement to central section of wall.

Significance

The level of damage is moderate, and is classified as category 3 in accordance with BRE Digest 251 - Assessment of damage in low-rise buildings.

Onset and Progression

We consider that the crack damage has occurred relatively recently, but that distortions are historic.

It is likely that movement will be of a cyclical nature with cracks opening in the Summer and closing in the Winter.

SITE INVESTIGATIONS

A site investigation was arranged to provide evidence for Third Party recovery

Site investigations were undertaken by CET Safehouse Ltd on 3 January 2012 and comprised the excavation of two trial pits and boreholes.

They have revealed typical foundation depths of 200mm bearing onto a 300mm thick band of made ground, consisting of medium compact silty clay, overlying very still sandy silty clay subsoil. At 2.9m

depth the soil changes to a medium dense silty sand. A deep datum was installed at the rear of the property. Tree roots were encountered below the foundations to a depth of 2m below ground level.

There is no drainage in the vicinity of the front elevation.

Site investigations have been completed, and we have been able to confirm the cause of damage. It is recommended that vegetation close to the property is removed to mitigate against further movement.

MONITORING

We consider that level monitoring is required. This is to aid recovery of costs from a Third Party.

CAUSE OF DAMAGE

Based on the information detailed above, we are of the opinion that damage has occurred due to clay shrinkage subsidence. This has been caused by moisture abstraction by roots altering the moisture content of the clay subsoil resulting in volume changes, which in turn have affected the foundations.

The foundations of the property in the area of damage have been built at a relatively shallow depth, bearing onto shrinkable clay subsoil. The soil is susceptible to movement as a result of changes in volume of the clay with variations in moisture content. Analysis of the site investigation results has indicated that the soil has been affected by shrinkage. A number of tree roots identified as originating from a sycamore were also found in the clay subsoil beneath the foundations. In this case, the damage has therefore been caused by clay shrinkage subsidence following moisture extraction by nearby vegetation.

RECOMMENDATIONS

My recommendation is as follow:

Mitigation

We consider the damage will not progress if appropriate measures are taken to remove the cause. In this instance it is likely that vegetation for which the policyholder is responsible is contributing toward the cause of damage. This tree, however, is protected.

No drainage mitigation repairs are required at this stage.

Repair

We have not yet decided on the final type of repair required, but have produced an outline of the most likely requirements. This involves undertaking superstructure repairs and redecoration. This decision has been taken based on our knowledge and experience of dealing with similar claims. In addition the results of the Site Investigation and laboratory testing have been taken into account

For Cunningham Lindsey

Robert Loxham BSc (Hons) PGCE CEng MICE Dip CII (Hons)
Engineering Manager
Direct dial: 01924 428691
E-mail: pmsleeds@cl-uk.com

FACTUAL REPORT

OF

INVESTIGATION

AT:-		5 Fosbrook Avenue Manchester
ON:-		03 January 2012
FOR:-	c/o	Cunningham Lindsey - Birstall
REF:-		4198661-Southway Housing Trust (Manch)
JOB NO:-		119551
REPORT ISSUED:-		12/01/2012

SPECIALIST CONTRACTING DIVISION

CET SAFEHOUSE LIMITED

Lawness Barns, Mountnessing Road, Billericay, Essex CM12 0TS

WWW.CETSAFEHOUSE.COM

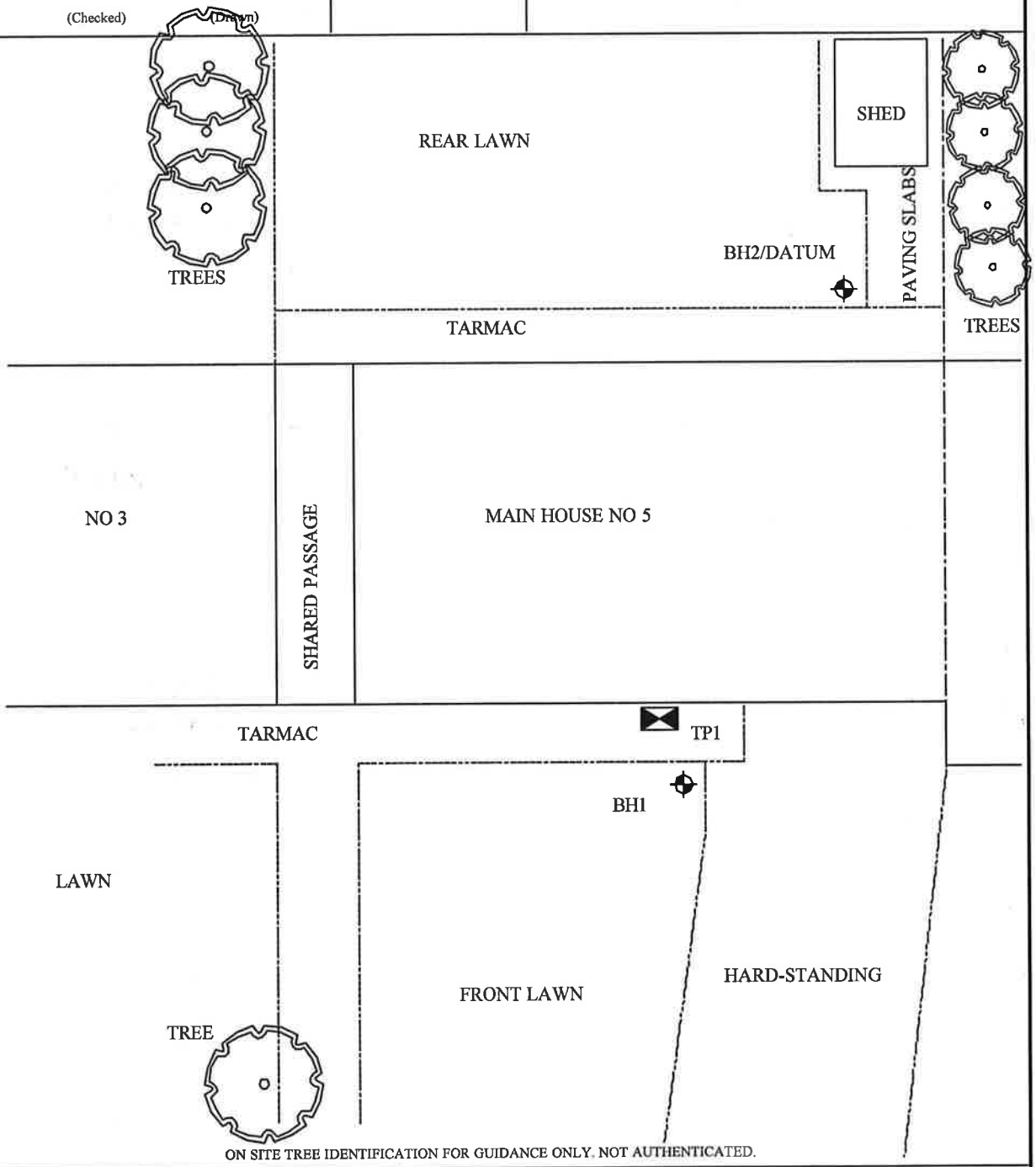
Tel: 01277 655377 Fax: 01277 655977

Investigation Layout Plan

Sheet: 1 of 1
Job No: 119551Y
Date: 03/01/12
Weather: Showers

Site: 5 Fosbrook Avenue, Manchester
Work carried out for: Cunningham Lindsey

PB (SI) | (Checked) | DVC (Drawn)



ON SITE TREE IDENTIFICATION FOR GUIDANCE ONLY. NOT AUTHENTICATED.

Remarks:

Scale: N.T.S.

Key:

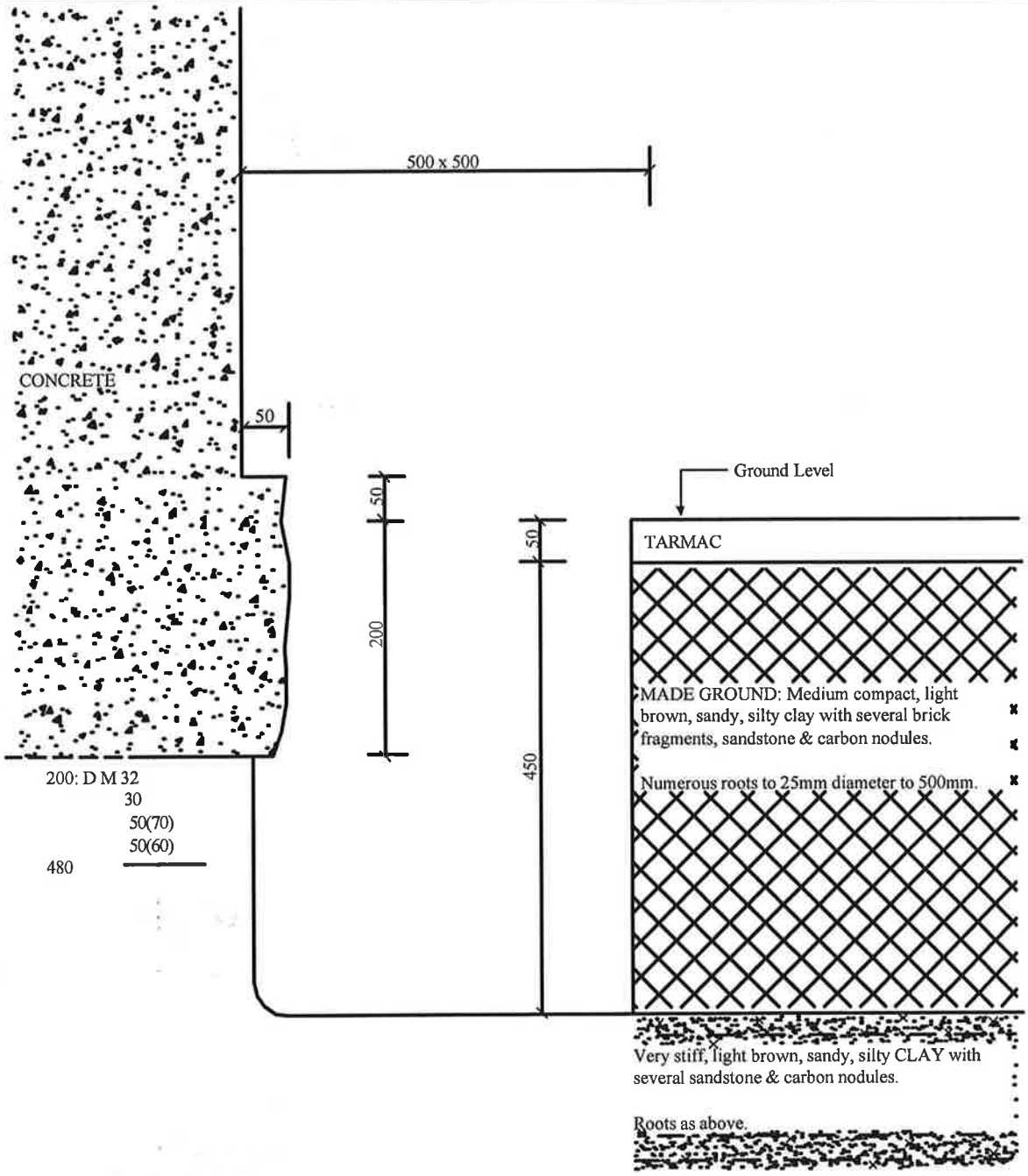
Combined Gulley	RWWG	Surface Water Drain	
Manhole	MH	Foul Water Drain	
Rain Water Pipe	RWP	Tree / Bush (approx. ht in m)	
Rain Water Gulley	RWG		
Soil Vent Pipe	SVP	Trial Pit	
Waste Gulley	WG	Borehole	
Waste Pipe	WP		

Trial Pit No: 1

Sheet: 1 of 1
Job No: 119551Y
Date: 03/01/12

Site: 5 Fosbrook Avenue, Manchester
Work carried out for: Cunningham Lindsey

Excavation Method: Hand Tools
Weather: Showers
Drawn by: DVC
Ground Level mOD:



Remarks: All measurements in millimetres.

Key:
- D Small disturbed sample
- B Bulk disturbed sample
- W Water sample
- TDTD Too dense to drive
- J Jar sample
- V Pilcon Vane (kPa)
- M Mackintosh probe

Logged: PB | Checked: | Approved: | Scale: N.T.S.

Borehole No: 1	Sheet: 1 of 1	Site: 5 Fosbrook Avenue, Manchester
Boring Method: CFA	Job No: 119551Y	
Diameter: 100mm / Coordinates:	Date: 03/01/2012	Work Carried out for: Cunningham Lindsey
	Ground Level mOD:	

Depth (m)	Description of Strata	Thick-ness (m)	Legend	Sample	Test Type	Test Result	Depth (m)	Field Records/Comments	Depth to water (m)
G.L	Turf over MADE GROUND: Medium compact, dark brown, sandy silt with several brick & concrete pieces & carbon nodules.	0.50						Occasional roots to 4mm diameter to 1m & 1mm diameter roots to 2m	
0.50	Very stiff, light brown, sandy, silty CLAY with several sandstone & carbon nodules.	1.50		D	V	140+ 140+	1.00		
				D			1.50		
2.00	Very stiff, mid brown, silty, very sandy CLAY with occasional small gravel.	0.90		D	V	140+ 140+	2.00		
				D			2.50		
2.90	Medium dense to dense, reddish mid brown, silty, medium & coarse SAND.	0.70		D	M	50(60) 50(60)	3.00		
				D			3.50		
3.60	Borehole ends at 3.6m Too dense for drill to penetrate								

Remarks: Borehole dry and collapsing to 3.5m on completion

Key: T.D.T.D. Too Dense to Drive
D Small disturbed sample
B Bulk disturbed sample
W Water sample
J Jar sample
V Pilcon Vane (kPa)
M Mackintosh Probe

Logged: PB	Checked:	Typed by: DVC	Scale: NTS	Weather: Showers

Borehole No: 2 & Datum

Sheet: 1 of 1
Job No: 119551Y
Date: 03/01/2012
Site: 5 Fosbrook Avenue, Manchester
Boring Method: CFA
Diameter: 100mm
Coordinates:
Ground Level mOD:
Work Carried out for: Cunningham Lindsey

Depth (m)	Description of Strata	Thickness (m)	Legend	Sample	Test Type	Test Result	Depth (m)	Field Records/Comments	Depth to water (m)
G.L	Turf over MADE GROUND: Medium compact, moist, dark brown, sandy silt with several brick & concrete pieces & carbon nodules.	0.50						Occasional roots to 2mm diameter to 2m	
0.50								Water seepage at	0.50
	Very stiff, moist, light brown, sandy, silty CLAY with several sandstone & carbon nodules.	0.70		D	V	140+ 140+	1.00		
1.20									
	Very stiff, slightly moist, reddish mid brown, silty, very sandy CLAY with occasional small gravel.	0.60		D			1.50		
1.80									
	Very stiff, mid brown, slightly sandy, silty CLAY.	0.70		D	V	140+ 140+	2.00		
2.50				D			2.50		
	Stiff, as above.	0.50		D	M	50(50) 50(40)	3.00		
3.00									
	Medium dense to dense, reddish mid brown, silty, medium & coarse SAND.	0.70		D			3.50		
3.70	Borehole ends at 3.7m Too dense for drill to penetrate								

Remarks: Datum installed at 3.7m
Borehole open with standing water level at 3.5m on completion

Key: T.D.T.D. Too Dense to Drive
D Small disturbed sample
B Bulk disturbed sample
W Water sample
J Jar sample
V Pilcon Vane (kPa)
M Mackintosh Probe

Logged: PB
Checked:
Typed by: DVC
Scale: NTS
Weather: Showers

Our Ref : 119551

Laboratory Testing Results

Date Sampled: 03/01/2012

Location : 5 Fosbrook Avenue

Work carried out for: Cunningham Lindsey - Birstall

Date Received : 05/01/2012

Date Tested : 05/01/2012

Date of Report : 10/01/2012

Sample Ref TP/BH No	Sample Ref Depth (m)	Type	Moisture Content (%) [1]	Soil Fraction >0.425mm (%) [2]	Liquid Limit (%) [3]	Plastic Limit (%) [4]	Plasticity Index (%) [5]	Liquidity Index [5]	Modified Plasticity Index (%) [6]	Soil Class [7]	Filter Paper Contact Time (h) [8]	Soil Sample Suction (kPa)	In situ Shear Vane Strength (kPa) [9]	Organic Content (%) [10]	pH Value [11]	Sulphate Content (g/l) SO_3 [12]	Sulphate Content (g/l) SO_4 [13]	Class [14]
TP1	0.20(U/S)	D	20	<5	47	18	28	0.06	28	CI								

Test Methods / Notes

[1] BS 1377 : Part 2 : 1990, Test No 3.2

[2] Estimated if <5%, otherwise measured

[3] BS 1377 : Part 2 : 1990, Test No 4.4

[4] BS 1377 : Part 2 : 1990, Test No 5.3

[5] BS 1377 : Part 2 : 1990, Test No 5.4

[6] BRE Digest 240 : 1993

[7] BS 5930 : 1981 : Figure 31 - Plasticity Chart for the classification of fine soils

[8] In-house method S9a adapted from BRE IP 4/93

[9] Values of shear strength were determined in situ by CET Safehouse using a Pilcon hand vane or Geonor vane (GV).

[10] BS 1377 : Part 3 : 1990, Test No 4

[11] BS 1377 : Part 3 : 1990, Test No 9

[12] BS 1377 : Part 3 : 1990, Test No 5.6

[13] $SO_4 = 1.2 \times SO_3$

[14] BRE Special Digest One (Concrete in Aggressive Ground) 2005

Note that if the SO_4 content falls into the DS-4 or DS-5 class, it would be prudent to consider the sample as falling into the DS-4m or DS-5m class respectively unless water soluble magnesium testing is undertaken to prove otherwise

Key

D	Disturbed sample (small)
B	Disturbed sample (bulk)
U	Undisturbed sample
W	Groundwater sample
ENP	Essentially Non-Plastic by inspection
U/S	Underside of Foundation

Laboratory Testing Results

Our Ref : 119551

Location : 5 Fosbrook Avenue

Work carried out for: Cunningham Lindsey - Birstall

Date Sampled : 03/01/2012

Date Received : 05/01/2012

Date Tested : 05/01/2012

Date of Report : 10/01/2012

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BH1	1.0	D	31	<5	57	21	36	0.29	36	CH			> 140					
	1.5	D	31	<5	61	24	38	0.19	38	CH								
	2.0	D	11	<5	25	10	14	0.07	14	CL			> 140					
	2.5	D	11	8	25	10	15	0.10	14	CL								
	3.0	D	14	<5	Not suitable for further testing - ENP													
	3.5	D	15	<5	Not suitable for further testing - ENP													

BH1 not in TP1

Test Methods / Notes

[1] BS 1377 : Part 2 : 1990, Test No 3.2
[2] Estimated if <5%, otherwise measured
[3] BS 1377 : Part 2 : 1990, Test No 4.4
[4] BS 1377 : Part 2 : 1990, Test No 5.3
[5] BS 1377 : Part 2 : 1990, Test No 5.4
[6] BRE Digest 240 : 1993
[7] BS 5930 : 1981 : Figure 31 - Plasticity Chart for the classification of fine soils
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[12] BS 1377 : Part 3 : 1990, Test No 5.6
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[14] BRE Special Digest One (Concrete in Aggressive Ground) 2005
Note that if the SO_4 content falls into the DS-4 or DS-5 class, it would be prudent to consider the sample as falling into the DS-4m or DS-5m class respectively unless water soluble magnesium testing is undertaken to prove otherwise

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Laboratory Testing Results

Our Ref : 119551

Location : 5 Fosbrook Avenue

Work carried out for: Cunningham Lindsey - Birstall

Date Sampled : 03/01/2012

Date Received : 05/01/2012

Date Tested : 05/01/2012

Date of Report : 10/01/2012

Sample Ref. TP/BH No.	Depth (m)	Type	Moisture Content (%) [1]	Soil Fraction >0.425mm (%) [2]	Liquid Limit (%) [3]	Plastic Limit (%) [4]	Plasticity Index (%) [5]	Liquidity Index [5]	Modified Plasticity Index (%) [6]	Soil Class [7]	Filter Paper Contact Time (h) [8]	Soil Sample Suction (kPa)	In situ Shear Vane Strength (kPa) [9]	Organic Content (%) [10]	pH Value [11]	Sulphate Content (g/l) SO_3 [12]	Sulphate Content (g/l) SO_4 [13]	Class [14]
BH2	1.0	D	30	<5	54	22	32	0.25	32	CH			> 140					
	1.5	D	21	<5	36	15	21	0.29	21	CI								
	2.0	D	26	<5	53	19	35	0.22	35	CH			> 140					
	2.5	D	30	<5	46	19	27	0.42	27	CI								
	3.0	D	17	<5	Not suitable for further testing - ENP													
	3.5	D	16	<5	Not suitable for further testing - ENP													

Test Methods / Notes

[1] BS 1377 : Part 2 : 1990, Test No 3.2

[2] Estimated if <5%, otherwise measured

[3] BS 1377 : Part 2 : 1990, Test No 4.4

[4] BS 1377 : Part 2 : 1990, Test No 5.3

[5] BS 1377 : Part 2 : 1990, Test No 5.4

[6] BRE Digest 240 : 1993

[7] BS 5930 : 1981 : Figure 31 - Plasticity Chart for the classification of fine soils

[8] In-house method S9a adapted from BRE IP 4/93

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[12] BS 1377 : Part 3 : 1990, Test No 5.6

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Moisture Content and Shear Strength Profiles

Our Ref : 119551

Location : 5 Fosbrook Avenue

Work carried out for: Cunningham Lindsey - Birstall

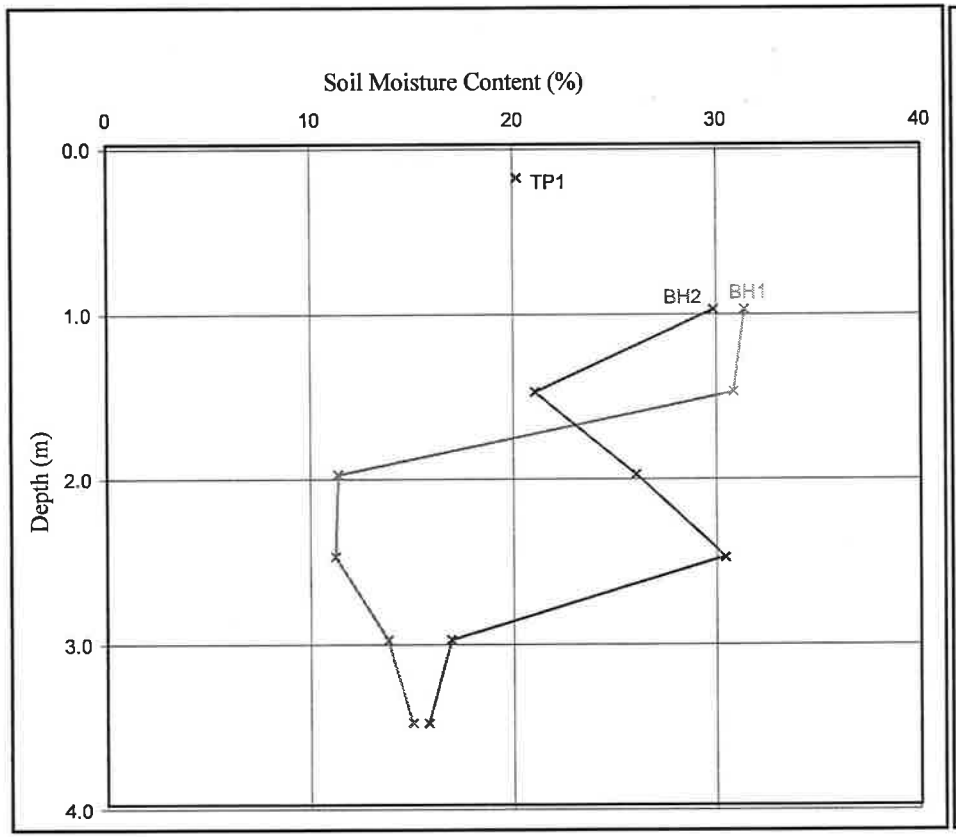
Note : Unless specifically noted the profiles have not been related to a site datum.

Date Sampled : 03/01/2012

Date Received : 05/01/2012

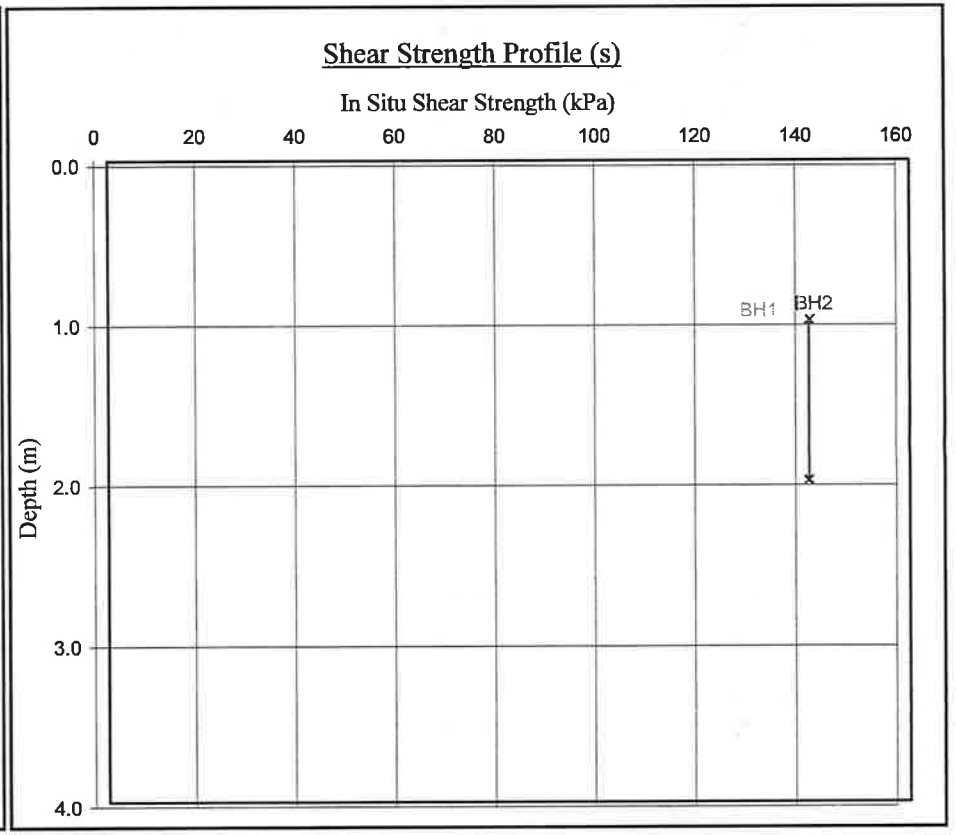
Date Tested : 05/01/2012

Date of Report : 10/01/2012



Note

If plotted, 0.4 LL and PL+2 (after Driscoll, 1983) should only be applied to London Clay (and similarly overconsolidated clays) at shallow depths.



Note

Unless otherwise stated, values of Shear Strength were determined in situ by CET Safehouse using a Pilcon Hand Vane the calibration of which is limited to a maximum reading of 140 kPa.

EPSL *European Plant Science Laboratory*	Sheet: 1 of 1 Job No: **119551** Date: **09/01/2012** Order No: **345724** EPSL Ref: **090112121406**	Site: **5 Fosbrook Avenue, Manchester** Work carried out for: **Cunningham Lindsey**

Certificate of Analysis

The following work was commissioned by CET Safehouse Limited on behalf of their client. Root samples were obtained in sealed packets from the above site with no reference given as to the types of tree or shrub from which they may have originated.
The results were as follows -

Trial pit/ Borehole number	Root diameter (mm)	Tree, shrub or climber from which root originates	Result of starch test
TP1 (0.5m)	30	Acer spp. (5 roots)	Positive
BH1 (1-2m)	2	Acer spp. (3 roots)	Positive
BH1 (1-2m)	1	Cupressaceae spp. (2 roots)	Positive
BH2 (to 2m)	2	Fraxinus spp. * (5 roots)	Negative

* All in a state of decay.

Acer spp. are maples, including sycamore, Norway maple, and Japanese maples.

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

Fraxinus spp. include common ash.

Address for correspondence: EPSL , Intec, Parc Menai, Bangor, Gwynedd, North Wales, LL57 4FG
Telephone: 01248 672 652
e-mail: lab@marishalthompson.co.uk
Head of laboratory Services : M D Mitchell B.Sc., M.Phil.
Plant Anatomist : Dr G S Turner B.Sc., M.Sc., Ph.D
Plant Anatomist : Dr F M Cardias Williams B.Sc., M.Sc., Ph.D.
Consultant: Dr M P Denne B.Sc., M.Sc., Ph.D
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