2009/1421/[illegible]

Camden

(A)

Application for tree works: works to trees subject to a tree preservation order (TPO) and/or notification of proposed works to trees in a conservation area. Town and Country Planning Act 1990

Publication of planning applications on council web sites
Please note that with the exception of applicant contact details and Certificates of Ownership, the information provided on this application form and in supporting documents may be published on the council's website.
If any other information that is provided as part of the application which falls within the definition of personal data under the Data Protection Act and is not to be published on the council's website, please contact the council's planning department.

1. Applicant Name, Address and Contact Details

Title: Mr | First name: Nicholas | Surname: Meyer

Company name: OCA UK LTD

Street address: 4 The Courtyards
Wyncolls Road

Town/City: Colchester
County: Essex
Country:
Postcode: CO4 9PE

	Country Code	National Number	Extension Number
Telephone number:		01206751626	
Mobile number:			
Fax number:		01206855751	

Email address: nicholas.meyer@oca-arb.co.uk

Are you an agent acting on behalf of the applicant? ○ Yes ◉ No

2. Agent Name, Address and Contact Details

No Agent details were submitted for this application

3. Trees Location

Please provide the address of the site where the tree(s) stands (full address if possible):

House: 9 | Suffix:

House name:

Street address: Torriano

Town/City: LONDON
County:
Postcode: NW5 2TA

If the location is unclear or there is not a full postal address, either describe as clearly as possible where it is (for example, 'Land to rear of 12 to 18 High Street' or 'Woodland adjoining Elm Road') or provide an Ordnance Survey grid reference:

Description:

The False Acacia tree referenced as T1 within our site plan is situated to the rear of the No. 9 Torriano Cottages.

4. Trees Ownership

Is the applicant the owner of the tree(s)? ○ Yes ◉ No

If No, please provide the address of the owner (if known and if different from the tree location):

Title: Ms First name: H Surname: Steinberg

Company name

House Name:

Street Address: Torriano Cottages
Torriano Avenue

Town/City: London

County:

Country:

Postcode: NW5 2TA

	Country Code	National Number	Extension Number
Telephone number:			
Mobile number:			
Fax number:			

Email address:

5. What Are You Applying For?

Are you seeking consent for works to a tree(s) subject to a TPO? ○ Yes ◉ No

Are you wishing to carry out works to tree(s) in a conservation area? ◉ Yes ○ No

6. Tree Preservation Order Details

If you know which TPO protects the tree(s) enter its title or number below

7. Identification Of Tree(s) And Description Of Works

Please identify the tree(s) and provide a full and clear specification of the works you want to carry out. Continue on a separate sheet if necessary. You might find it useful to contact an arborist (tree surgeon) for help with defining appropriate work. Where trees are protected by a TPO, please number them as shown in the First Schedule to the TPO where this is available. Use the same numbers on your sketch plan (see guidance notes).
Please provide the following information below : tree species (and the number used on the sketch plan) and description of works. Where trees are protected by a TPO you must also provide reasons for the work and, where trees are being felled, please give your proposals for planting replacement trees (including quantity, species, position and size) or reasons for not wanting to replant.
E.g. Oak (T3) - fell because of excessive shading and low amenity value. Replant with 1 standard ash in the same place.

Fell the False Acacia tree referenced as T1 to ground level and treat the stump with an appropriate herbicide including re-treatment if required.

8. Trees - Additional Information

For all trees
A sketch plan clearly showing the position of trees listed in Question 7 must be provided when applying for works to trees covered by a TPO. A sketch plan is also advised when notifying the LPA of works to trees in a conservation area (see guidance notes).
It would also be helpful if you provided details of any advice given on site by an LPA officer.

For works to trees covered by a TPO
Please indicate whether the reasons for carrying out the proposed works include any of the following. If so, your application must be accompanied by the necessary evidence to support your proposals. (See guidance notes for further details)

1. **Condition of the tree(s)** - e.g. it is diseased or you have fears that it might break or fall:
   If YES, you are required to provide written arboricultural advice or other diagnostic information from an appropriate expert. ○ Yes ○ No

2. **Alleged damage to property** - e.g. subsidence or damage to drains or drives.
   If YES, you are required to provide for: ◉ Yes ○ No

   Subsidence
   A report by an engineer or surveyor, to include a description of damage, vegetation, monitoring data, soil, roots and repair proposals. Also a report from an arboriculturist to support the tree work proposals.

   Other structural damage (e.g. drains, walls and hard surfaces)
   Written technical evidence from an appropriate expert, including description of damage and possible solutions.

Documents and plans (for any tree)
Are you providing additional information in support of your application? ◉ Yes ○ No

If Yes, please provide the reference numbers of plans, documents, professional reports, photographs etc in support of your application:

40427 - Evidence; 40427 - Site Plan; 40427 - Notification Letter

9. Trees - Declaration

I/we hereby apply for planning permission/consent as described in this form and the accompanying plans/drawings and additional information. Date: 16/03/2009

13 March 2009

Our Ref: 40427/3019973/Bridge

Planning Department
London Borough of Camden

Dear Sir / Madam

Re: Tree Related Subsidence at 10 Torriano Cottages, Torriano Avenue, NW5 2TA
Notice under s.211 of the Town and Country Planning Act 1990 of intent to
Fell one False Acacia tree (T1) at 9 Torriano Cottages, Torriano Avenue, NW5 2TA

We are arboriculturists appointed on behalf of the building insurers of 10 Torriano Cottages, Torriano Avenue, NW5 2TA.

It is the view of chartered engineers that the property has suffered differential movement and subsequent damage consistent with clay shrinkage subsidence.

We understand that the tree referenced in our plan as T1, is within a designated Conservation Area.

Tree No. (As per OCA plan)	Species	Works applied for
T1	False Acacia	Fell as close to ground level as possible and treat stump with an appropriate herbicide including re-treatment if required.

Reasons

The above tree removal works are proposed both as a remedy to the current subsidence at the above address and to ensure the long-term stability of the building.

1. The Engineer's Report dated 11 October 2006, describing the nature and extent of damage.
2. The Factual Report of Investigation dated 29 September 2006, including laboratory soil test results and root identification certificate.
3. Crack monitoring results dated 06 September 2006 to 24 February 2009.

London Borough of Camden

1. Tree roots were present underside of foundations:

During the site investigation root samples were recovered directly from the underside of foundations and these were formally identified as Acer and Leguminosae.

With reference to the Acer roots recovered, given the size, species and proximity to Trial Pit 1, I consider that these roots have emanated from T7 Sycamore and T8 Sycamore.

Regarding the Leguminosae roots recovered, given the size, species and proximity to Trial Pit 2, I consider that these roots emanated from either C1 Wisteria or T1 False Acacia. However, on close inspection of the Crack Width monitoring results it is clear that movement is more 'defined' at the rear left corner of the insured property (station 3 c-b). As such this is more consistent with T1 then C1 and therefore I consider the Leguminosae roots most likely emanated from False Acacia T1.

During the Site Survey further vegetation was noted to the rear of the property. In particular Pear T4, Plum T5 and Magnolia T6. In the absence of any Formal root identification but given their proximity, these were recommended for removal to prevent their future implication.

2. Damage to the insured's property has resulted from tree related subsidence:

Given engineers confirmation of the continuation of damage following the removal of Sycamore G1 (consent previously granted), I consider that the evidence relating to the type of soil, soil plasticity and root encroachment (given continued movement) are unlikely to have altered. The mechanism of movement remains consistent with the location of T7 Sycamore and T8 Sycamore at the front of the property and False Acacia T1 regarding the rear left corner of the property.

In respect of the rear of the property, to clarify, clay soils with plasticity index ranging from 43% to 46% have been recorded beneath foundations, such soils would therefore be subject to high volumetric changes due to seasonal fluctuations in the moisture content exacerbated by tree root activity.

Crack Monitoring undertaken for the period 06 September 2006 to 24 February 2009 demonstrates a pattern of movement, which could only be consistent with a vegetation related subsidence.

Engineers confirm that the implication of the escape of water as causation remains unlikely, given the shear vane values, which were indicative of desiccation and the complete lack of any soil softening. The condition of the soils would appear to confirm this as they have been described as stiff to very stiff.

Therefore it is my opinion that the continued damage to the front of the insured property is as a result of T7 Sycamore and T8 Sycamore and damage to the rear left corner as a result of False Acacia T1.

In order to mitigate current damage and allow soils beneath the property to recover to a position such that an effective engineering repair solution can be implemented we recommend that T7 Sycamore and T8 Sycamore (current Tree Preservation Order Application submitted) and False Acacia T1 be removed entirely.

London Borough of Camden

Please provide your formal acknowledgement of this notice, quoting ref: 40427/3019973/Bridge

We trust that the above information is of assistance but should you have any queries please do not hesitate to contact us.

Yours faithfully

Andrew Graham
Senior Consulting Arborist
OCA UK Limited

Email: andrew.graham@oca-arb.co.uk
DDI: 01206 754988

Encl. Site Plan
Engineering Appraisal Report
Factual Report of Investigation
Monitoring (crack width)

Copy: Oriel

Appendix 1

Mr and Mrs M Bridge

10, Torriano Cottages
Torriano Avenue
LONDON
NW5 2TA

INSURANCE CLAIM

CONCERNING SUSPECTED SUBSIDENCE

RÉSUMÉ OF TECHNICAL ASPECTS

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

11/10/2006

INTRODUCTION

Technical aspects of this claim are being overseen by our Project Manager, Howard Nash BSc (Hons), in accordance with our Project Managed Service.

DESCRIPTION OF BUILDING

The subject property is a four storey, semi-detached house built circa 1865. The property is constructed of solid brickwork walls with suspended timber floors throughout and enclosed by a pitched slated roof.

CIRCUMSTANCES OF DISCOVERY OF DAMAGE

The Policyholder has always been aware of minor cracking to the property, however, the cracking was noted to suddenly worsen during August 2006.

NATURE AND EXTENT OF DAMAGE

Description and Mechanism

The principal damage takes the form of internal and external tapering diagonal cracking up to approximately 7 mm in width.

The indicated mechanism of movement is downwards movement to the front bay, downwards movement to the rear left hand corner of the main building and downwards movement to the rear of the rear addition and rotation of the rear addition away from the main building.

Significance

The damage would be placed in category 3 of the BRE Digest 251 classification, ie moderate.

Onset and Progression

It is our opinion that the damage occurrred recently and will not worsen if the appropriate mitigation measures are undertaken.

SITE INVESTIGATIONS

Site investigations have been undertaken in the form of a trial pit and borehole to the front bay of the property and internally within the rear cellar area of the property.

The site investigation to the front bay indicates that the front bay of the property is founded upon a concrete foundation to a depth of approximately 1.9 m which bears onto a stiff clay subsoil to a depth of approximately 5 m. Tree roots were found to the underside of the foundation which tested positive for the presence of starch that they were alive in the recent past and were identified as belonging to an Acer tree. Hair and fibrous roots were noted to a depth of 3 m.

The second site investigation to the rear of the internal cellar indicates that the left hand elevation of the main building is founded upon a brick corbel footing which bears onto a brick rubble and clinker foundation to a depth of approximately 400 mm below ground level. This foundation in turn bears onto a very siff clay subsoil which continues through the full depth of the borehole. Roots belonging to a member of the Leguminosae family were found to the underside of the foundation and tested positive for the presence of starch which indicates that they were alive in the recent past. Members of this family include Laburnum, Robina (False Acacia) and the climber Wisteria.

MONITORING

We believe that it is likely that there will be a short term change in crack widths following the mitigation measures described above, before the damage is seen to stabilise. We do, however, believe that the damage will be seen to stabilise. We therefore propose to continue to monitor the crack widths to confirm when stability has occurred. We would then propose to agree the detailed scope of repair works at the end of the monitoring period.

CAUSE OF DAMAGE

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 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

We believe that the damage will stabilise if appropriate measures are taken to remove the cause. We have therefore instructed an arboricultural consultant to advise us further in respect of this vegetation. Subject to the arborist's detailed report, it is likely that we will be recommending vegetation removal.

POLICY LIABILITY

The damage has been caused by subsidence within the currency of the policy, and a liability therefore arises.

An excess of £1,000.00 will apply as this claim being dealt with under the subsidence section of the policy.

PRESENT POSITION

Following our initial letters to the owners of vegetation we have implicated in the current damage to the property, we can confirm that we have yet to receive a response. We will chase up the third party owners in order to progress mitigation works.

We will keep Insurers updated of any significant developments.

for CUNNINGHAM LINDSEY

Howard Nash BSc (Hons)
Project Management Services – Building Surveyor
Direct dial: 01727 817839
E-mail: PMSstalbans@cl-uk.com

Appendix 2

FACTUAL REPORT

OF

INVESTIGATION

AT:-		10 Torriano Cottages, Torriano Avenue
ON:-		16 September 2006
FOR:-	c/o	Zurich Insurance Company Cunningham Lindsey - St Albans
REF:-		2460826-Mrs Bridge
JOB NO:-		30864
REPORT ISSUED:-		29/09/06

SPECIALIST CONTRACTING DIVISION

CET GROUP LIMITED

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

WWW.CETGROUP.COM

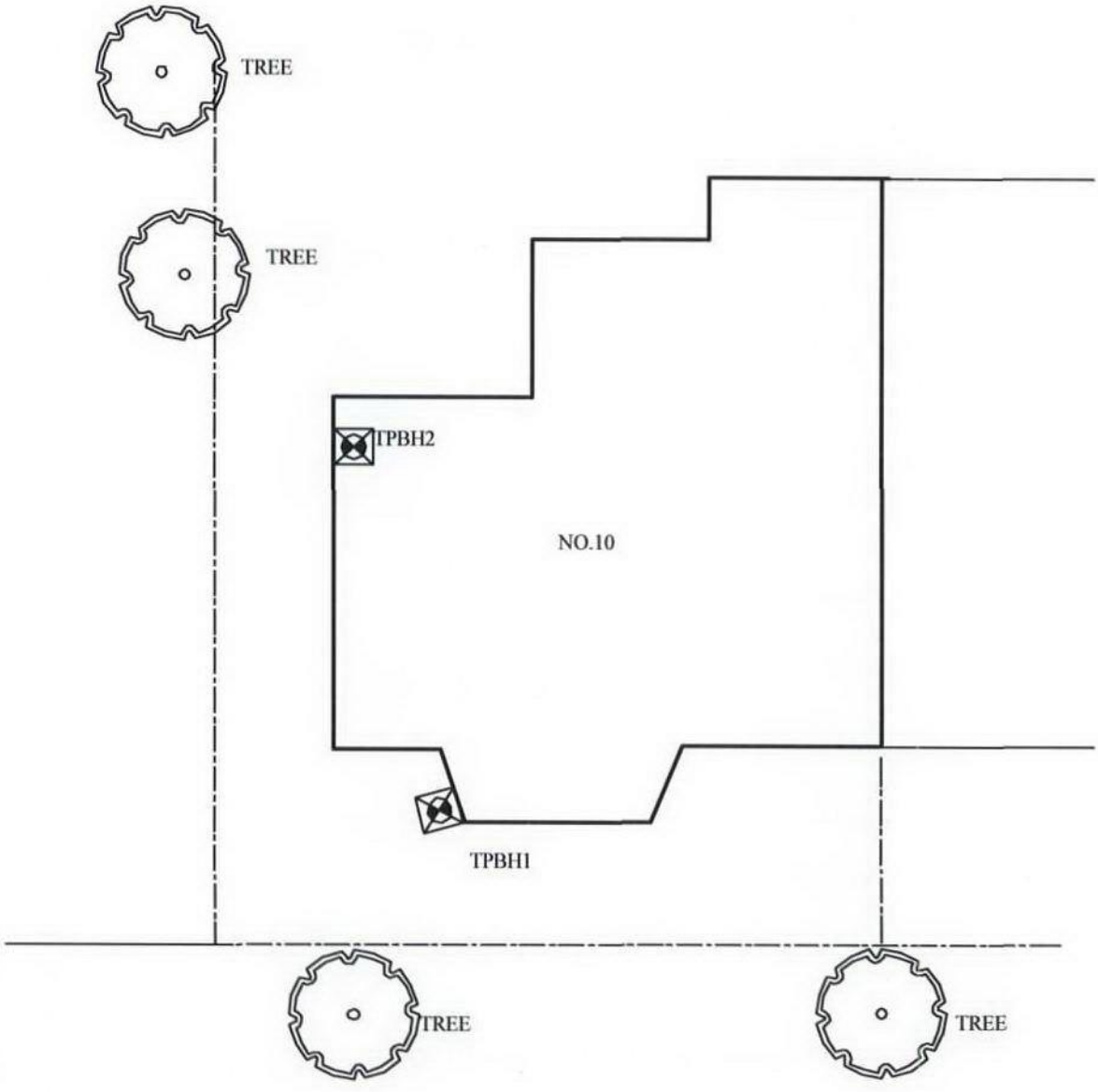
Tel: 01277 655377 Fax: 01277 655977

Investigation Layout Plan

Sheet: 1 of 1
Job No: 30864
Date: 16.9.06

Site: 10 Torriano Cottages, NW5
Work carried out for: Cunningham Lindsey

Drawn: SC (SI) KEL (PLT)
Checked: ME



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

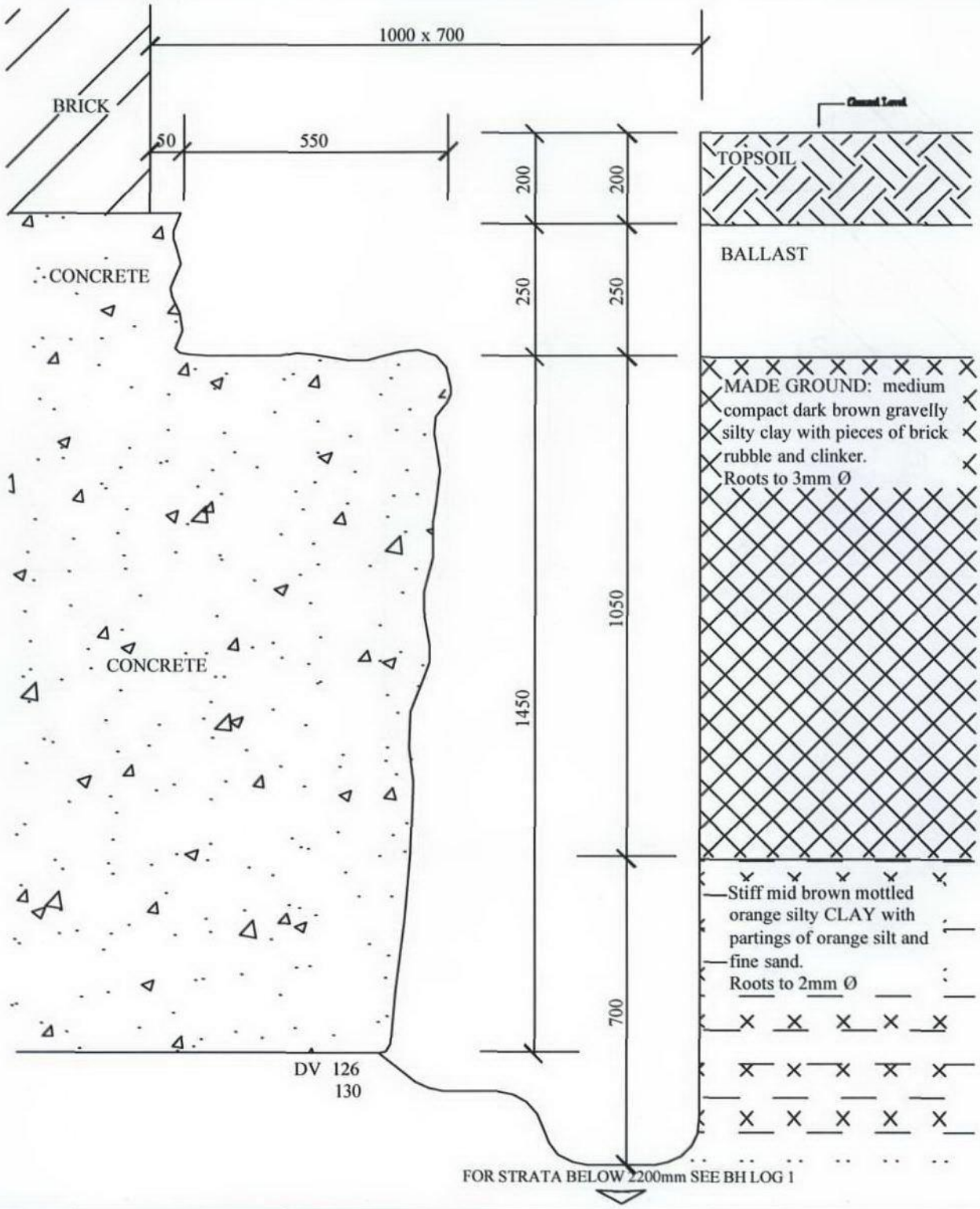
Sheet: 1 of 1
Job No: 30864
Date: 16/9/06

Site: 10 Torriano Cottages, London NW5

Excavation Method: Hand Tools
Co-ordinates:
Ground Level mOD:

Work carried out for: Cunningham Lindsey

Weather: Dry/sunny



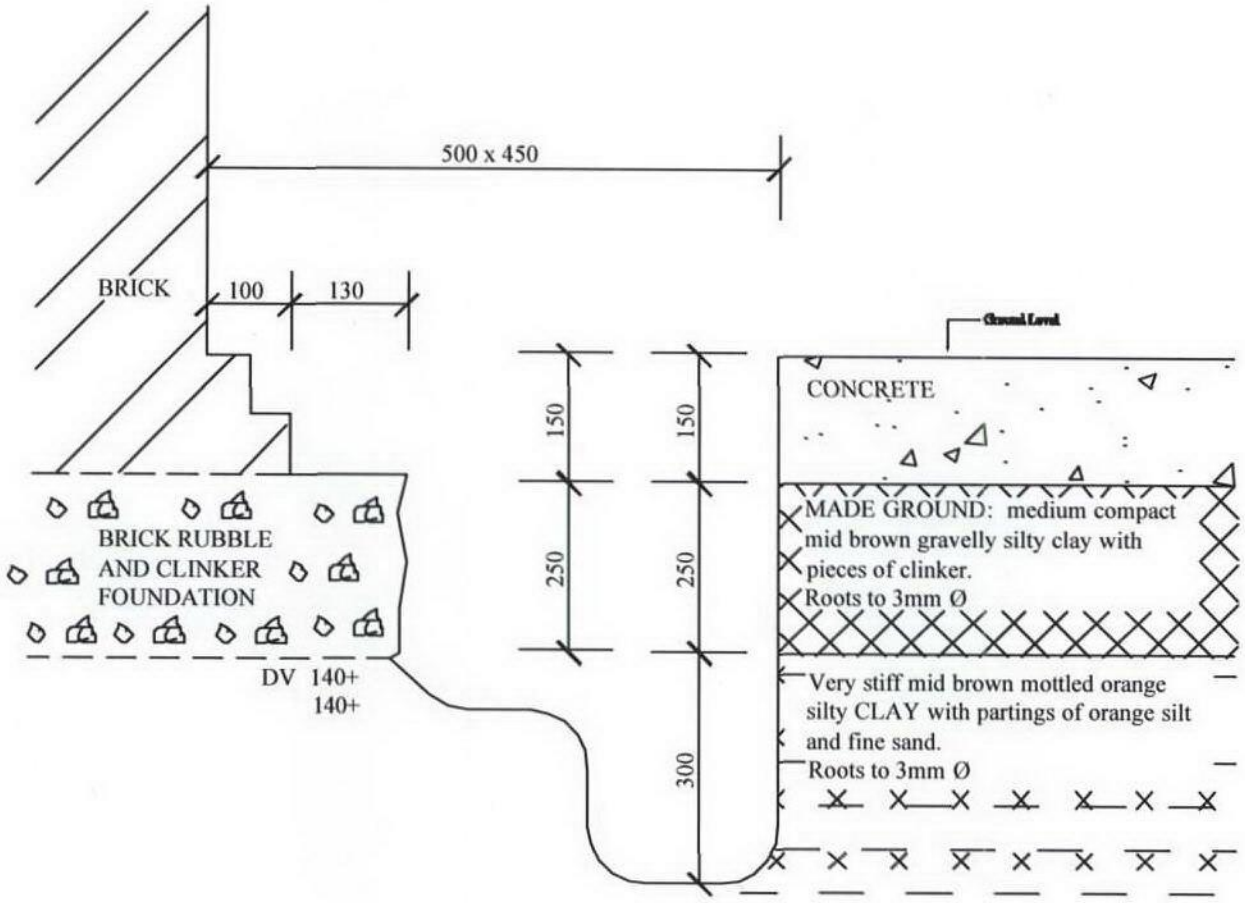
Remarks: All measurement in millimetres.

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: SC | Checked: ME | Approved: | Scale: N.T.S.

Trial Pit No: 2

Sheet: 1 of 1	Site: 10 Torriano Cottages, London NW5	
Job No: 30864		
Date: 16/9/06		
Excavation Method: Hand Tools	Co-ordinates:	Work carried out for: Cunningham Lindsey
Weather: Dry/sunny	Ground Level mOD:	



FOR STRATA BELOW 700mm SEE BH LOG 2

Remarks: All measurement 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: SC	Checked: ME	Approved:	Scale: N.T.S.

Borehole No: 1	Sheet: 1 of 1	Site: 10 Torriano Cottages, NW5
Boring Method: C.F.A,	Job No: 30864	
Diameter: 100mm	Coordinates:	Date: 16.9.06
	Ground Level mOD:	Work Carried out for: Cunningham Lindsey

Depth (m)	Description of Strata	Thick-ness (m)	Legend	Sample	Test Type	Test Result	Depth (m)	Field Records/Comments	Depth to water (m)
	As Trial Pit 1	2.20							
2.20	Stiff mid brown mottled orange grey veined silty CLAY with partings of orange silt and fine sand.	0.90		D			2.50	Hair and fibrous roots to 3m	
				D	V	138 140+	3.00		
3.10	Very stiff as above.	1.90		D			3.50		
				D	V	140+ 140+	4.00		
				D			4.50		
5.00				D	V	140+ 140+	5.00		
	Borehole Ends at 5m								

Remarks:
Borehole dry and open 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: MD	Checked: NC	Approved:	Scale: NTS	Weather:

Borehole No: 2			Sheet: 1 of 1						
			Job No: 30864		Site: 10 Torriano Cottages, NW5				
Boring Method: Hand Auger			Date: 16.9.06						
Diameter: 70mm	Coordinates:		Ground Level mOD:		Work Carried out for: Cunningham Lindsey				

Depth (m)	Description of Strata	Thick-ness (m)	Legend	Sample	Test Type	Test Result	Depth (m)	Field Records/Comments	Depth to water (m)
	As Trial Pit 2	0.70							
0.70	Very stiff mid brown mottled orange silty CLAY with partings of orange silt and fine sand.	0.70		D	V	140+ 140+	1.00	Hair and fibrous roots to 1.3m	
1.40	Very stiff mid brown mottled orange grey veined silty CLAY with partings of orange silt and fine sand.			D	V	140+ 140+	1.50		
				D	V	140+ 140+	2.00		
		2.10		D	V	140+ 140+	2.50		
				D	V	140+ 140+	3.00		
3.50	Very stiff mid brown silty CLAY with partings of orange silt and fine sand.			D	V	140+ 140+	3.50		
				D	V	140+ 140+	4.00		
		1.50		D	V	140+ 140+	4.50		
5.00				D	V	140+ 140+	5.00		
	Borehole Ends at 5m								

Remarks:
Borehole dry and open 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: SC	Checked: ME	Approved:	Scale: NTS	Weather:

Our Ref : 30864

Laboratory Testing Results

Date Sampled: 16/09/06

Location : 10 Torriano Cottages

Date Received : 21/09/06

Work carried out for: Cunningham Lindsey - St Albans

Date Tested :

Date of Report :

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]
1	1.90(U/S)	D	30	<5	71	25	46	0.11	46	CV	168	326	128					
	2.5	D	30	<5	71	#######					168	352						
	3.0	D	31	<5	73	#######					168	591	139					
	3.5	D	33	<5														
	4.0	D	31	<5							168	650	> 140					
	4.5	D	31	<5														
	5.0	D	30	<5							168	830	> 140					

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] BRE IP 4/93
[9] Values of shear strength were determined in situ by CET Group using a Pilcon hand vane or Geonor vane (GV).
[10] BS 1377 : Part 3 : 1990, Test No 4
[11] BS 1377 : Part 2 : 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) August 2001
Note that if the SO_4 content falls into the DS-4 or DS-5 class, it would be prudent to consider the samnple 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

Our Ref : 30864

Laboratory Testing Results

Date Sampled : 16/09/06

Location : 10 Torriano Cottages

Date Received : 21/09/06

Work carried out for: Cunningham Lindsey - St Albans

Date Tested :

Date of Report :

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]
2	0.40(U/S)	D	25	<5	70	23	46	0.04	46	CH			> 140					
	1.0	D	28	<5									> 140					
	1.5	D	31	<5	69	24	44	0.15	44	CH			> 140					
	2.0	D	30	<5	69	26	43	0.10	43	CH			> 140					
	2.5	D	31	<5									> 140					
	3.0	D	32	<5	75	########							> 140					
	3.5	D	31	<5									> 140					
	4.0	D	31	<5									> 140					
	4.5	D	31	<5									> 140					
	5.0	D	30	<5									> 140					

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] BRE IP 4/93
[9] Values of shear strength were determined in situ by CET Group using a Pilcon hand vane or Geonor vane (GV).
[10] BS 1377 : Part 3 : 1990, Test No 4
[11] BS 1377 : Part 2 : 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) August 2001
Note that if the SO_4 content falls into the DS-4 or DS-5 class, it would be prudent to consider the samnple 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

Moisture Content and Suction Profiles

Our Ref : 30864

Location : 10 Torriano Cottages

Work carried out for: Cunningham Lindsey - St Albans

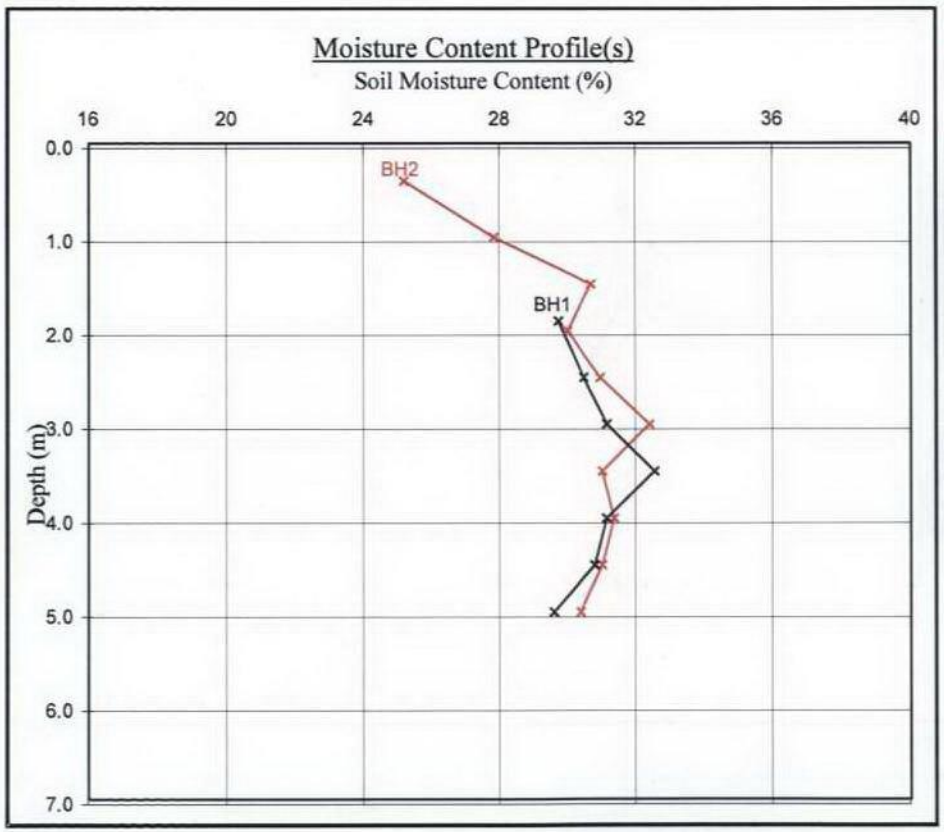
Note : Unless specifically noted the profiles have not been related to a site datum.

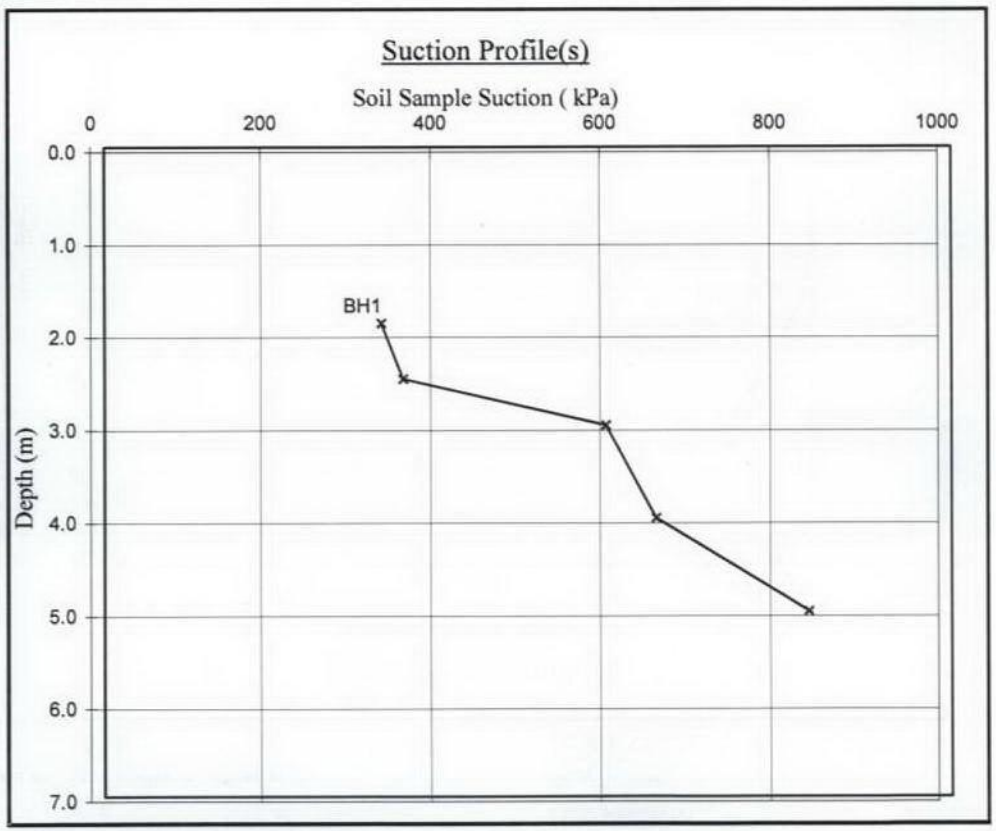
Date Sampled : 16/09/06

Date Received : 21/09/06

Date Tested :

Date of Report :





Notes

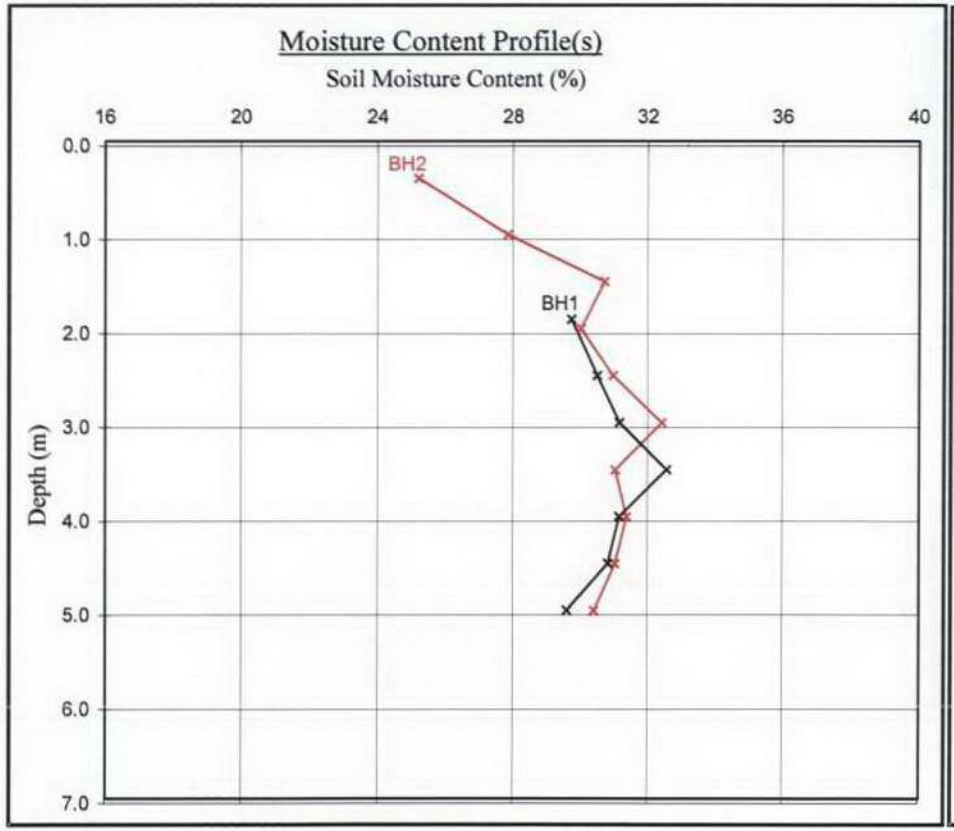
1. If the Soil Fraction > 0.425mm exceeds 5% the Equivalent Moisture Content of the remainder (calculated in accordance with BS 1377: Part 2 : 1990, cl.3.2.4 note 1) is also plotted and the alternative profile additionally shown as an appropriately coloured broken line.
2. If plotted, 0.4 LL and PL+2 (after Driscoll, 1983) should only be applied to London Clay (and similarly overconsolidated clays) at shallow depths.

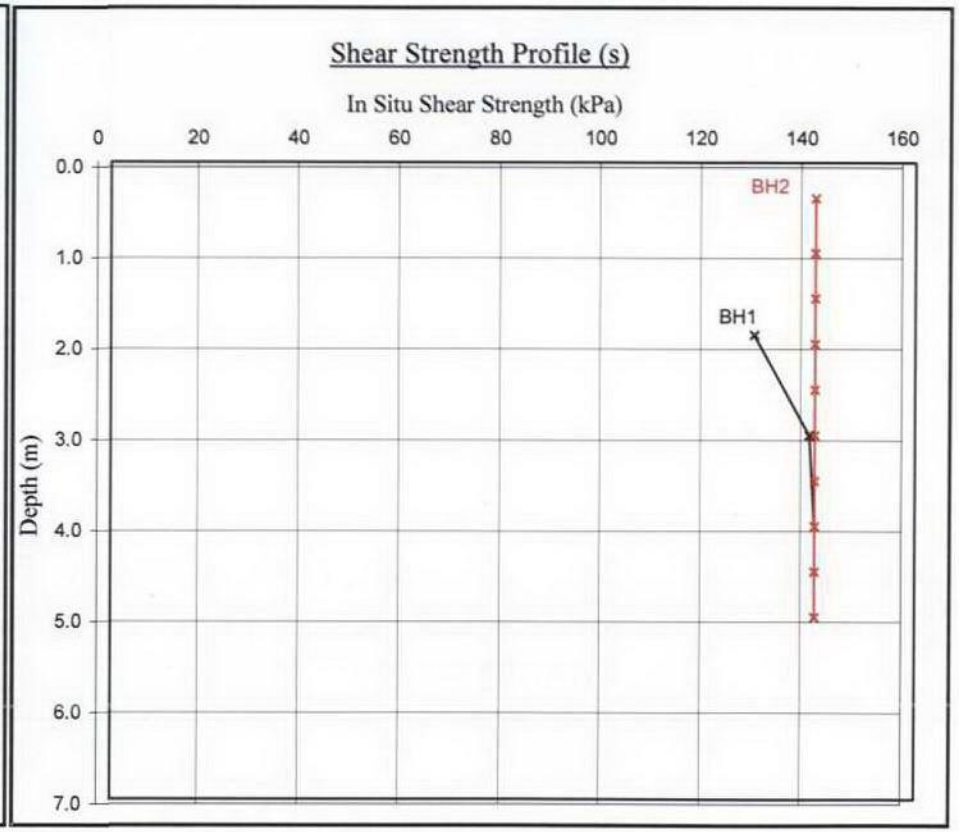
Note

When shown, the theoretical equilibrium suction profiles are based on conventional assumptions associated with London Clay (and similarly overconsolidated clays) at shallow depths. Note that the sample disturbance component is dependant on the method of sampling and any subsequent recompaction. The above plots show this to be 100kPa which is the value suggested by the BRE on the basis of their limited number of tests on recompacted samples. This may or may not be appropriate in this instance and judgement should be exercised.

Moisture Content and Shear Strength Profiles

Our Ref :	30864	Date Sampled :	16/09/06
Location :	10 Torriano Cottages	Date Received :	21/09/06
Work carried out for:	Cunningham Lindsey - St Albans	Date Tested :	
	Note : Unless specifically noted the profiles have not been related to a site datum.	Date of Report :	





Notes

1. If the Soil Fraction > 0.425mm exceeds 5% the Equivalent Moisture Content of the remainder (calculated in accordance with BS 1377: Part 2 : 1990, cl.3.2.4 note 1) is also plotted and the alternative profile additionally shown as an appropriately coloured broken line.
2. 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 Group using a Pilcon Hand Vane the calibration of which is limited to a maximum reading of 140 kPa.

Tree Root Investigation Ltd

Sheet: 1 of 1
Job No: 30864
Date: 22.09.06
Order No: 167933/E3

Site: 10 Torriano Cottages, Torriano Avenue, London NW5 2TA
Work carried out for: Cunningham Lindsey

Certificate of Analysis

The following work was commissioned by CET Group 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#
TP/BH1 (underside of footing)	1.0	Acer (sycamore; maple) (1 root)	positive
TP/BH2 (underside of footing)	0.5 - 1.0	a member of the family Leguminosae * (4 roots)	positive

The presence of starch indicates that the root was alive in the recent past.

* Members of the Leguminosae include Laburnum, Robinia (false acacia) and the climber, Wisteria.

Ronald Macleod

DR RONALD D MACLEOD
Managing Director

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VAT Registration No. 561 7593 18. Registered in Scotland, No. 83721. Registered Office, "Mandaya", Highfield Place, Bankfoot, PH1 4AX.

Appendix 3

INSURED:	**Mrs J & Mr M Bridge**	**Review Date:**	Oct-07
REF:	**2460826**		
ADDRESS:	**10, Torriano Cottages, Torriano Avenue, London, NW5 2TA**		
ADJUSTER:	**C. Savage**		
DATE INSTALLED:	**Sep-06**		
NO. OF READING:	**12**		
NO. OF STATIONS:	**4**		

READINGS IN MM

MONTH		6-Sep-06	16-Nov-06	24-Jan-07	6-Mar-07	18-Apr-07	30-May-07	31-Oct-07	11-Dec-07	14-Apr-08	13-Jun-08	20-Aug-08	29-Oct-08	24-Feb-09	
STATION 1	A-B	57.74	58.11	57.99	57.73	57.53	57.54	58.77	58.48	57.62	57.26	58.54	58.81	57.53	
	C-B	78.46	78.58	78.84	78.78	78.74	78.74	78.83	78.89	78.67	78.44	78.71	78.81	78.6	
	A-C														
OCW=	3mm														
STATION 2	A-B	119.95	120.15	118.90	118.75	118.64	118.68	119.57	118.97	118.48	118.46	118.71	118.72	118.43	
	C-B	132.25	132.38	131.30	131.16	131.10	131.13	131.95	131.34	130.99	130.82	130.98	131.04	130.83	
	A-C	50.32	50.37	50.68	50.69	50.69	50.67	50.37	50.42	50.38	50.29	50.53	50.27	50.26	
OCW=	5mm														
STATION 3	A-B	69.47	67.62	65.91	65.68	65.56	65.49	69.10	67.96	66.05	65.82	65.26	65.27	64.81	
	C-B	106.23	101.77	97.86	97.27	96.98	96.83	104.87	100.70	96.62	96.42	99.22	98.64	96.32	
	A-C	122.08	122.03	122.50	122.52	122.53	122.52	122.27	122.27	122.24	122.14	122.30	122.31	122.25	
OCW=	9mm														
STATION 4	A-B				67.87	67.88	69.31	68.71	67.98	69.00	69.32	68.88	68.97	69.86	
	C-B				68.71	68.99	68.02	67.76	68.59	68.02	68.29	67.96	68.04	69.2	
	A-C				96.75	96.74	96.73	96.52	96.61	96.61	96.53	96.58	96.58	96.5	
OCW=	3.6mm														

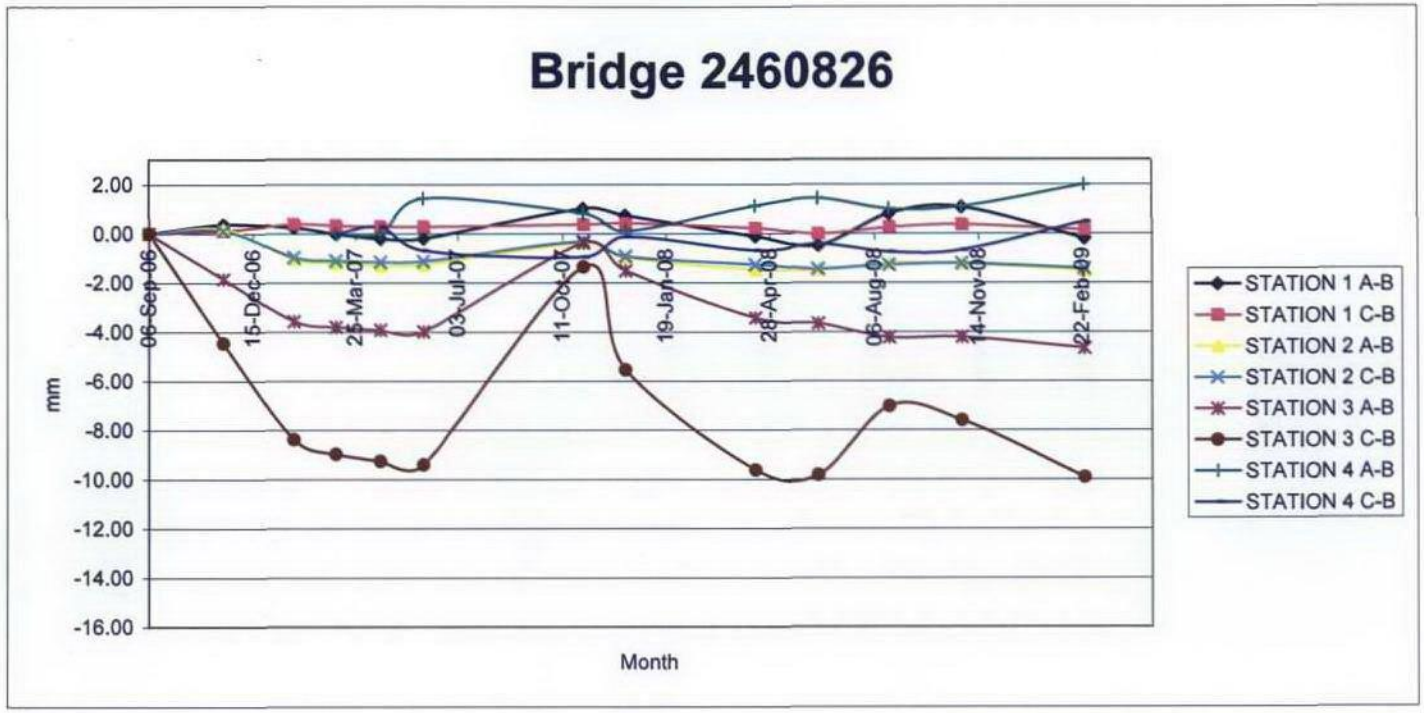
VARIATION IN CRACK WIDTH SINCE FIRST READING

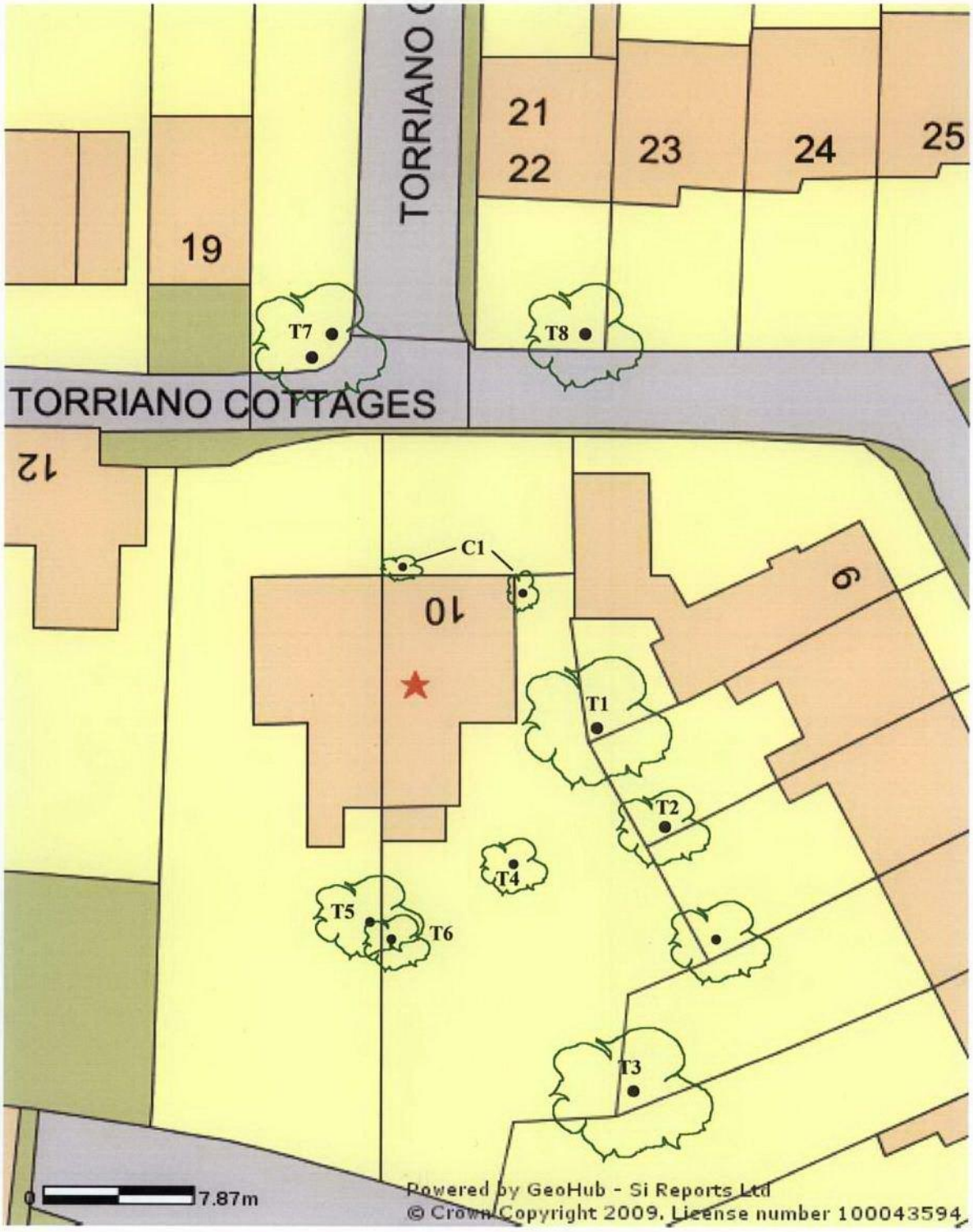
MONTH		06-Sep-06	16-Nov-06	24-Jan-07	06-Mar-07	18-Apr-07	30-May-07	31-Oct-07	11-Dec-07	14-Apr-08	13-Jun-08	20-Aug-08	29-Oct-08	24-Feb-09	
STATION 1	A-B	0.00	0.37	0.25	-0.01	-0.21	-0.20	1.03	0.74	-0.12	-0.48	0.80	1.07	-0.21	
	C-B	0.00	0.12	0.38	0.32	0.28	0.28	0.37	0.43	0.21	-0.02	0.25	0.35	0.14	
STATION 2	A-B	0.00	0.20	-1.05	-1.20	-1.31	-1.27	-0.38	-0.98	-1.47	-1.49	-1.24	-1.23	-1.52	

	C-B	0.00	0.13	-0.95	-1.09	-1.15	-1.12	-0.30	-0.91	-1.26	-1.43	-1.27	-1.21	-1.42	
STATION 3	A-B	0.00	-1.85	-3.56	-3.79	-3.91	-3.98	-0.37	-1.51	-3.42	-3.65	-4.21	-4.20	-4.66	
	C-B	0.00	-4.46	-8.37	-8.96	-9.25	-9.40	-1.36	-5.53	-9.61	-9.81	-7.01	-7.59	-9.91	
STATION 4	A-B				0.00	0.01	1.44	0.84	0.11	1.13	1.45	1.01	1.10	1.99	
	C-B				0.00	0.28	-0.69	-0.95	-0.12	-0.69	-0.42	-0.75	-0.67	0.49	

DESCRIPTION OF LOCATION	
STATION 1	Ext, Front LHS of Bay Above Cill.
STATION 2	Int, Top of stairs 1st floor lanind RH P/Wall
STATION 3	Ext, Rear LH crn main building to of stairs to celler
STATION 4	Retaining wall to rear steps down to basement

OCW= Original Crack Width


Bridge 2460826
2.00
0.00
-2.00
-4.00
-6.00
-8.00
-10.00
-12.00
-14.00
-16.00
mm
06-Sep-06
15-Dec-06
25-Mar-07
03-Jul-07
11-Oct-07
19-Jan-08
28-Apr-08
06-Aug-08
14-Nov-08
22-Feb-09
Month
STATION 1 A-B
STATION 1 C-B
STATION 2 A-B
STATION 2 C-B
STATION 3 A-B
STATION 3 C-B
STATION 4 A-B
STATION 4 C-B



(NB: This plan identifies the trees considered within the covering report and may not be a comprehensive record of site features.)

Title: 10 Torriano Cottages Client:	Scale: N T S Drawn Date: Job Ref: 40427	OCA UK Limited **4 The Courtyards, Phoenix Square** **Severalls Park, Wyncolls Road** **Colchester, Essex CO4 9PE** Tel.No: 01206 751626 : Fax.No: 01206 8557519