

FOI number: **HBC\_FOI\_20190774**  
Date FOI Received: **03/11/2019**  
Department: **Parks**  
Title: **Trees and TPOs in Ely Gardens, Borehamwood**  
Description: **Details of reports on oak trees in Ely Gardens and Tree Preservation Orders in place across Hertsmere.**

**Request:** *(As Redacted sent by requestor)*

Dear Hertsmere Borough Council Access to Information Team.

I am writing to you under the Freedom of Information Act 2000 to request the following information from you.

- With respect to the ancient oak trees in Ely Gardens, Borehamwood (Council or residents?), I would like to see the results of any surveys or reports that have been conducted upon which the decision to cut them down has been taken.
- What date has been given for the felling of these trees?
- Have the properties in Ely Gardens ever been underpinned? If so, when?
- How many Tree Preservation Orders HBC there are in Borehamwood and Hertsmere?
- Which trees currently fall within a conservation area?
- How many trees have been felled both with permission and in error in the last three years in the Borough?
- Which trees have been shortlisted to be cut down and in what streets?

Please provide the information in the form of an email reply to me.

If it is not possible to provide the information requested due to this exceeding the cost of compliance limits identified in Section 12, please provide advice and assistance, under the Section 16 obligations of the Act, as to how I can refine my request.

If you have any queries please don't hesitate to contact me via email or phone and I will be very happy to clarify what I am asking for and discuss the request, my details are outlined below.

Thank you for your time and I look forward to your response.

Yours faithfully,

**Response:** *(Response as Redacted sent by service)*

1. As the Council has redacted some of the information disclosed to you I am required to inform you of the exemptions on which the Council relies:

Environmental Information Regulations 2004 - Regulation 13 - Some of the redacted information comprises the personal information of a third party who has not consented to its disclosure. Consequently disclosure would constitute a breach of the General Data

Protection Regulations (GDPR) DPR and Data Protection Act 2018)

Environmental Information Regulations 2004 - Regulation 12(5)(e) - Some of the redacted information is commercially sensitive and has been redacted for this purpose.

Please see attached files.

2. The date has yet to be confirmed.
3. The only information we have is in the reports provided in answer to Question 1.
4. For Borehamwood it is 40. For the Borough it is 490.
5. The council does not plot individual trees within designated conservation areas, all trees within them enjoy a limited degree of protection as anyone wishing to work on such trees must give notification to the Local Planning Authority.

Maps of the Council's conservation areas can be found on the Hertsmere Borough Council website; <https://www.hertsmere.gov.uk/Planning--Building-Control/Building--Tree-Conservation/Conservation-areas/CAs-in-Hertsmere.aspx>

6. 574 by Hertsmere Borough Council. By others - Not known

7. There is no shortlist of trees to fell. The council holds no recorded information relevant to your request.

If you have any queries about the processing of your request then please do not hesitate to contact me. Further information explaining the Council's process for responding to information requests together with a complaints/appeals procedure is available in our reception or via our website at:

<https://www.hertsmere.gov.uk/Your-Council/Official-Publications--Guides--Policies/Access-to-Information.aspx>

The Information Commissioner oversees the application of the Freedom of Information Act. You may contact the Information Commissioner at:

Information Commissioners Office  
Wycliffe House, Water Lane  
Wilmslow  
Cheshire SK9 5AF  
Telephone: 01625 545700  
Website: [www.informationcommissioner.gov.uk](http://www.informationcommissioner.gov.uk)

Please include the above reference number on all correspondence related to this request.

Thank you for your request.

Kind regards

Information Services

---

# Arboricultural Appraisal Report

Subsidence Damage Investigation at:

[REDACTED]  
[REDACTED]  
[REDACTED]

CLIENT:

[REDACTED]

CLIENT REF:

[REDACTED]

[REDACTED] REF:

[REDACTED]

[REDACTED] CONSULTANT:

[REDACTED]

REPORT DATE:

05-11-2016

## SUMMARY

Statutory Controls		Mitigation (current claim)	
TPO	N/A - LA trees	Insured	No
Cons. Area	N/A - LA trees	3 <sup>rd</sup> Party	No
Trusts schemes	N/A	Local Authority	Yes
Planning	N/A	Other	No
Local Authority: -	Hertsmere Borough Council		

---

[REDACTED]

Tel: [REDACTED]  
Email: [REDACTED]

---

## Introduction

Acting on instructions received from [REDACTED] the insured property was visited on 03/11/2016 for the purpose of assessing the potential role of vegetation in respect of subsidence damage.

We are instructed to provide opinion on whether moisture abstraction by vegetation is a causal factor in the damage to the property and give recommendations on what vegetation management, if any, may be carried out with a view to restoring stability to the property. The scope of our assessment includes opinion relating to mitigation of future risk. Vegetation not recorded is considered not to be significant to the current damage or pose a significant risk in the foreseeable future.

This is an initial appraisal report and recommendations are made with reference to the technical reports and information currently available and may be subject to review upon receipt of additional site investigation data, monitoring, engineering opinion or other information.

This report does not include a detailed assessment of tree condition or safety. Where indications of poor condition or health in accessible trees are observed, this will be indicated within the report. Assessment of the condition and safety of third party trees is excluded and third party owners are advised to seek their own advice on tree health and stability of trees under their control.

## Property Description

The property comprises a [REDACTED]

External areas comprise [REDACTED]  
[REDACTED]

## Damage Description & History

The current damage principally affects the front of the dwelling where the engineer has recorded internal and external cracking to walls. Some cracking to ceilings in rear rooms was also observed.

There is a history of structural distress to the insured dwelling which is believed to have resulted in a scheme of underpinning in [REDACTED]. In addition, an independent engineer's report commissioned by the insured during 2015 diagnosed a further episode of movement as being attributable to defective drains softening the substratum. A scheme of foundation works was prepared and submitted to insurers.

At the time of the engineers' inspection on 11<sup>th</sup> July 2016 the structural significance of the damage was found to fall within Category 3 (moderate) of Table 1 of BRE Digest 251.

## Site investigations

Site investigations were carried out by the [REDACTED] on 7<sup>th</sup> September 2016 when a single trial pit was excavated to reveal the foundations, with a borehole being sunk through the base of the trial pit to determine subsoil conditions.

### Foundations:

Ref	Foundation type	Depth at Underside (mm)
TH1	Concrete	600

### Soils:

Ref	Description	Plasticity Index (%)	Volume change potential (NHBC)
BH1	Stiff brown CLAY	49.0	High

### Roots:

Ref	Roots Observed to depth of (mm)	Identification	Starch content
BH1	3500	<i>Quercus spp.</i>	N/A

Drains: No information currently available.

Monitoring: Level monitoring is due to commence.

Property:



Client Ref:  
Ref:



---

## Discussion

Opinion and recommendations are made on the understanding that [REDACTED] are satisfied that the current building movement and the associated damage is the result of clay shrinkage subsidence and that other possible causal factors have been discounted.

Site investigations and soil test results have confirmed a plastic clay subsoil of high volume change potential (NHBC Classification) susceptible to undergoing volumetric change in relation to changes in soil moisture. A comparison between moisture content and the plastic and liquid limits suggests significant desiccation of the clay component throughout the full depth of the borehole. Oedometer strain testing reveals a characteristic bulge (strains vs depth) that illustrates the zone of soil drying associated with the nearby oak trees.

There is desiccation at depths beyond normal ambient soil drying processes such as evaporation indicative of the soil drying effects of vegetation.

Strength testing of the substrate indicates that it is sufficiently consolidated to bear the imposed load and as such the damage cannot be attributed to consolidation settlement. This is borne out by the relative age of the building and the recent appearance of damage.

Roots were observed to a depth of 3500mm and anatomical analysis confirms the origin of samples to be *Quercus spp.* (oak).

Based on the technical reports currently available, engineering opinion and our own site assessment we conclude the damage is consistent with shrinkage of the clay subsoil, the dominant cause of which is judged to be the drying action of roots originating from T2 and T3.

The overall condition of T1 is poor with evidence of stress and low vigour and for this reason we have not classified this tree as 'causal'. In the event T2 and T3 are removed and movement persists the removal of this tree may need to be considered.

Consideration has been given to pruning as a means of mitigating the vegetative influence, however in this case, this is not considered to offer a viable long term solution due to the size and proximity of the responsible vegetation, combined with the vigorous growth response generated as a result of severe pruning.

Replacement planting may be considered subject to species choice and planting location.



---

## Conclusions

- Conditions necessary for clay shrinkage subsidence to occur related to moisture abstraction by vegetation have been confirmed by site investigations and the testing of soil and root samples.
- Engineering opinion is that the damage is related to clay shrinkage subsidence.
- There is significant vegetation present with the potential to influence soil moisture and volumes below foundation level.
- Roots have been observed underside of foundations and identified samples correspond to vegetation identified on site.

**Table 1** **Current Claim - Tree Details & Recommendations**

Tree No.	Species	Ht (m)	Dia (cm)	Crown Spread (m)	Dist. to building (m)	Age Classification	Ownership
T2	Oak	10.5	53	11.0	15.5	Older than property	Local Authority
Management history		Evidence of recent, minor pruning, to crown lift/remove deadwood.					
Recommendation		Remove					
T3	Oak	11.2	65	13.0	13.5	Older than property	Local Authority
Management history		Evidence of recent, minor pruning, to crown lift/remove deadwood. Past pruning includes crown reduction.					
Recommendation		Remove					

Ms multi-stemmed

\* Estimated value

**Table 2** **Future Risk - Tree Details & Recommendations**

Tree No.	Species	Ht (m)	Dia (cm)	Crown Spread (m)	Dist. to building (m)	Age Classification	Ownership
T1	Oak	15.7	100+	13.0	19.5	Older than property	Local Authority
Recommendation		Tree exhibiting signs of physiological stress. Basal epicormics growth plus thinning crown symptoms associated with one of a number of potential biotic/abiotic factors.  No action at present					
							Policy Holder
Recommendation		Do not allow to exceed current dimensions.					
							Policy Holder
Recommendation		Remove a section to achieve a minimum of 2.0m clearance. Do not allow remaining hedge to exceed current dimensions.					

Ms multi-stemmed

\* Estimated value

Property:

Client Ref:

Ref:



**SITE PLAN**

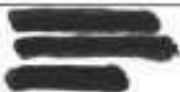


Plan not to scale – indicative only



Approximate areas of damage

Property:



Client Ref:  
Ref:



**Images**

View of LA oak trees

Alternative view

Property:

Client Ref:

Ref:

## Heave Calculations

### Notes:

The oedometer strains appear to be low when comparisons are undertaken with the moisture content and penetrometer profiles which display a typical desiccation bulge.

Due to the uniformity of the recorded liquid limits a further calculation has also been undertaken using the moisture content values. This has been achieved by assuming that the equilibrium moisture contents vary linearly from that recorded at the top to that recorded at the bottom of the borehole (i.e. across the bulge). This is probably a conservative estimate.

Oedometer Heave Calculation				
Borehole	1			
Notes:	Remoulding disturbance strain has been assumed as 0.01. A topsoil depth of 0.15m has been assumed. The shrinkage factor has been set to 2 for oedometer heave calculations.			
Average Sample Depth	Specimen No. & Comments		Oed. Strain	Dd (mm)
1.3	1, Top soil depth assumed 0.15m		-0.0018	0.0
2.5	2		0.0099	0.0
3.5	3		0.0107	0.4
4.5	4		0.0050	0.0
Approximate heave potential =			0mm	
Total surface heave potential over the borehole depth is about			0cm to 2cm	

Moisture Content Heave Calculation						
Borehole	1	Heave prediction to BRE Digest 412 (1996) "Using water content profiles"				
Note:	A topsoil depth of 0.15m has been assumed. The shrinkage factor (wsf) has been set to 4 as specified within the BRE. Extrapolated equilibrium values are in brackets.					
Sample Depth	Moisture Content BH1	Predicted Equil. Moisture Content	Layer Thickness	Layer Water Deficiency	Cumulative Water Deficiency	Cumulative Heave Potential
z (m)	w <sub>f</sub> (%)	w <sub>i</sub> (%)	ΔH (mm)	(mm)	(mm)	(mm)
1.3	29.0	29.0	1150	0.0	50.6	12.7
2.0	29.0	(28.7)	700	0.0	50.6	12.7
2.5	27.0	(28.3)	500	10.5	50.6	12.7
3.0	26.0	(28.0)	500	16.0	40.1	10.0
3.5	26.0	(27.7)	500	13.4	24.1	6.0
4.0	26.0	(27.3)	500	10.7	10.7	2.7
4.5	27.0	27.0	500	0.0	0.0	0.0
Approximate Heave Potential =						13mm
Total surface heave potential over the borehole depth is about :						0cm. to 3cm.



## Initial Technical Report

Date of Issue: 02 August 2016	
Our Ref: [REDACTED]	
Your Ref: [REDACTED]	
[REDACTED]	[REDACTED]

Policyholder Home tel.:	[REDACTED]
Policyholder Work tel.:	Not Advised
Policyholder Mobile tel.:	[REDACTED]
VAT registered: <i>if yes give details</i>	[REDACTED]
<b>Claim Information, History and Timescales:</b>	
Policy number:	[REDACTED]
Policy wording:	[REDACTED]
Date of construction:	Circa 1960
Date of purchase:	[REDACTED]
Date of policy inception:	[REDACTED]
Date damage first noticed:	10 June 2016
Date claim notified to insurers:	10 June 2016
Supposed cause:	Subsidence
Date of our initial inspection:	11 July 2016
Start date of main remedial works (est.)	Tbc
Date of claim finalisation (est.)	Tbc

## Introduction

The technical and insurance aspects of this claim are being overseen by our Regional Technical Manager [REDACTED] in accordance with our Project Managed Service.

This report has been prepared specifically in connection with the current insurance claim and is not a structural survey. As such, this report should not be relied upon as a statement of structural adequacy. It does not deal with the general condition of the building, decorations, services, timber rot, infestation or the like and does not include any part of the building that is either covered or inaccessible.

## Description of property

The property comprises [REDACTED] constructed circa 1960. The property is not listed and does not lie within a Conservation Area. The property is of standard original construction comprising cavity walls beneath a pitched, tiled roof supported by traditional rafters and purlins. The ground floor is of standard solid concrete construction and the first floor is suspended timber.

## Topography of site and general location

The property is located in a residential area of Borehamwood and is surrounded by similar properties. The site is generally level and there are a number of large mature trees located outside the boundaries of the front garden. The drainage system runs along the rear of the property connecting into the Water Authority's sewer. It is likely to be a combined foul and surface water system.

## Geology

With reference to the British Geological survey map, this indicates that the underlying geology is primarily clay. The surface deposits are thought to be primarily London clay. The subsoil is therefore likely to be highly shrinkable and prone to seasonal volumetric change.

## Vegetation

The following trees and shrubs were noted on the site. The existences of tree preservation orders (TPO) have been indicated where known.

<i>Species</i>	<i>Oak tree</i>	<i>Oak tree</i>	<i>Oak tree</i>	
Height	25m+	15-20m	25m+	
Distance	18m	15m	18m	
From where	front	front	front	
Ownership	LA	LA	LA	
Name of owner	LA	LA	LA	
Address of owner	LA Offices	LA Offices	LA Offices	
Removal date	TBC	TBC	TBC	
TPO	NO	NO	NO	

## Technical Circumstances

We have been advised by the housing association that subsidence appears to have been ongoing on for a while with previous occurrences having been dealt with. They do not have any of the previous records but are trying to locate them. They have confirmed that the property was most probably underpinned in [REDACTED] a depth of 1150mm below ground level.

In October 2015 a report was prepared by [REDACTED] to confirm site investigations and monitoring undertaken to determine the cause and pattern of movement of the building. Investigations confirmed the presence of water within the trial pits and [REDACTED] concluded the subsoil had become softened due to the presence of this water. They also prepared a schedule of works that included the installation of helical piles and bed joint reinforcement to stabilise the front elevation in the sum of £25k. A subsequent claim was then submitted to insurers for consideration.

During our meeting with the tenant we were advised that the Local Authority were intending to crown reduce the offending Oak trees but as yet, they have not done so.

## Description of damage

The following is a summary of the damage relating to the insurance claim. This Report has been prepared specifically in connection with the current insurance claim and is not a Structural Survey. As such, this Report should not be relied upon as a Statement of Structural Adequacy. It does not deal with the general condition of the building, decorations, services, timber rot, infestation or the like and does not include any part of the building that is either covered or inaccessible.

### External:

There are diagonal tapering stepped fractures measuring up to 2-3mm in width to the external face brickwork above and below the front windows and main front door. The crack damage is also evident to the left flank elevation within the passageway to the rear garden.

### Internal:

Diagonal crack damage measuring up to 5mm in width is evident to the left flank wall within the ground floor lounge. Within the first floor area of the property high level damage is evident within the rear room areas of the building to the ceiling / wall junction, while diagonal crack damage measuring up to 2mm in width was noted below the front left bedroom.

### Cause of damage

We have reviewed the report from [REDACTED] and confirm we are not in agreement with the conclusions for the cause of movement of the building. The investigations did not obtain sufficient subsoil data or root identification to confirm the true influence of the Oak trees. The presence of water within the trial holes excavated in October would have been expected during winter rainfall and is unlikely to be the cause of damage taking into account the cohesive subsoil and tree roots.

During our recent site inspection we noted extensive shrinkage cracks within the front garden lawn and it was confirmed by the tenant that during previous summers the cracks were much more substantial.

The proposed installation of the helical piles and extensive bed-joint reinforcement could, in our opinion be detrimental to the stability of the property given the highly shrinkable clay subsoil and possible ongoing effects of the roots from the nearby Oak trees.

We suspect the cause of damage is due to tree root desiccation of the clay subsoil beneath the foundations to the front of the building. It is suspected the large Oak trees located adjacent to the front of the building are responsible.

The current clay shrinkage subsidence damage to the property is likely to progress on a seasonal basis in line with the growth of the vegetation and the moisture extraction from the clay subsoil.

### Category of cracking

The category of cracking in accordance with Table 1, BRE Digest No.251 (as reproduced below) would be category 3.

Category 0	Negligible	Less than 0.1mm
Category 1	Very slight	0.1-1.0mm
Category 2	Slight	1mm to 5mm
Category 3	Moderate	5mm to 15mm
Category 4	Severe	15mm to < 25mm
Category 5	Very severe	More than 25mm

### **Discussions & Recommendations**

We recommend further investigations and monitoring be undertaken to confirm the cause of damage and formally pursue the Local Authority Oak tree owners to undertake the required tree mitigation to stabilise the front of the property.

### **Attachments**

None.



## Addendum Technical Report

Date of Issue:	20 October 2016
Our Ref:	[REDACTED]
Insurer Ref:	[REDACTED]
[REDACTED]	[REDACTED]

Policyholder Home tel.:	[REDACTED]
Policyholder Work tel.:	Not advised
Policyholder Mobile tel.:	Not advised
VAT registered: <i>if yes give details</i>	[REDACTED]
<b>Claim Information, History and Timescales:</b>	
Policy number:	[REDACTED]
Policy wording:	[REDACTED]
Date of construction:	Circa 1960
Date of purchase:	[REDACTED]
Date of policy inception:	[REDACTED]
Date damage first noticed:	10 June 2016
Date claim notified to insurers:	10 June 2016
Date of our initial inspection:	11 July 2016
Start date of main remedial works (est.)	September 2017
Date of claim finalisation (est.)	December 2017

## Brief Résumé

The technical and insurance aspects of this claim are being overseen by our Regional Technical Manager [REDACTED] in accordance with our Project Managed Service.

The property comprises a [REDACTED] constructed circa 1960. The property is not listed and does not lie within a Conservation Area. The property is of standard original construction comprising cavity walls beneath a pitched, tiled roof supported by traditional rafters and purlins. The ground floor is of standard solid concrete construction and the first floor is suspended timber. The property is located in a residential area of Borehamwood and is surrounded by similar properties. The site is generally level and there are a number of large mature trees located outside the boundaries of the front garden. The drainage system runs along the rear of the property connecting into the Water Authority's sewer. It is likely to be a combined foul and surface water system. With reference to the British Geological survey map, this indicates that the underlying geology is primarily clay. The surface deposits are thought to be primarily London clay. The subsoil is therefore likely to be highly shrinkable and prone to seasonal volumetric change.

We have been advised by the housing association that subsidence appears to have been ongoing for a while with previous occurrences having been dealt with. In October 2015 a report was prepared by [REDACTED] to confirm site investigations and monitoring undertaken to determine the cause and pattern of movement of the building. Investigations confirmed the presence of water within the trial pits and Bersche-Rolt Ltd concluded the subsoil had become softened due to the presence of this water. They also prepared a schedule of works that included the installation of helical piles and bed joint reinforcement to stabilise the front elevation in the sum of £25k. A subsequent claim was then submitted to insurers for consideration.

Externally there are diagonal tapering stepped fractures measuring up to 2-3mm in width to the external face brickwork above and below the front windows and main front door. The crack damage is also evident to the left flank elevation within the passageway to the rear garden. Internally diagonal crack damage measuring up to 5mm in width is evident to the left flank wall within the ground floor lounge. Within the first floor area of the property high level damage is evident within the rear room areas of the building to the ceiling / wall junction, while diagonal crack damage measuring up to 2mm in width was noted below the front left bedroom.

## Site investigations

The ground investigations were carried out by [REDACTED] and for full details please refer to the Factual Report of Investigation. A trial pit/borehole was excavated externally adjacent to the front of the property to confirm foundation depth and subsoil conditions.

The foundations to the front of the property were found to comprise of a concrete strip foundation founded at a depth of 1300mm below ground level on highly shrinkable clay. The extended borehole revealed the clay continued for the full depth of the investigations terminating at 5m below ground level.

Roots were encountered at and below foundation level within the trial pit / borehole to a depth of 3.5m below ground level. Botanically identification of these roots confirmed that they emanated from the species Quercus (OAK).

Analysis of the soil tests undertaken during the excavations and laboratory results confirm a change in the characteristics of the subsoil below foundation depth. This change in soil characteristics coincides with the depth of root penetration found within the borehole.

## **Monitoring**

Level monitoring will be installed to the perimeter of the property to record the pattern and magnitude of the movement to the building.

---

## **Discussions and Recommendations**

Following receipt of the site investigation and analysis of its content we require the services of an Arborist to compile an Arboricultural Assessment of the tree vegetation located outside the boundaries of the front garden.

We would also recommend a heave calculation is obtained to determine the possible risk of heave should full tree mitigation be undertaken.

---

We also recommend Level monitoring to be undertaken over the next six months to determine the pattern and magnitude of movement to the building to support the findings of the site investigations that have implicated the presence of the Oak trees.

---

## **Next actions**

We have reported our findings to your insurers and upon receipt of their instructions we will provide you with an update.

## **Attachments**

None.

---

[REDACTED]

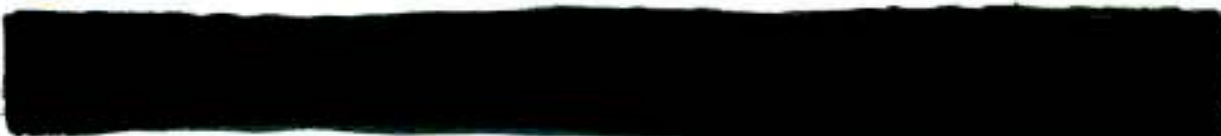
CCTV REPORT FOR: [REDACTED]  
[REDACTED]  
[REDACTED]

**CONTENTS:** SITE LAYOUT  
FOUNDATION RECORD  
PENETROMETER PLOT  
PHOTOGRAPHS  
LABORATORY TESTING RESULTS  
ROOT IDENTIFICATION

**Client:** [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

**Insured:** [REDACTED]  
**Reference:** [REDACTED]

**Site Visit:** 07-Sep-16  
**Report Date:** 12-Oct-16



## SITE LAYOUT










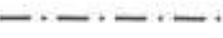
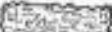



Site Crew: [REDACTED]

Date: 07-Sep-16

### General Comments:

Site Layout based on information provided by [REDACTED]

Note: Runs shown in red have been adopted by the local water authority.

**Key:**  = Storm Gully    = Storm Pipe    = Foul Gully    = W/C or S.V. pipe    = Inspection Chamber  
 = Rodding Eye    = Surveyed pipe indicating flow    = Unsurveyed pipe  
 = Exploratory Hole (hand dug pit and/or hand auger)    = Boundary line  
 = Hedge or Shrub     = Trees    = Area of damage

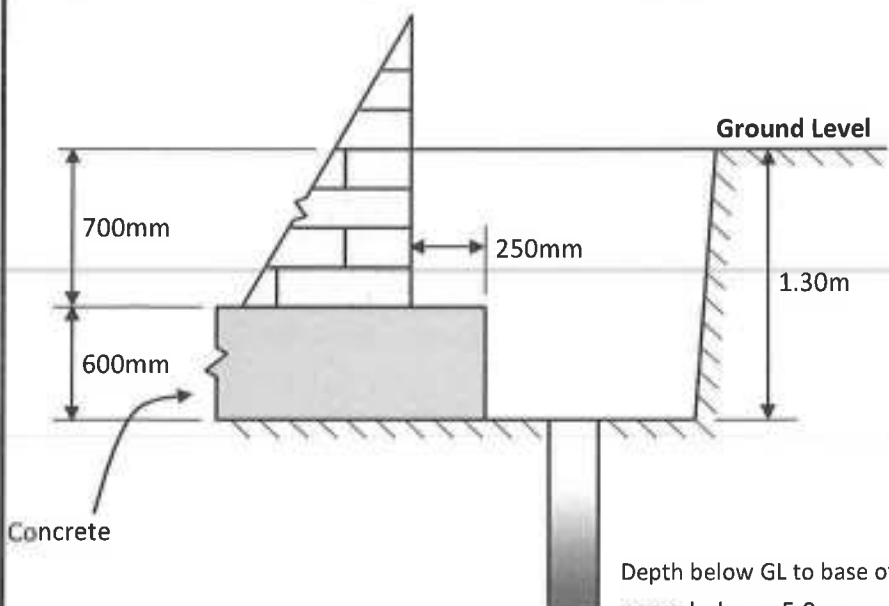
Address: [REDACTED]

[REDACTED]

E/H No.	1
---------	---

Weather: Dry

Date: 07-Sep-16



Down to 3.5m  
up to 1mm diameter

None observed on site

Hole at instructed depth

[illegible]

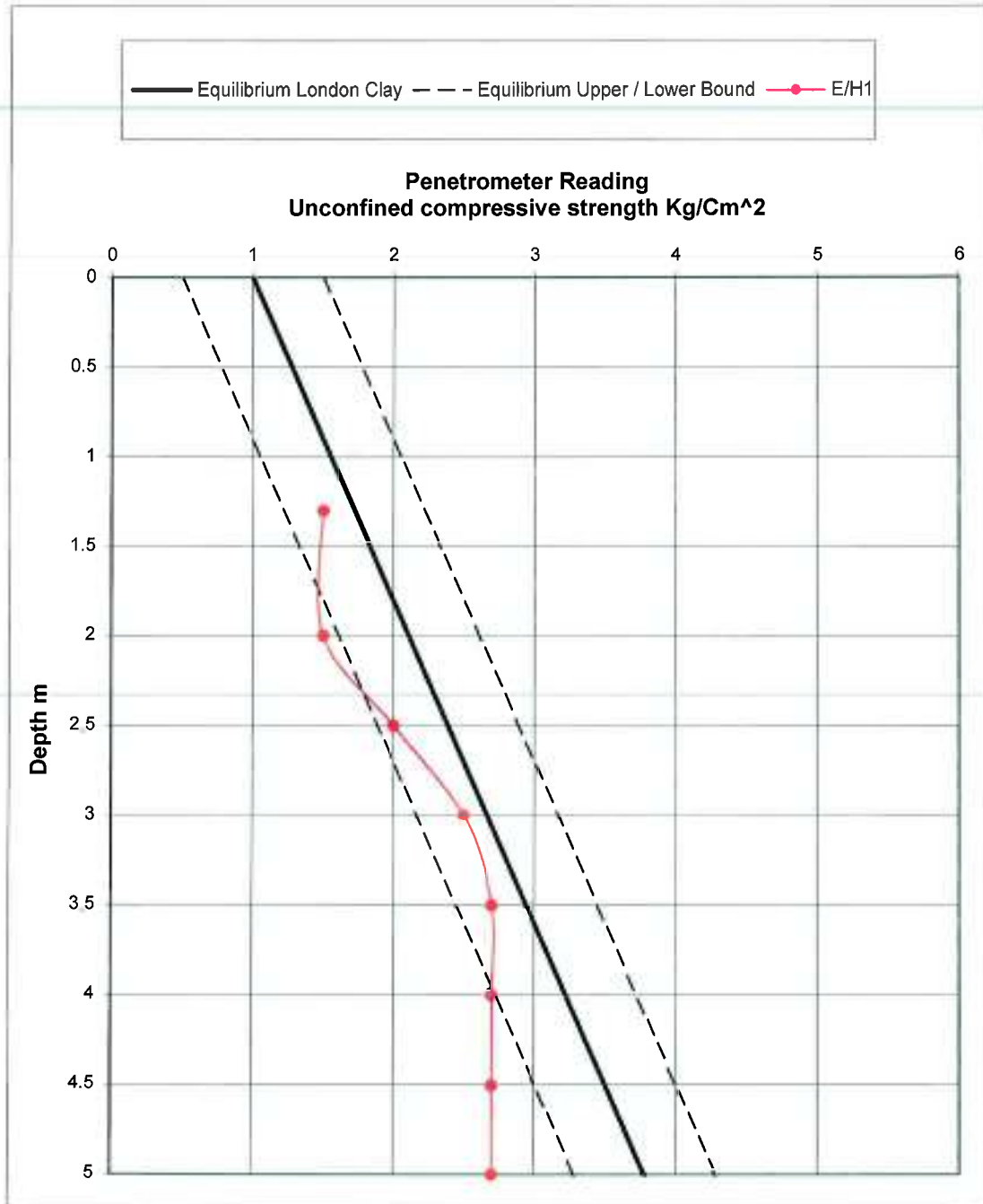
General Comments :

Key: Mac=Macintosh Probe, V(n)=Natural Shear Vane, P.P. = Pocket Penetrometer

Address: [REDACTED]

## PENETROMETER PLOT

E/H No	Location
E/H1	Front Left Hand Corner of Property



Address: [REDACTED]



## PHOTOGRAPHS

E/H1 - Location

E/H1

Address: 



## LABORATORY TESTING RESULTS

Hole Number	Sample Number	Depth	Description of Sample*
1		1.30	Brown silty CLAY.
1		2.00	Brown silty CLAY.
1		2.50	Brown silty CLAY.
1		3.00	Brown silty CLAY.
1		3.50	Brown silty CLAY.
1		4.00	Brown silty CLAY.
1		4.50	Brown silty CLAY.



Contract No:



Address:



## LABORATORY TESTING RESULTS

### Summary of Soil Classification Tests

BS 1377:Part 2:1990 3.2 4.4 5.0

Hole/ Sample Number	Sample Type	Depth m	Moisture Content % Cl. 3.2	Liquid Limit % Cl. 4.3/4.4	Plastic Limit % Cl. 5.	Plasticity Index % Cl. 6.	% Passing .425mm	Remarks	NHBC Chapter 4.2
1	D	1.30	29	81	34	47	100	CV Very High Plasticity	HIGH VCP
1	D	2.00	29						
1	D	2.50	27	80	31	49	100	CV Very High Plasticity	HIGH VCP
1	D	3.00	26						
1	D	3.50	26	81	32	49	100	CV Very High Plasticity	HIGH VCP
1	D	4.00	26						
1	D	4.50	27	84	48	36	100	MV Very High Plasticity	MEDIUM VCP

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

The Atterburg Limits May also be used to classify the volume change potential of fine soils using the National House building system, as given in the NHBC's Standards Chapter 4.2 (2003) "Building Near Trees"

Modified Plasticity Index (PI) <10

: Non Classified

Modified PI = 10 to <20

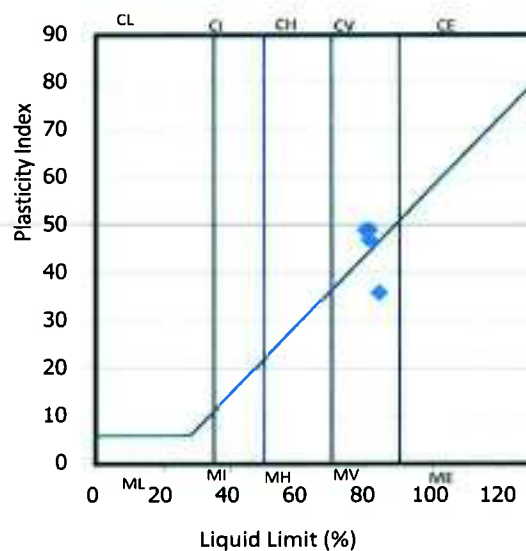
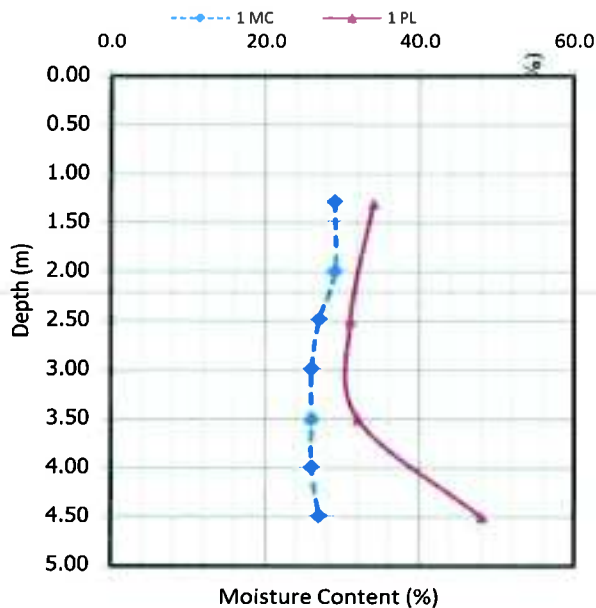
: Low volume change potential (LOW VCP)

Modified PI = 20 to <40

: Medium volume change potential (Medium VCP)

Modified PI = 40 or greater

: High volume change potential (HIGH VCP)



Contract No.:

Contract No.:



Oct 06

Issue No 1.4

Address:

## LABORATORY TESTING RESULTS

### Oedometer Results

<b>Borehole No:</b>	1			
<b>Location</b>				
Depth (m)		<b>Sample No &amp; Comments</b>	<b>Moisture Content %</b>	<b>STRAIN</b>
1.30			29	-0.0018
2.00			29	
2.50			27	0.0099
3.00			26	
3.50			26	0.0107
4.00			26	
4.50			27	0.0050
				22.99

Total Column Dd : 22.99 mm Therefore Free Surface Heave Potential Over B/H is about 0cm to 15cm

<b>Borehole No:</b>				
<b>Location</b>				
Depth (m)		<b>Sample No &amp; Comments</b>	<b>Moisture Content %</b>	<b>STRAIN</b>
				0.00

Total Column Dd : 0.00 mm Therefore Free Surface Heave Potential Over B/H is about 0cm to 8cm

**Contract No.:**

Contract No:

Address:

[REDACTED]

## ROOT IDENTIFICATION

[REDACTED]

27/09/2016

Your ref: [REDACTED]

Our ref: [REDACTED]

(Direct line)

Dear Sirs

[REDACTED]

The samples you sent in relation to the above on 14/09/2016 have been examined. The structure was referable as follows:

TP/BHL 1.3-3.5m

1 root: QUERCUS (Oak). 3 further samples, not examined in detail appeared similar under low magnification.

1 root: most referable to FAGUS (Beech). In its absence, the next best matches would be either QUERCUS (Oak) or CASTANEA (Sweet Chestnut). All are very closely related. This was a very THIN sample.

1 root: essentially too thin and immature for identification (under 0.4mm in diameter); definitely NOT a conifer. A further sample, not examined in detail appeared similar under low magnification.

1 piece of BARK only, insufficient material for identification.

I trust this is of help. Please call us if you have any queries; our Invoice is enclosed.

Yours faithfully

[REDACTED]

\*\* Try out our web site on [REDACTED] \*

Identified with no information on vegetation, on or off site.

Report commissioned by [REDACTED]

Address: [REDACTED]

Hex ID: [REDACTED]  
Email Date: 12/10/2016 16:53:10  
Email From: [REDACTED]  
Email Subject: FW: DPPHS Ref  
Email To: [REDACTED] Insurer Ref: [REDACTED] Policy Ref: [REDACTED]  
Email Cc: N/A

# LEVEL MONITORING - RELATIVE SURVEY READINGS

## Provider Details

Name: [REDACTED]  
Date of Issue: 9/2/18

## Client Details

Insurance Co.: [REDACTED]  
Client Name: [REDACTED]  
Technical Mgr: [REDACTED]  
Email: [REDACTED]  
Client Ref: [REDACTED]  
Address: [REDACTED]  
Address: [REDACTED]  
Town: [REDACTED]  
Post Code: [REDACTED]  
Other Email: [REDACTED]

## Risk Address

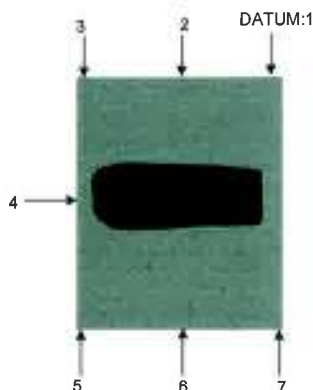
Occupier: [REDACTED]  
Address: [REDACTED]  
Address: [REDACTED]  
Town: [REDACTED]  
County: [REDACTED]  
Post Code: [REDACTED]  
Tel Home: [REDACTED]  
Tel Work: [REDACTED]  
Mobile: [REDACTED]  
Other: [REDACTED]  
Other: [REDACTED]

## Monitoring Details

Instruction Date: 24/10/16  
First Reading Date: 08/11/2016  
Maximum No Visits: TBC  
Anticipated Expiry Date: UFN  
Monitoring Int: 4 weekly

Target Date:															
Reading Date:				15/12/16	19/1/17	18/2/17	22/3/17	24/4/17	26/5/17	18/7/17	16/10/17	15/11/17	12/12/17	13/1/18	7/2/18
Issue Date:				16/12/16	20/1/17	20/2/17	24/3/17	28/4/17	30/5/17	20/7/17	19/10/17	17/11/17	15/12/17	16/1/18	9/2/18
Row No.	Point Name	X Co-ordinate	Y Co-ordinate	2	3	4	5	6	7	8	9	10	11	12	13
1	Datum: 1	6.60	7.50	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000
2	2	3.20	7.50	9.9826	9.9824	9.9927	9.9924	9.9921	9.9925	9.9925	9.9922	9.9923	9.9924	9.9927	9.9926
3	3	0.00	7.50	9.9852	9.9849	9.9855	9.9848	9.9845	9.9846	9.9849	9.9849	9.9846	9.9849	9.9851	9.9849
4	4	0.00	4.00	9.9707	9.9707	9.9713	9.9711	9.9713	9.9716	9.9708	9.9711	9.9709	9.9712	9.9712	9.9713
5	5	0.00	0.00	9.9672	9.9676	9.9692	9.9694	9.9696	9.9699	9.9687	9.9689	9.9689	9.9689	9.9678	9.9684
6	6	3.15	0.00	9.9606	9.9608	9.9624	9.9619	9.9623	9.9627	9.9599	9.9603	9.9604	9.9606	9.9613	9.9619
7	7	6.60	0.00	9.9930	9.9931	9.9946	9.9937	9.9941	9.9947	9.9927	9.9931	9.9933	9.9936	9.9937	9.9956
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															
21															
22															
23															
24															
25															
26															
27															
28															
29															
30															
31															
32															

REAR



FRONT

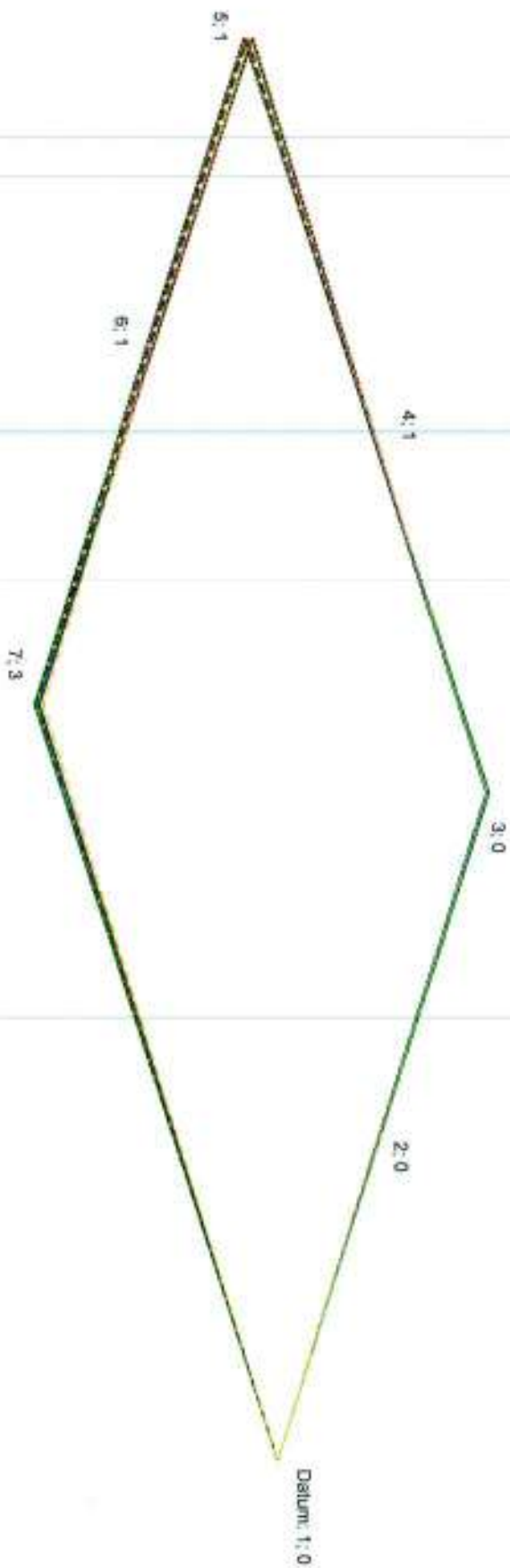
07/02/2018

- [REDACTED]
- All stations have been installed within the same brick course. There fore initial readings can be interpreted as Distortion Data
- there were no suitable drains to use as a datum, therefore readings have been made relative to Level Station 1. It has an assumed value of 10.0000m. If this is not appropriate, please advise if a deep datum is required?
- Further readings planned for Mar'18

# LEVEL MONITORING - RELATIVE MOVEMENT SKETCH

Client: [REDACTED]

Client Ref: [REDACTED]



Reading 2 (15/12/16)	Reading 3 (19/1/17)	Reading 4 (18/2/17)	Reading 5 (22/3/17)
Reading 6 (24/4/17)	Reading 7 (26/5/17)	Reading 8 (18/7/17)	Reading 9 (16/10/17)
Reading 11 (12/12/17)	Reading 12 (13/1/18)	Reading 13 (7/2/18)	Reading 10 (15/11/17)

Notes:

Vertical distorted scale 1 : 50

Point labels give level difference of last reading from original datum in mm

Sketch

Printed on 14/02/2018

# LEVEL MONITORING - RELATIVE SURVEY READINGS

Client: [REDACTED]

Client Ref: [REDACTED]

Chart Scale 1:1000

