

TECHNICAL REPORT ON A SUBSIDENCE CLAIM

[REDACTED]
**Fairhazel Co-Operative Limited
Flat 1
26 Canfield Gardens
London
NW6 3LA**



prepared for

QBE - JLT Housing
c/o Broadspire, Tempus, 249 Midsummer Boulevard, Milton Keynes, MK9 1YA

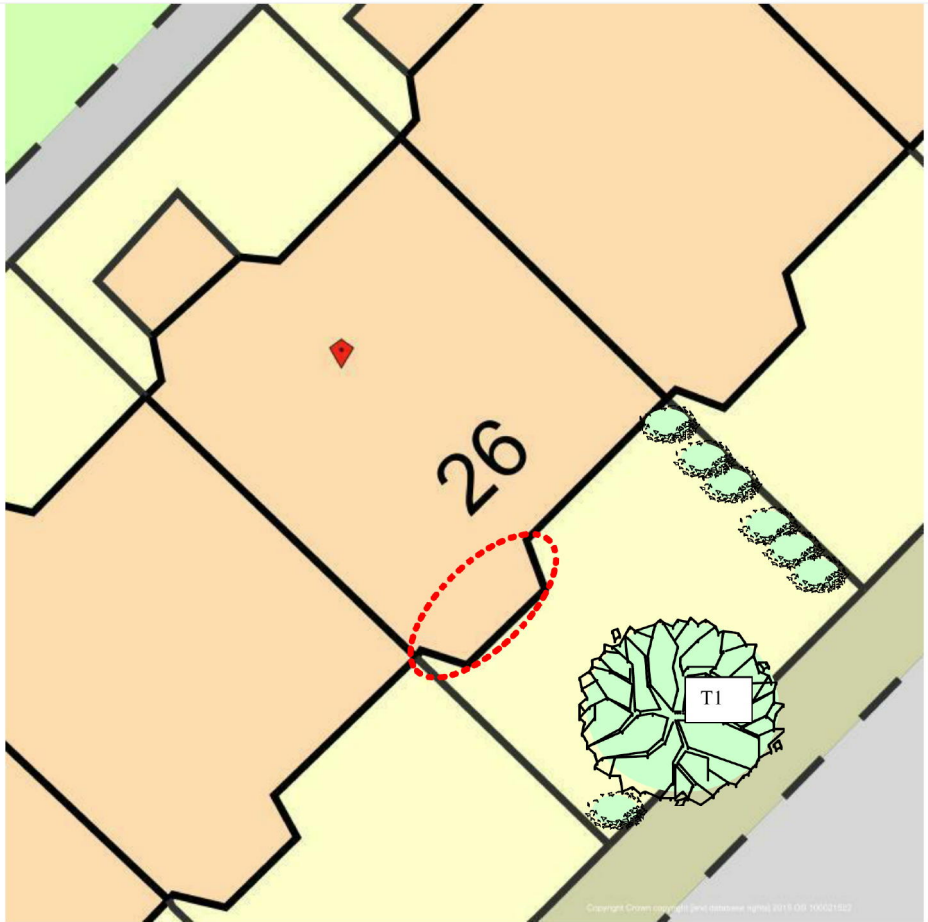
[REDACTED]
DATE 15 December 2018


Crawford®
Specialist Property Services UK

Site Plan
















This plan is Not to Scale

This is an Aerial Photograph of the property and the immediate surrounding area. The positions of utilities etc are only indicative and contractors must satisfy themselves regarding actual location before commencing works.



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Key:

	Tree: Deciduous		Tree: Conifer		Shrub
	Hedge		Area of Damage		Bore Hole
	Trial Hole		Trial & Bore Hole		Level Monitoring
	Rain Water Manhole		Rain Water Gulley		Rain Water Pipe
	Waste Water Manhole		Waste Water		Toilet Pipe



TECHNICAL REPORT

Flat 1



			Gulley		
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Chartered Loss Adjusters



INTRODUCTION

We have been asked by QBE - JLT Housing to comment on movement that has taken place to the above property. We are required to briefly describe the damage, establish a likely cause and list any remedial measures that may be needed.

Our report should not be used in the same way as a pre-purchase survey. It has been prepared specifically in connection with the present insurance claim and should not be relied on as a statement of structural adequacy. It does not deal with the general condition of the building, decorations, timber rot or infestation etc.

The report is made on behalf of Crawford & Company and by receiving the report and acting on it, the client - or any third party relying on it - accepts that no individual is personally liable in contract, tort or breach of Statutory duty. Where works address repairs **that are not covered** by the insurance policy we recommend that you seek professional advice on the repair methodology and whether the works will involve the Construction (Design & Management) Regulations 2015. Compliance with these Regulations is compulsory; failure to do so may result in prosecution. We have not taken account of the regulations and you must take appropriate advice.

We have not commented on any part of the building that is covered or inaccessible.

TECHNICAL CIRCUMSTANCES

The occupier confirmed the damage was discovered in February 2018 to the ground floor flat 1 around the front lounge with external damage to the bay.

Andrew Lismore associates inspection report for flat 1 dated the 5th of October 2018 with recommendation for monitoring as possible subsidence.

PROPERTY

Ground floor flat in a three storey mid-terrace house of traditional construction with brick walls surmounted by a ridged slated roof.

HISTORY & TIMESCALE

Date of Construction	Circa 1900
Purchased	Not known
Policy Inception Date.....	30/09/2018
Damage First Noticed	01 February 2018
Claim Notified to Insurer.....	30/10/2018
Date of our Inspection.....	15/11/2018
Issue of Report.....	10/12/2018

TOPOGRAPHY

The property occupies a reasonably level site with no unusual or adverse topographic features.

GEOLOGY

Reference to the 1:625,000 scale British Geological Survey Map (solid edition) OS Tile number TQNW suggests the underlying geology to be London Clay.

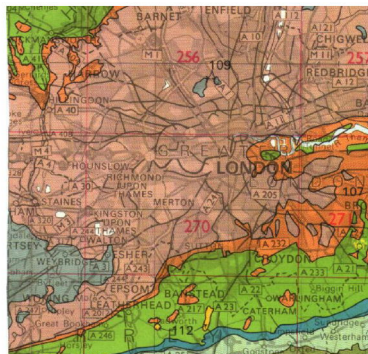
London Clays are marine deposits characterised by their silty, sandy composition. They are typically stiff, dark or bluish grey, weathered dark to mid-brown superficially with fine particle size (less than 0.002mm). Tomlinson¹ describes it as a 'fat' clay with high loadbearing characteristics due to pre-consolidation pressures in its geological history.

The upper horizon is often encountered at shallow depth, sometimes just below ground level. They have high shrink/swell potentials^{2,3} and can be troublesome in the presence of vegetation.

The superficial deposits are thought to be Clay Soils.

Clay soil superficial deposits are a cohesive soil characterised by their fine particle size and are usually derived from weathering of an underlying "solid geology" clay soil such as London Clay or Oxford Clay.

Like the solid geology sub-soil from which they are derived they shrink when dry, and swell when wet and can be troublesome when there is vegetation⁴ nearby and Gypsum and selenite crystals can be encountered (particularly in the south east). Protection using Class II Sulphate Resisting cement is therefore recommended for buried concrete.



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VEGETATION

There is a single tree nearby, some with roots that may extend beneath the house foundations. The following are of particular interest:-

Type	Height	Distance	Ownership
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¹ Tomlinson M.J. (1991) "Foundations Design & Construction" Longman Scientific Publishing.

² B.S. 5930 (1981) "Site Investigations"

³ Driscoll R. (1983) "Influence of Vegetation on Clays" Geotechnique. Vol 33.

⁴ Table 1, Chapter 4.2, Para. 2.3 of N.H.B.C. Standards, 1986.

⁵ Driscoll R. (1983) "Influence of Vegetation on Clays" Geotechnique. Vol 33.

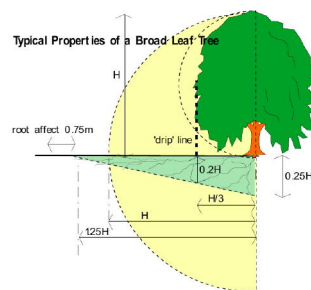
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T1 Lime 17 m 9 m Owner

See sketch. Tree roots can be troublesome in cohesive (clay) soils because they can induce volumetric change. They are rarely troublesome in non-cohesive soils (sands and gravels etc.) other than when they enter drains, in which case blockages can ensue.

Limes (Tilia) are deciduous and can reach heights between 25-30m depending on health, environment and soil conditions.

They have a medium growth rate of around 300mm per year and medium root activity⁵. Maximum tree-to-damage distance recorded in the Kew survey was 20mtrs, with 50% of all cases occurring within 6mtrs⁶.



Typical proportions of a Lime tree, showing the potential root zone.

Lime roots can be moderately deep on clay soils. They have a life expectancy > 100 years and both old and young trees withstand quite heavy pruning and crown thinning.

Older trees frequently develop shoots around the base of the trunk. They are vulnerable to aphid attack that produces sticky exudates of honeydew.

OBSERVATIONS

The following is an abbreviated description. Photographs accompanying this report illustrate the nature and extent of the problem.

INTERNAL

⁵ Richardson & Gale (1994) "Tree Recognition" Richardson's Botanical Identifications

⁶ Cutler & Richardson (1991) "Tree Roots & Buildings" Longman Scientific



Front lounge – cornice crack



Front lounge – diagonal crack to right side bay

Front lounge

Diagonal crack to left of bay and right 1 to 4mm

Horizontal crack along front cornices to bay 1 to 6mm

EXTERNAL



Vertical crack to left side junction of bay



Crack to brick arch

Front bay

Vertical crack to left junction of bay and left brick mullions to rendering with stepped crack below central window

Separation to right side reveal of left side window and gap of 18mm to brick arch above

CATEGORY

In structural terms the damage falls into Category 3 of Table 1, Building Research Establishment⁷ Digest 251, which describes it as "moderate".

Category 0	"negligible"	< 0.1mm
Category 1	"very slight"	0.1 - 1mm
Category 2	"slight"	>1 but < 5mm
Category 3	"moderate"	>5 but < 15mm
Category 4	"severe"	>15 but < 25mm
Category 5	"very severe"	>25 mm

⁷ Building Research Establishment

Extract from Table 1, B.R.E. Digest 251
Classification of damage based on crack widths.

DISCUSSION

The pattern and nature of the cracks is indicative of an episode of subsidence. The cause of movement appears to be clay shrinkage.

The timing of the event, the presence of shrinkable clay beneath the foundations and the proximity of vegetation where there is damage indicates the shrinkage to be root induced. This is a commonly encountered problem and probably accounts for around 70% of subsidence claims notified to insurers.

Fortunately, the cause of the problem (dehydration) is reversible. Clay soils will re-hydrate in the winter months, causing the clays to swell and the cracks to close. Provided the cause of movement is dealt with (in this case, vegetation) there should not be a recurrence of movement.

RECOMMENDATIONS

The cause of the movement needs to be dealt with first. We have completed a soil risk analysis (VISCAT Assessment) and we are satisfied that your tree T1 (please see drawing) can be removed.

We will obtain a quotation for the recommended tree works and undertake statutory checks for Preservation Orders or whether the tree(s) are in a Conservation Area.

Following completion of the tree management works, we will undertake a suitable period of monitoring to confirm stability has been achieved before undertaking repairs to the property.

Matin Abdul BSC (Hons)
Specialist Property Services - Subsidence Division

10 December 2018

PHOTOGRAPHS



Tree T1



Front lounge



Front kitchen – no visible structural damage



Rear bathroom – no visible structural damage