TECHNICAL REPORT ON A SUBSIDENCE CLAIM

Crawford Reference: SU1604340

14 Parsifal Road
London
NW6 1UH

Prepared for

Aviva - Commercial

SUBSIDENCE CLAIM

DATE 7 December 2016

Specialist Property Services UK
2nd Floor, Sunningdale, The Belfry Business Park,
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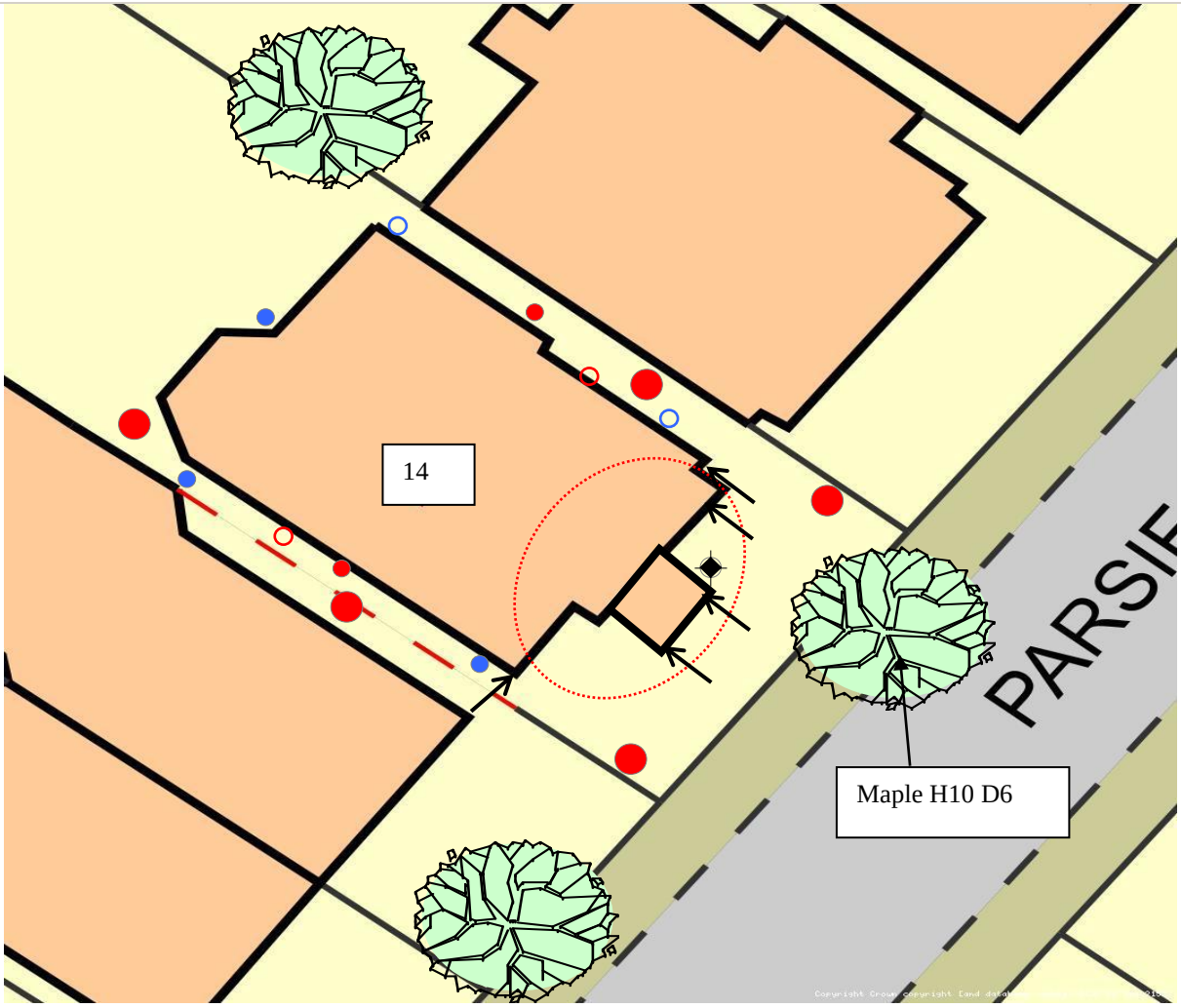
Site Plan	This plan is Not to Scale

This plan is diagrammatic only and has been prepared to illustrate the general position of the property and its relationship to nearby trees etc. The boundaries are not accurate, and do not infer or confer any rights of ownership or right of way. Position of utilities is only indicative and contractors must satisfy themselves regarding actual location before commencing works.



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 Gulley		Toilet Pipe
	Rain Water Drain		Waste Water Drain		Electricity Cable
	Water Supply Pipe		Gas Supply Pipe		Incoming Gas Pipe
	Incoming Water		Incoming Electrics		

INTRODUCTION

We have been asked by Aviva - Commercial 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 property has been the subject of two previous subsidence claims in 2007 and 2010. In both cases the local authority tree was deemed to be the cause of the movement and the tree is the subject of a regular maintenance programme. The last set of repairs were completed in 2013 during which the front steps were rebuilt. The current cracking was noted by Mrs Majer at the end of August 2016 and insurers were notified.

PROPERTY

The risk address is a three storey detached property of traditional construction with part rendered brick walls surmounted by a ridged tiled roof. The property has been converted to provide four, self-contained flats.

HISTORY & TIMESCALE

Site investigations are being organised and level monitoring is to be instructed. We have written to the Local Authority regarding their tree.

Date of Construction	1897
Purchased	1996
Policy Inception Date	01/01/2014
Damage First Noticed	August 2016
Claim Notified to Insurer	27/10/2016
Date of our Inspection	05/12/2016
Issue of Report	07/12/2016
Anticipated Completion of Claim	August 2018

TOPOGRAPHY

The property occupies a site sloping from the right down to the left.

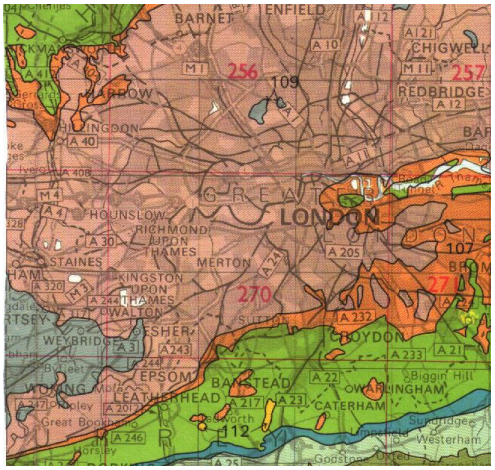
GEOLOGY

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). Tomlinson[1] 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 solid geology appears to outcrop in this location, although we cannot rule out the presence of superficial deposits at shallow depth.



Geology. Reproduced with consent of The British Geological Survey at Keyworth. Licence IPR/34-7C CSL British Geological Survey. ©NERC. All rights Reserved.

VEGETATION

There are several trees and shrubs nearby, some with roots that may extend beneath the house foundations. The following are of particular interest:-

Type	Height	Distance	Ownership
Maple	10 m	6 m	Council

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.

Maples, Acer species, include a wide range of species, including Norway maple, which is similar in size and growth to sycamore and the native field maple, which is a medium sized tree, common in lowland hedgerows. They are moderate water demanders, but the larger ones are quite often associated with subsidence.

[1] Tomlinson M.J. (1991) *"Foundations Design & Construction"* Longman Scientific Publishing.
[1] B.S. 5930 (1981) *"Site Investigations"*
[2] DriscollL R. (1983) *"Influence of Vegetation on Clays"* Geotechnique. Vol 33.
[3] Table 1, Chapter 4.2, Para. 2.3 of N.H.B.C. Standards, 1986.

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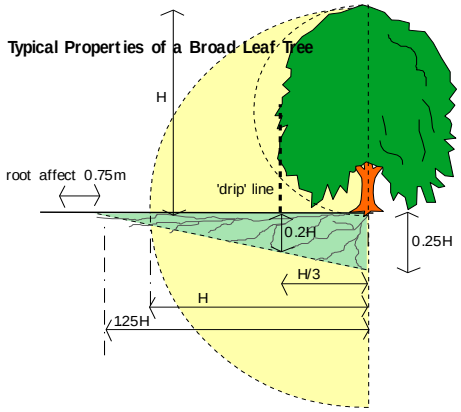
Growth rate approximately 600mm per year, and reaching heights of around 20-30mtrs, the Maple has medium root activity and medium to low water demand[4].



Typical proportions of a Maple, showing the potential root zone.

They tolerate pruning quite well, but large cuts will decay rapidly, particularly in the larger species. Japanese maples are typically small, slow growing trees or large shrubs that are less commonly associated with damage to buildings.

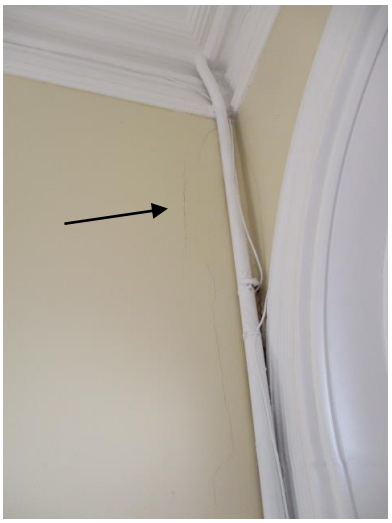
OBSERVATIONS

The movement to the front of the property is the focal point of the Insured's concerns.

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

INTERNAL

Cracking in flat 1 front bedroom



Cracking in communal entrance hall

Flat 1 Front Right Hand Bedroom - 1mm vertical crack on communal hall partition by front wall, cracking to ceiling across bay window.

Hallway - 1mm vertical crack to right hand side of door to front bedroom, cracking to ceiling.

[4] Richardson & Gale 1994) "Tree Recognition" Richardson's Botanical Identifications

Kitchen - Hairline diagonal crack above right hand side of window.

Lounge - Hairline vertical cracking to both sides of patio doors - Not subsidence related damage.

Basement Utility Room - 3mm diagonal crack to left hand wall.

Communal Entrance Hall - 1mm vertical crack to flat 1 partition by front door, cracking to coving along front wall.

Flat 3 - Lounge - 1mm vertical crack down junction of kitchen partition and front wall.

Front Bedroom - 1mm vertical crack down junction of kitchen partition and front wall, hairline vertical crack below front window.

EXTERNAL

Cracking to left hand side of steps

Cracking to right hand side of steps

Front Steps - 4mm stepped crack to left hand wall, 2mm stepped crack to left hand side porch wall, 6mm separation at right hand step wall junction with main house.

Front Garden Area - Movement to entrance step and cracking and movement to slabs forming front path.

CATEGORY

In structural terms the damage falls into Category 3 of Table 1, Building Research Establishment[5] 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

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

[5] Building Research Establishment, Garston, Watford. Tel: 01923.674040

DISCUSSION

The pattern and nature of the cracks is indicative of a further 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.

The cracking noted to the rear of the property and to the left hand flank projecting bay window was indicative of that associated with foundation movement and therefore falls outside the scope of this claim.

RECOMMENDATIONS

Although the cause of the movement needs to be dealt with, we note the involvement of a Local Authority tree. Unfortunately, they will require certain investigations to be carried out to demonstrate the influence of their vegetation.

Typically, these investigations would involve trial pit(s) to determine the depth and type of footings, boreholes to determine the nature of the subsoil/influence of any roots and monitoring to establish the rate and pattern of movement. It may also be necessary to obtain a specialist Arboricultural Report.

We will report further once these investigations have been completed.

Matt Deller BSc (Hons) MCIOB Dip CII
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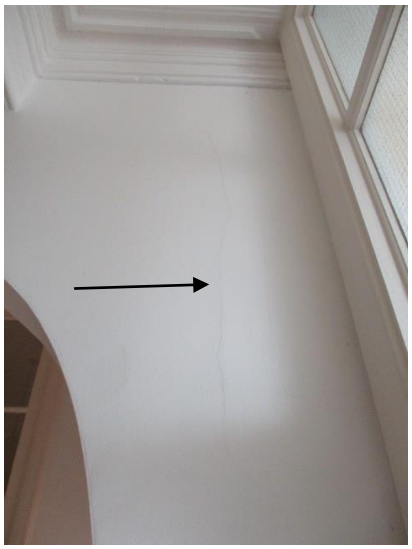
PHOTOGRAPHS

Cracking in flat 1 front bedroom



Cracking in flat 1 hallway

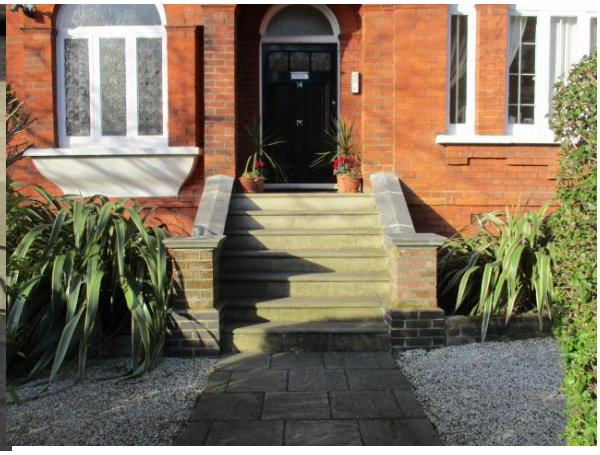
Cracking in flat 1 utility room

Cracking in flat 3 lounge

Cracking in flat 3 front bedroom

Cracking in flat 3 front bedroom

View of movement to front step



View of steps