TECHNICAL REPORT ON A SUBSIDENCE CLAIM

Crawford Reference: [redacted]

4 Leverton Street
Kentish Town
London
NW5 2PJ

Prepared for

RSA - MORE TH>N

SUBSIDENCE CLAIM

30th August 2018

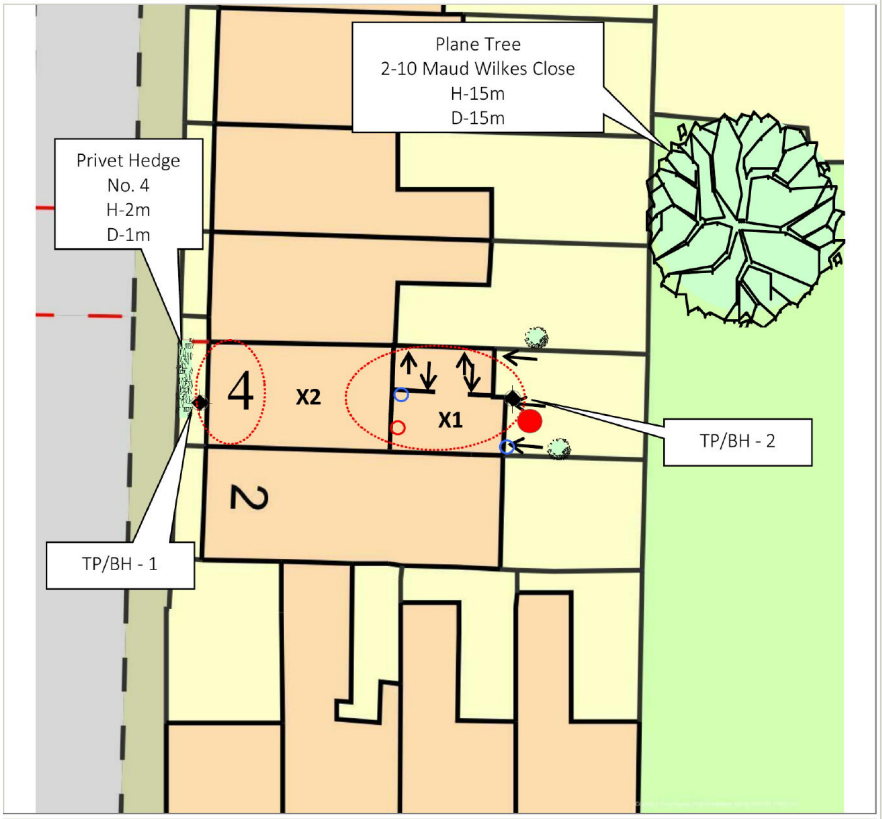
Crawford®
Subsidence Division

[redacted]

This document and information provided relate to personal claim information and therefore should not be circulated or placed anywhere to make this freely available. By doing so, you will be in breach of Data Protection Act requirements

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		

[redacted]

INTRODUCTION

We have been asked by RSA - MORE TH>N 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 insured recently noticed the damage and a structural engineer inspected who thought it was not subsidence but to contact insurers in respect of a potential claim.

PROPERTY

Two storey mid-terrace house of traditional construction with rendered walls surmounted by a pitched slate roof. The Building is within a Conservation Area known as Kentish Town Conservation Area. The Building is listed as grade II.

HISTORY & TIMESCALE

Site investigations are being organised and monitoring established

Date of Construction	Circa 1840
Purchased	2014
Damage First Noticed	July 2018
Claim Notified to Insurer	19/07/2018
Date of our Inspection	28/08/2018

[redacted]

TOPOGRAPHY

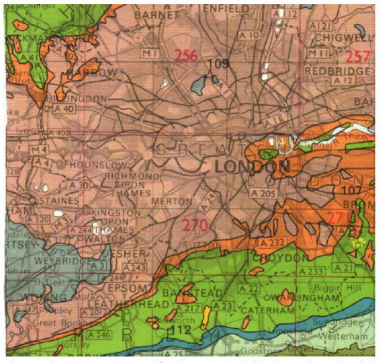
The property occupies a reasonably level site with no unusual or adverse topographic features.

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). 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.



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
Privet	2 m	1 m	Owners
Plane	15 m	15 m	2-10 Maud Wilkes Close

[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.

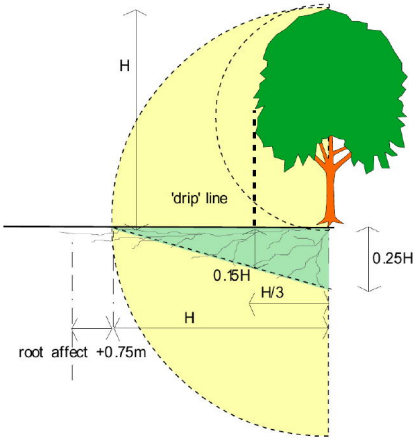
[redacted]

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.

Privet (*Ligustrum).* Commonly encountered as a boundary definition hedge. Evergreen with medium root activity[4]. Can be associated with damage when situated close to a property. Tolerant of heavy pruning with quick regrowth. Along with other members of the Oleaceae (Forsythia, Jasmin, Privet and Lilac) family accounted for 354 enquiries, or 35% of the cards completed in the Kew Survey[5] between 1979 - 86.

Planes (Platanus) are deciduous and can reach heights in excess of 30m depending on health, environment and soil conditions. They have a medium growth rate of around 300mm per year and medium root activity[6].

Maximum tree-to-damage distance recorded in the Kew survey was 15mtrs, with 50% of all cases occurring within 5.5mtrs[7]. Planes are moderately deep rooted, and are predominantly street trees.



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

Life expectancy > 100 years and both young and old trees tolerant of pruning and crown thinning. Urban trees are prone to infection by anthracnose, a fungal foliage disease, which can be disfiguring, if not lethal. There is also concern about canker stain disease, which can also be lethal, spreading from Europe into Britain.

[4] Richardson & Gale (1994) *"Tree Recognition"* Richardson's Botanical Identifications
[5] Cutler & Richardson (1991) *"Tree Roots & Buildings"* Longman Scientific
[6] Richardson & Gale (1994) *"Tree Recognition"* Richardson's Botanical Identifications
[7] Cutler & Richardson (1991) *"Tree Roots & Buildings"* Longman Scientific

OBSERVATIONS

There are two areas of damage 1) The front elevation 2) Rear main house junction. The following is an abbreviated description. Photographs accompanying this report illustrate the nature and extent of the problem.

INTERNAL

Front Bedroom - Diagonal crack.

Dining Room - Tapering crack at main house junction.

Lounge (3.05 x 3.44 x 2.82)
Vertical crack to front right corner - 2mm

Middle Room (3.63 x 2.89 x 2.82)
Vertical crack to rear corner -3mm
Vertical crack to front corner - 2mm
Ceiling junction separation to rear - 2.5mm

Dining Room (4.02 x 1.88 x 2.69)
Vertical crack to front left corner - 3mm
Hairline horizontal crack to left wall
Vertical crack to front right wall - 2mm
Vertical crack to left wall above/below underfloor heater switch - 0.5mm

Hall
Vertical crack above door to middle room - 0.5mm
Ceiling junction separation to right wall - 2mm
Separation around front door - 1mm
Vertical crack to right wall at bottom of stairs - 0.5mm
Front door has been adjusted recently

Stairs and Landing (3.65 x 1.48 x 2.67)
Crack below window 0.5mm
Vertical crack to rear left corner - 4mm
Ceiling junction separation to rear - 3mm

Rear Bedroom (3.64 x 2.90 x 2.66)
Vertical crack to rear right - 3mm
Ceiling junction separation - 1mm

Front Bedroom (3.65 x 4.49 x 2.68)
Crack above door - 1mm
Diagonal crack to right wall at high level - 1mm
Diagonal crack to front wall at low level -1.5mm
Coving separation to front - 5mm

Bathroom (2.04 x 1.49 x 2.18)
Ceiling junction separation to rear - 1mm

EXTERNAL

Front Elevation - Horizontal Crack.

Rear Elevation - Horizontal Crack.

Front Elevation
Horizontal crack to right of front door - 2.5mm
Horizontal crack above front door/underside - 5mm
Crack below window with previous repairs - 2mm

Rear Elevation of Main House
Horizontal crack to left of landing window - 1mm

Rear Elevation of Rear Projection
Vertical cracks below window - 1mm

CATEGORY
In structural terms the damage falls into Category 3 of Table 1, Building Research Establishment[8] 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.

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

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

Damage to the Front

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 Hedge can be removed. As the property is in a conservation area we will carry out a site investigation to provide evidence that the tree roots are the cause.

Damage to the Rear

Although the cause of the movement needs to be dealt with, we note the involvement of a commercial third party tree. Unfortunately, they will require certain investigations to be carried out to demonstrate the influence of their vegetation. These will include a site investigation to the rear and a period of crack and level monitoring for up to one year. A specialist arborist report will also be instructed.

Provided the tree management works are completed expeditiously, consideration may then be given to carrying out the appropriate repairs to the property.

Callan Harwood-Griffith BSc (Hons)
Subsidence Division
[redacted]

PHOTOGRAPHS

Stairs - Vertical crack at rear left junction.

Front Bedroom - De-bonded coving.

Bathroom - Ceiling junction separation.

Hall - Separation around rear door to kitchen.

Front Elevation - Horizontal crack to right of door.

View of Rear.

View of Privet to Front.

View of Plane Tree to Rear.

[redacted]

Crawford®

Chartered Loss Adjusters

[redacted]