TECHNICAL REPORT ON A SUBSIDENCE CLAIM

[redacted]

Flat 1
30 Lymington Road
London
NW6 1HY

Prepared for

[redacted]

SUBSIDENCE CLAIM

11th December 2019

[redacted]

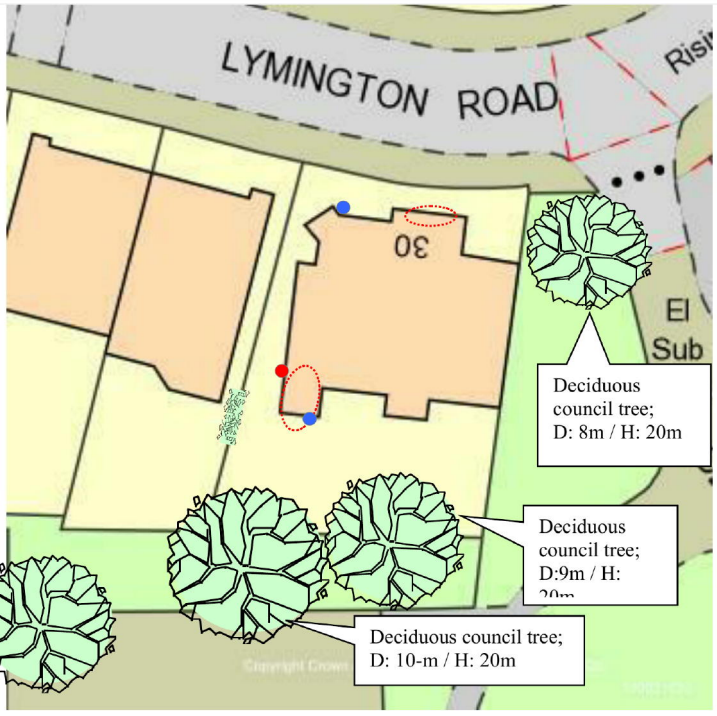
Chartered Loss Adjusters

[redacted]

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 RSA 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 some time ago noticed that her kitchen wall units appeared to be leaning from the wall. The Insured didn't think much of this at the time until her neighbour advised they had subsidence at their property. The Insured noticed cracks appear in other areas and decided to register a claim with their Insurer. The worst of the damage occurred over the autumn 2019, the large crack above the rear kitchen door occurred in November 2019.

PROPERTY

The property is a two storey detached house of traditional construction with brick walls surmounted by a gabled and hipped slated roof which has been converted into self-contained apartments.

HISTORY & TIMESCALE

The claim is to be determined.

Date of Construction	Circa 1890's
Purchased	September 2007
Policy Inception Date	07/09/2018
Damage First Noticed	to be confirmed
Claim Notified to Insurer	20/11/2019
Date of our Inspection	25/11/2019
Issue of Report	11/12/2019

TOPOGRAPHY

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

[redacted]

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.

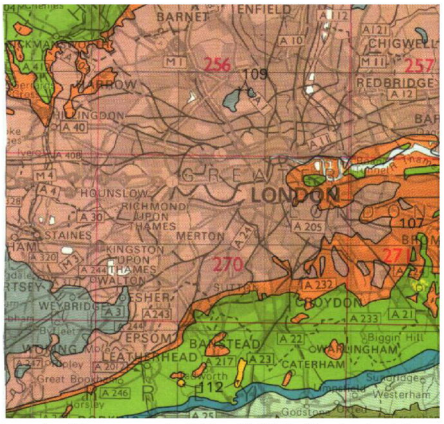
London Clays are marine deposits characterised by their silty, sandy composition. They are typically stiff, dark or bluish grey, weathered dark to mid-brown superficially with fine particle size (less than 0.002mm). Tomlinson[1] describes it as a 'fat' clay with high loadbearing characteristics due to 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 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 vegetation[4] 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.



Geology. Reproduced with consent of The British Geological Survey at Keyworth.
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[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.
[4] DriscollL R. (1983) *"Influence of Vegetation on Clays"* Geotechnique. Vol 33.

[redacted]

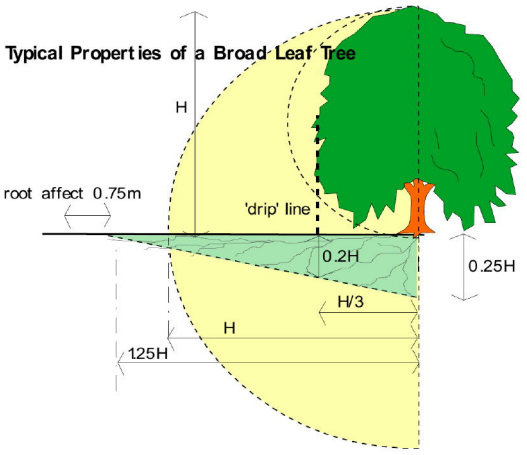
VEGETATION

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
Deciduous	20 m	8 m	Council
Deciduous	20 m	10 m	Council
Deciduous	20 m	9 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.

Broadleaf trees typically have wider spreading roots and higher water demands than coniferous species and many are better adapted to growing on heavy clay soils. Some are capable of sprouting from cut stumps or bare wood and most will tolerate pruning better than conifers.



Typical proportions of a broadleaf tree. Note the potential root zone. It must be noted that every tree is different, and the root zone will vary with soil type, health of the tree and climatic conditions.

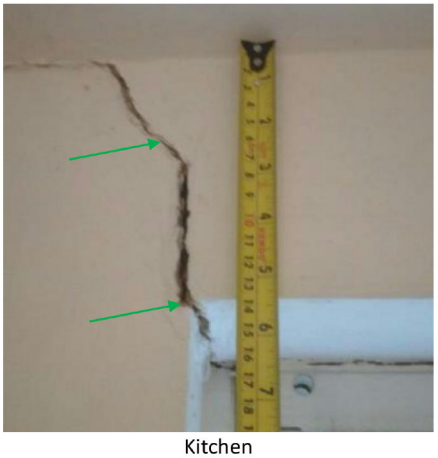
However heavy pruning of any tree should be avoided if possible, as it stimulates the formation of dense masses of weakly attached new branches which can become dangerous if not re-cut periodically to keep their weight down.

OBSERVATIONS

The area of damage is to the kitchen, living room and bedroom. There is also external damage to the front and rear of the property.

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

INTERNAL



Kitchen

Kitchen

Kitchen
Vertical crack to the top left corner of the external door, which climbs to the ceiling. Maximum crack width 4mm.
Cracking on the ceiling, between the cooker and wall units. Maximum crack width 3mm.
Separation of the worktops, where they meet on the units and the wall.

Lounge
Vertical crack above the door way between the kitchen and the lounge. Maximum crack width 2mm.
Diagonal crack on the other side of the wall as per the above. Maximum crack width 3mm.

Bedroom
Cracking noted on the front bedroom wall. Maximum crack width 3mm.

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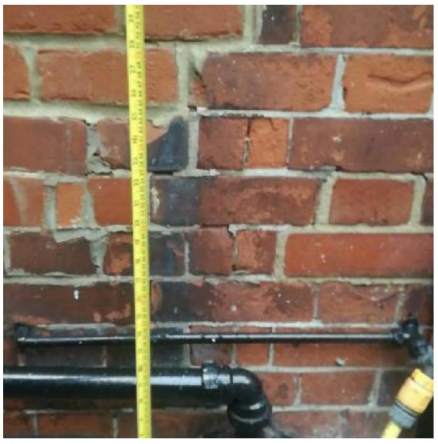
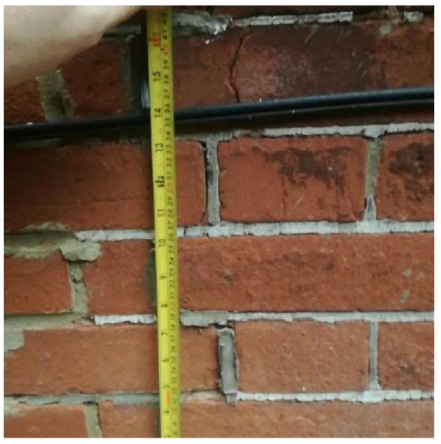
EXTERNAL



Damage outside kitchen, note the previous repairs



Damage outside kitchen, note the previous repairs

Rear Elevation
Vertical cracking through the bricks and mortar outside the kitchen area. Cracking next to the top of the kitchen door. Maximum crack width 3mm.
Vertical cracking noted to the underside of the kitchen window. Wall below the window appear to have been re-built.

Front Elevation
Stepped cracking in the mortar, just outside of the bedroom under the window sill. Maximum crack width 3mm.

CATEGORY

In structural terms the damage falls into Category 2 of Table 1, Building Research Establishment[5] Digest 251, which describes it as "slight".

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 [redacted]

[redacted]

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.

No structural changes to the building have been carried out which has contributed to the current subsidence related damage under investigation. We are not aware of any previous underpinning.

RECOMMENDATIONS

Although the cause of the movement needs to be dealt with, we note the involvement of a Local Authority tree as well as Policyholder-owned vegetation. 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. However, we do need to clarify certain details before we can accept liability and progress the claim.

Andrew Wyse BSc (Hons) CEng MICE FGS
Subsidence Division
[redacted]