TECHNICAL REPORT ON A SUBSIDENCE CLAIM

Crawford Reference: [redacted]

[redacted]

Prepared for

[redacted]

[redacted]

SUBSIDENCE CLAIM

DATE 15 February 2019

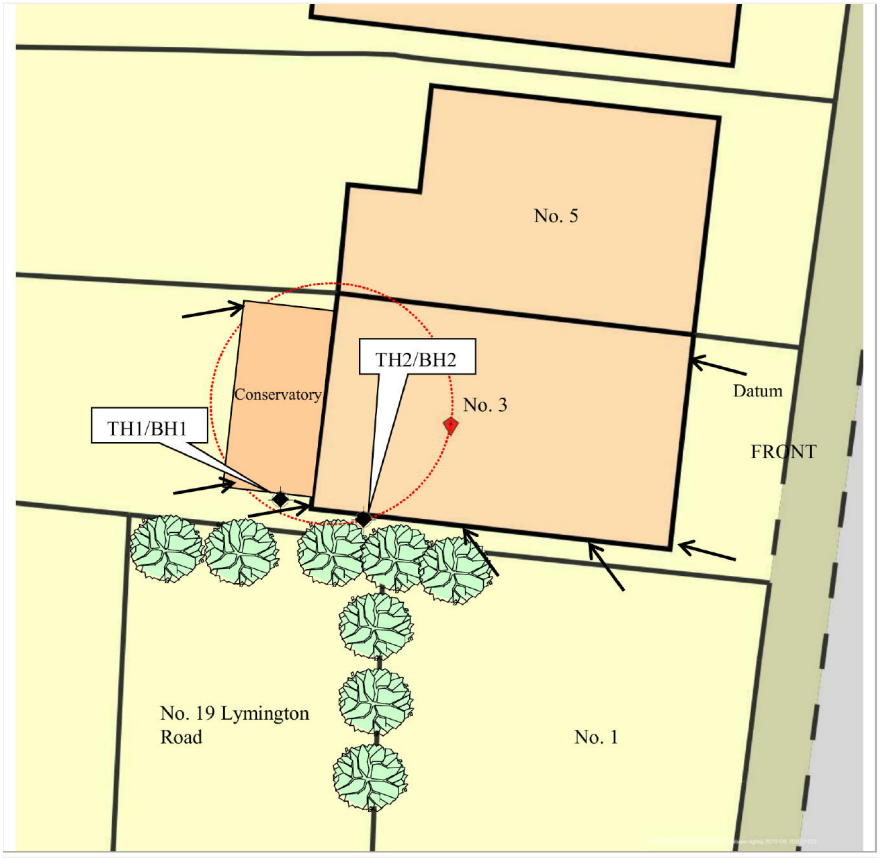
Crawford®

Subsidence Division

[redacted]

Site Plan	This plan is Not to Scale

This is a site plan 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.



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	

[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 owners were away during August and discovered the damage upon their return in September.

PROPERTY

Two storey semi-detached house of traditional construction with brick walls surmounted by a hipped, tiled roof.

HISTORY & TIMESCALE

Date of Construction	1901
Purchased	1985
Policy Inception Date	27/08/2005
Damage First Noticed	September 2018
Claim Notified to Insurer	09/11/2018
Date of our Inspection	26/11/2018
Anticipated Completion of Claim	June 2020

TOPOGRAPHY

The property occupies a site sloping from rear down to the front and sloping from the right down to the left

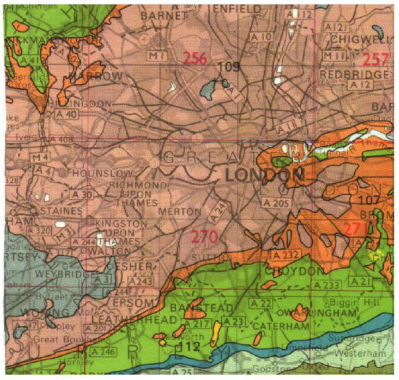
GEOLOGY

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.

[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]

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.
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VEGETATION

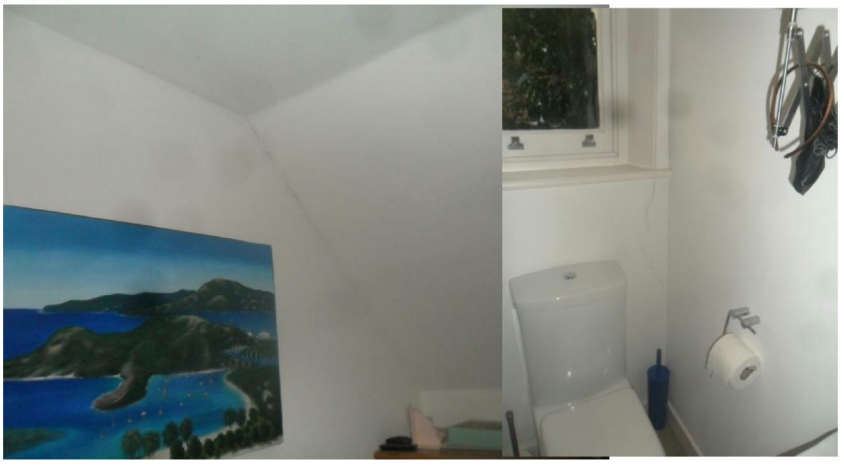
There are several trees and shrubs nearby, some with roots that may extend beneath the house foundations. Tree roots can be troublesome in cohesive (clay) soils because they can induce volumetric change. They are rarely troublesome in non-cohesive soils (sands and gravels etc.) other than when they enter drains, in which case blockages can ensue.

[redacted]

OBSERVATIONS

The damage of concern affects the rear conservatory and the rear and flank walls of the property. The following is an abbreviated description. Photographs accompanying this report illustrate the nature and extent of the problem.

INTERNAL



Subsidence crack

Subsidence crack

Rear left bedroom
separation at ceiling wall junctions - 1/2mm

Top floor landing
vertical crack above window - 1/2mm
vertical crack below first floor half landing window - 1mm

Conservatory
Vertical crack above middle of french doors to living room -2/3mm
Vertical crack to right of above - Hairline/1mm
Rear wall has a vertical crack which mirrors the external crack - 5mm
separation at roof/left side wall junction - 3/5mm
vertical crack at junction with original dwelling mirroring the external crack - 5/10mm
separation at roof/original wall junction - 3/5mm
stepped cracks to both corners of opening to kitchen - 1/2mm

[redacted]

EXTERNAL

Rear

Subsidence crack

Left flank wall
Vertical crack at junction of original dwelling and extension - 3/20mm
stepped crack at left hand corner of kitchen window - Hairline/1mm
stepped crack from right corner of kitchen window down to waste gulley - 1/3mm
mortar missing from basement window arch and stepped crack extends up towards first floor landing window - Hairline/5mm

Rear elevation - main dwelling
stepped crack from first floor rear bedroom window down towards french doors between living room and conservatory - 2/3mm
Path slopes towards neighbour's fence

Rear elevation - Conservatory
Vertical crack at bottom right corner of window frame and between window frame and brickwork - 5mm

[redacted]

CATEGORY

In structural terms the damage falls into Category 4 of Table 1, Building Research Establishment[4] Digest 251, which describes it as "severe".

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.

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. Furthermore 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. Unfortunately, they will require certain investigations to be carried out to demonstrate the influence of their vegetation.

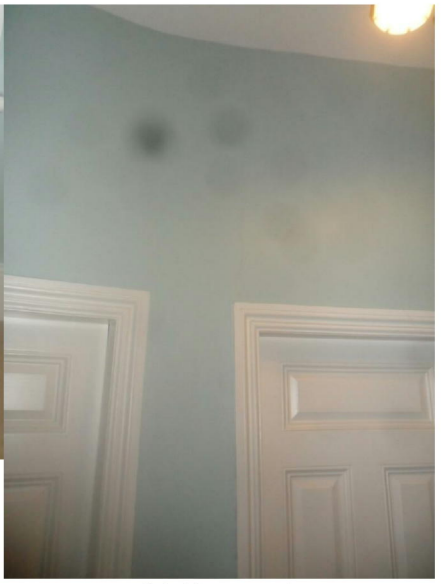
Typically, these investigations would involve trial pit(s) to determine the depth and type of footings, boreholes to determine the nature of the subsoil/influence of any roots and monitoring to establish the rate and pattern of movement. It may also be necessary to obtain a specialist Arboricultural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

We will report further once these investigations have been completed.

Douglas Jack ACII ACILA BDMA Ins. Tech
Subsidence Division
[redacted]
Chartered Loss Adjusters
[redacted]

PHOTOGRAPHS

Subsidence crack



Subsidence crack

Subsidence crack

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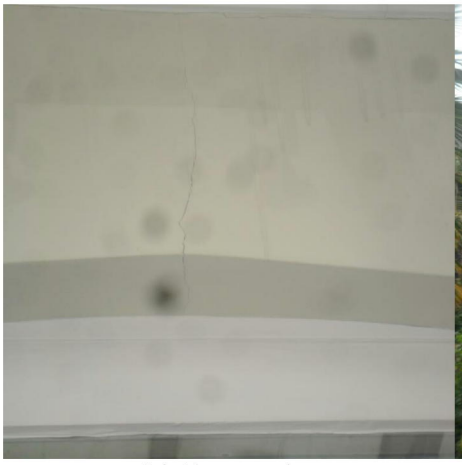
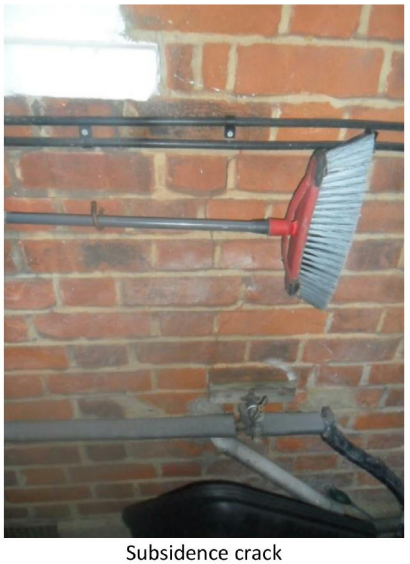


Subsidence crack

Rear



Subsidence crack

Subsidence crack

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