TECHNICAL REPORT ON A SUBSIDENCE CLAIM

[redacted]

[redacted]

Somerset House
31 Dartmouth Park Hill
London
NW5 1HR

[redacted]

SUBSIDENCE CLAIM

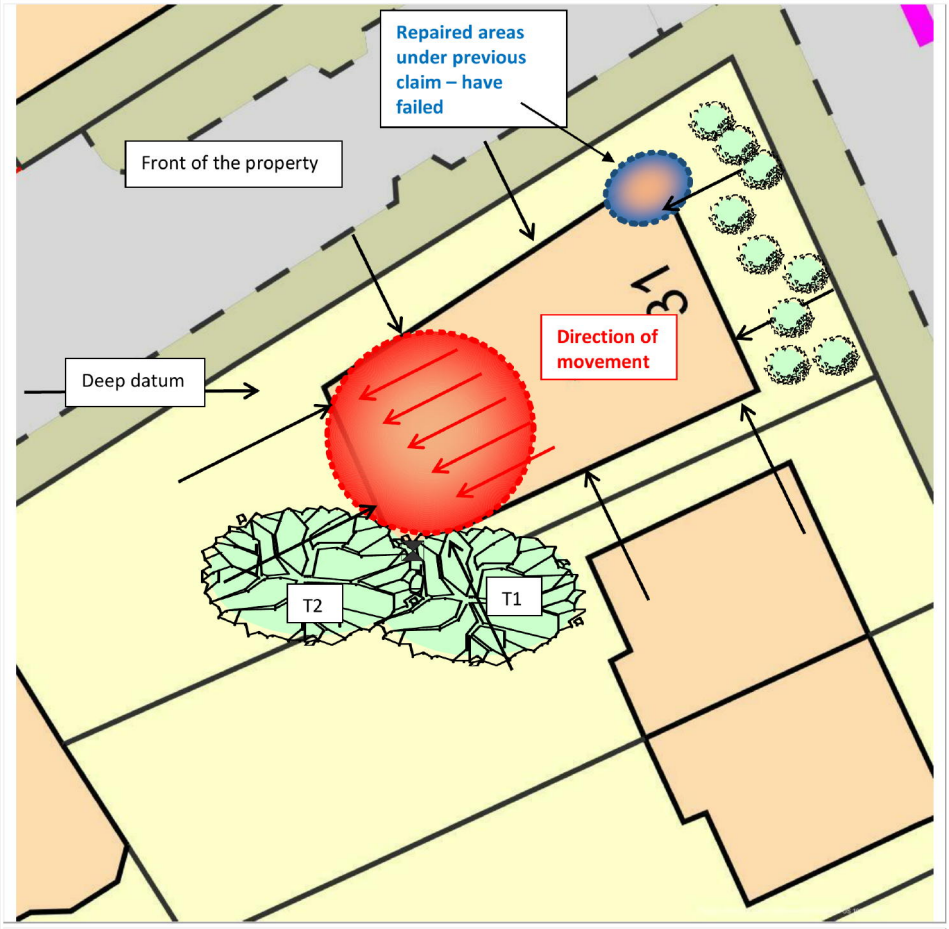
29 October 2018

Crawford®
Subsidence Division

[redacted]

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.



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

[redacted]

INTRODUCTION

We have been asked by [redacted] 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 owner of ground floor flat no. 2 noticed damage to their flat when the previous tenants vacated at the end of the 12 months tenancy in August 2018. As the owner had to re-let they dealt with all crack repairs and redecorations to all the room's excluding the rear bathroom. The flat no 2 and 4 is based on the right hand side of the block of flats.

The occupier for 1st floor flat 4 moved in February 2018 and there was very fine cracks throughout most of the rooms however they started to open up during August and September 2018.

There has been a previous claim in 2015 reference SU1505185. This was finalised following completion of tree removals to the front left corner of the property. The front left corner of the property was repaired as part of the remedial works. The damage has now returned with similar damage to the same area and the old files will need to be re-opened to investigate further the cause of the damage. It is unclear if drainage works were completed.

The management surveyor confirmed rear left corner of the property was previously underpinned but dates and extent of underpinning not available as the management company have recently taken over the responsibilities of the block of flats.

A structural engineer attended the property and raised concerns about the rear wall of the property suffering movement. The surveyor pointed out the section of the rendering dropping to the rear left hand side but we are not concerned as no evidence of any movement taking place.

The focal point of the surveys is to the right hand side section of the block of flats with the damage at 1st and ground floor level.

[redacted]

PROPERTY

Four storey purpose built block of traditional construction with brick walls surmounted by a hipped, slated roof.

HISTORY & TIMESCALE

Date of Construction.....1880
Purchased.....Not known
Policy Inception Date 01/07/2000
Damage First Noticed .....August 2018
Claim Notified to Insurer..... .....28/08/2018
Date of our Inspection 08/10/2018
Issue of Report 29/10/2018

TOPOGRAPHY

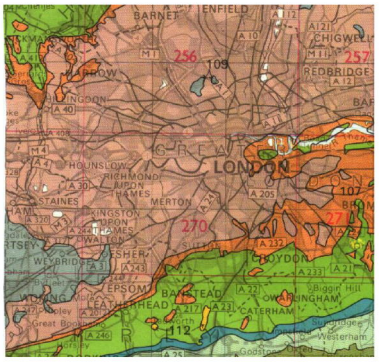
The property occupies a reasonably level site with no unusual or adverse topographic features.

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). 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.
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[1] Tomlinson M.J. (1991) *"Foundations Design & Construction"* Longman Scientific Publishing.
[1] B.S. 5930 (1981) *"Site Investigations"*
[2] Driscoll 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.

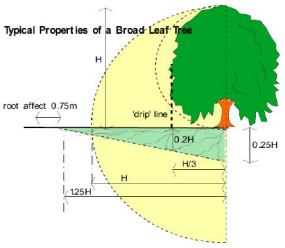
[redacted]

VEGETATION

There are two no. trees nearby that are thought to be implicated with the damage under investigation. The following area of interest:

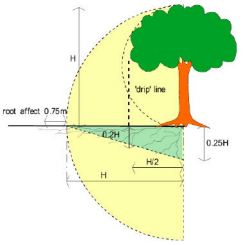
Type	Height	Distance	Ownership
T1 Pear	11 m	4 m	Neighbours
T2 Deciduous	8 m	2 m	Same owner who owns the land

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. Pears, Pyrus varieties, are closely related to apples, in fact the roots cannot be distinguished, but are generally larger growing and longer lived, particularly the old perry varieties still found in the south west midlands and other areas. Like apples they will tolerate pruning well, although traditionally they are not normally kept as small as apple trees.



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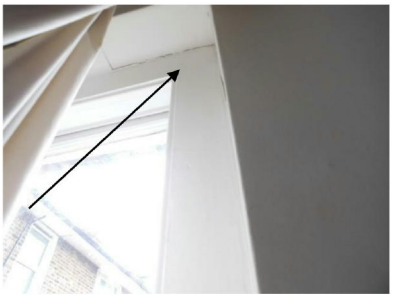
OBSERVATIONS

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

INTERNAL

Mid landing rear window – cracks around window



Separation crack around flat 4 rear bedroom window

Ground floor flat 2 - Rear bathroom - Stepped cracks to rear wall around the window wall tiles.

1st floor flat 4 - Rear bedroom - Diagonal crack below left and above right of rear window 1 to 6mm with separation to ceiling wall junction.

Rear bathroom - Stepped crack above right of rear window, **Front lounge -** Separation crack to ceiling wall junction, **Front kitchen -** Separation crack to ceiling wall junction, **Front bedroom -** Separation crack to ceiling wall junction, **Communal area to 1st floor and mid landing -** Stepped cracks around the rear landing windows.

EXTERNAL

Stepped crack to brickwork – front left corner

Stepped crack below ground floor bathroom rear window

Rear elevation - Stepped cracks around ground floor flat 2 bathroom window with cracks extending to 1st floor level.

[redacted]

CATEGORY

In structural terms the damage falls into Category 3 of Table 1, Building Research Establishment[4] 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.

DISCUSSION

The pattern and nature of the cracks is indicative 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

Although the cause of the movement needs to be dealt with, we note the involvement of a third party commercial 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.

Matin Abdul BSC (Hons)

[redacted]

[4] Building Research Establishment [redacted]

[redacted]

PHOTOGRAPHS

Owners tree on land to the right T2

Neighbours tree to the rear T1

Vegetation to front left corner

Stepped cracks around ground floor rear window