TECHNICAL REPORT ON A SUBSIDENCE CLAIM

Crawford Reference: SU2206852

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60 Smithbarn, Horsham
West Sussex
RH13 6DU



prepared for

RSA - MORE TH>N

SUBSIDENCE CLAIM

DATE 23 January 2023

Crawford Claims Solutions – Subsidence
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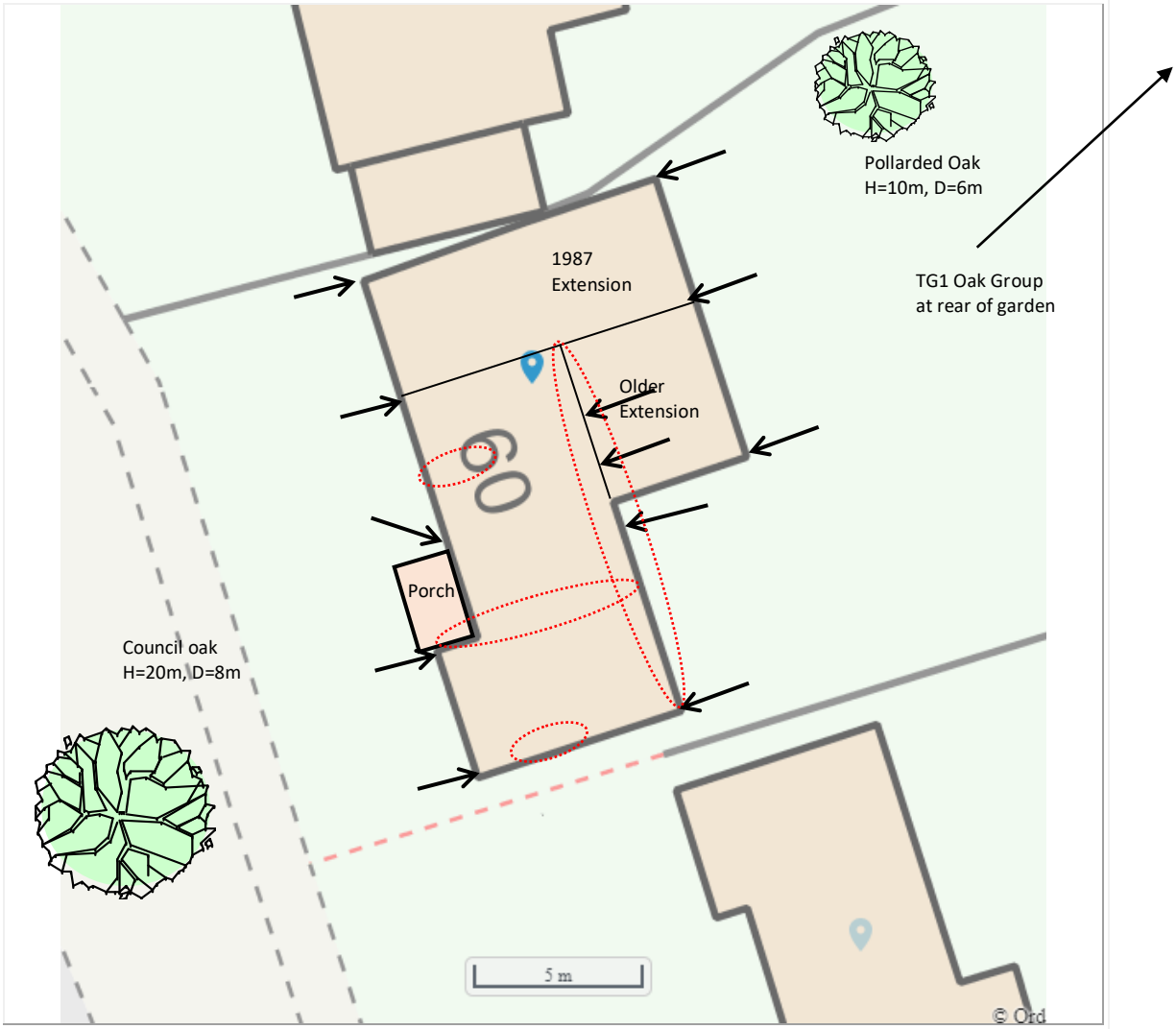
Site Plan

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.



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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 - 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

Damage originally occurred in August 2018 but, following inspection, was considered normal thermal and shrinkage cracking only. However, similar damage re-occurred in Summer 2022 with cracks opening c.5mm and a bedroom door becoming stuck. Since our previous Consultant suggested this would be an indicator of subsidence, a claim was referred to Insurers. In the interim, the large Oak tree at the rear left was substantially reduced in October 2019 due to being implicated in subsidence damage to the neighbouring properties at 62 and 64. The tree had been thriving since reduction but has suffered this past summer.

PROPERTY

Two storey detached house of traditional construction with brick with tile hanging walls surmounted by a ridged tiled roof. There was a single storey rear extension in place when purchased in 1985 and this was extended to the left side in 1987. The extensions are cavity brick construction under a flat felted roof.

HISTORY & TIMESCALE

Next Steps:
1. Level monitoring & Arboricultural Report

Date of Construction.....1961
Purchased.....1985
Damage First Noticed 18/08/2022

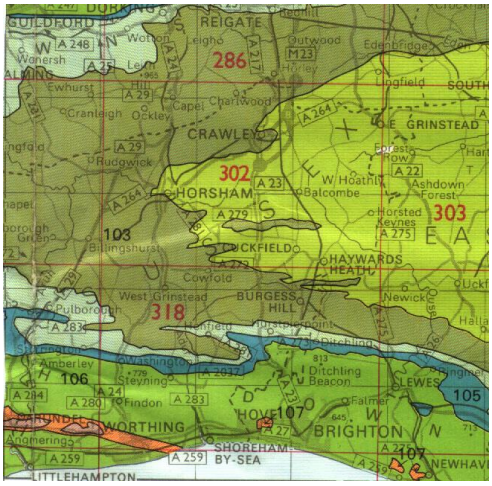
TOPOGRAPHY

The property occupies a relatively level site.

GEOLOGY

Reference to the 1:625,000 scale British Geological Survey Map (solid edition) OS Tile number TQSW suggests the underlying geology to be Clay Soils of the Upper Tunbridge Wells Sand Formation. These are known to be locally shrinkable.

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.

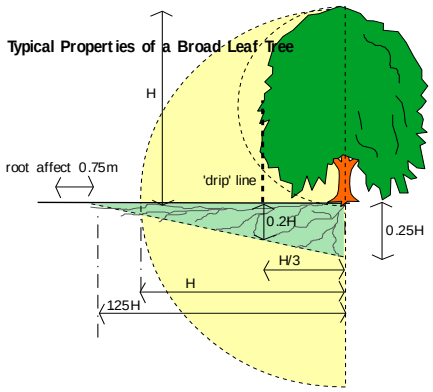
VEGETATION

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
Pollarded Oak	10 m	6 m	Owners
2x Oak Group	24 m	25 m	Owners
Oak	20 m	8 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.
Oak trees (Quercus) are deciduous and native to Europe. They can reach heights in excess of 35m, but more typically grow to between 18 - 25m, depending on health, environment and soil conditions. They have a medium growth rate of around 250mm per year and strong root activity[1].

[1] Richardson & Gale (1994) "*Tree Recognition*" Richardson's Botanical Identifications



Typical proportions of an Oak showing the potential root zone. They have by far the most aggressive of root systems, often spreading considerable distances (1.5 x height or more).

Maximum tree-to-damage distance recorded in the Kew survey was 30mtrs, with 50% of all cases occurring within 9.5mtrs[2]. Life expectancy > 100 years, although they are vulnerable to insect and fungal attack. Old and young trees are tolerant of quite heavy pruning and crown reduction, although re-growth can be an ongoing problem.

Oaks are, in our experience, worthy of considerable respect when dealing with subsidence claims. Their root system extends for surprising distances and can be associated with particularly high soil suctions.

Because of difficulties in controlling the oak, and its vigorous root system, it is regarded as being far more significant (in terms of a subsidence league table) than either the willow or poplar tree.

[2] Cutler & Richardson (1991) *"Tree Roots & Buildings"* Longman Scientific

OBSERVATIONS

The area of damage is throughout, although principally to the rear.

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

INTERNAL



Kitchen – gap has closed since summer



Rear mid bedroom

Kitchen

Movement between the older extension and original house rear wall in the summer - 3mm crack between coving and wall, now mainly closed up. Damage also affected junction of kitchen oven unit with wall.

Dining Room

Separation between window frame on rear house wall with the masonry in the reveal and some cracking at coving junction along the same line.
Slight vertical and diagonal crack below the window
Vertical cracks at junction with internal bathroom wall

Lounge

Pulling of wallpaper above side of door with cracking extending along coving junction to front right corner
Stepped crack on right side of fireplace and minor crack below side window
Low level diagonal crack on left patio door reveal

Bathroom

Crack in tile grout above left side of window and above door

Landing

Minor vertical cracks above and below front window (appear longstanding)
Cracking at right internal wall/ceiling junction, which extends into middle bedroom behind.

Middle Bedroom (Rear)
Cracking extending along coving line from landing
Vertical cracking to right side of window and below window
Vertical crack at left stud wall junction with rear wall
Previous sticking of door in Summer

Rear Right Bedroom
Cracking through wallpaper on rear wall below left of window and pulling of wallpaper at other corners

Front Right Bedroom
Fine raking cracks below left side of window
Vertical and horizontal cracks on front and internal walls

Rear Left Bedroom
Feint hairline cracks to walls

EXTERNAL



Rear elevation



Pollarded Oak

There was no apparent damage to the external brickwork

CATEGORY

In structural terms the damage falls into Category 2 of Table 1, Building Research Establishment[3] 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.

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.

The damage is relatively minor but quite widespread internally. Our initial view is that movement is towards the rear left of the original house and to the original extension. The later extension most likely will have deeper footings. However, the oak at the rear left was substantially reduced in October 2019 so its effect will have lessened. The council Oak at the front is now significantly larger and will have a greater moisture demand. However, your Policyholder recalls some mention of a barrier at the front when they purchased, so it is possible there is a root barrier installed.

When we were dealing with the claim at No.64, the request was to remove the rear Oak. However, concern was expressed regarding a possible heave risk, so this was amended to reduction of the tree. This summer, the tree has suffered due to the heat and there also appears to be a fungal growth at the base. It is possible it is now dying in any event but a further arboricultural opinion will be sought.

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

RECOMMENDATIONS

Initially, we shall arrange for level monitoring around the house. The initial results will show the existing distortions of the brickwork and subsequent readings should help us to confirm which parts of the property are moving. We shall also arrange an arboricultural report to advise on the rear Oak in particular and any further tree mitigation required. Depending on the results, site investigations may be required.

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Crawford Claims Solutions – Subsidence

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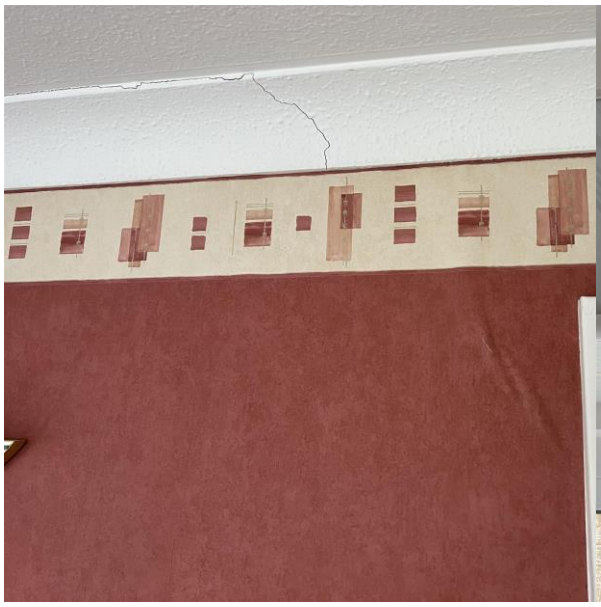
23 January 2023

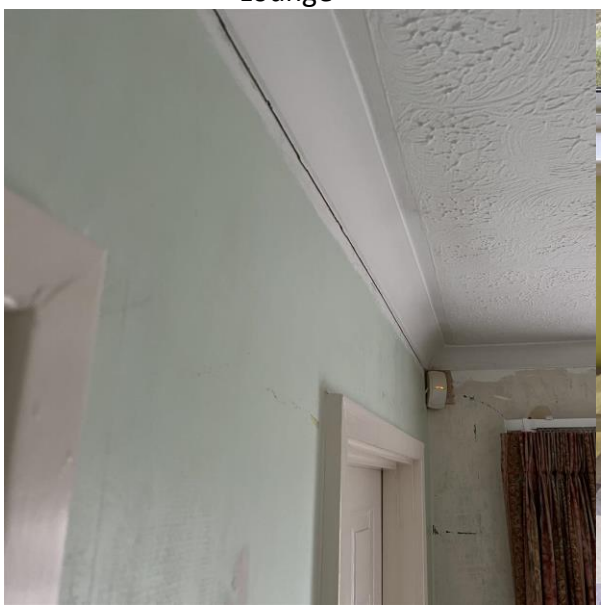
PHOTOGRAPHS



Lounge



Bathroom



Landing



Rear mid bedroom



Rear mid-bedroom



Rear right bedroom



Front right bedroom



Council Oak