

**TECHNICAL REPORT ON A SUBSIDENCE CLAIM**

**Crawford Reference: SU2002228**

**The Old Church  
Merley Park Road  
Ashington  
Wimborne  
BH21 3DF**



prepared for

**LV= Home**

**Claim Reference 100-50-081250**

**SUBSIDENCE CLAIM**

DATE 31 July 2020



**Specialist Property Services UK  
1<sup>st</sup> Floor, Cassiobury House,  
11-19 Station Road,  
Watford,  
WD17 1AP  
Tel: 01923 471755**

**Site Plan**

**This plan is Not to Scale**

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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 Gully		Rain Water Pipe
	Waste Water Manhole		Waste Water Gully		Toilet Pipe
	Rain Water Drain		Waste Water Drain		Electricity Cable
	Water Supply Pipe		Gas Supply Pipe		Incoming Gas Pipe
	Incoming Water		Incoming Electrics		

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## INTRODUCTION

We have been asked by LV= Home 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 policy holder noticed cracking in the kitchen around late 2019 but this seemed to close up in the winter. The property was formerly a church and was renovated in 1999. The external cladding in tin so they cannot tell if there is any cracking in the brickwork. The policy holder is worried about the damage so decided to raise a claim with their insurers.

## PROPERTY

Two storey detached house of traditional church construction with masonry cladded walls surmounted by a pitched slate roof.

## HISTORY & TIMESCALE

Date of Construction .....	1999
Purchased .....	2009
Policy Inception Date.....	01/08/2017
Damage First Noticed .....	Late 2019
Claim Notified to Insurer.....	30/06/2020
Date of our Inspection.....	19/07/2020
Issue of Report.....	27/07/2020
Anticipated Completion of Claim .....	Summer 2021

## TOPOGRAPHY

The property occupies a site sloping from the front to the rear.

## GEOLOGY

Reference to the 1:625,000 scale British Geological Survey Map (solid edition) OS Tile number SYNE suggests the underlying geology to be Clay Soils.

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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<sup>1</sup> 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.

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**

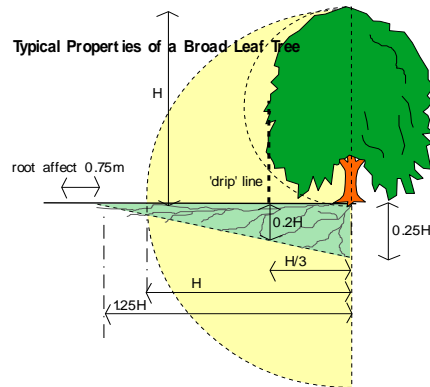
There are several trees beyond the rear boundary and to the right, some with roots that may extend beneath the house foundations. The following are of particular interest:-

Type	Height	Distance	Ownership
Oak	18 m	5 m	Neighbour 1

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<sup>2</sup>.

<sup>1</sup> Driscoll R. (1983) "Influence of Vegetation on Clays" Geotechnique. Vol 33.  
<sup>2</sup> 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<sup>3</sup>. 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 my 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 suction.

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

## OBSERVATIONS

The damage affects the rear kitchen of the property.

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

<sup>3</sup> Cutler & Richardson (1991) *"Tree Roots & Buildings"* Longman Scientific

**INTERNAL**



**KITCHEN**

- Stepped crack over entrance door 4.0 mm wide
- Stepped diagonal crack over door to right hand side 2.0 mm wide

**EXTERNAL**

- Cladded externally therefore no damage visible.

**CATEGORY**

In structural terms the crack damage falls into Category 2 of Table 1, Building Research Establishment<sup>4</sup> Digest 251, which describes it as “slight”

Category 0	"negligible"	< 0.1mm
Category 1	"very slight"	0.1 - 1mm
<b>Category 2</b>	<b>"slight"</b>	<b>&gt;1 but &lt; 5mm</b>
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.

<sup>4</sup> Building Research Establishment, Garston, Watford. Tel: 01923.674040

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.

### **RECOMMENDATIONS**

Although the cause of the movement needs to be dealt with, we note the vegetation is subject to a **Tree Preservation Order**. Unfortunately, current legislation requires certain investigations to be carried out to support an application for the tree works.

Typically, these investigations would involve a trial pit 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. The monitoring data provided must be sufficient to show a pattern of movement consistent with the influence of the vegetation and therefore it may be necessary to carry out the monitoring for up to a 12 month period.

It will also be necessary to obtain a specialist Arboriculture Report.

We will report further once these investigations have been completed.

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