



## TECHNICAL REPORT ON A SUSPECTED SUBSIDENCE CLAIM

**Crawford Reference: SU2202472**

**1 Donovan Avenue  
London  
N10 2JU**



Prepared for:  
**RSA  
6th Floor, Bowling Mill,  
Dean Clough,  
Halifax,  
HX3 5WA**

**Claim Reference 202208004185**

### **SUBSIDENCE CLAIM**

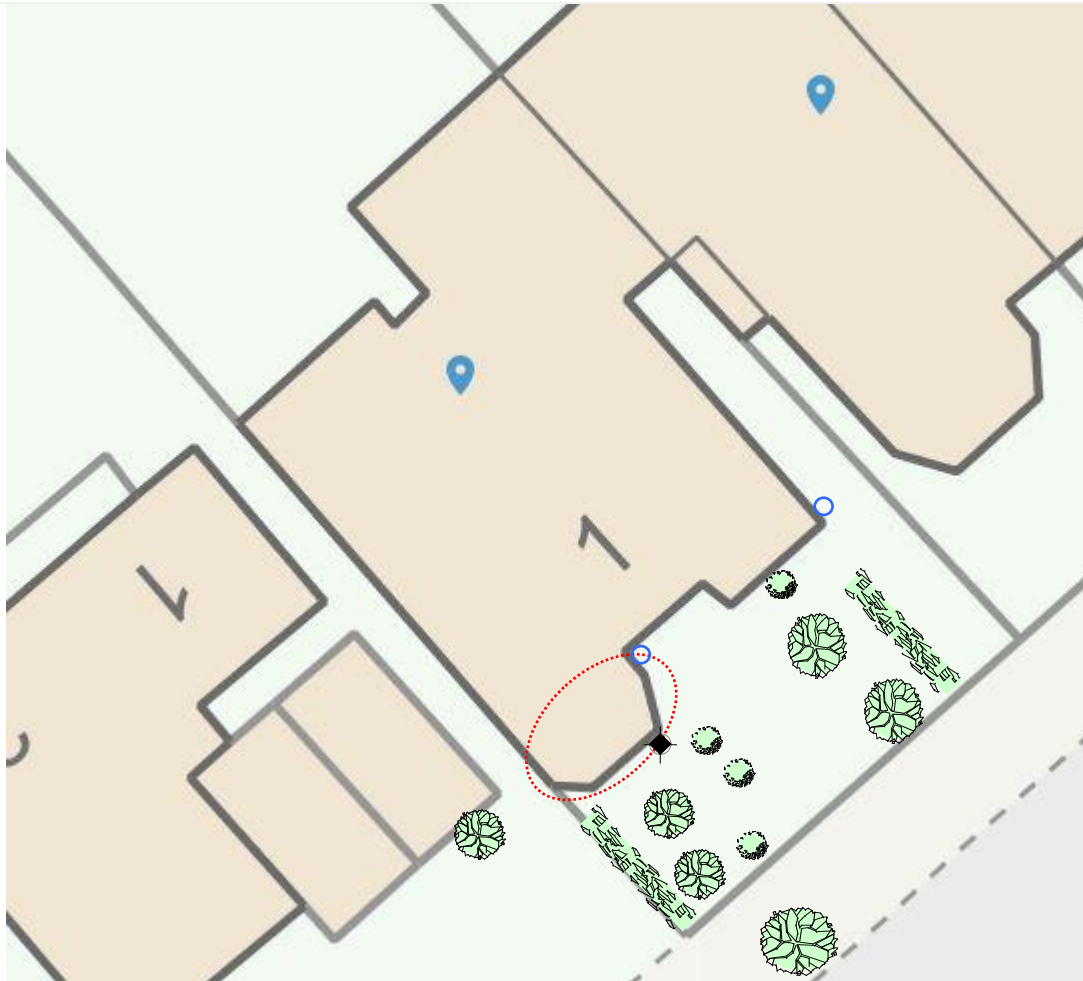


Crawford & Company  
Subsidence  
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**Site Plan****This plan is Not to Scale**

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 |

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## 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 purchased and moved into the property in September 2021. No damage was noted until the heat wave in August 2022.

During August, the Insured started to notice internal cracking appearing around the bay windows located in the front lounge and bedroom. The Insured inspected the exterior and found a few cracks to the bay's stonework. Over a short period of time, the cracking worsened and the Insured notified Insurers.

Since purchasing the property, the Insured has confirmed there have been no drainage or flood issues and no structural work has been undertaken.

## PROPERTY

The Insured's property is a two-storey end-terrace house of traditional construction with brick walls surmounted by a ridged tiled roof.

## HISTORY & TIMESCALE

|                                       |             |
|---------------------------------------|-------------|
| Date of Construction .....            | Circa 1908  |
| Purchased .....                       | June 2021   |
| Policy Inception Date.....            | 05/02/2020  |
| Damage First Noticed .....            | 01/08/2022  |
| Claim Notified to Insurer.....        | 03/08/2022  |
| Date of our Inspection.....           | 01/09/2022  |
| Issue of Report.....                  | 14/09/2022  |
| Anticipated Completion of Claim ..... | Winter 2024 |

## TOPOGRAPHY

The property occupies a reasonably level site, with no adverse features.

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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.

The upper horizon is often encountered at shallow depth, sometimes just below ground level. They have high shrink/swell potentials<sup>2,3</sup> and can be troublesome in the presence of vegetation.

<sup>1</sup> Tomlinson M.J. (1991) *"Foundations Design & Construction"* Longman Scientific Publishing.  
<sup>2</sup> B.S. 5930 (1981) *"Site Investigations"*  
<sup>3</sup> Driscoll L. R. (1983) *"Influence of Vegetation on Clays"* Geotechnique. Vol 33.  
<sup>4</sup> Table 1, Chapter 4.2, Para. 2.3 of N.H.B.C. Standards, 1986.

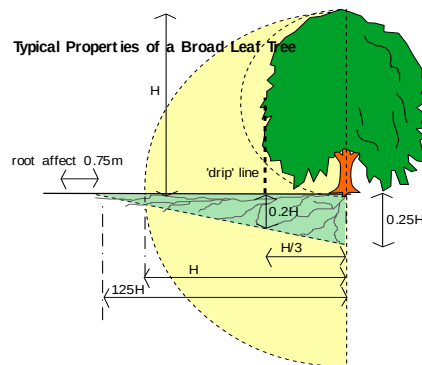
## VEGETATION

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 | 7 m    | 8 m      | Council     |
| Deciduous | 3 m    | 1 m      | Owners      |
| Deciduous | 2 m    | 3 m      | Owners      |
| Shrubs    | 2 m    | 5 m      | Owners      |
| Privet    | 3 m    | 1 m      | Owners      |
| Ivy       | 1 m    | 5 m      | Owners      |
| Climbers  | 5 m    | 3 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.

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.

Shrubs. Sometimes even small shrubs can cause localised subsidence damage. In the Kew Garden Survey data was collected between 1979 - 86 to record the number of roots of each species received for identification. Of the 1009 roots identified, 367 (36%) belonged to the family *Rosoideae* or Rose. Next came the family *Oleaceae* (Forsythia, Jasmin, Privet and Lilac) with 354 (35%) enquiries.

*Berberis*, *Viburnum*, *Hedera* (ivy), *Hydrangea* and *Pyracanthus* are also regularly associated with foundation movement, the latter having surprisingly large roots on occasions.

Privet (*Ligustrum*). Commonly encountered as a boundary definition hedge. Evergreen with medium root activity<sup>4</sup>. Can be associated with damage when situated close to a property. Tolerant of heavy pruning with quick regrowth. Along with other members of the Oleaceae (Forsythia, Jasmin, Privet and Lilac) family accounted for 354 enquiries, or 35% of the cards completed in the Kew Survey<sup>5</sup> between 1979 - 86.

Climbers: Can be significant in subsidence cases as they are frequently planted close to the property, trained up house walls. As their roots do not need to spread to provide support they are frequently compact, and can have an intense but localised desiccation effect. Most tolerate pruning well but respond by sprouting vigorously and need regular maintenance. Pyracantha or firethorn is common and has roots which cannot be distinguished anatomically from apple, pear and other members of the Pomoideae group of the rose family. Wistyeria roots are similar to those of other members of the pea family, including laburnum and false acacia.

## OBSERVATIONS

The front bay is the focal point of the Insured's concerns

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

### INTERNAL



Cracking to right side of bay in Lounge.



Cracking to bay in Bedroom.

### Front Lounge

- A large diagonal crack was noted to the wall on the right-hand side of the bay window measuring approximately 1.5m long.
- Horizontal cracking was found to run along the wall and window frame.
- Diagonal cracking extended from the left-hand side of the bay window and into the skirting boards.
- Vertical, tapered cracking was noted to run through the skirting boards.
- Cracking was found along the window frame junction
- Cracking was found above the bay window, extending through the ornate plaster coving.

### Front Bedroom

- Cracking was noted to the bottom left-hand corner of the bay window measuring approximately 1m long.

<sup>4</sup> Richardson & Gale (1994) "Tree Recognition" Richardson's Botanical Identifications

<sup>5</sup> Cutler & Richardson (1991) "Tree Roots & Buildings" Longman Scientific

- Stepped cracking was noted to the bottom right corner of the bay. The crack measured roughly 1m long.
- Vertical cracking was found along the wall and skirting board joints.
- Vertical cracking was noted along the main house and bay window juncture.

## EXTERNAL



Cracking to mortar on ground floor bay.



Cracked ornate stonework.

## Front Bay

- Horizontal cracking was found along the lower part of the timber window frame.
- Horizontal cracking was noted to the mortar between the brickwork and timber window frame.
- Several horizontal and stepped cracks was noted to the ornate stonework.

## CATEGORY

In structural terms the damage falls into Category 2 of Table 1, Building Research Establishment<sup>6</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.

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.

<sup>6</sup> Building Research Establishment, Garston, Watford. Tel: 01923.674040

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 require a copy of the Pre-Purchase Survey before we can progress matters further and would be grateful if this could be sent to us at your earliest convenience.

**Lou Tickle**  
**Crawford & Company**  
**Subsidence**  
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[subsidence@crawco.co.uk](mailto:subsidence@crawco.co.uk)

**PHOTOGRAPHS**



Cracking along window frame and coving.



Cracks between woodwork and wall.



Closed up of Lounge damage.



Cracking to the left side of bay.



Cracking to the left side of bay.



Cracking to ornate coving.

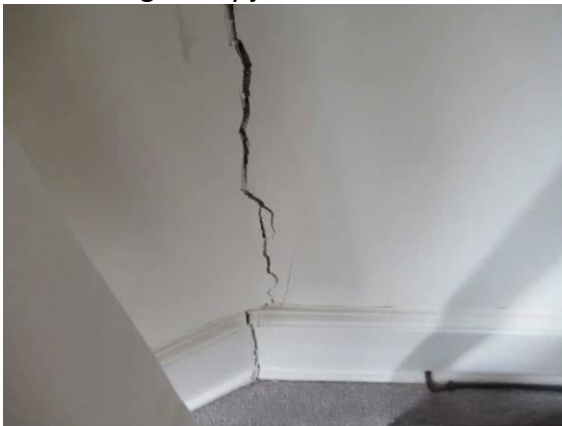
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Cracking to bay junction in Bedroom.



Cracking to left side of bay in Bedroom.



Close up of Bedroom damage.



Insured owned vegetation.



Local Authority tree.



Cracking to mortar.

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Cracked ornate stonework.



Cracked ornate stonework.



External bay damage.