



**TECHNICAL REPORT ON A SUBSIDENCE CLAIM**



**33 Priory Terrace  
London  
NW6 4DG**

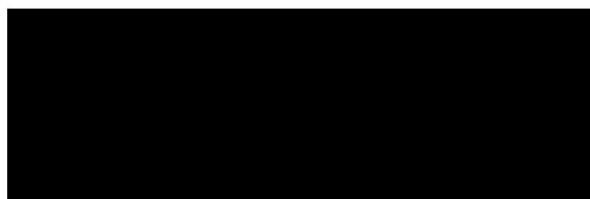


Prepared for

**AXA**

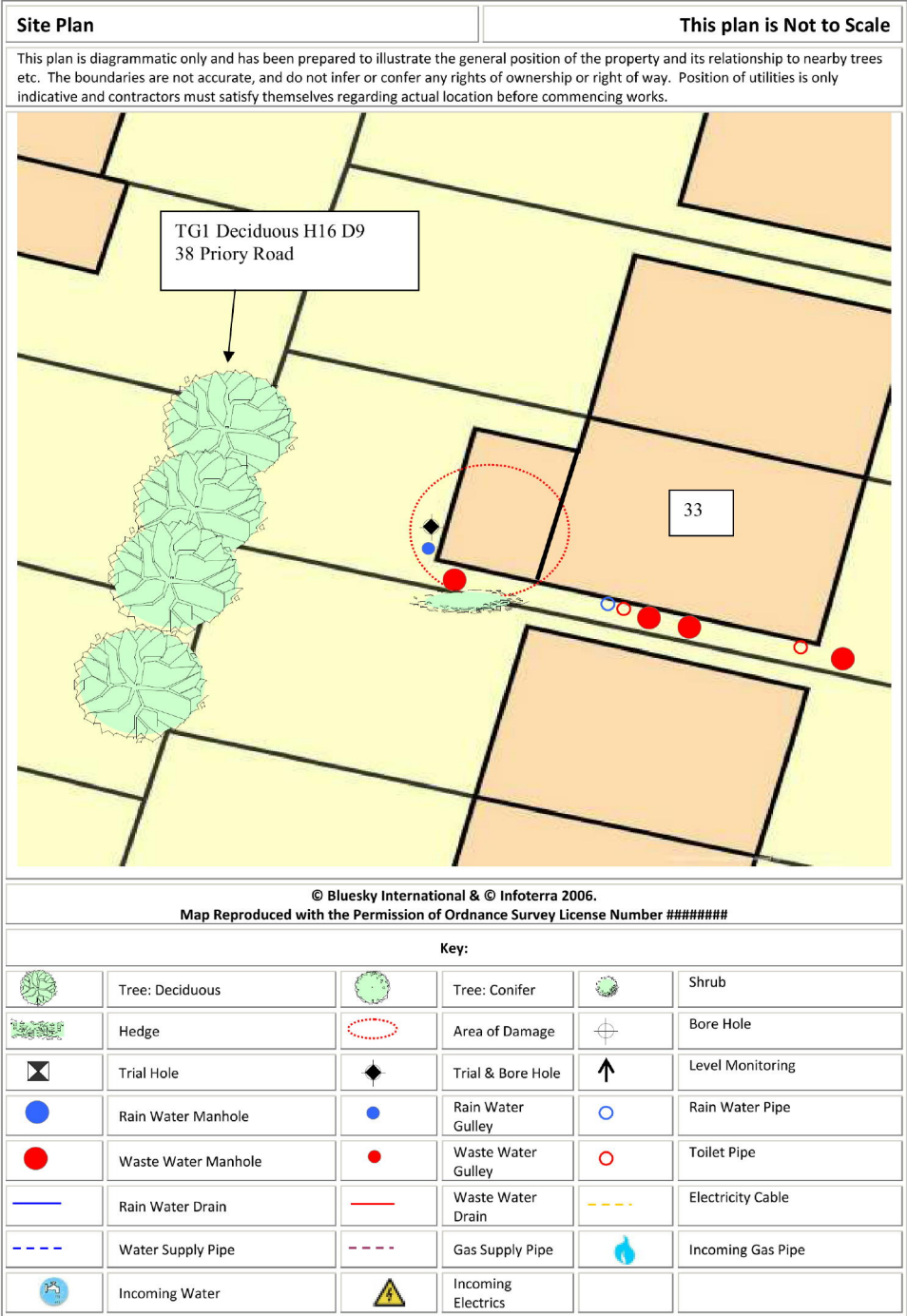
**SUBSIDENCE CLAIM**

DATE 2<sup>nd</sup> January 2020



Chartered Loss Adjusters





**INTRODUCTION**

We have been asked by AXA Commercial - NTC 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**

We were advised by the owners of flat 33a that the cracking to the rear extension appeared suddenly in October 2019. Insurers were notified of a potential claim.

**PROPERTY**

The risk address is a four storey semi-detached property of traditional construction with rendered walls surmounted by a hipped, slated roof. The property has been converted into four, self-contained flats. There is a single storey extension to the rear of flat A which was added by a previous owner. The date of construction is not known.

**HISTORY & TIMESCALE**

Subject to confirmation as to whether the third party trees are TPO protected, site investigations will be organised. We have written to the third parties regarding their trees.

Date of Construction ..... Circa 1880

Damage First Noticed ..... 01 October 2019

**TOPOGRAPHY**

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

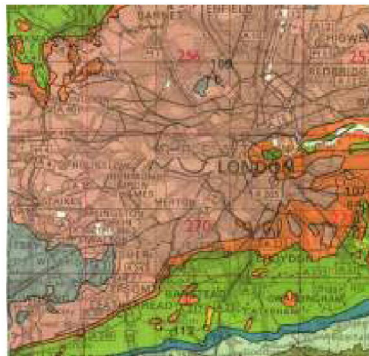
## GEOLOGY

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<sup>1</sup> 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<sup>2,3</sup> and can be troublesome in the presence of vegetation.

The solid geology appears to outcrop in this location, although we cannot rule out the presence of superficial deposits at shallow depth.



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## 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
TG1 - Deciduous	16 m	9 m	Neighbour 3

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.

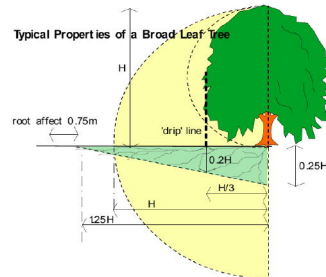
Broadleaf trees typically have wider spreading roots and higher water demands than coniferous species and many are better adapted to growing on heavy clay soils. Some are capable of sprouting from cut stumps or bare wood and most will tolerate pruning better than conifers.

<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 R. (1983) "Influence of Vegetation on Clays" Geotechnique. Vol 33.

<sup>3</sup> Table 1, Chapter 4.2, Para. 2.3 of N.H.B.C. Standards, 1986.



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.

#### OBSERVATIONS

The movement to the rear single storey extension 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 rear wall in kitchen



Cracking along flank wall in kitchen

**Flat 33a Kitchen Extension** - 3mm diagonal tapering crack to left hand side of patio doors continues around wall / ceiling junction in rear left hand corner and along left hand flank wall, wall / ceiling junction cracking along right hand flank.

**EXTERNAL**

Cracking to rear wall



Cracking to rear wall

**Rear Extension (Directions as facing)** - 4mm diagonal tapering crack to right hand side of patio doors, hairline diagonal crack above left hand side of patio doors, hairline vertical crack below right hand side of flank window.

Raised Garden Planter Wall - 6mm tapering stepped crack to front corner - Not subsidence related damage.

**CATEGORY**

In structural terms the 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.

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.

<sup>4</sup> Building Research Establishment


At the time of our inspection damage was noted to the raised garden planter wall. The pattern and location of this damage is not indicative of that associated with foundation movement and the cracking appears to be the result of a combination of a build-up of lateral earth pressure within the retained soil and possible physical root growth from the planted vegetation. The repair of this particular area of damage will therefore fall outside the scope of this claim.

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

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. 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 would also be necessary to obtain a specialist Arboricultural Report.

We will check with the local authority whether the third party trees are protected prior to instructing investigations. If the trees are not protected it may not be necessary to undertake the site investigations and we will write to the third parties requesting their co-operation in the first instance.

**Matt Deller BSc (Hons) MCIOB Dip CII**  
**Crawford Claims Solutions – Subsidence**



**PHOTOGRAPHS**



Cracking below flank window



View of third party trees to rear



View of rear extension



View of unrelated damage to garden wall