

TECHNICAL REPORT ON A SUBSIDENCE CLAIM

[REDACTED]

16 Belsize Park Gardens Ltd
16 Belsize Park Gardens
London
NW3 4LD



Prepared for

[REDACTED]

SUBSIDENCE CLAIM

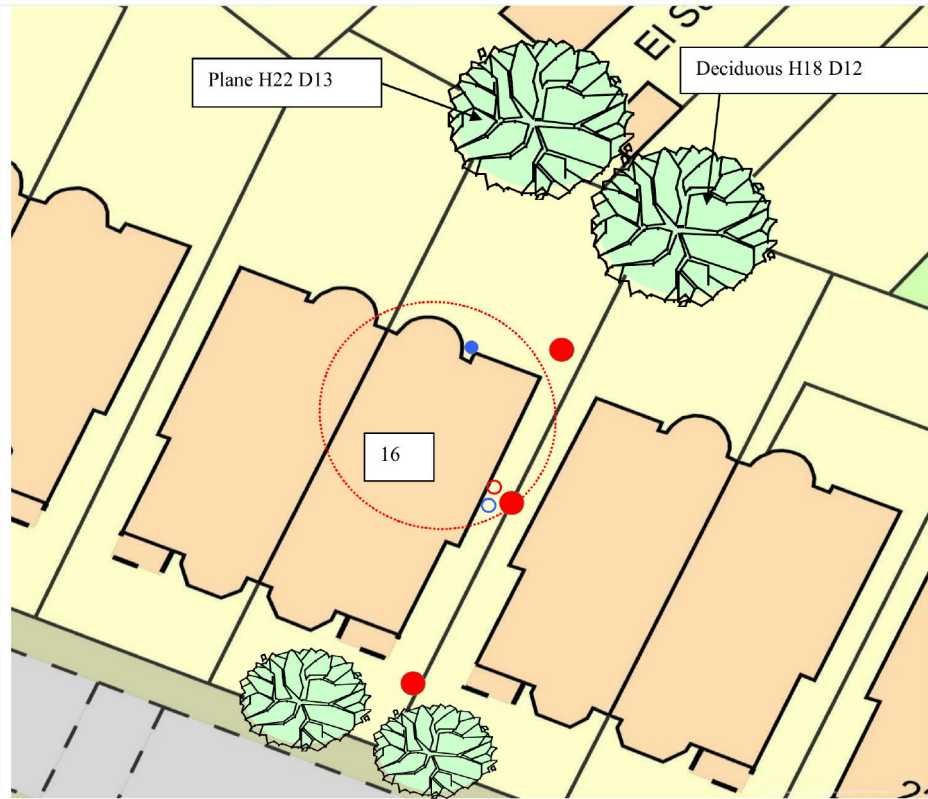
DATE 08 May 2019


Crawford®


























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 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		

INTRODUCTION

We have been asked by LV= Commercial 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 the basement flat advised that the cracks within their property have been present for around 10 years now and do not appear to be progressing. The general consensus among the owners of the upper flats was that the cracking within their flats has appeared within the last 12 months and appears to have progressed. The outside of the property was redecorated around two years ago and fresh cracking is now visible on the rear bay structure. The owner of flat 2 notified the Managing Agents of the cracking a couple of months ago and insurers were subsequently notified.

PROPERTY

The risk address is a five storey semi-detached property of traditional construction with part rendered brick walls surmounted by a hipped, slated roof. The property has been converted into five, self-contained flats.

HISTORY & TIMESCALE

We await insurer's advice on how they wish us to proceed with the claim.

Date of Construction	Circa 1880
Purchased	Various
Policy Inception Date.....	29/06/2017
Damage First Noticed	June 2018
Claim Notified to Insurer.....	11/02/2019
Date of our Inspection.....	02/05/2019
Issue of Report.....	21/08/2019
Anticipated Completion of Claim	June 2021

TOPOGRAPHY

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



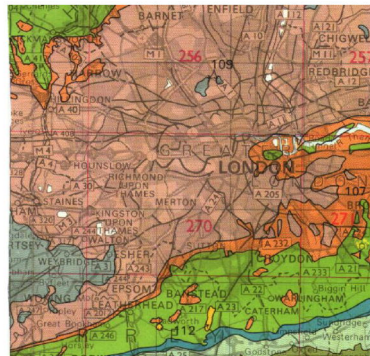
GEOLOGY

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). Tomlinson¹ 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.

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
Plane	22 m	13 m	Neighbour 3
Deciduous	18 m	12 m	Neighbour 4

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.

Planes (Platanus) are deciduous and can reach heights in excess of 30m depending on health, environment and soil conditions. They have a medium growth rate of around 300mm per year and medium root activity⁴.

¹ Tomlinson M.J. (1991) "Foundations Design & Construction" Longman Scientific Publishing.

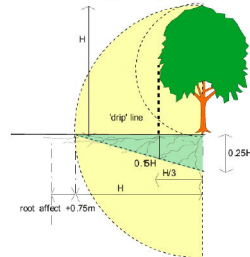
² B.S. 5930 (1981) "Site Investigations"

³ Driscoll R. (1983) "Influence of Vegetation on Clays" Geotechnique. Vol 33.

⁴ Table 1, Chapter 4.2, Para. 2.3 of N.H.B.C. Standards, 1986.

⁴ Richardson & Gale (1994) "Tree Recognition" Richardson's Botanical Identifications

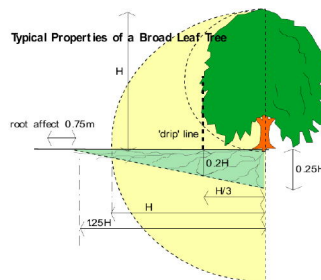
Maximum tree-to-damage distance recorded in the Kew survey was 15mtrs, with 50% of all cases occurring within 5.5mtrs⁵. Planes are moderately deep rooted, and are predominantly street trees.



Typical proportions of a Plane tree, showing the potential root zone.

Life expectancy > 100 years and both young and old trees tolerant of pruning and crown thinning. Urban trees are prone to infection by anthracnose, a fungal foliage disease, which can be disfiguring, if not lethal. There is also concern about canker stain disease, which can also be lethal, spreading from Europe into Britain.

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.

⁵ Cutler & Richardson (1991) *"Tree Roots & Buildings"* Longman Scientific
Chartered Loss Adjusters

OBSERVATIONS

The cracking, predominantly to the rear section of the property 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 in basement flat hallway



Cracking in flat 1 hallway

Basement Flat - Entrance Hallway - 2mm diagonal crack to right hand side of arch to lobby area, wall / ceiling junction cracking along right hand flank, cracking to ceiling, hairline vertical crack above arch to rear section, 1mm horizontal crack to en-suite partition, 3mm diagonal cracking above both sides of rear bedroom door.

Rear Bedroom - Mirrored cracking above door to hallway, cracking to ceiling.

Lounge - Hairline diagonal crack above door to rear bedroom, 2mm diagonal crack above right hand side of rear bay, wall / ceiling junction cracking in bay, hairline vertical crack above door to hall, 1mm vertical crack to rear bedroom partition by door to hall.

Kitchen - Hairline vertical cracking above both sides of arch, cracking to ceiling - Not subsidence related damage.

Lobby by kitchen - Hairline vertical crack above arch to kitchen, hairline vertical crack below right hand flank window, 1mm diagonal crack above arch to entrance hall, wall / ceiling junction cracking along right hand flank - Not subsidence related damage.

Front Bedroom - 1mm vertical crack above door to en-suite continues into ceiling and coving, various random plaster cracks noted to chimney breast, 1mm vertical crack to right hand side of bay - Not subsidence related damage.

Flat 3 - Lounge - 1mm diagonal crack above door to hall, hairline diagonal crack above door to kitchen.

Kitchen - Hairline diagonal crack above door to lounge.

Top Floor Landing - Hairline vertical crack above door to rear bedroom.

Top Floor Rear Bedroom - 1mm diagonal crack above door to landing, various cracks to ceiling, hairline horizontal crack to left hand side of door to en-suite, evidence of unrelated water ingress through roof.

Bathroom - Hairline vertical crack above door to landing.

Flat 1 - Lounge - 1mm diagonal cracking above door to hall, various unrelated hairline plaster cracks noted across right hand partition wall, hairline horizontal crack to right hand side of rear bay, unrelated water damage to cornice and ceiling.

Hallway - 2mm diagonal crack above door to lounge, cracking to ceiling, cracking down left hand side of door to rear right hand reception.

Front Bedroom - 1mm diagonal crack above door to hall.

Communal Hall, Stairs and Landing - 1mm diagonal cracking to rear partition at 2nd floor half landing level, 1mm diagonal cracking to left hand party wall on 2nd floor half landing, cracking around boxing to right hand side of door to flat 2.

Flat 2 – We were advised that there is crack damage in this flat but we were unable to inspect it at our initial visit.

Flat 4 – Front Bedroom – Hairline plaster cracking to front wall – Not subsidence related damage.

Hallway – Cracking to coving above front door – Not subsidence related damage.



EXTERNAL



Cracking to rear bay



Cracking to rear bay

Rear Elevation - 5mm diagonal cracking above right hand side of basement bay window, 4mm vertical crack above left hand side of basement bay window, 2mm diagonal crack above right hand side of 1st floor bay window.



CATEGORY

In structural terms the damage falls into Category 2 of Table 1, Building Research Establishment⁶ 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 cracking affecting the rear section of the property 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 noted in the areas towards the front section of the property as detailed above are not the result of subsidence because the pattern and nature of the cracks is not consistent with foundation movement. Whilst outside the scope of our instructions, the damage here would appear to be possibly the result of normal thermal / differential movement and wear and tear which fall outside the scope of the cover provided by the policy.

RECOMMENDATIONS

The cause of the movement needs to be dealt with first. We have completed a soil risk analysis (VISCAT Assessment) and we are satisfied that your neighbour's trees can be removed. Our Mitigation Unit will liaise with your neighbour in this respect.

Following completion of the tree management works, we will undertake a suitable period of monitoring to confirm stability has been achieved before undertaking repairs to the property.

Matt Deller BSc (Hons) MCIOB Dip CII
Specialist Property Services - Subsidence Division

08 May 2019

⁶ Building Research Establishment, Garston, Watford. Tel: 01923.674040

PHOTOGRAPHS



Cracking in basement flat hallway



Cracking in basement flat rear bedroom



Cracking to bay in basement flat lounge



Cracking to rear bay



Cracking in flat 3 lounge



Cracking in flat 3 kitchen



View of trees to rear



Cracking in flat 3 top floor rear bedroom