

ADDENDUM TECHNICAL REPORT

Crawford Reference: SU1300377

**Mr Gonzalez Ramirez
9 Rosslyn Hill
London
NW3 5UL**



Prepared for

**RSA - Towergate
Towergate Underwriting
Let Property
Floor 2, The Octagon
Middleborough, Colchester
CO1 1TG**

Claim Reference 201209009178

SUBSIDENCE CLAIM

DATE 4 February 2014

Crawford and Company

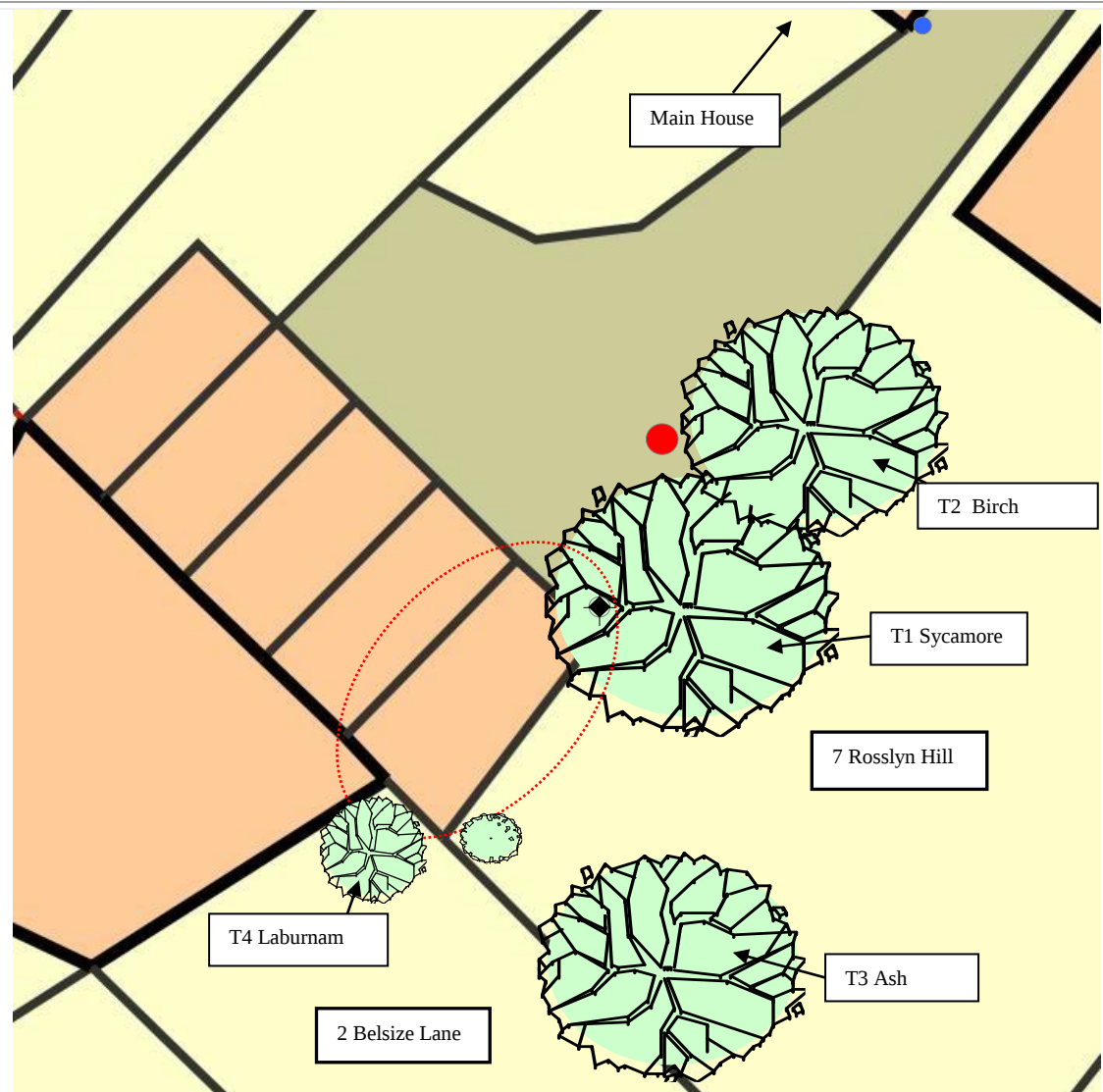
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Site Plan

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 instructed by insurers to investigate a claim for subsidence at the above property. The area of damage, timescale and circumstances are outlined in our initial Technical Report. This report should be read in conjunction with that report.

To establish the cause of damage, further investigations have been undertaken and these are described below.

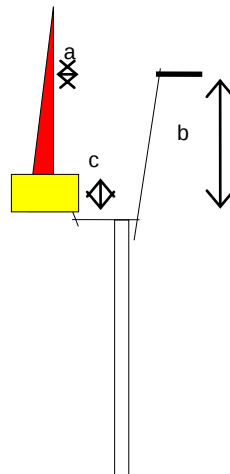
INVESTIGATIONS

The following investigations were undertaken to identify the cause of movement.

TRIAL HOLES

A trial hole was excavated to expose the foundations - see site plan for location and the diagram below for details. Trial Hole 1 revealed a concrete strip footing founded at a depth of 0.77 m below ground level which bears onto very compact dark brown gravelly silty sand with brick and concrete fragments and clinker (made ground).

Root activity of live appearance was noted to the underside of the foundations.



Foundation Details

No.	Borehole Depth	Footing (a)	Underside (b)	Thickness (c)
TH1	3.00 m.	300 mm.	770 mm.	400 mm.

AUGERED BOREHOLES

A 50mm diameter hand auger was sunk - see site plan for location(s). Borehole 1 revealed that the subsoil changed to a firm mid brown grey clay veined silty clay at 1.25m below ground level becoming stiff at 2.3m below ground level, with roots to a depth of 2.2 m below ground level. The borehole remained dry and open upon completion.

SOIL SAMPLES

Soil samples were retrieved from the bore, wrapped in clingfilm before being bagged and deposited with a testing laboratory the same day. The laboratory have instructions to test the samples to determine if there is evidence of root induced desiccation.

ROOTS

Roots were retrieved from the trial hole and have been submitted to a botanist for identification.

DRAINS

The drainage is remote from the area of current damage and trial pit/ borehole investigations did not reveal any suggestion that leakage from drainage is adversely affecting the property. As such, a drainage investigation was not warranted.

DISCUSSION

The results of the site investigations confirm that the cause of subsidence is root-induced clay shrinkage. The clay is plastic and thus will shrink and swell with changes in moisture content. Roots have extracted moisture below the depth of the footings, thus causing differential foundation movement to occur. This is supported by the following investigation results :-

- Atterberg limit testing indicates that the soil has a very high plasticity and hence will shrink and swell with changes in moisture content.
- Suction tests indicate slight to moderate desiccation between a depth of 1.5 m and 3.0 m coincident with the depth of root activity.
- Roots were found to a depth of 2.2 m and were identified as the species *Fraxinus* which are Ash. Starch was present which indicates that the roots were alive at the time of retrieval.
- Crack monitoring to date indicates seasonal cyclical movement with opening of the cracks in the summer months (as the clay shrinks) and closure in the winter months (as the clay swells).

RECOMMENDATION

The cause of the movement needs to be dealt with first. From the results of the site investigation, we are satisfied that your neighbour's vegetation can be removed. Arborist have advised that their survey of the site identified the Ash (T6) and in the absence of any other significant Ash trees in the vicinity they believe that this is the most likely source of the recovered roots. Whilst no roots were recovered from the Sycamore (T1), the Birch (T2) the Lime (T3) and the Laburnum (T5), given their size, species profile and position relative to the observed damage it is their opinion that these represent the most significant vegetative influence and the primary cause of the observed damage and accordingly they have made recommendations in respect of this. The ash, although implicated by the root identification, is considered to be a secondary influence.

Based on our analysis, we are satisfied there is no adverse heave risk to the property.

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.

HISTORY & TIMESCALE

Date of Construction	1957
Purchased	1957
Policy Inception Date	12/03/2011
Damage First Noticed	March 2012
Claim Notified to Insurer	30/01/2013
Date of our Inspection.....	11/02/2013
Issue of Report	13/03/2014
Anticipated Completion of Claim	Summer 2014
Anticipated Duration of Works.....	3 Weeks
Anticipated Completion of Works.....	Summer 2014

Yours faithfully,

Matt Deller

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4 February 2014