ADDENDUM TECHNICAL REPORT

[redacted]

Mark Longden & Others
9 Willoughby Road
London
NW3 1RT

Prepared for
RSA - Commercial

[redacted]

13th January 2021

Crawford and Company

[redacted]

Chartered Loss Adjusters

[redacted]

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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.

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		

[redacted]

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.

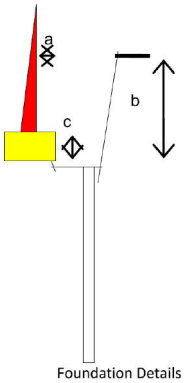
INVESTIGATIONS

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 1.2m below ground level which bears onto very stiff brown, grey veined silty CLAY.

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.	180 mm.	1,200 mm.	1,050 mm.

AUGERED BOREHOLES

A 50mm diameter hand auger was sunk - see site plan for location(s). Borehole 1 confirmed the continuation of the clay subsoil encountered within the trial pit, with roots to a depth of 2.0m 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.

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ROOTS

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

The roots found emanated from the following species;

- Fraxinus spp. include common ash.

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.

ARBORICULTURAL REPORT

Independent arboricultural experts at MWA Arboriculture provided a report and identified tree T1 Ash as the principal cause of movement and damage. Whilst other vegetation was noted this was not considered to be involved in the movement and only presented a potential future risk which can be satisfactorily managed by reduction and regular pruning/maintenance.

LEVEL MONITORING

Level monitoring has been carried out between May 2020 and December 2020. The results confirm downward movement in July and September through the effects of root trespass abstracting moisture from the subsoil. The subsequent readings have confirmed a reasonable degree of recovery (upwards) movement due to soil rehydration. The greatest downward movement, circa 10mm, was recorded to the front left corner which is closest to T1.

This pattern of movement is supportive of root induced clay desiccation.

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 :-

- The foundations are at a depth of 1.2 m which is below the level that normal seasonal movement would occur.
- Atterberg limit testing indicates that the soil has a intermediate to high plasticity and hence will shrink and swell with changes in moisture content.
- Suction tests indicate very severe desiccation between a depth of 1.2m and 2.0m coincident with the depth of root activity.
- Roots in the borehole were identified as the species Fraxinus which includes common ash. Starch was present which indicates that the roots were alive at the time of retrieval.

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RECOMMENDATION

Property stability can be expected following the removal of the Ash tree.

Arboricultural experts at MWA have considered the efficacy of reduction works and confirmed that such measures will not be sufficient to create relative stability. In the view of the arboricultural experts, the only viable long term solution is for T1 to be removed in full.

Superstructure repairs are estimated to be in the region of [redacted] provided that the tree work is completed promptly, before the vegetation is able to cause more damage.

In the absence of tree works it will be necessary to introduce a underpinning scheme with associated need for alternative accommodation. Therefore, costs in the order of [redacted] could be incurred.

Yours faithfully,

Johnny Joannou BSc (Hons) MSc
Crawford Claims Solutions – Subsidence
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