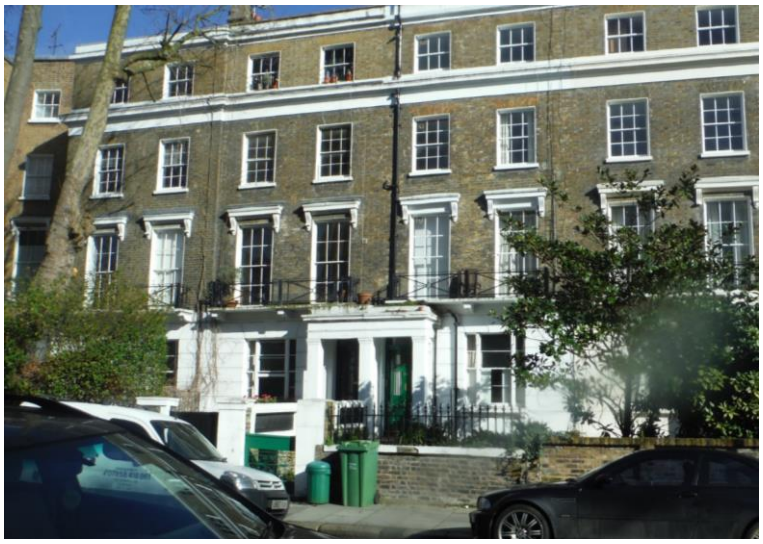
Arboricultural Appraisal Report

Subsidence Damage Investigation at:

33 Gloucester Crescent
London
NW1 7DL



CLIENT:	Crawford & Company
CLIENT REF:	SU1502007
MWA REF:	SUB170221-1127
MWA CONSULTANT:	David Williams (N.D.Arb MArborA)
REPORT DATE:	03-03-2017

SUMMARY

Statutory Controls			Mitigation (current claim)	
TPO	Yes- G1		Insured	No
Cons. Area	Yes		3rd Party	Yes
Trusts schemes	N/A		Local Authority	No
Planning	N/A		Other	No
Local Authority: -	London Borough of Camden			

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Introduction

Acting on instructions received from Crawford & Company, the insured property was visited on 28/02/2017 for the purpose of assessing the potential role of vegetation in respect of subsidence damage.

We are instructed to provide opinion on whether moisture abstraction by vegetation is a causal factor in the damage to the property and give recommendations on what vegetation management, if any, may be carried out with a view to restoring stability to the property. The scope of our assessment includes opinion relating to mitigation of future risk. Vegetation not recorded is considered not to be significant to the current damage or pose a significant risk in the foreseeable future.

This is an initial appraisal report and recommendations are made with reference to the technical reports and information currently available and may be subject to review upon receipt of additional site investigation data, monitoring, engineering opinion or other information.

This report does not include a detailed assessment of tree condition or safety. Where indications of poor condition or health in accessible trees are observed, this will be indicated within the report. Assessment of the condition and safety of third party trees is excluded and third party owners are advised to seek their own advice on tree health and stability of trees under their control.

Property Description

The property comprises a four/five storey mid terraced dwelling dating back to c.1860. The property has been converted into self-contained flats.

External areas comprise gardens to the front and rear occupying a predominantly level plot.

Damage Description & History

The current damage affects the front storm-porch projection where engineers have recorded internal and external cracking.

The damage was initially observed during October 2014 with a claim to buildings insurers made in May 2015.

At the time of the engineers' inspection on 13th July 2015 the structural significance of the damage was found to fall within Category 3 (moderate) of Table 1 of BRE Digest 251.

Site investigations

Site investigations were carried out by CET on 7th January 2016 when a single trial pit was excavated to reveal the foundations, with a borehole being sunk through the base of the trial pit to determine subsoil conditions. A control borehole was sunk in the front garden area.

Foundations:

Ref	Foundation type	Depth at Underside (mm)
TH1	Brick	120

Soils:

Ref	Description	Plasticity Index (%)	Volume change potential (NHBC)
TH/BH1	Stiff, mid brown / orange, grey veined silty CLAY	55.0	High

Roots:

Ref	Roots Observed to depth of (mm)	Identification	Starch content
TH/BH1	U/S/F -1200	*Platanus spp.*	Present

Drains: No information available at the time of writing.

Monitoring: Level monitoring is in progress.

Discussion

Opinion and recommendations are made on the understanding that Crawford & Company are satisfied that the current building movement and the associated damage is the result of clay shrinkage subsidence and that other possible causal factors have been discounted.

Site investigations and soil test results have confirmed a plastic clay subsoil of high volume change potential (NHBC Classification) susceptible to undergoing volumetric change in relation to changes in soil moisture. A comparison between moisture content and the plastic and liquid limits suggests significant desiccation in BH1 at 1500mm depth.

The front porch is supported by shallow foundations exposing this area of the building to movement (ground drying/shrinkage) associated with ambient drying processes. The presence of desiccation (moisture values below 40% of LL%) just below the foundation underside indicates that ambient soil drying may be a contributory factor. However, there is also desiccation at depths beyond normal ambient soil drying processes which indicates the influence of G1.

Soil suction testing records very-severe (BRE Digest 412) desiccation in the deep clay horizons which illustrates the drying effects of G1 below the front porch.

Shear vane testing of the substrate indicates that it is sufficiently consolidated to bear the imposed load and as such the damage cannot be attributed to consolidation settlement. This is borne out by the relative age of the building and the recent appearance of damage.

Roots were observed to a depth of 2600mm and samples submitted for testing confirm the drying role of G1 below the focal area of damage.

Level monitoring since late October 2016 records modest amplitudes of movement and for this reason we suggest that pruning may be sufficient to promote a restoration of stability. However, should movement persist after the proposed reduction of the trees crown volume has been completed, the merits of complete removal (one or both trees) should be considered further.

Conclusions

- Conditions necessary for clay shrinkage subsidence to occur related to moisture abstraction by vegetation have been confirmed by site investigations and the testing of soil and root samples.

- Engineering opinion is that the damage is related to clay shrinkage subsidence.

- There is significant vegetation present with the potential to influence soil moisture and volumes below foundation level.

- Roots have been observed underside of foundations and identified samples correspond to vegetation identified on site.

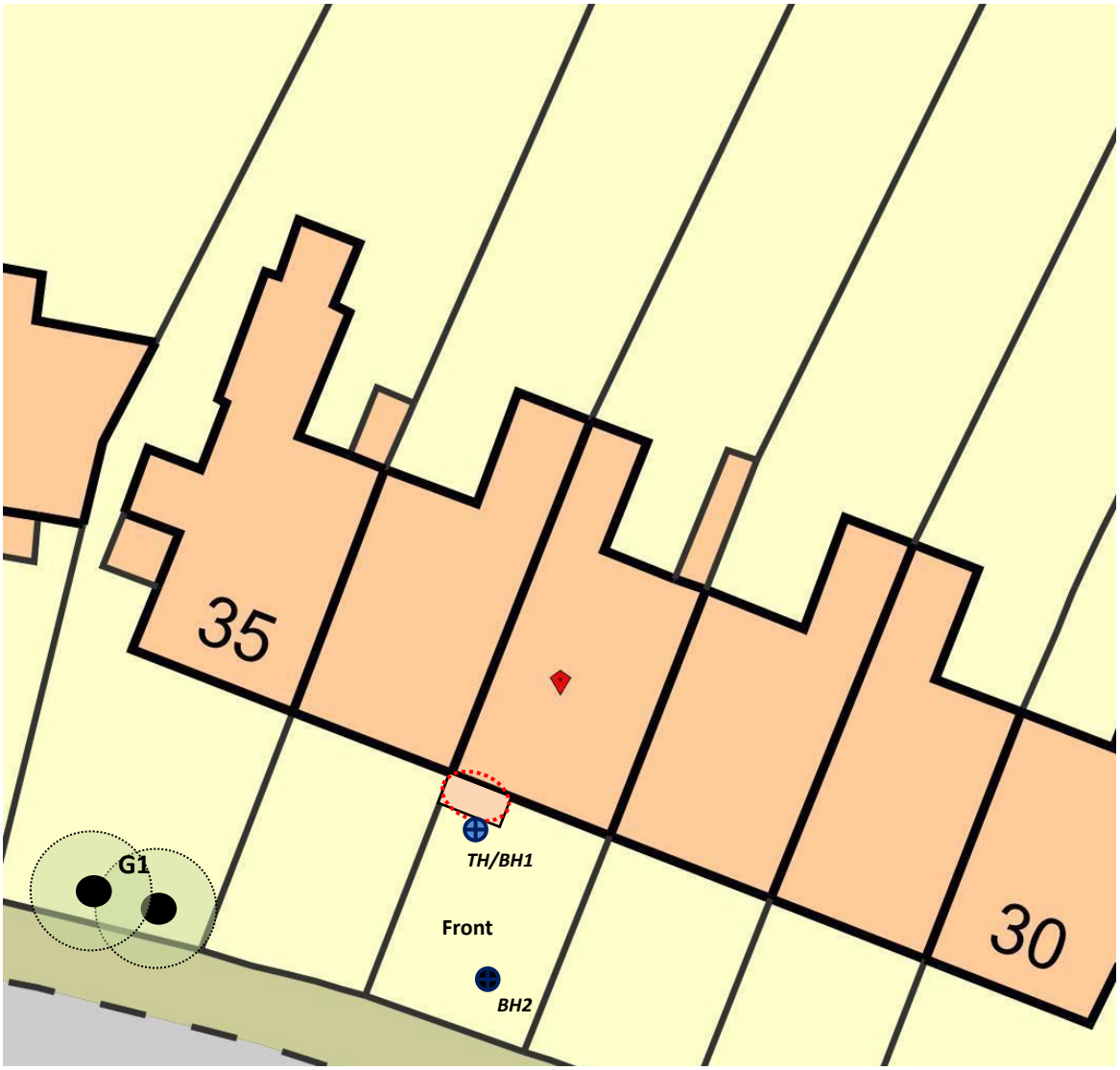
- The pruning (crown removal) of both trees has been recommended due to the modest amplitudes of movement recorded. However, should movement persist, the removal of one or both trees should be considered further.

Table 1 **Current Claim** - Tree Details & Recommendations

Tree No.	Species	Ht (m)	Dia (cm)	Crown Spread (m)	Dist. to building (m)	Age Classification	Ownership
G1	London Plane x 2	17.0	M/S Av75*	13.0	10.0-13.5	Younger than property	3rd Party:- No. 35
Management history		Evidence of past management involving reduction of the upper/outer crown periphery. Around 12 months re growth visible and with vertical scaffolds indicating previous pruning was more severe.					
Recommendation		Reduce both trees by pollarding at c.12.0m in height removing all secondary growth from upper crown. Repeat pruning biennially ensuring all new secondary re growth is removed. If pruning does not promote a return to stability, the merits of removal of one or both trees should be assessed further.					

Ms: multi-stemmed * Estimated value

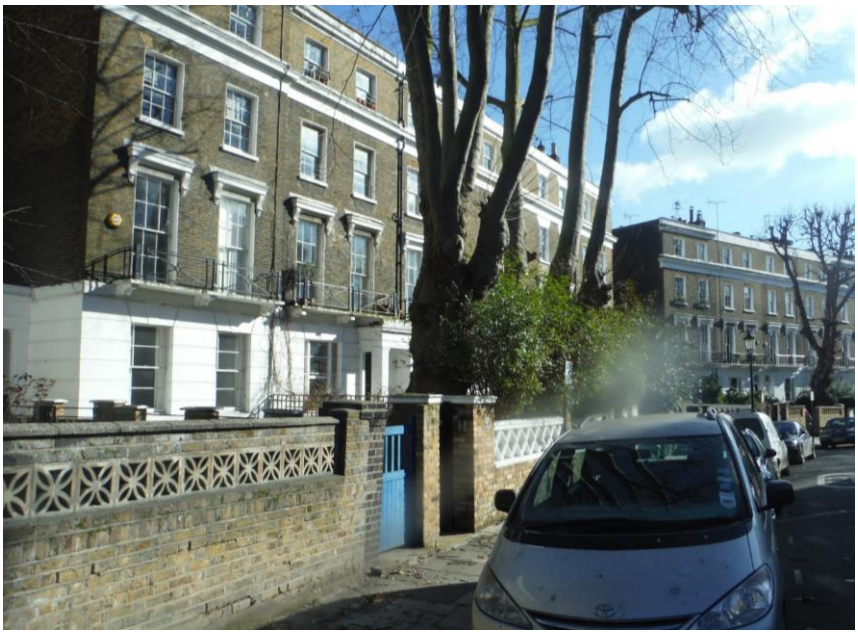
SITE PLAN



Plan not to scale – indicative only

Approximate areas of damage

Images



View of G1

View of upper crowns – G1