Arboricultural Appraisal Report

Subsidence Damage Investigation at:

Somerset House
31 Dartmouth Park Hill
London
NW5 1HR

CLIENT:	Crawford & Company
CLIENT REF:	SU1505185
MWA REF:	SUB160406-614
MWA CONSULTANT:	David Mahon (B.Sc Hons MICFor MArborA)
REPORT DATE:	18-04-2016

SUMMARY

Statutory Controls			Mitigation (current claim)	
TPO	No		Insured	Yes
Cons. Area	Yes		3rd Party	No
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 14/04/2016 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 4 storey purpose built block of flats built in C1900. The building is accessed off Chetwynd Road.

External areas comprise small gardens to the front and left with various shrubs and small trees.

The site is generally level with no adverse topographical features.

Damage Description & History

The main area of damage affects the front left corner of the building with internal and external cracking recorded by engineers. Cracking was first noticed in the ground floor flat in 2014 which worsened significantly by September 2015 prompting a claim to insurers.

At the time of the engineers' inspection (20/01/2016) the structural significance of the damage was found to fall within Category 4 (severe) of Table 1 of BRE Digest 251.

Site investigations

Site investigations were carried out by CET on 01.02.2016 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.

Foundations:

Ref	Foundation type	Depth at Underside (mm)
TH1	Crushed brick	695

Soils:

Ref	Description	Plasticity Index (%)	Volume change potential (NHBC)
BH1	Firm to stiff, mid brown, grey veined, silty CLAY	Not tested	-

Roots:

Ref	Roots Observed to depth of (mm)	Identification	Starch content
BH1	1800	Pomoideae gp.	Present Absent

Pomoideae gp include apple, cotoneaster, hawthorn, pear, pyracantha, quince, rowan, snowy mespil and whitebeam.

Drains: The drains have been surveyed and minor defects identified. The drains are remote from the area of damage.

Monitoring: Crack monitoring is in progress. 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 susceptible to undergoing volumetric change in relation to changes in soil moisture. No test data is available to allow an assessment of shrinkage potential or desiccation.

Roots were observed to a depth of 1800mm bgl in BH1 and recovered samples have been positively identified (using anatomical analysis) as Pomoideae, the origin of which will be T1 confirming its influence on the soils below the foundations.

The drains are remote from the area of damage and this together with the soil descriptions confirms leaking drains are not a causal factor of the damage.

Based on the technical reports currently available, engineering opinion and our own site assessment we conclude the damage is consistent with shrinkage of the clay subsoil related to moisture abstraction by vegetation. Having considered the available information, it is our opinion that T1 is the principal cause of the current subsidence damage. If an arboricultural solution is to be implemented to mitigate the current damage and allow the soils beneath the property to recover to a position such that an effective repair solution can be implemented we recommend that T1 is removed.

Consideration has been given to pruning as a means of mitigating the vegetative influence, however in this case, this is not considered to offer a viable long term solution due to the proximity of the responsible vegetation.

Vegetation which represents a future risk to stability is recorded and recommendations to limit that risk are provided in table 2 below.

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 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.

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

Tree No.	Species	Ht (m)	Dia (mm)	Crown Spread (m)	Dist. to building (m)	Age Classification	Ownership
T1	Hawthorne	5.0	150	6.0	3.5	Younger than property	Policy Holder
Management history		No recent management.					
Recommendation		Remove and treat stump to inhibit regrowth					

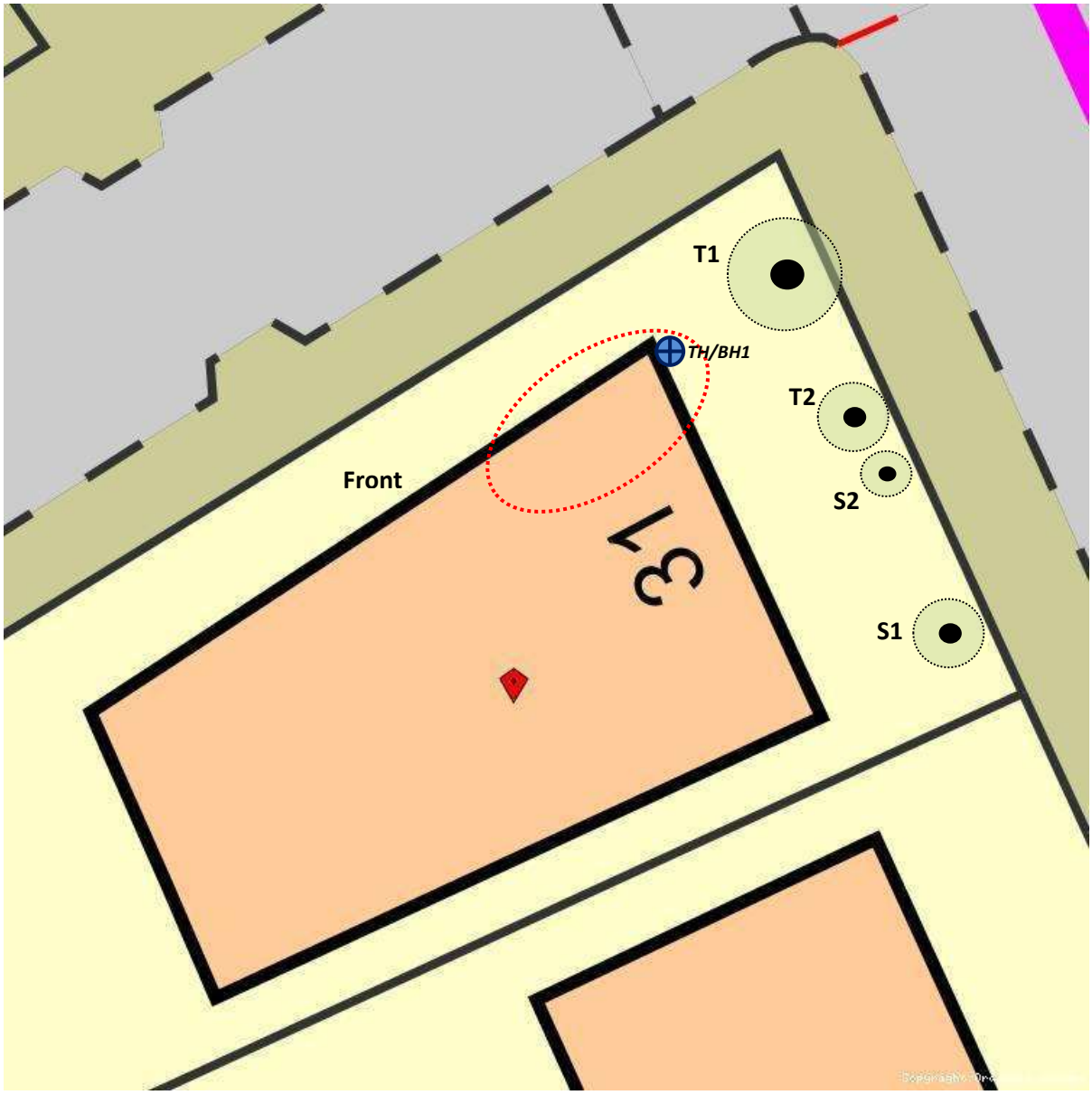
Ms: multi-stemmed * Estimated value

Table 2 **Future Risk** - Tree Details & Recommendations

Tree No.	Species	Ht (m)	Dia (mm)	Crown Spread (m)	Dist. to building (m)	Age Classification	Ownership
S1	Elder	5.5	100	6.0	2.5	Older than property	Policy Holder
Management history		No recent management.					
Recommendation		Remove					
T2	Prunus	5.5	<70	2.0	3.5		Policy Holder
Management history		Very small crown. Young tree.					
Recommendation		Do not allow to exceed current dimensions					
S2	Bamboo	2.5	<70	2.5	3.5		Policy Holder
Management history		No recent management.					
Recommendation		Do not allow to exceed current dimensions					

Ms: multi-stemmed * Estimated value

SITE PLAN



Plan not to scale – indicative only

Approximate areas of damage

Images

View of T1

General view of vegetation