Arboricultural Appraisal Report

Subsidence Damage Investigation at:

161 West End Lane
London
NW6 2LG

CLIENT:	Crawford & Company
CLIENT REF:	[redacted]
MWA REF:	[redacted]
MWA CONSULTANT:	Steve Swinburne
REPORT DATE:	06-04-2019

SUMMARY

Statutory Controls			Mitigation (Current claim tree works)	
TPO current claim	No		Policy Holder	No
TPO future risk	No		Domestic 3rd Party	Yes
Cons. Area	Yes		Local Authority	No
Trusts schemes	No		Other	No
Local Authority: -	London Borough of Camden			

[redacted]

Introduction

Acting on instructions from Crawford & Company, the insured property was visited on 26/03/2019 to assess 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 detached 3 storey house, built circa 1900. The property has been converted into six, self-contained flats.

External areas comprise gardens to the rear with tarmac parking to the front.

The site is generally level with no adverse topographical features.

Damage Description & History

The current damage affects the rear, right hand section of the property and was first noticed over the summer of 2018. For a more detailed synopsis of the damage please refer to the building surveyor's technical report.

At the time of the building surveyor's inspection (23/11/2018) the structural significance of the damage was found to fall within Category 3 (moderate) of Table 1 of BRE Digest 251.

Whilst we have not been made aware of any previous claims to No 161, the building surveyor's report makes reference to an episode of subsidence at a neighbouring property, No.159, in 2006 which resulted in the removal of a number of trees from its front garden.

[redacted]

Site Investigations

Site investigations were carried out by CET on 20/02/2019 when a single trial pit was excavated to reveal the foundations, with a borehole sunk through the base of the trial pit to determine subsoil conditions.

Foundations:

Ref	Foundation type	Depth at Underside (mm)
TP1	Concrete	1000

Soils:

Ref	Description	Plasticity Index (%)	Volume change potential (NHBC)
TP/BH1	Stiff orange-brown silty CLAY	43-50	High

Roots:

Ref	Roots Observed to depth of (mm)	Identification	Starch content
TP/BH1	2300	Tilia spp.	Present

Tilia spp. are limes

Monitoring: Crack monitoring is in progress.

[redacted]

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 moisture depletion at the time of sampling in TP/BH1 at depths beyond normal ambient soil drying processes such as evaporation indicative of the soil drying effects of vegetation.

Roots were observed to a depth of 2.3m in BH1 and recovered samples have been positively identified (using anatomical analysis) as Tilia spp, the origin of which has the potential to be any of the trees within TG1 thus confirming their influence on the soils below the foundations.

Crack monitoring is ongoing however initial readings suggest that building movement is attributable to a vegetative influence on soil volumes.

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 information currently available, it is our opinion that the trees within TG1 are the principal cause of or are materially contributing to the current subsidence damage.

Despite the recent significant reduction of TG1, we consider that due to their size and proximity, the trees should be removed.

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.

[redacted]

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

Tree No.	Species	Ht (m)	Dia (mm)	Crown Spread (m)	Dist. to building (m)	Age Classification	Ownership
TG1	Tilia x 3	9	450*	0	Min 4	Younger than property	3rd Party: 163 West End Lane NW6 2LG
Management history		Subject to a recent heavy reduction with the majority of the branches removed.					
Recommendation		Remove (fell) to near ground level and treat stump to inhibit regrowth.					

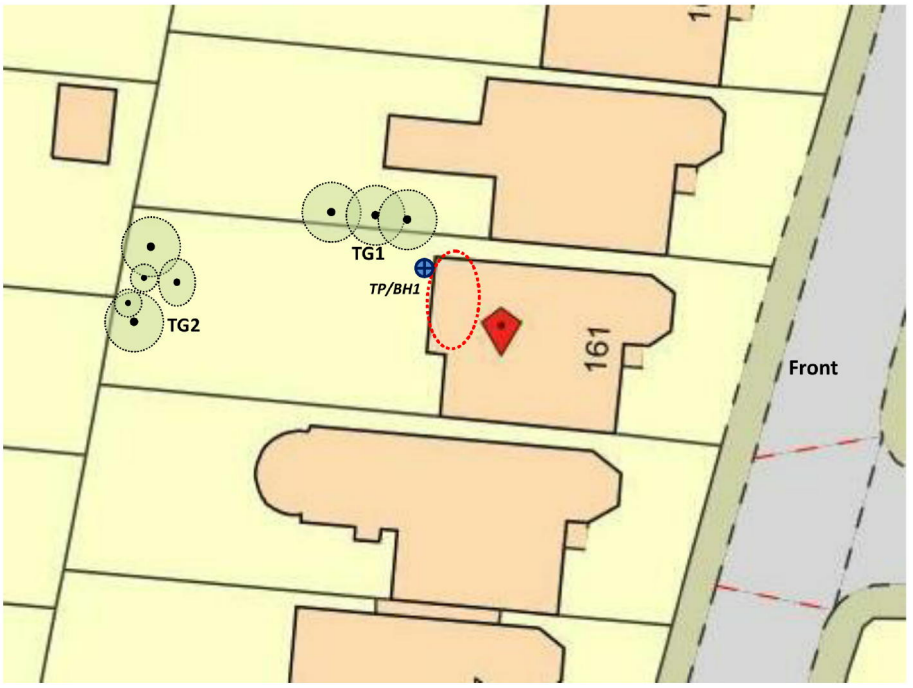
Ms: multi-stemmed * Estimated value

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

Tree No.	Species	Ht (m)	Dia (mm)	Crown Spread (m)	Dist. to building (m)	Age Classification	Ownership
TG2	Sycamore x 6	14	Ave 450	12	17.5	Younger than property	Policy Holder
Management history		No recent management noted.					
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 damage to rear right corner

View of the three trees that comprise TG1

[redacted]

View of TG2 towards the rear boundary with TG1 to the right

[redacted]