

Arboricultural Appraisal Report

Subsidence Damage Investigation at:

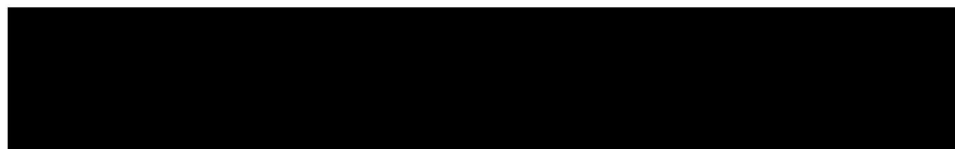
49 and 49A Gloucester Crescent
London
NW1 7EG



CLIENT:	Crawford & Company
CLIENT REF:	[REDACTED]
MWA REF:	[REDACTED]
MWA CONSULTANT:	Andy Clark
REPORT DATE:	01/02/2024

SUMMARY

Statutory Controls		Mitigation (Current claim tree works)	
TPO current claim	Yes – T2	Policy Holder	Yes
TPO future risk	Yes – T3, T4, T5	Domestic 3 rd Party	No
Cons. Area	Yes	Local Authority	No
Trusts schemes	No	Other	No
Local Authority: -	London Borough of Camden		



Introduction

Acting on instructions from Crawford & Company, the insured property was visited on 23/01/2024 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 4 storey end-terrace house of traditional construction.

External areas comprise gardens to the left-hand side and rear.

The site is generally level with no adverse topographical features.

Damage Description & History

Damage relates to the subterranean vaults at the south-west aspect of the property. For a more detailed synopsis of the damage please refer to the building surveyor's technical report.

We have not been made aware of any previous claims.



Site Investigations

Site investigations were carried out by William Hunt Consulting on 24/10/2023, when a single borehole was excavated to determine foundation construction and subsoil conditions. A drains survey was also undertaken.

Foundations:

Ref	Foundation type	Depth at Underside (mm)
TP/BH1	Unknown – USF not found	Unknown

Soils:

Ref	Description	Plasticity Index (%)	Volume change potential (NHBC)
TP/BH1	Very firm to very stiff dark to light brown CLAY	37 – 45	Medium – High

Roots:

Ref	Roots Observed to depth of (mm)	Identification	Starch content
TP/BH1	1200	Tilia spp., and possibly either Pomoideae gp. or Prunus spp. [Poor sample]	Unknown

Tilia spp. are Limes

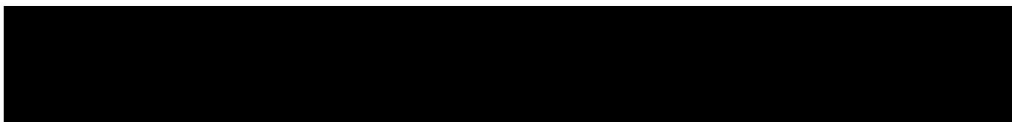
Pomoideae gp. includes, Apple, Pear, hawthorn, Rowan, Whitebeam, Service Tree and Medlar, and shrubs including Pyracantha, Chaenomeles, Quince, Amelanchier and Cotoneaster

Prunus spp. includes Cherry, Plum, Damson, Almond, Peach and Apricot, as well as Cherry Laurel and Portuguese Laurel

Drains: The drains have been surveyed and no significant defects identified.

Monitoring: Level monitoring is in progress, commencing 05/07/2023 and with two subsequent readings available at the time of writing.

Initial readings are inconclusive, however further readings, as they become available, will confirm the extent of movement and whether any seasonal pattern is evident.



Discussion

Opinion and recommendations in this report are made on the understanding that Crawford & Company have identified clay shrinkage subsidence as a cause of building movement and damage.

Site investigations and soil test results have confirmed a plastic clay subsoil 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 at depths beyond normal ambient soil drying processes, such as evaporation, which is indicative of the soil drying effects of vegetation.

Roots were observed to a depth of 1.2m bgl in TP/BH1, and recovered samples have been positively identified (using anatomical analysis) as *Tilia* spp., and possibly either *Pomoideae* gp. or *Prunus* spp. [Poor sample]; the most significant of which are the *Tilia* spp. roots which will originate from the nearby Lime trees [T1 and T2 being the closest].

The origin of the possibly *Pomoideae* gp. or *Prunus* spp. [Poor sample] roots is undetermined, as no significant related vegetation was observed within influencing distance of the area of damage at the time of our survey.

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.

If an arboricultural solution is to be implemented to mitigate the influence of the implicated trees/vegetation we recommend that T1 and T2 Limes are pollarded at smaller dimensions. Other vegetation recorded presents a potential future risk to building stability and management is therefore recommended. Recommended tree works may however be subject to change upon receipt of additional information.



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	Lime	12.0	440	5.0	1.4	Younger than Property	Policy Holder
Management history		Subject to past management/pruning - previously pollarded at approx. 3.0m and since crown reduced.					
Recommendation		Re-pollard to original points at approx. 3.0m and thereafter re-pollard on a triennial cycle to maintain at broadly reduced dimensions. Subject to review if movement persist.					
T2	Lime	10.5	440	4.5	3.1	Younger than Property	Policy Holder
Management history		Subject to past management/pruning - previously pollarded at approx. 3.0m and since crown reduced.					
Recommendation		Re-pollard to original points at approx. 3.0m and thereafter re-pollard on a triennial cycle to maintain at broadly reduced dimensions. Subject to review if movement persist.					

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
T3	Lime	12.0	390	5.0	1.7	Younger than Property	Policy Holder
Management history		Subject to past management/pruning - previously pollarded at approx. 3.0m and since crown reduced.					
Recommendation		Re-pollard to original points at approx. 3.0m and thereafter re-pollard on a triennial cycle to maintain at broadly reduced dimensions.					
T4	Lime	12.0	560	5.0	1.9	Younger than Property	Policy Holder
Management history		Subject to past management/pruning - previously pollarded at approx. 3.0m and since crown reduced.					
Recommendation		Re-pollard to original points at approx. 3.0m and thereafter re-pollard on a triennial cycle to maintain at broadly reduced dimensions.					
T5	Lime	12.0	460	5.0	6.2	Younger than Property	Policy Holder
Management history		Subject to past management/pruning - previously pollarded at approx. 3.0m and since crown reduced.					
Recommendation		Re-pollard to original points at approx. 3.0m and thereafter re-pollard on a triennial cycle to maintain at broadly reduced dimensions.					
T6	Bay	5.0	150 Ms *	5.0	8.5 *	Younger than Property	Third Party 8 Oval Road NW1 7EB
Management history		Subject to past management/pruning - previously crown reduced.					
Recommendation		Maintain broadly at no larger than current dimensions by periodic pruning.					
TG1	Magnolia with Cotoneaster and Pyracantha understorey	6.5	220 *	6.0	9.5	Younger than Property	Third Party 50 Gloucester Crescent NW1 7EG
Management history		No significant past management noted.					
Recommendation		Maintain broadly at no larger than current dimensions by periodic pruning.					

Ms: multi-stemmed * Estimated value



Table 2 **Future Risk - Tree Details & Recommendations Cont'd**

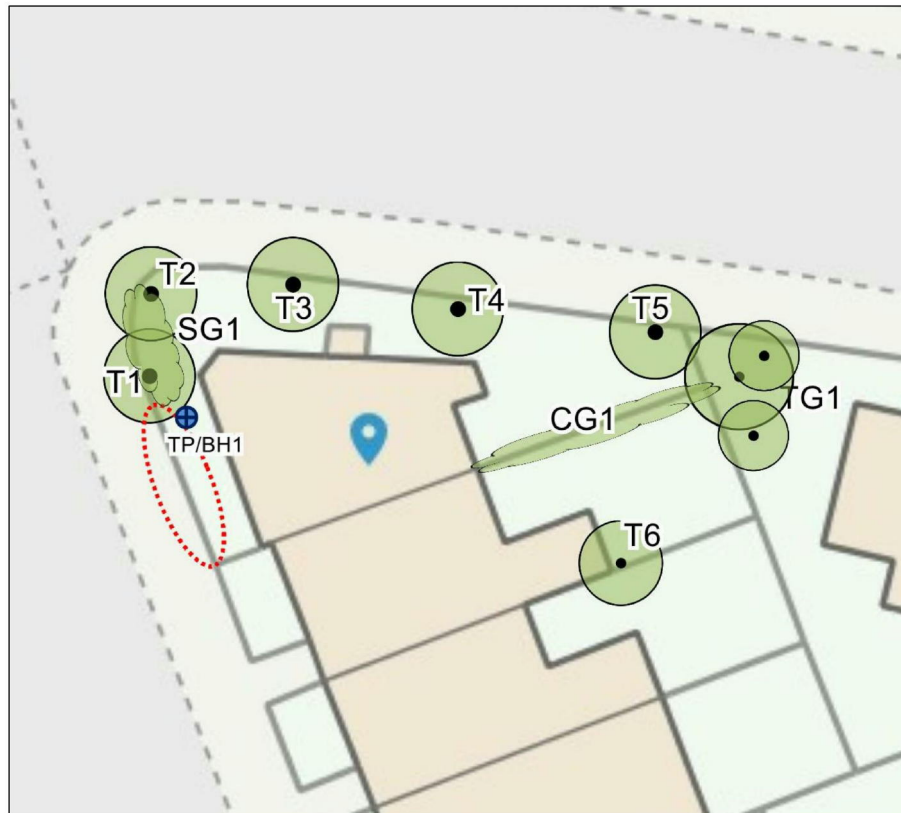
Tree No.	Species	Ht (m)	Dia (mm)	Crown Spread (m)	Dist. to building (m)	Age Classification	Ownership
SG1	Bamboo	2.0	10	1.5	0.1	Younger than Property	Policy Holder
Management history		Subject to past management/pruning - appears regularly pruned.					
Recommendation		Maintain broadly at no larger than current dimensions by periodic pruning.					
CG1	Jasmine	2.0	10	7.5 *	3.5	Younger than Property	Policy Holder
Management history		Subject to past management/pruning - appears regularly pruned.					
Recommendation		Maintain broadly at no larger than current dimensions by periodic pruning.					

Ms: multi-stemmed


* Estimated value



Site Plan



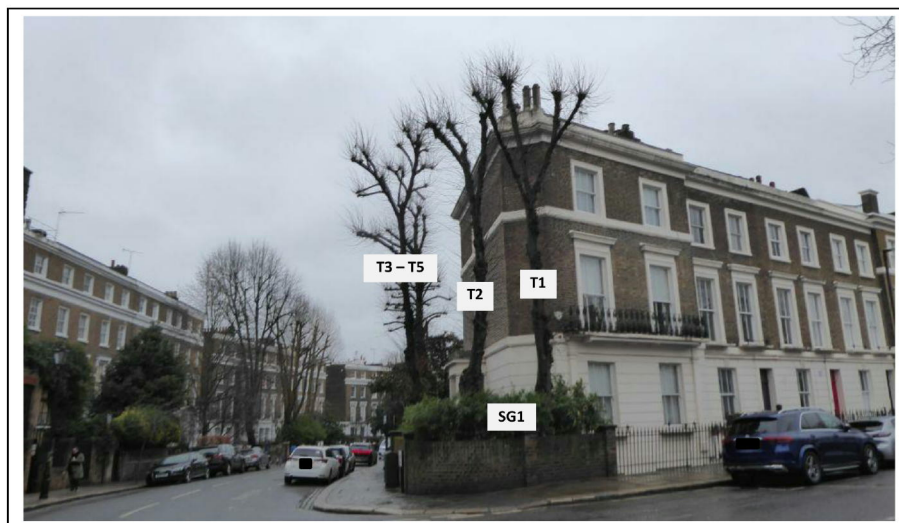
Plan not to scale – indicative only


 Approximate areas of damage

Images



Overview of T1 to T5 Limes

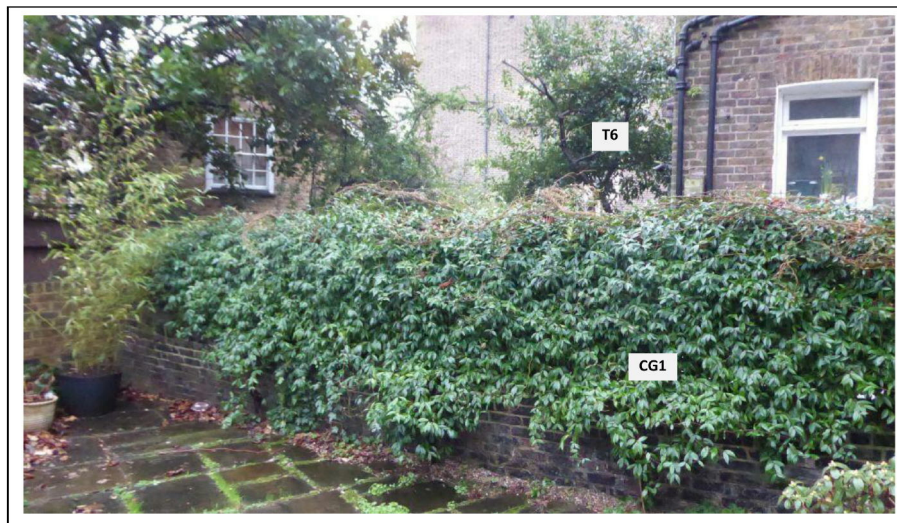


View of T1 and T2 Limes, with SG1 Bamboo below and T3 to T5 Limes visible beyond





View of TG1 group with T5 Lime stem visible to foreground



View of CG1 Jasmine with T6 Bay visible beyond



Management of vegetation to alleviate clay shrinkage subsidence.

All vegetation requires water to survive which is accessed from the soil. Clay soils shrink when water abstracted by vegetation exceeds inputs from rainfall, which typically occurs during the summer months. When deciduous vegetation enters dormancy and loses its leaves and rainfall increases during the winter months, soil moisture increases and the clay swells. (Evergreen trees and shrubs use minimal/negligible amounts of soil water during the winter).

Buildings founded on clay are susceptible to movement as the clay shrinks and swells which can result in cracking or other damage.

Where damage does occur, pruning (reducing leaf area) can in some circumstances be effective in restoring stability however, removal of the influencing vegetation (trees, shrubs, climbers) causing the ground movement offers the most predictable and quickest solution in stabilising the clay and hence the building and for this reason is frequently initially recommended as the most appropriate solution.

Often this is unavoidable due to the size or number of influencing trees, shrubs etc and their proximity to the building. Very heavy pruning of some species to a level required to effectively control its water use can result in the trees decline and ultimately death and is one factor considered when making recommendations for remedial tree works. Pruning alone, whilst reducing soil moisture uptake is often an unpredictable management option in restoring building stability either in the short or long term.

In some circumstances however, where vegetation initially recommended for removal is subsequently pruned and monitoring indicates the building has stabilised, removal becomes unnecessary with decisions based on best evidence available at the time.

