

Arboricultural Appraisal Report

Subsidence Damage Investigation at:

69 Elmroyd Avenue
Potters Bar
EN6 2EF



CLIENT:	Crawford & Company
CLIENT REF:	SU2203004
MWA REF:	SUB230316-12684
MWA CONSULTANT:	Andy Clark
REPORT DATE:	30/06/2023

SUMMARY

Statutory Controls		Mitigation (Current claim tree works)	
TPO current claim	Yes – T1	Policy Holder	Yes
TPO future risk	No	Domestic 3 rd Party	Yes
Cons. Area	Yes	Local Authority	No
Trusts schemes	No	Other	No
Local Authority: -	Hertsmere Borough Council		

Introduction

Acting on instructions from Crawford & Company, the insured property was visited on 27/04/2023 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 bungalow of traditional construction, extended with a conservatory to the rear.

External areas comprise gardens to the front and rear.

The site is generally level with no adverse topographical features.

Damage Description & History

Two separate areas of damage are evident, relating to the front porch and hallway, and the conservatory at the rear. Damage is reported to have first been observed during June 2022 but was minor and of no cause for concern. 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.

Geology / Soils

The online 1:50 000 scale British Geological Survey map records the bedrock geology as London Clay Formation - Clay, silt and sand. No superficial deposits for the area are recorded. BGS records for this area also include historic borehole logs which record soils with a clay component.

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.

Published soil maps indicate the underlying soils include or are likely to include a clay component susceptible to undergoing volumetric change with changes in soil moisture. Moisture abstraction by vegetation has the potential to cause soil shrinkage and consequent subsidence of the building.

Our survey has identified vegetation within influencing distance of the building with a current potential to influence soil volumes below foundation level; the most significant of which in relation to the current damage are recorded at Table 1 below.

Based on the information currently available, engineering opinion and our own site assessment we conclude the damage appears consistent with shrinkage of the clay fraction due to the soil drying effects of vegetation.

If an arboricultural solution is to be implemented to mitigate the influence of the trees/shrubs considered to be responsible for the damage at the property frontage we recommend that the Magnolia of SG2 group is removed. Movement/damage at the rear will be attributable to the T2 Monterey Cypress and the Oaks T1 and TG1 Oak group, and initial recommendations are made at this stage for the removal of the T2 Monterey Cypress combined with significant crown management of the Oaks.

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.

Consideration has been given to pruning alone 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.

Conclusions

- Conditions necessary for clay shrinkage subsidence to occur related to moisture abstraction by vegetation have been confirmed by reference to published soil maps.
- 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.

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	Oak	19.0	800 *	17.5	17.5 *	Older than extension(s)	Third Party 71 Elmroyd Avenue EN6 2EF
Management history		Subject to past management/pruning - previously crown reduced / pollarded at approx. 13.0m.					
Recommendation		Reduce/re-pollard to previous points to leave at approx. 13.0m high by 12.0m spread and thereafter re-prune on a triennial cycle to maintain at broadly reduced dimensions.					
T2	Cypress (Monterey)	17.5	520	12.0	14.2	Older than extension(s)	Policy Holder
Management history		No significant past management noted.					
Recommendation		Remove (fell) to near ground level and treat stump to inhibit regrowth.					
TG1	Oak group	18.0	800 *	16.0	16.0 *	Older than extension(s)	Third Party 67 Elmroyd Avenue EN6 2EF
Management history		Subject to past management/pruning - previously crown reduced / pollarded at approx. 12.0m. Appears to be two separate stems, but may be 1x twin stemmed tree.					
Recommendation		Reduce/re-pollard to previous points to leave approx. 12.0m high by 12.0m spread and thereafter re-prune on a triennial cycle to maintain at broadly reduced dimensions.					
SG2	Mixed spp. group of mostly Rose, Magnolia, Pieris and Rhododendron with Herbaceous understorey	2.0	60	2.0	1.9	Younger than Property	Policy Holder
Management history		Subject to past management/pruning - appears regularly pruned.					
Recommendation		Remove (fell) Magnolia to near ground level and treat stump to inhibit regrowth.					

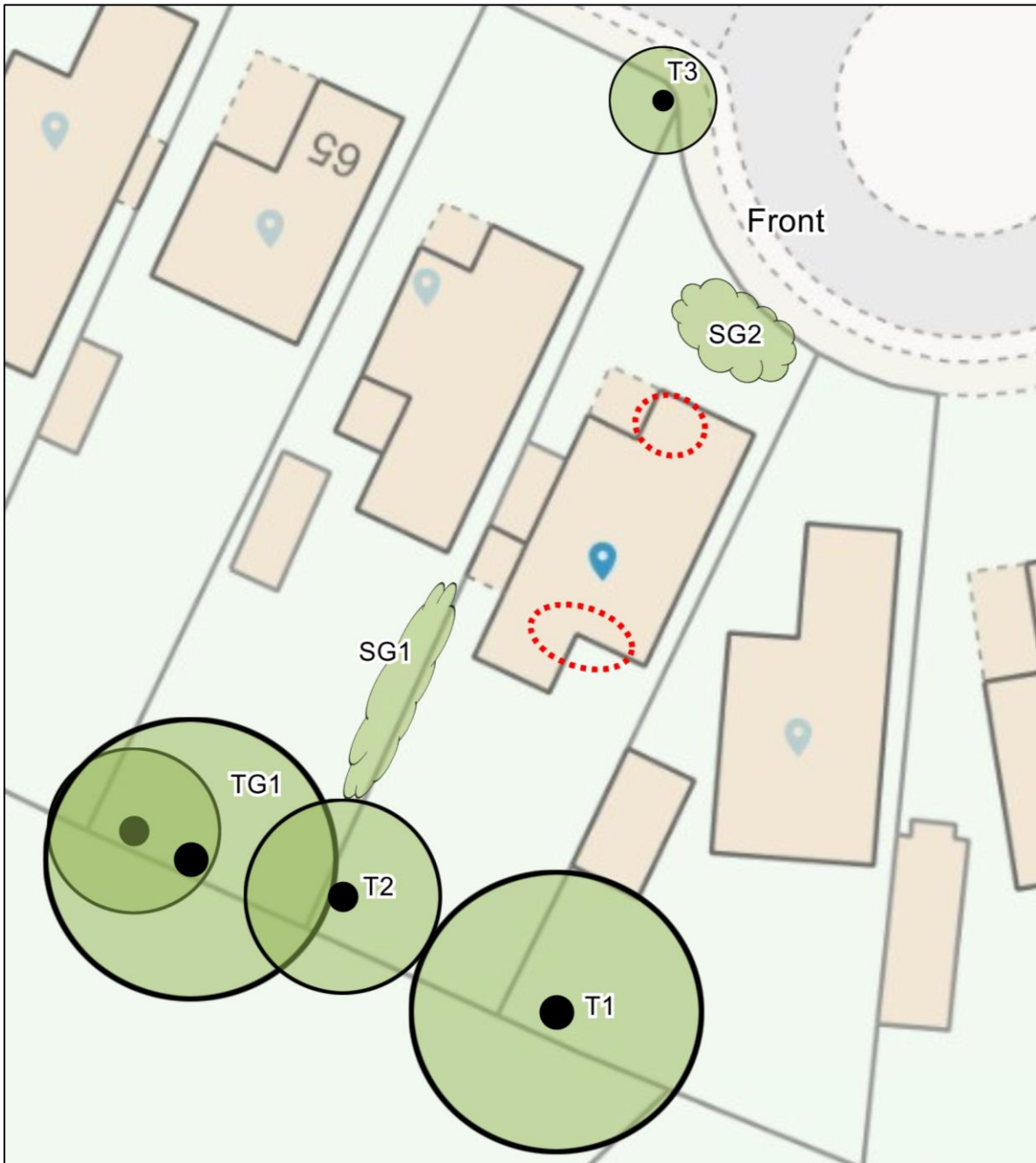
Ms: multi-stemmed * Estimated value

Table 2 Future Risk - Tree Details & Recommendations

Tree No.	Species	Ht (m)	Dia (mm)	Crown Spread (m)	Dist. to building (m)	Age Classification	Ownership
T3	Rowan	5.0	170 *	5.0	12.9	Younger than Property	Third Party 67 Elmroyd Avenue EN6 2EF
Management history		No significant past management noted.					
Recommendation		None at present.					
SG1	Mixed spp. group of mostly Photinia, Cypress and Pyracantha	3.5	70 Ms *	2.0	2.0	Older than extension(s)	Third Party 67 Elmroyd Avenue EN6 2EF
Management history		Subject to past management/pruning - appears regularly pruned.					
Recommendation		Maintain broadly at no more than current dimensions by periodic pruning.					

Ms: multi-stemmed * Estimated value

Site Plan



Plan not to scale – indicative only



Approximate areas of damage

Images



View of T1 Oak with T2 Monterey Cypress visible to right of frame



View of T2 Cypress with TG1 Oak group visible beyond and SG1 group to foreground



View of SG2 at property frontage



View of T3 Rowan

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.