Arboricultural Appraisal Report

Subsidence Damage Investigation at:

1 Crumpfields Lane
Redditch
Worcestershire
B97 5PN

CLIENT:	Crawford & Company
CLIENT REF:	SU1807109
MWA REF:	SUB220519-10175
MWA CONSULTANT:	David Mahon (B.Sc Hons MICFor MArborA)
REPORT DATE:	26-05-2022

SUMMARY

Statutory Controls			Mitigation (Current claim tree works)	
TPO current claim	Yes - TG1 (holly x4)		Policy Holder	Yes
TPO future risk	Yes – T2		Domestic 3rd Party	No
Cons. Area	No		Local Authority	No
Trusts schemes	No		Other	Yes
Local Authority: -	Redditch Borough Council			

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Introduction

Acting on instructions from Crawford & Company, the insured property was visited on 25/05/2022 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 2 storey house built in 1985 including a double garage. There is a conservatory and raised decking to the rear. External areas comprise a drive to the front and lawned gardens to the left and rear.

The site slopes steeply downhill hill from the rear elevation of the house.

Damage Description & History

The current damage is focused where the single storey and 2 storey elements meet at the front of the property. Internal cracking is present in the hall and WC and external cracking on the gable wall. The damage was first noticed in October 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 (20/11/2018) the structural significance of the damage was found to fall within Category 2 (slight) of Table 1 of BRE Digest 251.

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 Mercia Mudstone Group - Mudstone. Superficial deposits are recorded as TILL.

Site Investigations

Site investigations were carried out by CET on 11/03/2019 although foundation depths could not be established or soil profile confirmed due to obstructions. A drains survey was also undertaken.

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.

Reference to the geological/soils maps indicates the property is likely to be founded on a subsoil with a shrinkable clay component and as such moisture abstraction by tree roots has the potential to result in soil shrinkage and subsidence of the foundations.

Level monitoring from 23/02/2019 to 24/08/2021 has recorded movement consistent with root induced clay shrinkage subsidence with significant amplitudes of movement along the left hand (northern) side of the garage. The cracking is consistent with the area of movement in the garage and the influence of TG1 which is within influencing distance of the garage.

We note trees along the verge on the eastern side of the property were removed in October 2020

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 TG1 is the principal cause of or is materially contributing to the movement and damage.

If an arboricultural solution is to be implemented to mitigate the influence of the implicated trees/vegetation we recommend that TG1 is removed.

Other vegetation recorded presents a potential future risk to building stability.

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.

Recommended tree works may 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
TG1	Holly x4, cypress, ash Holly & hawthorn understorey	*8.0	Ms 350	*3.0	2.0 Min	Younger than property	Joint Policy Holder & No Registrations
Management history		Topped. Subject to past management. No recent management noted.					
Recommendation		Remove (fell) the large holly, cypress and ash. Reduce height of retained holly and hawthorn understorey to 2.5m, prune back laterals and prune annually to maintain broadly at reduced height.					

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
T1	Plum	10.5	*300	3.0	8.0	Younger than property	Policy Holder
Management history		No recent management noted.					
Recommendation		Maintain broadly at no more than current dimensions by periodic pruning.					
T2	Holly	*10.0	*500	*8.0	7.0	Younger than property	No Registrations
Management history		Topped in past. No recent management noted.					
Recommendation		Maintain broadly at no more than current dimensions by periodic pruning.					
SG1	Cypress, Holly, Laurel, Cotoneaster, Sycamore and Privet	*5.0	Ms	*4.0	4.0	Younger than property	Boundary Policy Holder &/or 3 Crumpfields Lane B97 5PN
Management history		Sycamore topped April 2022. Managed Crown.					
Recommendation		Do not allow to exceed current dimensions.					
SG2	Laurel	*3.5	Ms 150	*2.5	2.0	Younger than property	Policy Holder
Management history		Recently heavily reduced.					
Recommendation		Maintain broadly at no more than current dimensions by periodic pruning.					

Ms: multi-stemmed * Estimated value

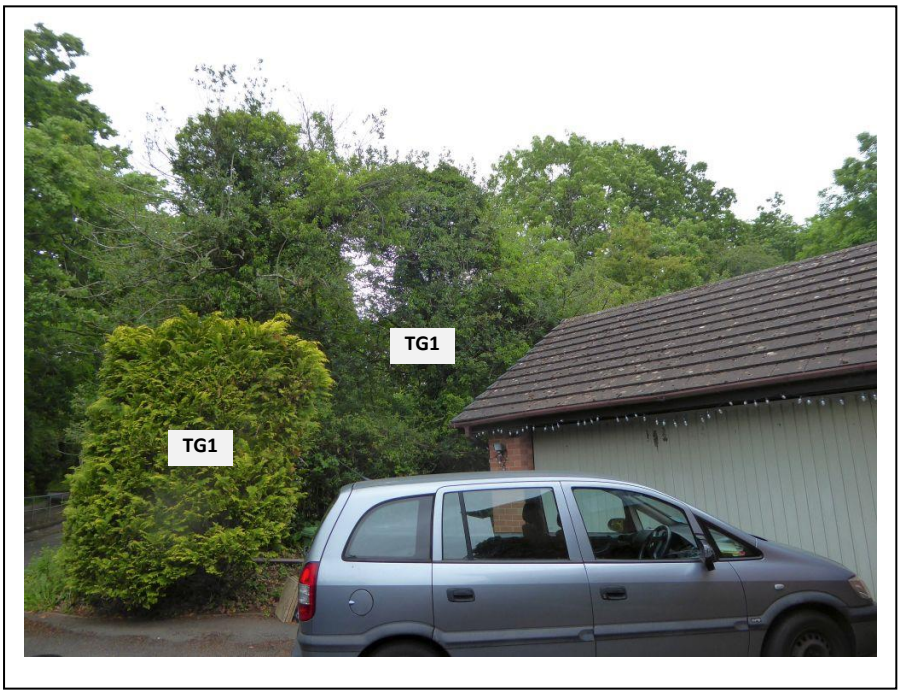
Site Plan

Plan not to scale – indicative only

Approximate areas of damage

IMAGES

View of TG1 from road to front.



View of TG1

View of T1 & T2 from rear garden

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.