Arboricultural Appraisal Report

Subsidence Damage Investigation at:

42 Shipton Road
York
YO30 5RF

CLIENT:	Crawford & Company
CLIENT REF:	SU2203607
MWA REF:	SUB230208-12292
MWA CONSULTANT:	John Graham B.Sc. Hons PhD
REPORT DATE:	20/03/2023

SUMMARY

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

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Introduction

Acting on instructions from Crawford & Company, the insured property was visited on 07/03/2023 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 semi-detached 2 storey house, built circa 1940s, with a 2 storey rear projection which appears to be original. External areas comprise gardens to the front and rear, which are very densely planted. The site is generally level with no adverse topographical features.

Damage Description & History

The current damage affects the rear right corner of the 2 storey projection and was first noticed in Summer 2022. 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 Sherwood Sandstone Group - Sandstone. Superficial deposits are recorded as Alne Glaciolacustrine Formation - Clay, silty.

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.

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 vegetation considered to be most significant in relation to the current damage is T1, T2 and T3 with a potential contribution from CG1.

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 we recommend that T1, T2, T3 and CG1 are removed. Other vegetation recorded presents a potential future risk to building stability and management is therefore recommended.

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.

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	False Acacia	14	320 *	14	9	Younger than Property	Policy Holder
Management history		No significant recent management noted.					
Recommendation		Remove (fell) to near ground level and treat stump to inhibit regrowth.					
T2	Birch	9	110 *	3	2.5	Younger than Property	Policy Holder
Management history		No significant recent management noted.					
Recommendation		Remove (fell) to near ground level and treat stump to inhibit regrowth.					
T3	Sorbus	9	170 Ms *	4	3	Younger than Property	Policy Holder
Management history		No significant recent management noted.					
Recommendation		Remove (fell) to near ground level and treat stump to inhibit regrowth.					
CG1	Mixed species including Ivy with self set Holly growing close to house	5	20 Ms	4	0	Younger than Property	Policy Holder
Management history		Subject to past management/pruning.					
Recommendation		Remove (fell) to near ground level and grub out/grind out 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
T4	Cherry	5	180 Ms	3	9	Younger than Property	Policy Holder
Management history		No significant recent management noted.					
Recommendation		Maintain broadly at no more than current dimensions by periodic pruning.					
TG1	Cherry covered in Ivy	8	300 Ms *	5	9	Younger than Property	Policy Holder
Management history		No significant recent management noted. (Possibly 1 multi-stemmed tree).					
Recommendation		Reduce height by ~2m and crown radius by ~0.5m leaving balanced crown. Prune on a biennial cycle to maintain at broadly reduced dimensions.					
TG2	Holly	3	50 Ms	2	2	Younger than Property	Policy Holder
Management history		No significant recent management noted.					
Recommendation		Reduce height by 1.5m and crown radius by 0.25-0.5m leaving balanced crown. Prune on an annual cycle to maintain at broadly reduced dimensions.					
TG3	Prunus and Sycamore	8	250 Ms	5	7	Younger than Property	Policy Holder
Management history		No significant recent management noted.					
Recommendation		Remove Sycamore. Maintain retained elements at broadly current dimensions.					
S1	Aucuba	2	20 Ms	2	2	Younger than Property	Policy Holder
Management history		No significant recent management noted.					
Recommendation		Remove (fell) to near ground level and treat stump to inhibit regrowth.					

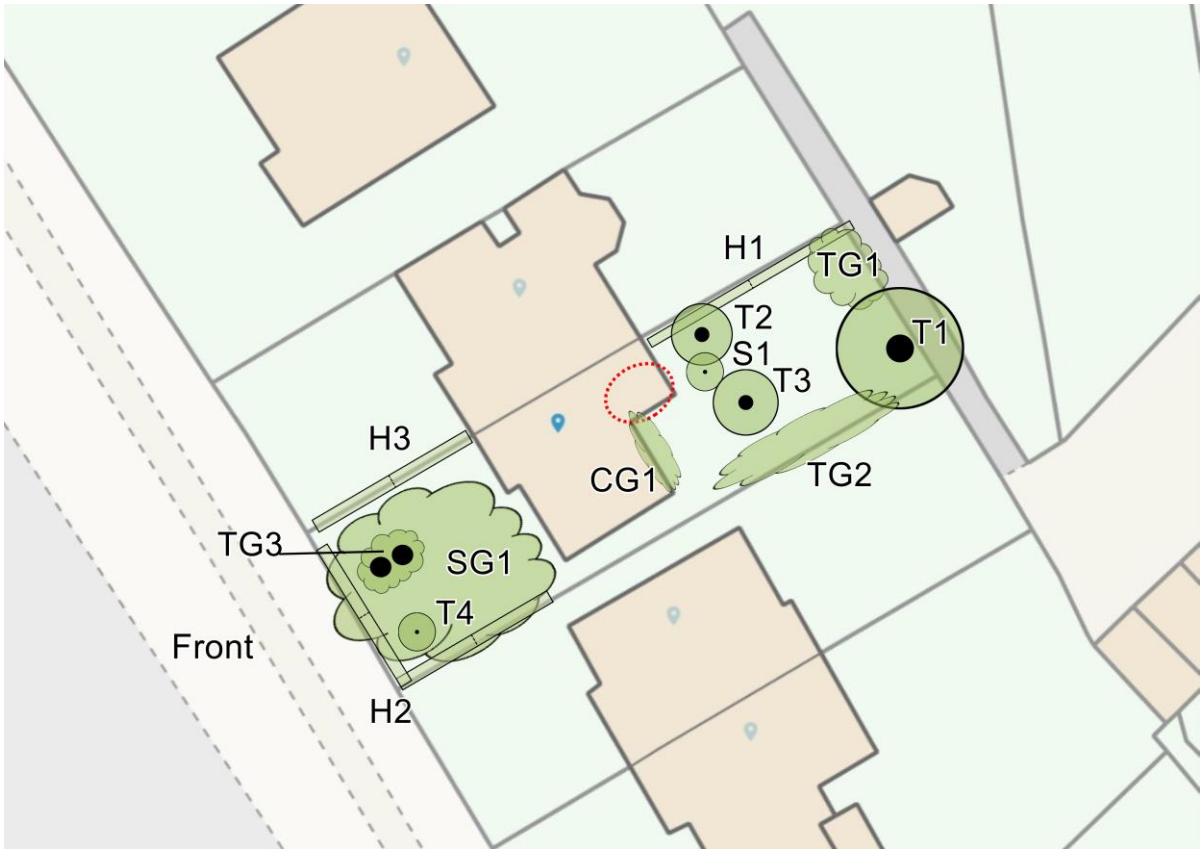
Ms: multi-stemmed * Estimated value

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

Tree No.	Species	Ht (m)	Dia (mm)	Crown Spread (m)	Dist. to building (m)	Age Classification	Ownership
SG1	Mixed species including; Holly, Juniper, Bamboo, Cotoneaster, Choisya, Elaeagnus, Ribes	3	20 Ms	2	1 *	Younger than Property	Policy Holder
Management history		Subject to past management/pruning.					
Recommendation		Remove stems within 2m. Prune on an annual cycle to maintain at broadly reduced dimensions.					
H1	Privet	2.5	10 Ms	1	0.2	Younger than Property	Policy Holder and/or 44 Shipton Road YO30 5RF
Management history		Pruned on a regular basis.					
Recommendation		Reduce height by 0.5-1m. Prune on an annual cycle to maintain at broadly reduced dimensions.					
H2	Privet	2.5	10 Ms	1	3 *	Younger than Property	Policy Holder and/or 40 Shipton Road YO30 5RF
Management history		Pruned on a regular basis.					
Recommendation		Reduce height by 0.5-1m. Prune on an annual cycle to maintain at broadly reduced dimensions.					
H3	Laurel	2.5	10 Ms	1.5	0.2	Younger than Property	Policy Holder and/or 44 Shipton Road YO30 5RF
Management history		Pruned on a regular basis.					
Recommendation		Reduce height by 0.5-1m. Prune on an annual cycle to maintain at broadly reduced dimensions.					

Ms: multi-stemmed * Estimated value

Site Plan



Plan not to scale – indicative only

Approximate areas of damage

Images

View of rear

View of CG1

View of T3 and S1

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.