

# Arboricultural Appraisal Report

## Subsidence Damage Investigation at:

6 Windrush Close  
Ickenham  
Uxbridge  
UB10 8EJ



CLIENT:	Davies Group Ltd
CLIENT REF:	72229022
MWA REF:	SUB230724-13845
MWA CONSULTANT:	Andy Clark
REPORT DATE:	03/10/2023

## SUMMARY

Statutory Controls		Mitigation (Current claim tree works)	
TPO current claim	Yes – TG3 (pine)	Policy Holder	Yes
TPO future risk	No	Domestic 3 <sup>rd</sup> Party	No
Cons. Area	No	Local Authority	No
Trusts schemes	No	Other	No
Local Authority: -	London Borough of Hillingdon		

## Introduction

Acting on instructions from Davies Group Ltd, the insured property was visited on 05/09/2023 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, built c.1958.

External areas comprise gardens to the front and rear.

The property occupies a site that slopes gently uphill from front to rear.

## Damage Description & History

Damage relates to the front projection of the building, with internal and external cracking indicative of downward movement.

At the time of the engineer's inspection (20/09/2022) the structural significance of the damage was found to fall within Category 3 (Moderate) of Table 1 of BRE Digest 251. For a more detailed synopsis of the damage please refer to the surveyor's technical report.

We understand that the property previously suffered from ground floor slab movement in 2000, resulting in the substructure being stabilised with an injection of a geo-polymer.

## Site Investigations

Site investigations were carried out by GEOCORE on 07/02/2023, 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. A drainage survey was also undertaken.

### Foundations:

Ref	Foundation type	Depth at Underside (mm)
TP/BH1	Concrete	350

### Soils:

Ref	Description	Plasticity Index (%)	Volume change potential (NHBC)
TP/BH1	Firm to very stiff brown to light brown slightly sandy CLAY	34 – 44	Medium – High

### Roots:

Ref	Roots Observed to depth of (mm)	Identification	Starch content
TP/BH1	2500	Possibly <i>Rosoideae</i> <i>gp.</i> , and similar to <i>Caprifoliaceae</i> <i>spp.</i>	Present
		Similar to <i>Cedrus</i> <i>spp.</i> and <i>Pinus</i> <i>spp.</i>	Absent

*Rosoideae* *gp.* are shrubs including *Roses*, *Brambles*, *Raspberries*, *Kerria* and *Potentilla*  
*Caprifoliaceae* *spp.* includes *Viburnum* (*Laurestinus* and *Guelder-rose*), *Weigela*, *Snowberry* and *Loniceras* (*Honeysuckle*)  
*Cedrus* *spp.* are *Cedars*  
*Pinus* *spp.* are *Pines*

**Drains:** The drains have been surveyed and defects have been identified, however leaking drains are concluded not to be a cause of the current damage.

**Monitoring:** Level monitoring is in progress, with initial readings showing a combination of uplift of the property frontage and downward movement at the rear. 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 Davies Group Ltd 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 2.5m bgl in TP/BH1 and recovered samples have been tentatively identified (using anatomical analysis) as possibly Rosoideae gp., similar to Caprifoliaceae spp. and similar to either Cedrus spp. or Pinus spp.; the origins of which will be the nearby shrubs and the Pine of TG3 group at the property frontage, confirming their influence on the soils below the foundations.

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 the nearby shrubs and the Pine of TG3 group are removed. 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.

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## 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.
- Replacement planting may be considered subject to species choice and planting location.

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

Tree No.	Species	Ht (m)	Dia (mm)	Crown Spread (m)	Dist. to building (m)	Age Classification	Ownership
TG3	Pine with understorey of Holly, Rose, Hydrangea, Heather, Mahonia, Cotoneaster, Cotinus and Forsythia	10.0	690	8.5	0.2	Younger than Property	Policy Holder
Management history		No significant recent management noted.					
Recommendation		Remove (fell) Pine to near ground level. Remove (fell) Holly and woody shrubs within 3.0m of the building and treat stumps to inhibit regrowth. Retain only herbaceous plants in garden border.					

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
TG1	Fig group	2.5	40 Ms *	4.5	4.0	Younger than Property	Policy Holder
Management history		Subject to past management/pruning - appears regularly pruned.					
Recommendation		Remove (fell) to near ground level and treat stumps to inhibit regrowth.					
TG2	Apple group	5.5	180 Ms	6.5	9.5	Younger than Property	Policy Holder
Management history		No significant recent management noted.					
Recommendation		Maintain broadly at no more than current dimensions by periodic pruning.					

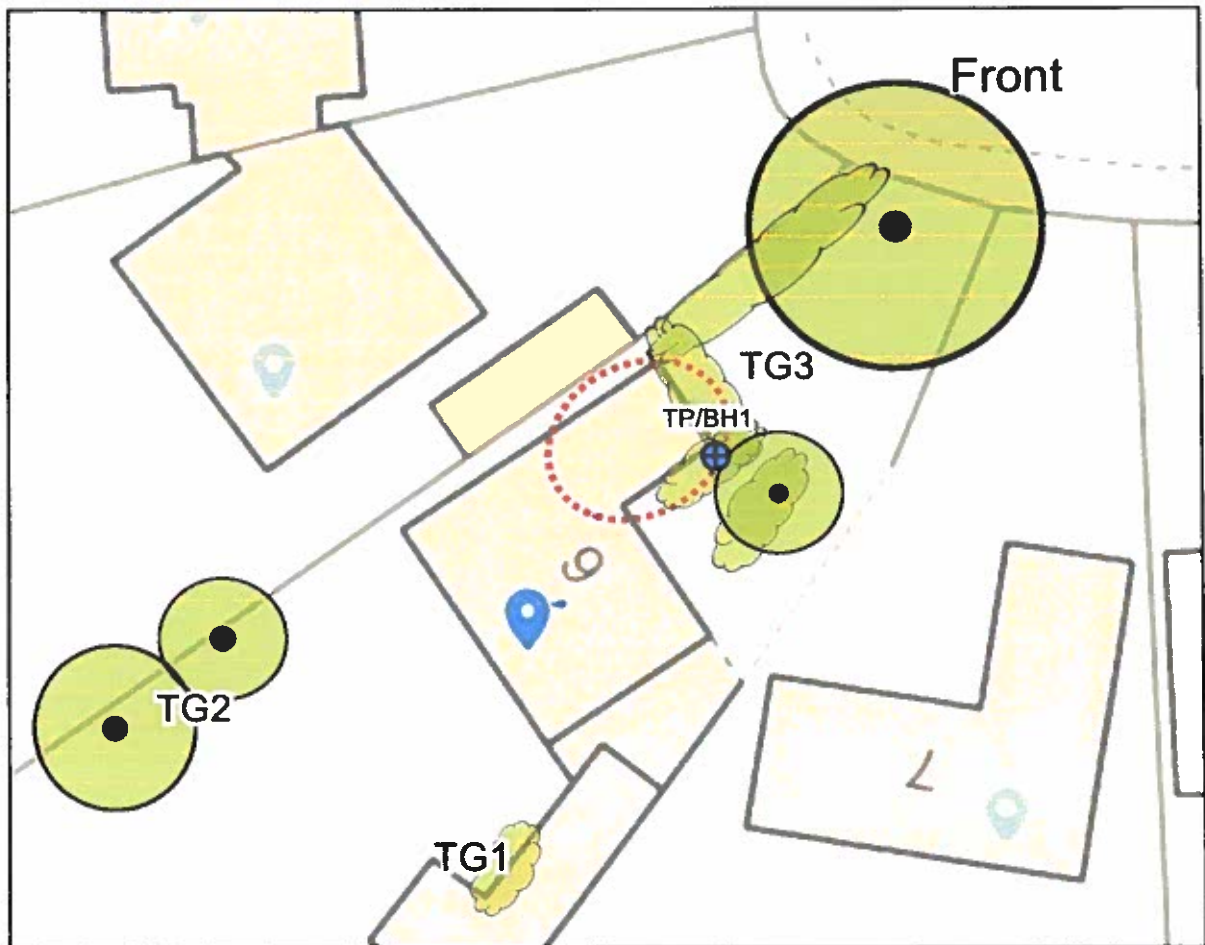
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## Site Plan



Plan not to scale – indicative only



Approximate areas of damage

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## Images



View of TG3 Pine, Holly and shrub group at property frontage



View of TG1 Fig group

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View of TG2 Apple group

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