

Arboricultural Appraisal Report

Subsidence Damage Investigation at:

24 Nicholas Way
Northwood
HA6 2TS



CLIENT:	Davies Group Ltd
CLIENT REF:	71814425
MWA REF:	SUB190321-3969
MWA CONSULTANT:	George Peters BSc. (Hons)
REPORT DATE:	15/04/2019

SUMMARY

Statutory Controls		Mitigation (Current claim tree works)	
TPO current claim	Yes – T1	Policy Holder	Yes
TPO future risk	Yes – T2, T3, T5 & T6	Domestic 3 rd 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 14/04/2019 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 2 storey detached house built circa 1960. It has been extended with a two-storey addition to the left-flank built in the 1980's and a single-storey extension to the front built in 2006. External areas comprise gardens to the front and rear. The site is generally level with no adverse topographical features.

Damage Description & History

Damage relates to the rear right hand corner of the insured dwelling and was first noticed on the 30th July 2018. At the time of the engineer's inspection (22 August 2018) the structural significance of the damage was found to fall within Category 2 (slight) of Table 1 of BRE Digest 251.

The property was the subject of a previous claim for subsidence in 2005. The cause of damage was diagnosed as root induced clay shrinkage from a large oak tree positioned immediately to the rear of the property.

No significant movement was recorded and there was therefore insufficient evidence to implicate the tree. Following the exceptionally dry summer of 2018 the policyholder noted a sudden return of the damage and subsequently notified insurers.

Site Investigations

Site investigations were carried out by OPTERA on 07/01/2019, when a single trial pit was excavated to reveal the foundations, with a borehole sunk through the base of the trial pit and a second borehole sunk to determine subsoil conditions. For full details please see the site investigation report.

Discussion

Opinion and recommendations are made on the understanding that Davies Group Ltd 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.

Site investigations and soil test results have confirmed a plastic clay subsoil of high volume change potential (NHBC Classification) susceptible to undergoing volumetric change in relation to changes in soil moisture. A comparison between moisture content and the liquid limits suggests moisture depletion at the time of sampling in TP/BH1 at depths beyond normal ambient soil drying processes such as evaporation indicative of the soil drying effects of vegetation.

Roots were observed to a depth of 2000mm bgl in TP/BH1 and recovered samples have been positively identified (using anatomical analysis) as *Quercus* sp., the origin of which will be T1 confirming its influence on the soils below the foundations.

Based on the technical reports currently available, engineering opinion, the history of damage 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 T1 is the principal cause of or is materially contributing to the current subsidence damage.

If an arboricultural solution is to be implemented to mitigate the influence of the implicated tree we recommend that T1 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.

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
T1	Oak	14	900	11	6.2	Older than Property	Policy Holder
Management history		Subject to past management.					
Recommendation		Remove (fell) to near ground level. Owner to physically remove any regrowth (no chemical treatment due to translocation risk).					

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
T2	Hornbeam	7.2	150 Ms *	5	11.7	Younger than Property	Policy Holder
Management history		No recent management noted.					
Recommendation		Prune on a triennial cycle to maintain at broadly no more than current dimensions.					
T3	Oak	14	600	10	23.7	Younger than Property	Policy Holder
Management history		No recent management noted.					
Recommendation		Prune on a triennial cycle to maintain at broadly no more than current dimensions.					
T4	Cypress	8.5 *	190	2	1.5	Younger than Property	Third Party: 22 Nicholas Way HA6 2TS
Management history		No recent management noted.					
Recommendation		Remove (fell) to near ground level.					
T5	Hornbeam	10	400 Ms *	9	6.2	Younger than Property	Policy Holder
Management history		No recent management noted.					
Recommendation		Prune on a triennial cycle to maintain at broadly no more than current dimensions.					
T6	Hornbeam	8	300 Ms *	8	6	Younger than Property	Policy Holder
Management history		No recent management noted.					
Recommendation		Prune on a triennial cycle to maintain at broadly no more than current dimensions.					

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
T7	Oak	16	600	12	17 *	Younger than Property	Third Party: 22 Nicholas Way HA6 2TS
Management history		No recent management noted.					
Recommendation		Prune on a triennial cycle to maintain at broadly no more than current dimensions.					
TG1	Mixed species group	5	150 Ms *	4.7	3	Younger than Property	Third Party: 22 Nicholas Way HA6 2TS
Management history		Species include Silver birch and Cypress. No recent management noted.					
Recommendation		Do not allow to exceed current dimensions.					
TG2	Hornbeam	10 *	600 Ms *	11 *	5.2	Younger than Property	Third Party: 22 Nicholas Way HA6 2TS
Management history		No recent management noted.					
Recommendation		Prune on a triennial cycle to maintain at broadly no more than current dimensions.					
TG3	Cypress	18 *	300 Ms *	4	15 *	Younger than Property	Third Party: 22 Nicholas Way HA6 2TS
Management history		No recent management noted.					
Recommendation		Do not allow to exceed current dimensions.					
SG1	Viburnum	2.5	30 Ms	2.5	2	Younger than Property	Policy Holder
Management history		No recent management noted.					
Recommendation		Do not allow to exceed current dimensions.					

Ms: multi-stemmed * Estimated value

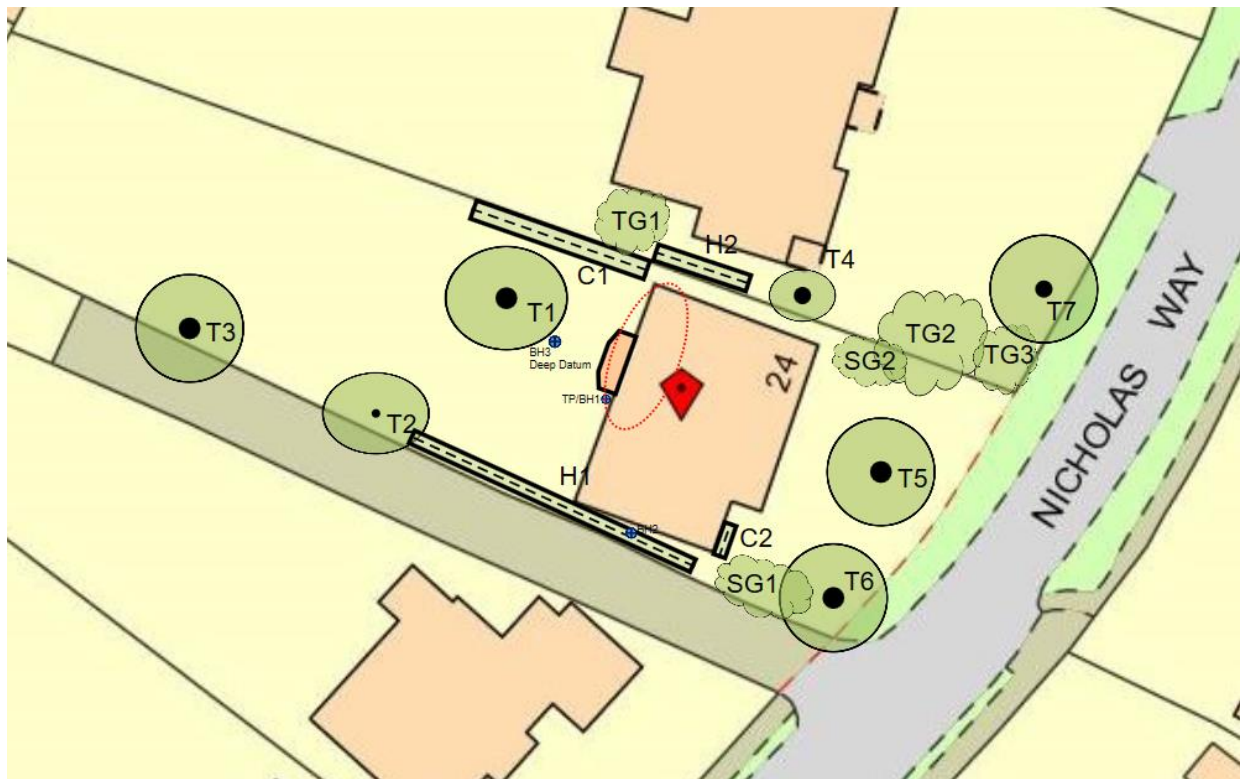
Table 2 **Future Risk - Tree Details & Recommendations**

Tree No.	Species	Ht (m)	Dia (mm)	Crown Spread (m)	Dist. to building (m)	Age Classification	Ownership
SG2	Mixed species group	2.8	40 Ms *	4	1.8	Younger than Property	Policy Holder
Management history		Species include Pyracantha and Rododendron. No recent management noted.					
Recommendation		Do not allow to exceed current dimensions.					
C1	Ivy	2	120 Ms	1	1.5	Younger than Property	Policy Holder
Management history		No recent management noted.					
Recommendation		Do not allow to exceed current dimensions.					
C2	Wisteria	3	100	3	0	Younger than Property	Policy Holder
Management history		No recent management noted.					
Recommendation		Do not allow to exceed current dimensions.					
H1	Mixed species hedge	2.5	100	12	1	Younger than Property	Policy Holder
Management history		Species include Cypress, Cherry Laurel, Hazel and Hawthorn. No recent management noted.					
Recommendation		Do not allow to exceed current dimensions.					
H2	Cherry laurel	3	50 *	1	2.4	Younger than Property	Third Party: 22 Nicholas Way HA6 2TS
Management history		No recent management noted.					
Recommendation		Do not allow to exceed current dimensions.					

Ms: multi-stemmed

* Estimated value

Site Plan



Plan not to scale – indicative only



Approximate areas of damage

Images



View of T1 Oak, current claim.



View of TG2 Hornbeam, future risk.



View of T5 Hornbeam, future risk.



View of T6 Hornbeam, future risk.