Arboricultural Appraisal Report

Subsidence Damage Investigation at:

Flat 2 1F Oval Road
London
NW1 7EA

CLIENT:	Crawford & Company
CLIENT REF:	[redacted]
MWA REF:	
MWA CONSULTANT:	Andy Clark
REPORT DATE:	19/05/2020

SUMMARY

Statutory Controls			Mitigation (Current claim tree works)	
TPO current claim	Yes – TG1 (Lime)		Policy Holder	Yes
TPO future risk	No		Domestic 3rd Party	Yes
Cons. Area	Yes		Local Authority	No
Trusts schemes	No		Other	No
Local Authority: -	London Borough of Camden			

[redacted]

Introduction

Acting on instructions from Crawford & Company, the insured property was visited on 16/05/2019 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 4 storey detached house of traditional construction, built during the 1860's and since extended with a two-storey wrap around addition to the right-flank and rear with a further single-storey addition 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

Damage relates to the front section of the two-storey right-hand side addition, and to the rear single storey extension where cracking and both areas indicates downward movement. Damage is reported to have first been observed during September 2019.

At the time of the engineer's inspection (13/11/2019) the structural significance of the damage was found to fall within Category 4 (Severe) of Table 1 of BRE Digest 251. For a more detailed synopsis of the damage please refer to the surveyor's technical report.

We have not been made aware of any previous claims.

[redacted]

Site Investigations

Site investigations were carried out by auger on 20/02/2020, when 2 trial pits were hand excavated to reveal the foundations with a borehole sunk through the base of the trial pit to determine subsoil conditions.

Foundations:

Ref	Foundation type	Depth at Underside (mm)
TP/BH2	Concrete	600

Soils:

Ref	Description	Plasticity Index (%)	Volume change potential (NHBC)
BH1 [Remote]	Brown sandy, fine to medium gravelly, silty CLAY	55 - 61	High
TP/BH2	Brown to brown sandy, fine to medium gravelly, silty CLAY	47 - 58	High

Roots:

Ref	Roots Observed to depth of (mm)	Identification	Starch content
BH1 [Remote]	2000	*Betula spp.*	Present
		Tilia spp.	Absent
TP/BH2	1600	*Tilia spp.*	Absent
		Hedera or the related Fatsia spp.	Present

Betula spp. are Birches
Tilia spp. are Limes
Hedra spp. are Ivy
Fatsia spp. are shrubs and are related to Ivy

Drains: No information available at the time of writing.

Monitoring: No information available at the time of writing.

[redacted]

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.

Site investigations and soil test results have confirmed a plastic clay subsoil susceptible to undergoing volumetric change in relation to changes in soil moisture.

Roots were observed to a depth of 2.0m bgl in BH1 and to 1.6m bgl in TP/BH2, and recovered samples have been positively identified (using anatomical analysis) as Betula spp., Tilia spp. and Hedera or the related Fatsia spp.; the origins of which will be T1 Birch, the Lime trees of TG1 Lime and Cypress group and the Ivy of CG1 group, 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. Having considered the information currently available, it is our opinion that the Limes [x2] of TG1 group are the principal cause of the current subsidence damage, combined with significant contribution from T1 Birch, particularly at the property frontage, and CG1 Ivy group.

If an arboricultural solution is to be implemented to mitigate the influence of the implicated trees/vegetation we recommend that T1 Birch, the Lime trees in TG1 and the Ivy of CG1 group 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.

[redacted]

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.

[redacted]

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	Birch	13.5 *	280 *	5.0 *	1.2	Younger than Property	Third Party 3 Oval Road NW1 7EA
Management history		No significant past management noted.					
Recommendation		Remove (fell) to near ground level and treat stump to inhibit regrowth.					
TG1	Lime [x2] and Cypress [x2] group	19.5 *	420 *	11.0	2.4	Younger than Property	Policy Holder
Management history		No significant past management noted.					
Recommendation		Remove (fell) Limes to near ground level and treat stumps to inhibit regrowth. Treat Cypress as Future Risk and trim annually to maintain at no larger than current dimensions.					
CG1	Ivy group	2.5	100 Ms *	4.5	3.0	Younger than Property	Joint: Policy Holder & Third Party 3 Oval Road NW1 7EA
Management history		No significant past management noted.					
Recommendation		Remove (fell) all within 4.0m of building to near ground level and treat stumps to inhibit regrowth.					

Ms: multi-stemmed * Estimated value

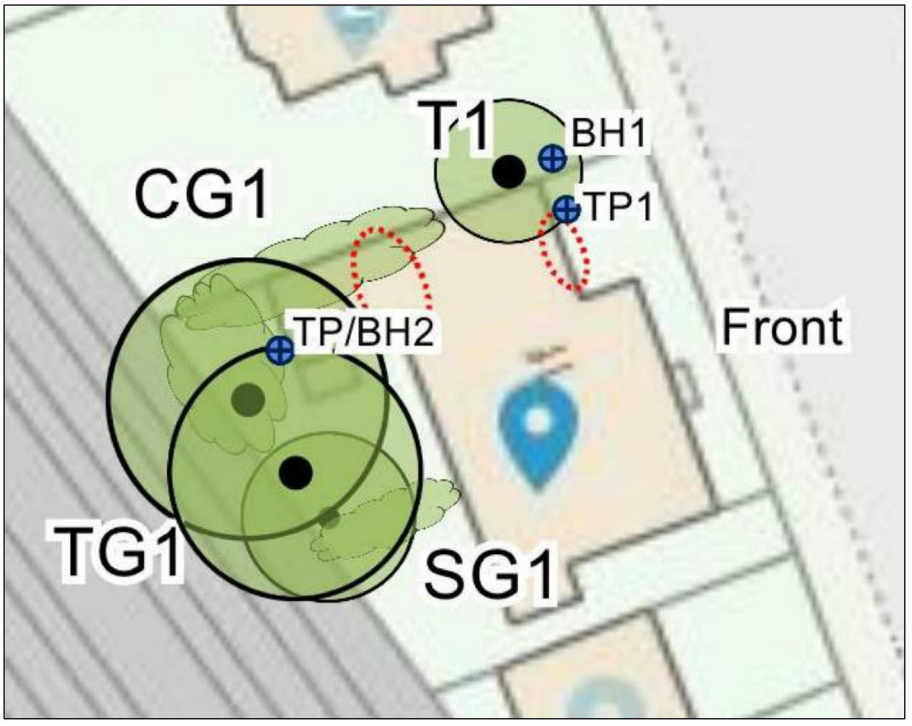
Table 2 **Future Risk** - Tree Details & Recommendations

Tree No.	Species	Ht (m)	Dia (mm)	Crown Spread (m)	Dist. to building (m)	Age Classification	Ownership
SG1	Mixed spp. shrub group of mostly Laurel, Pyracantha and Forsythia,	3.5	30 Ms *	3.5	0.3	Younger than Property	Policy Holder
Management history		No significant past management noted.					
Recommendation		Reduce height to 1.5m and prune on an annual cycle to maintain at broadly reduced dimensions.					

Ms: multi-stemmed * Estimated value

[redacted]

Site Plan



Plan not to scale – indicative only

Approximate areas of damage

[redacted]

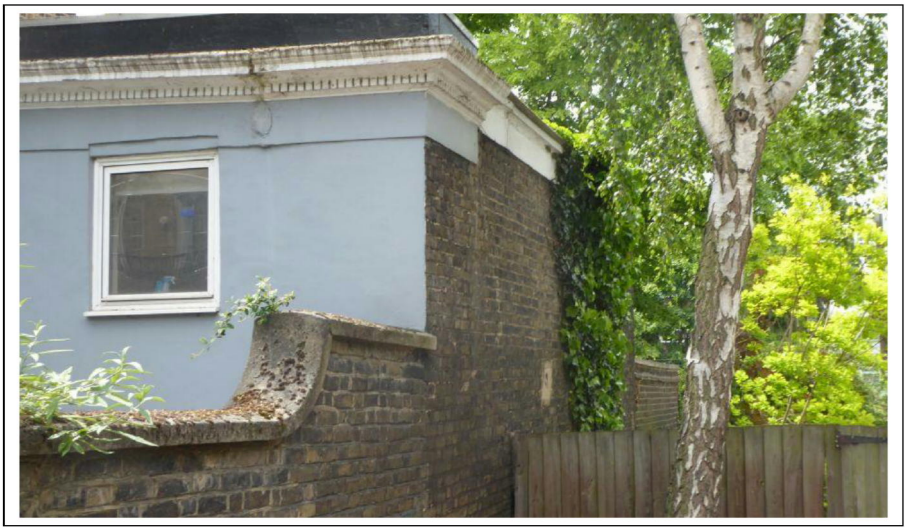
Images

View of T1 Birch with Limes of TG1 group visible to rear of building

View of TG1 Limes with significant Ivy growth (CG1) throughout and under-storey

[redacted]

View of CG1 Ivy growth continuation



Continuation of CG1 Ivy growth against right-hand flank and over roof – remove all

[redacted]