Arboricultural Appraisal Report

Subsidence Damage Investigation at:

33 Langbourne Avenue
London
N6 6PS

CLIENT:	Crawford & Company
CLIENT REF:	[redacted]
MWA REF:	
MWA CONSULTANT:	Steve Swinburne
REPORT DATE:	17-05-2019

SUMMARY

Statutory Controls			Mitigation (Current claim tree works)	
TPO current claim	No		Policy Holder	No
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 02/05/2019 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 detached 2 storey house, built c. 1900. The single storey structure to the left-hand side may be contemporary with main house although this has not been confirmed. For the purpose of this report we are assuming that it is part of the original structure but would recommend that investigations are undertaken to establish the date of construction.

External areas comprise gardens to the front and rear.

Damage Description & History

The current damage affects the single storey structure to the left of the main house and was first noticed in August 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 the structural significance of the damage was found to fall within Category 5 (very severe) of Table 1 of BRE Digest 251.

Cunningham Lindsey previously managed a claim for subsidence between 2006 and 2009. The damage was to the main building and the left hand corner of the flank wall was underpinned. Underpinning completed in 2009 by the contractors Goodyer Underpinning with depths of the foundation in the range of 1.5m and 2.3m with transitional bays. Crawford instruction advice.

[redacted]

Site Investigations

Site investigations were carried out by CET on 12/11/2018 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 further borehole was also sunk in the rear garden.

Foundations:

Ref	Foundation type	Depth at Underside (mm)
TP1	Concrete	200

Soils:

Ref	Description	Plasticity Index (%)	Volume change potential (NHBC)
BH1	Very stiff orange-brown silty CLAY	57-60	High- Very high
BH2	Stiff orange-brown silty CLAY	41-58	High

Roots:

Ref	Roots Observed to depth of (mm)	Identification	Starch content
TP1	USF	Syringa spp. or related shrub species	Present
BH1	2000	Quercus spp	Present
BH2	1700	Ceanothus spp	Absent

Syringa spp. are lilacs. Related species include privet, jasmines and forsythia.
Quercus spp. are oaks (both deciduous and evergreen).
Ceanothus spp. are common garden shrubs (Californian lilacs).

[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 of high to very 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 plastic and liquid limits suggests moisture depletion at the time of sampling in BH1 and BH2 at depths beyond normal ambient soil drying processes such as evaporation indicative of the soil drying effects of vegetation.

Quercus roots were observed to a depth of 2m in BH1, the origin of which is likely to be T2. The Syringa spp. or related shrub species roots recovered from BH1 do not correspond to any significant vegetation noted on site whist the roots recovered from BH2 originate from the Ceanothus within the rear garden.

Irrespective of the identification of recovered root samples, the roots of T1 are also very likely to be present below foundation level in proximity to the area of movement/damage and influencing soil moisture and volumes.

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 T1, T2 and the trees within TG1 are the principal cause of or are materially contributing to the current subsidence damage.

Other vegetation recorded presents a potential future risk to building stability. We note the presence of an oak to the front left of the property; should further movement occur following the implementation of the recommended remedial tree works, the removal of T4 may need to be considered.

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	Prunus	8.25*	300*	8*	4.5*	Younger than property	3rd Party: 28 Hillway N6 6HH
Management history		No recent management noted.					
Recommendation		Remove (fell) to near ground level. Owner to physically remove any regrowth (no chemical treatment due to translocation risk).					
T2	Oak	14*	500*	9*	4.25*	Potentially older than extension	3rd Party: 28 Hillway N6 6HH
Management history		No recent management noted.					
Recommendation		Remove (fell) to near ground level. Owner to physically remove any regrowth (no chemical treatment due to translocation risk).					
TG1	Mixed species group including Bay, Pear, Malus	4*	Ave 200*	4	0.5*	Younger than property	3rd Party: 30 Hillway N6 6HH
Management history		Subject to past reduction.					
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

[redacted]

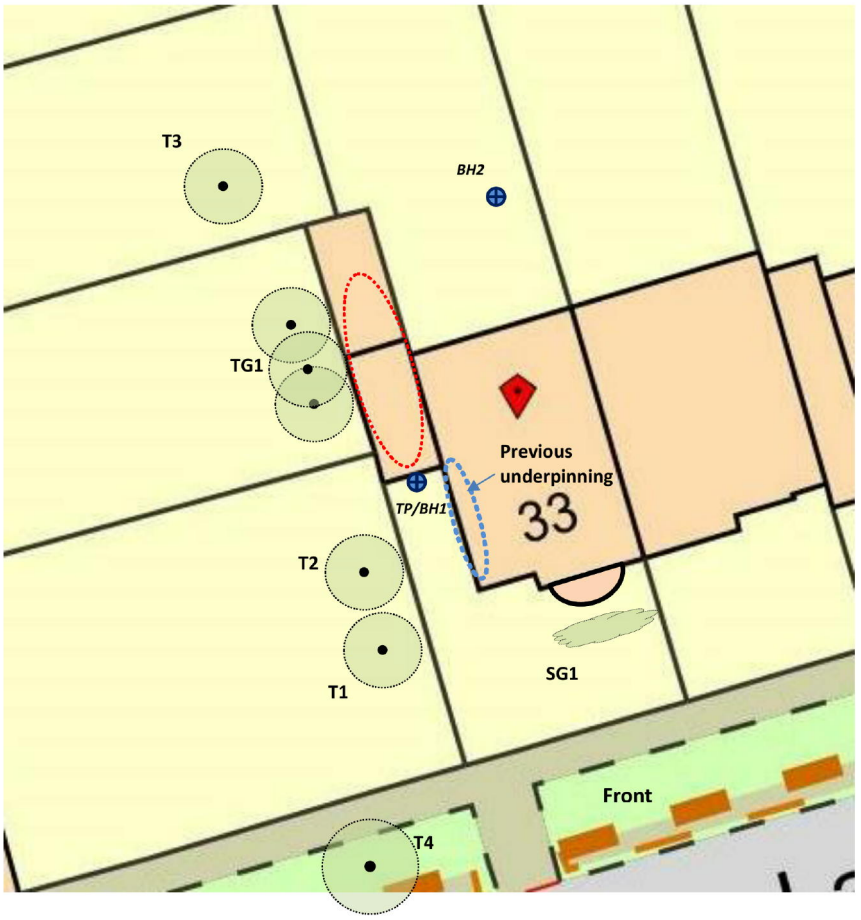
Table 2 **Future Risk** - Tree Details & Recommendations

Tree No.	Species	Ht (m)	Dia (mm)	Crown Spread (m)	Dist. to building (m)	Age Classification	Ownership
T3	Malus	4.5	200*	6	4*	Younger than property	3rd Party: 32 Hillway N6 6HH
Management history		No recent management noted.					
Recommendation		Do not allow to exceed current dimensions. .					
SG1	Mixed species group including Rhododendron, Bay, Wisteria	2	Ms	3	Ave 1.5	Younger than property	Policy Holder
Management history		Subject to past pruning.					
Recommendation		Do not allow to exceed current dimensions.					
T4	Oak	15	630	14	14*	Potentially older than extension	Third Party: P Jacobs, P Wesley, G Narraway & D Florin c/o Stevensons Solicitors NR20 4HB
Management history		No recent management noted.					
Recommendation		Manage periodically to maintain at broadly no more than current dimensions.					

Ms: multi-stemmed * Estimated value

[redacted]

Site Plan



Plan not to scale – indicative only

Approximate areas of damage

[redacted]

IMAGES

View of cracking to internal walls on left hand side of property

View of T1 and T2

[redacted]

View of TG1

View of SG1

[redacted]

View of T4