Arboricultural Appraisal Report

Subsidence Damage Investigation at:

2 Oakfields
Eastleigh
Hampshire
SO50 4RP



CLIENT:	Crawford & Company
CLIENT REF:	SU1304166
MWA REF:	SO100114.01REV1
MWA CONSULTANT:	Joseph Blackwell / David Mahon
REPORT DATE:	4th September 2014

SUMMARY

Statutory Controls			Mitigation (current claim)	
TPO	Yes – T1, T2, T4, T9 (All other oaks are protected)		Insured	Yes
Cons. Area	No		3rd Party	No
Trusts schemes	No		Local Authority	No
Planning	No		Other	No
Local Authority: -	Eastleigh Borough Council			

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Introduction

Acting on instructions received from Crawford & Company, the insured property was visited on 18 January 2014 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.

Recommendations are given 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.

This is a revision of our original report following receipt of level monitoring data 05.12.2013 – 15.07.2015

Property Description

The property comprises a two storey detached house of typical brick and tile construction built in 1979. The property was extended in 2007 when a second storey was added above the garage. To the front and rear of the property are managed gardens with mainly lawned areas and small shrubs. The site was generally level with no adverse topographical features.

Damage Description & History

The property has suffered two previous episodes of subsidence in 1993 and 2006. The damage sustained in 1993 was attributed to a TPO Oak tree and a group of neighbouring Cypress trees however only the Cypress were removed, and the property underpinned. In 2006 cracks appeared but were determined not to be due to subsidence and subsequently a claim made was repudiated. The current damage affects the rear central parts of the property with crack dimensions ranging between 0.5-3mm, and was first noticed on the 15th August 2013.

At the time of the engineers' inspection 7th of November 2013 the structural significance of the damage was found to fall within Category 2 (slight) of Table 1 of BRE Digest 251.

Site Investigations

Site investigations were carried out on 5th of December 2013 by CET Infrastructure when two trial pits were excavated to reveal the foundations. Boreholes were then sunk through the base of each trial pit to determine subsoil conditions at that time.

Foundations:

Ref	Foundation type	Depth at Underside (mm)
TP/BH1	Concrete / Concrete Block / Brick	1950mm
TP/BH2	Concrete / Concrete Block / Brick	1630mm

Soils:

Ref	Description	Plasticity Index (%)	Volume change potential (NHBC)
BH1	Firm becoming stiff, mid grey, silty CLAY	46-57%	High
BH2	Stiff, mid grey, silty CLAY	52-59%	High

Roots:

Ref	Roots Observed to depth of (mm)	Identification	Starch content
TP2	Foundation Underside	Quercus spp.	Positive
BH2	To 2200	Quercus spp.	Positive

Drains: We do not have any details regarding drains at this time.

Monitoring: Level monitoring date for the period 05.12.2013 – 15.07.2015 has been provided.

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 undertaken by CET Property Assurance have indicated that the foundations in TP/BH1 extend to 1930mm below ground level bearing onto CLAY. In TP/BH2 foundations were found to extend to 1630mm below ground level again bearing onto CLAY.

Soil testing has confirmed a plastic clay subsoil of high volume change potential (NHBC Classification) susceptible to undergoing volumetric change in relation to changes in soil moisture.

Based on a comparison between soil moisture content and the plastic and liquid limits there was evidence of desiccation in TP/BH1 and TP/BH2.

The desiccation is at depths beyond normal ambient soil drying processes such as evaporation and is indicative of the soil drying effects of vegetation.

Roots were observed to a depth of 2200mm below ground level in TP/BH1 and have been positively identified (using anatomical analysis) as Quercus spp. (Oak) which in our opinion will have originated from T4 Oak to the rear and confirmed the influence of this tree on the soils below the foundations.

Since the submission of our original report, level monitoring data has recorded some seasonal movement to the rear although the amplitude of movement is relatively low. We originally recommended the removal of T4 based on the evidence available at the time however in view of the level monitoring data and the movement recorded a reduction of the tree offers a potential solution and recommendations are made on this basis. Refer to table 1 below.

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

Tree No.	Species	Ht (m)	Dia (cm)	Crown Spread (m)	Dist. to building (m)	Age Classification	Ownership
T4	Oak	18	95	18	15.3	Significantly older than property	Policy Holder
Management history		No significant recent management					
Recommendation		Reduce crown by 2.0m and maintain on a triennially					

Ms: multi-stemmed * Estimated value

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

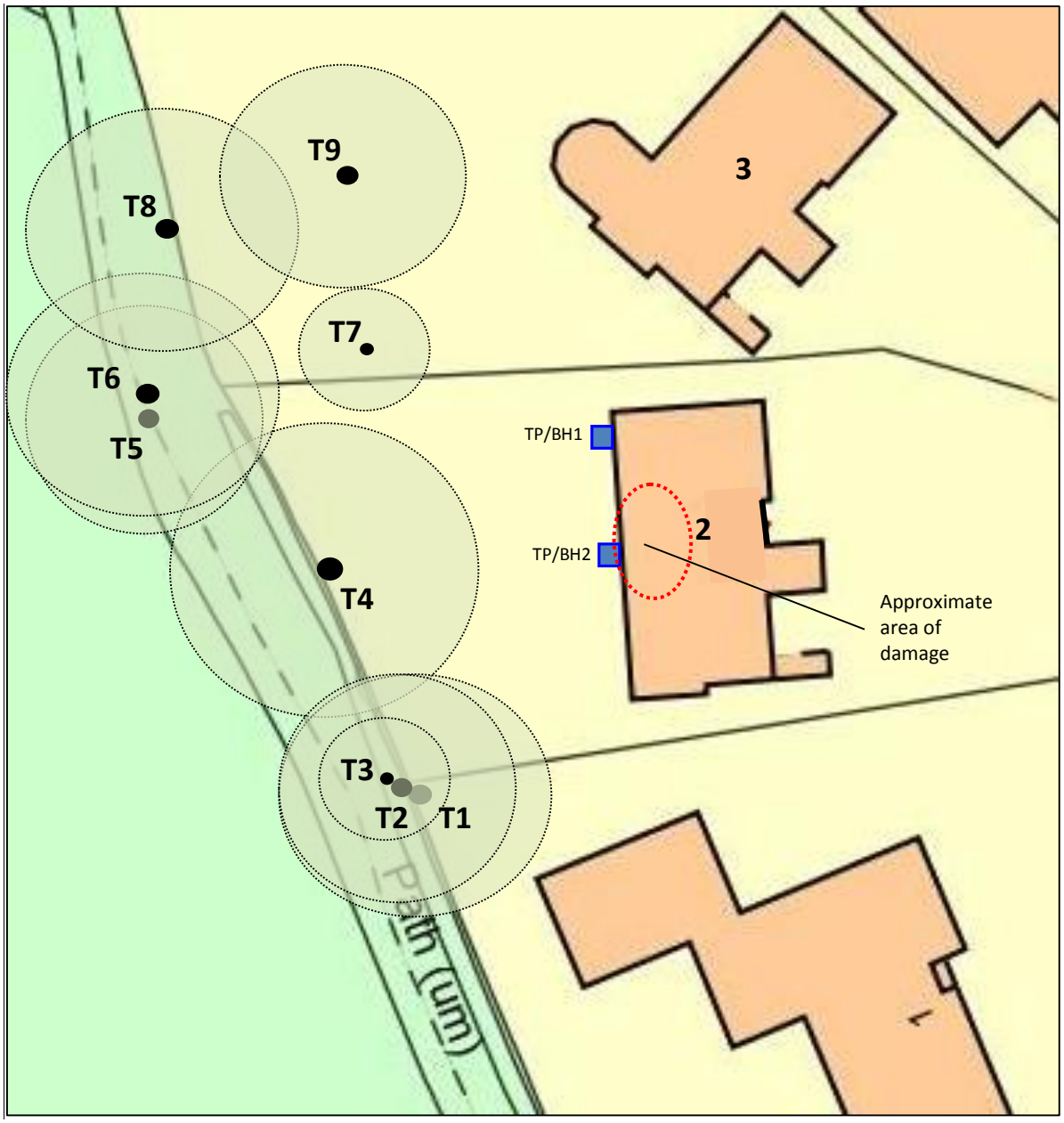
Tree No.	Species	Ht (m)	Dia (cm)	Crown Spread (m)	Dist. to building (m)	Age Classification	Ownership
T1	Oak	18	75	16	12	Significantly older than property	1 Oakfields Eastleigh Hampshire SO50
Management history		No significant recent management					
Recommendation		No works at present					
T2	Oak	16	60	14	13	Significantly older than property	Local Authority
Management history		No significant recent management					
Recommendation		No works at present					
T3	Oak	8.5	28	6.5	13	Younger than property	Local Authority
Management history		No significant recent management					
Recommendation		No works at present					
T5	Oak	20	70	12	20	Significantly older than extension	Local Authority
Management history		No significant recent management					
Recommendation		No works at present					
T6	Oak	16	70	16	20	Significantly older than property	Local Authority
Management history		No significant recent management					
Recommendation		No works at present					

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

Tree No.	Species	Ht (m)	Dia (cm)	Crown Spread (m)	Dist. to building (m)	Age Classification	Ownership
T7	Cherry	8.5	22	6.5	14	Younger than property	3 Oakfields Eastleigh Hampshire SO50
Management history		No significant recent management					
Recommendation		No works at present					
T8	Oak	17.5	70	15	22	Significantly older than property	Local Authority
Management history		No significant recent management					
Recommendation		No works at present					
T9	Oak	17.5	65	16	17	Significantly older than property	3 Oakfields Eastleigh Hampshire SO50
Management history		No significant recent management					
Recommendation		No works at present					

Ms: multi-stemmed * Estimated value

SITE PLAN



Plan not to scale – indicative only

Images



View of T4 - Oak