

Arboricultural Appraisal Report

Subsidence Damage Investigation at:

12 North Field
Silkstone
S75 4NQ



CLIENT:	Crawford & Company
CLIENT REF:	SU1104873
POLICYHOLDER:	Mr & Mrs Auty
MWA REF:	S030713.01JG
MWA CONSULTANT:	John Graham (PhD BSc)
REPORT DATE:	10 July 2013

SUMMARY

Statutory Controls		Mitigation	
TPO	Yes – oaks	Insured	No
Cons. Area	No	3 rd Party	Yes
Trusts schemes	No	Local Authority	Yes
Planning	No	Other	No
Local Authority: - Barnsley Metropolitan Borough Council			

Introduction

Acting on instructions received from Crawford and Company, the insured property was visited on 08 July 2013 for the purpose of assessing the potential role of vegetation in respect of clay-shrinkage 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.

Property Description

The property comprises a 1990's two storey detached dwelling with a single storey extension to the rear left corner, a single storey attached garage to the left flank and a conservatory to the rear.

Externally, there is an open front garden with car parking space and small trees and shrubs. To the rear is a large amenity grass area with decking. The property occupies a plot that slopes slightly downhill from rear to front.

Damage Description & History

The focal area of the damage is to the single storey utility room to the rear left corner. The damage was first noticed 01/09/2009 and insurers notified in 09/09/2011.

At the time of the engineers' inspection (03/06/2013) the structural significance of the damage was found to fall within Category 3 (moderate) of BRE Digest 251.

Property: 12 North Field
Silkstone
Barnsley
S75 4NQ

Client Ref: SU1104873
MWA Ref: S030713.01JG

Site investigations

Site investigations were carried out on 03/06/2013. A single trial pit was excavated to reveal the foundations with a borehole being sunk through the base of the trial pit to determine subsoil conditions.

Foundations:

Ref	Foundation type	Depth at Underside (mm)
EH1	Concrete	1050

Soils:

Ref	Description	Plasticity Index (%)	Volume change potential (NHBC)
EH1	Very stiff, light brown, mottled orange and grey, slightly sandy, silty CLAY with sandstone pieces.	9 to 43	Low to High

Roots:

Ref	Roots Observed to (mm)	Identification	Starch content
EH1	1800	Oak	Present

Monitoring: Level monitoring is in progress.

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 low to high volume change potential (NHBC Classification) susceptible to undergoing volumetric change in relation to changes in soil moisture. Based on a comparison between moisture content and the plastic and liquid limits at 2000mm below ground level (bgl) there is evidence of significant desiccation in EH1.

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 1800mm bgl in EH1 and recovered samples have been positively identified as oak, the origin of which is most likely be either T1 or T2 and confirms that one or more of these trees are abstracting moisture from below the foundations.

Based on the technical reports currently available, engineering opinion and our own site assessment we conclude the damage is indicative of shrinkage of the clay subsoil related to moisture abstraction by vegetation.

If an arboricultural solution is to be implemented to restore stability to the property, it is our opinion that T1 and T2 should be removed. Whilst not directly implicated in the current damage by the root identification, T3, T4 and T5 are potential contributory factors and represent an increasing risk to stability. We have recommended the removal of these trees on a future risk basis as all are too close for pruning to be considered.

Based on proximity to the damage trees T1 and T2 is considered to be the most significant vegetative influence and the effective cause of damage.

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

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.
- Removal of trees is recommended together with future management of retained vegetation.

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

Tree No.	Species	Ht (m)	Dia (cm)	Crown Spread (m)	Dist. to building (m)	Age Classification	Ownership
T1	Oak	16	65*	14	6*	Older than property	3 rd Party:- 2 Stainmore Close
Recommendation		Remove and treat stump appropriately to inhibit regrowth					
T2	Oak	12	60*	12	6*	Older than property	3 rd Party:- 2 Stainmore Close
Recommendation		Remove and treat stump appropriately to inhibit regrowth					

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
T3	Prunus	4	15	2	2	Younger than property	Policy Holder
Recommendation		Remove and treat stump appropriately to inhibit regrowth					
T4	Birch	4	15	2	2	Younger than property	Policy Holder
Recommendation		Remove and treat stump appropriately to inhibit regrowth					
T5	Prunus	7	25*	5	8*	Older than property	3 rd Party:- 2 Stainmore Close
Recommendation		Remove and treat stump appropriately to inhibit regrowth					

Property: 12 North Field
Silkstone
Barnsley
S75 4NQ

Client Ref: SU1104873
MWA Ref: S030713.01JG

Table 2 cont.. Future Risk -Tree Details & Recommendations

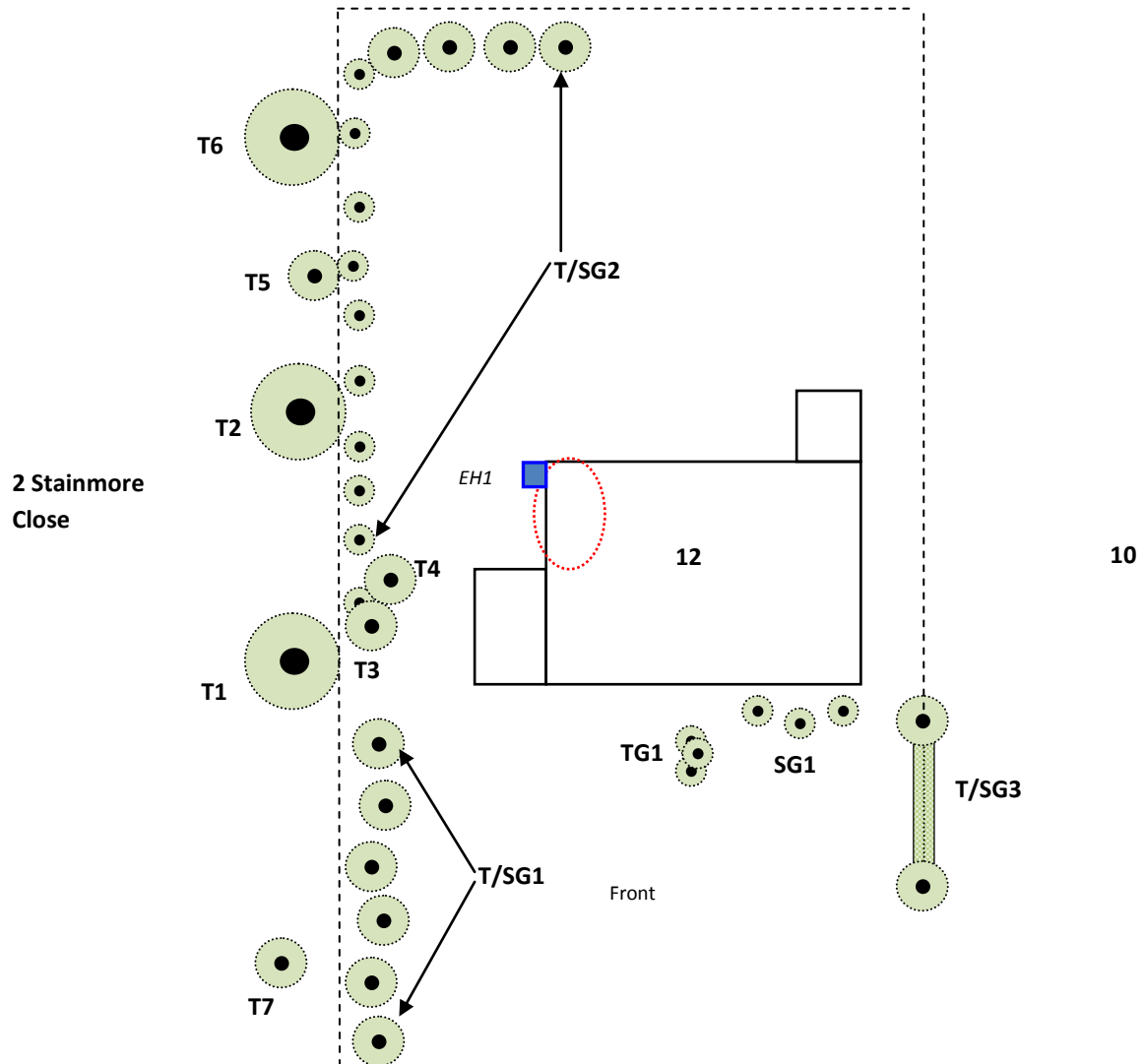
Tree No.	Species	Ht (m)	Dia (cm)	Crown Spread (m)	Dist. to building (m)	Age Classification	Ownership
T6	Oak	14	65*	12	10*	Older than property	3 rd Party:- 2 Stainmore Close
Recommendation		Do not allow to exceed current dimensions					
T7	Weeping Willow	7*	20*	7*	12*	Younger than property	3 rd Party:- 2 Stainmore Close
Recommendation		Do not allow to exceed current dimensions.					
T/SG1	Mixed species including; Prunus, Elder, Lonicera, Aucuba, Hypericum, Cotoneaster and Snowberry.	1-3	1-10	1-2	2-10	Younger than property	Policy Holder
Recommendation		Do not allow to exceed current dimensions.					
T/SG2	Mixed species including; Prunus, Elder, Laurel, Juniper, Eleagnus, Thuja, Cotoneaster and Snowberry.	1-3	1-10	1-2	2-14	Younger than property	Policy Holder
Recommendation		Do not allow to exceed current dimensions.					
T/SG3	Mixed species including; Rosa, Mahonia, Holly and Cypress.	1-5	1-10	1-2	2-6*	Younger than property	3 rd Party:- 10 North Field
Recommendation		Do not allow to exceed current dimensions.					
TG1	Mixed dwarf conifers	1.5	1	0.5	2	Younger than property	Policy Holder
Recommendation		Do not allow to exceed current dimensions.					
SG1	Mixed species including; Cotoneaster and Holly	1	1	0.5	0.3	Younger than property	Policy Holder
Recommendation		Do not allow to exceed current dimensions.					

Ms: multi-stemmed * Estimated value

Property: 12 North Field
Silkstone
Barnsley
S75 4NQ

Client Ref: SU1104873
MWA Ref: S030713.01JG

SITE PLAN



Plan not to scale – indicative only

 Approximate areas of damage

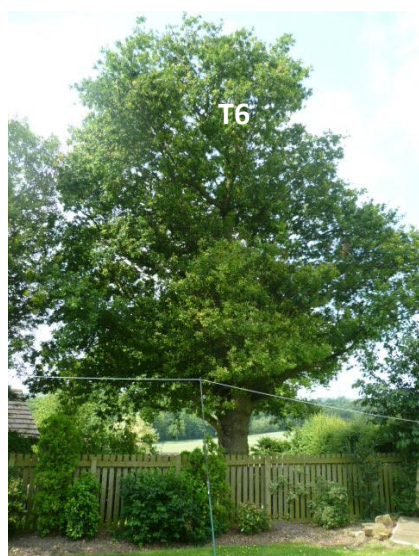
Images



View of Front



View of left of garden



View of rear left of garden

Property: 12 North Field
Silkstone
Barnsley
S75 4NQ

Client Ref: SU1104873
MWA Ref: S030713.01JG