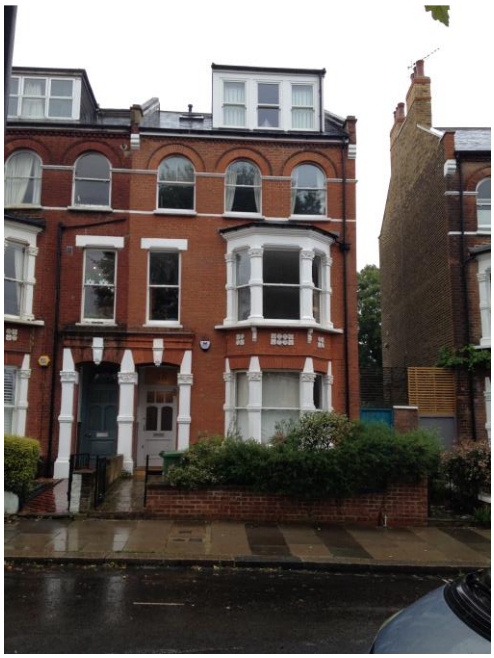
Arboricultural Appraisal Report

Subsidence Damage Investigation at:

88 Savernake Road
London
NW3 2JR



CLIENT:	Crawford & Company
CLIENT REF:	SU1500403
MWA REF:	SUB150813-175
MWA CONSULTANT:	Giles Mercer BSc (Hons) M.Arbor.A.
REPORT DATE:	26-08-2015

SUMMARY

Statutory Controls			Mitigation (current claim)	
TPO	Yes		Insured	No
Cons. Area	Yes		3rd Party	Yes
Trusts schemes	N/a		Local Authority	No
Planning	N/a		Other	No
Local Authority: -	London Borough of Camden			

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Introduction

Acting on instructions received from Crawford & Company, the insured property was visited on 26/08/2015 for the purpose of assessing 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 four storey end-terrace house of traditional construction (built circa 1900) with brick walls surmounted by a pitched tiled roof.

External areas comprise gardens to the front and rear.

The site is generally level with no adverse topographical features.

Damage Description & History

The current damage affects the front bay.

The first floor flat is tenanted and on recent inspection the insured became aware of cracking to the bay in the same location as the previous subsidence damage and subsequently notified insurers.

At the time of the engineers' inspection on the 23rd April 2015 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 by CET property Assurance on the 28th May 2015 when a single trail pit was excavated centrally to the front bay window to reveal the foundations with a borehole (BH) sunk through the base of the trial pit in order determine subsoil conditions. A control borehole (BH2) was sunk in the rear garden.

A CCTV survey of the relevant parts of the property's drainage system was undertaken.

Foundations:

Ref	Foundation type	Depth at Underside (mm)
TP1	Crushed Brick	975

Soils:

Ref	Description	Plasticity Index (%)	Volume change potential (NHBC)
TP/BH1 USF-1.1m	Stiff, mid brown, silty CLAY.	42	High
BH1 1.1-3.0m	Stiff, silty CLAY	51	High
BH2 0.6-3.0m	Silty CLAY with partings of orange silt & fine sand.	51-55	High

Roots:

Roots were observed throughout the Trial Pit and to a depth of 1.1m in BH1.

Ref	Roots Observed to depth of (mm)	Identification	Starch test
TP1	USF	Monocotyledon spp.	Negative
TP1	USF	probably Quercus spp. or Castanea spp. *	Positive

Monocotyledon spp. include palms, grasses, bamboos and lilies.
Quercus spp. are oaks. Castanea spp. include sweet chestnut.

Drains: The drains have been surveyed and no significant defects identified.

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 high volume change potential (NHBC Classification) susceptible to undergoing volumetric change in relation to changes in soil moisture.

Soil sample suction tests indicate severe - very severe desiccation (BRE 412) in TP/BH1.

The soil suction profile is abnormal and shows a clear bulge which is consistent with both the presence and action of tree roots.

The desiccation profile is markedly different to the control borehole BH2 which does not show the 'bulge'.

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 throughout the Trial Pit and to a depth of 1.1m in BH1.

Samples of these roots were recovered and positively identified (using anatomical analysis) as having emanated from a Monocotyledon and from either Castanea spp. or from Quercus spp.

Our survey of the site identified several clumps of ornamental grasses in the front garden of 88 Savernake Road, these will be the source of the recovered Monocotyledon roots and are not considered to a be material influence in the current subsidence event.

Our survey did not identify any potential source of Castanea spp. roots and accordingly we are confident that the recovered root is Quercus spp. and that it emanated from the Oak tree (T1).

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 available information, it is our opinion that the Oak (T1) is the material cause of the current subsidence damage.

If an arboricultural solution is to be implemented to mitigate the current damage and allow the soils beneath the property to recover to a position such that an effective repair solution can be implemented we recommend that the Oak (T1) is removed.

We have given consideration to pruning as a means of mitigating the vegetative influence, however in this case, we do not consider pruning offers a viable long term solution.

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

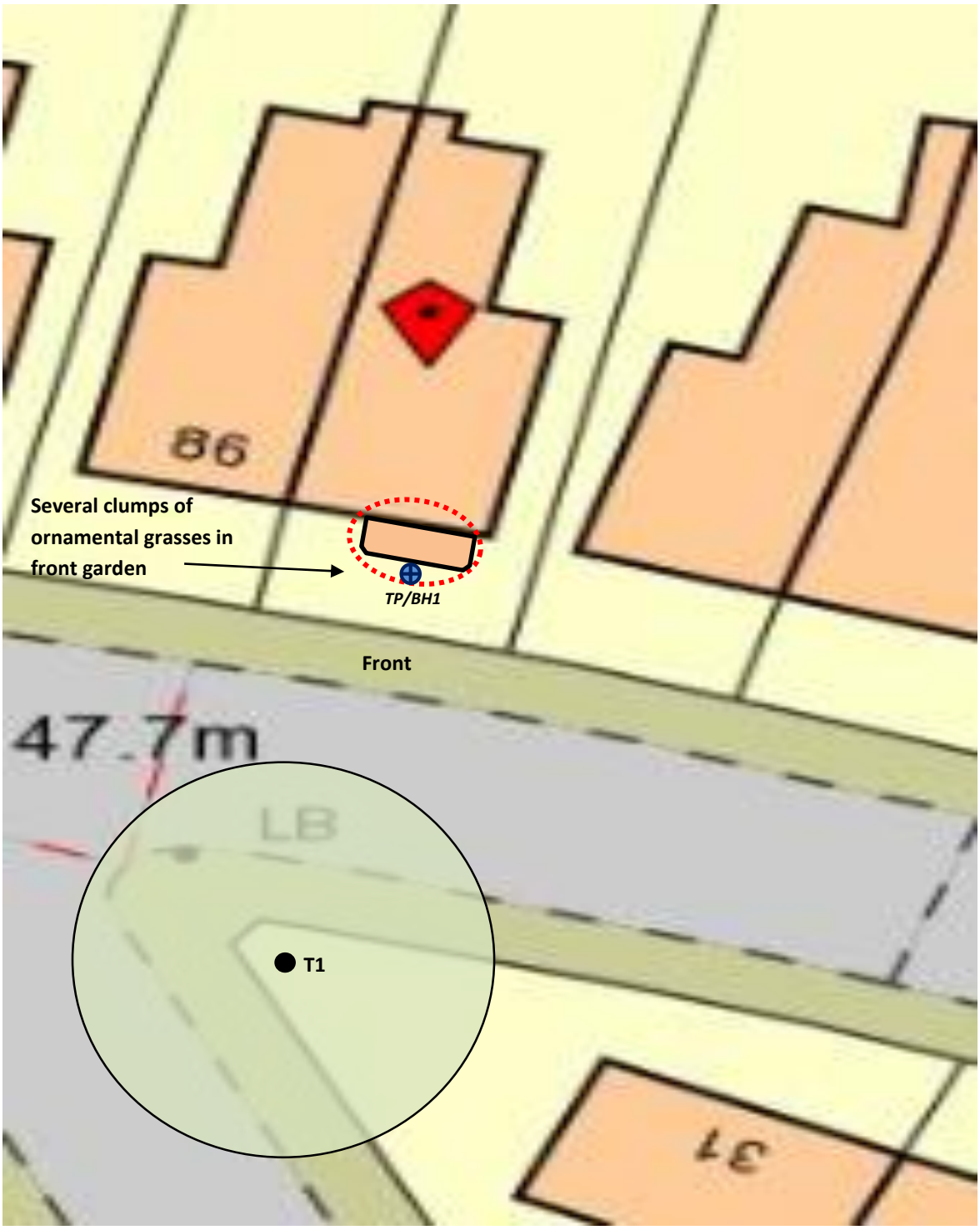
Conclusions

- 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.
- Roots have been observed underside of foundations and identified samples correspond to vegetation identified on site.

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	20	1000*	16	17	Older than property	Third Party 31 Savernake Road
Management history		No evidence of recent management.					
Recommendation		Remove and treat stump to inhibit regrowth					

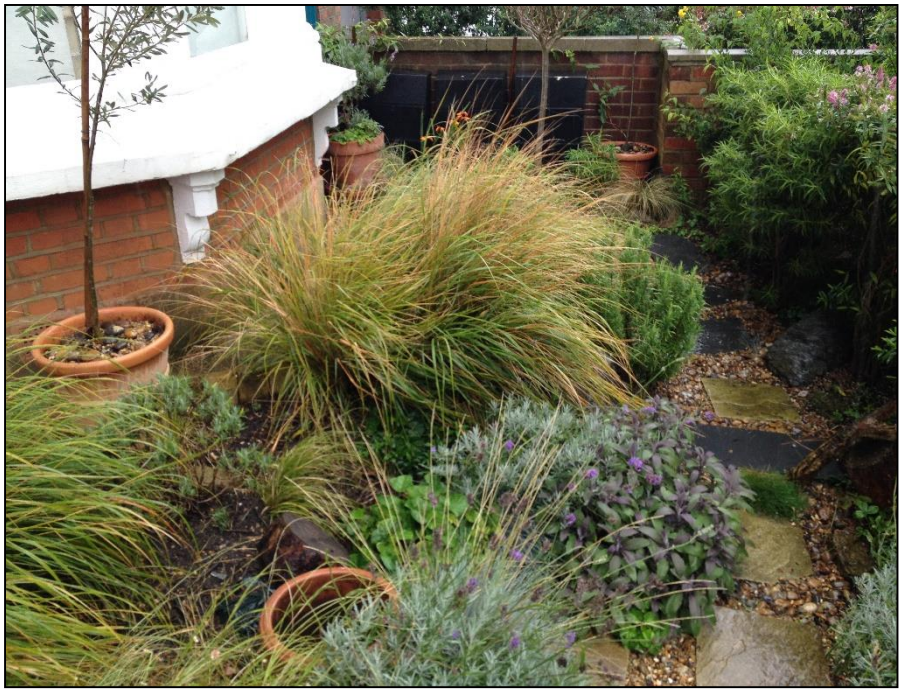
SITE PLAN



Plan not to scale – indicative only

Approximate areas of damage

Images



View of ornamental grasses

View of T1