Arboricultural Assessment Report

Detailed Report on Trees

For:	**Client:**	Richard F Gill & Associates
	Insurer:	Aviva
Site:	**Policyholder:**	Mr & Mrs Anderson
	Risk Address:	52 Fellows Road, London NW3 3LJ
Refs:	**OCA Ref:**	54410
	Client Ref:	13211
	Insurer Ref:	8648681

Survey By:	James Sadler		
Title:	Arboricultural Technician	**Date:**	28 May 2013
Report By:	Andrew Graham		
Title:	Senior Consulting Arborist	**Date:**	30 May 2013

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UKAS QUALITY MANAGEMENT 078

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References

Reference	
1	Engineering Preliminary Report' on Site Investigations dated 07th February 2013
2	Soiltech Surveys Site Investigation' Report dated 26 February 2013

1.0 Introduction & Brief

1.1 OCA UK Limited has been instructed by Richard F Gill & Associates on behalf of the building insurers of 52 Fellows Road, London (the insured property). We have been advised by our client that the insured property has suffered differential movement and damage which is considered to have been caused by trees growing adjacent the property influencing soils beneath its foundations.

1.2 We have been instructed to undertake a survey of the vegetation growing adjacent the insured property, to provide our opinion as to whether, based on the available information any of this vegetation is likely to be influencing soil moisture levels beneath the foundations of the property and if so to provide recommendations as to what tree management could be implemented to effectively prevent damage continuing.

1.3 The vegetation growing adjacent the risk address has been surveyed from the ground using digital measuring devices and/or standard tape measures. All distances are measured to the nearest point of the risk address unless otherwise stated.

2.0 Limitations

2.1 Recommendations, with respect to tree management, are associated with the risk address following consultation with Engineers. In relation to the possibility of heave damage, the owners of any trees in third party control must obtain their own advice in respect of the possibility of any damage to their own or other structures outside of the control of the insured.

2.2 Recommendations do not take account of any necessary permission (statutory or otherwise) that must be obtained before proceeding with any tree works.

3.0. Description of the Site and Surroundings

3.1 Fellows Road is situated in a suburban residential location and comprises of terraced three storey houses and low rise flats constructed circa 1900. The properties in general have small frontages and moderate rear gardens which contain occasional ornamental shrubs, boundary hedges, climbers and small to large trees.

3.2 The insured property is a terraced three storey property constructed in the 1900's. The property has a small front and large rear garden with the only vegetation being a Lawson Cypress Hedge (G1) which appears to be maintained at its current dimensions.

3.3 Vegetation noted to be growing within the neighbouring properties comprises of a Butterfly Bush S1, Hornbeam T1, Ash T2, Privet G2, Rose S2 and Butterfly Bush S3 and are maintained at their current dimensions.

3.4 Street plantings on Fellows Road consist of early mature and mature Raywood Ash trees. The only significant street tree with regards to this claim is mature T3, which is located on the footpath directly to the front of the insured property.

3.5 We understand that the tree growing within the public highway is the responsibility of the London Borough of Camden.

4.0 Evidential Assessment

Circumstances of discovery	The Engineer has not yet advised of the date when current damage was discovered.
Engineers brief description of main damage	The Engineer describes the main area of damage to the front elevation and front access steps. The Engineer states that damage consisted of cracking to the front elevation with more severe cracking noted to the front access steps.
Engineers brief description of the mechanism of movement	The Engineer has advised that the pattern of movement indicates a mechanism of downwards movement to the front elevation and steps.
Engineers BRE 251 numerical category	The Engineer has classified the damage to the main property as category 2 (slight); with that to the front access steps being 3-4 (Severe) in accordance with the BRE Digest 251 – Assessment of damage in low-rise buildings.
Engineers assessment of onset and progression of damage	The Engineer considers that damage has occurred recently and that it is likely that movement will be of a cyclical nature with cracks opening in the summer and closing in the winter.
Engineers conclusion as to cause of damage	The Engineer has concluded that the damage has resulted from clay shrinkage subsidence. This has been caused by vegetation which is the responsibility of the Local Authority and neighbouring property.
Foundations	Site investigations comprised of two trial pit and boreholes that were excavated adjacent the front right corner of the main house and the front left corner of the front access steps of the insured property. The excavations revealed foundations at TP/BH1 to be constructed at a depth of 890mm below ground level (main house). Whereas TP/BH2 confirmed foundation depth as 500mm (steps).
Trial Pit / Borehole, soil characteristics description	TP/BH1 - Soils at the underside of the foundations are described as: firm silty Clay to a depth of 1.5m; stiff silty Clay to a depth of 4m. TP/BH2 - Soils at the underside of the foundations are described as: firm silty Clay to a depth of 2m; stiff silty Clay to a depth of 4m.
Soil plasticity	Soil samples were taken from the trial pit and boreholes and were subjected to laboratory testing. The results of these tests indicate that soils beneath the front right corner of the main house and steps of the insured property have modified plasticity indices ranging between 47% and 60%. This confirms that underlying soils have a high potential for volume change due to their moisture content.
Desiccation	The engineer has confirmed that desiccation is present beneath the main house with slight desiccation beneath the steps. In addition soils are described as stiff.
Heave Potential	The Engineer does not consider heave to be a consideration should the adjacent vegetation be removed.

Roots as described in Trial Pit / Borehole Log	TP/BH1 - Roots of up to 10mm in diameter were noted at the underside of foundations in Trial Pit 1. With hair & fibrous noted to a depth of 1.7m in Borehole 1. TP/BH2 - Roots of up to 10mm in diameter were noted at the underside of foundations in Trial Pit 2. With roots to 1mm diameter noted to a depth of 2.2m in Borehole 2.
Laboratory analysis of roots	Root samples were taken from the trial pit and boreholes and have been subject to laboratory testing using light microscopy techniques. The results of these tests are as follows: TP1 (underside) – *Rosoideae* (Rose) roots of up to 10mm in diameter. TP1 (underside) – *Fraxinus* (Ash) roots of up to 10mm in diameter. BH1 (to a depth of 1m) – *Fraxinus* (Ash) roots of up to 1.5mm in diameter. TP2 (underside) – *Fraxinus* (Ash) roots of up to 7mm in diameter. BH2 (to a depth of 1m) – *Fraxinus* (Ash) roots of up to 2mm in diameter.
Drainage	The Engineer does not consider leaking or damaged drains to be a factor in current damage.
Monitoring	I understand that a programme of crack width / precise level monitoring is being undertaken at the property. However, no comparative readings are available to date.
Estimated cost of superstructure and repair works if tree removed	Waiting for costs from Engineer.
Estimated cost of works if trees retained	Waiting for costs from Engineer.

5.0 Conclusions

From the evidence summarised above we consider that we have demonstrated that on the balance of probabilities:

5.1 Tree Roots have extended beneath the foundations of the risk address

Roots have been noted throughout TP1 and to a maximum depth of 1.7m in BH1. Roots have been noted throughout TP2 and to a maximum depth of 2.2m in BH2.

Samples of these roots have been tested using light microscopy techniques and have been formally identified as *Fraxinus* (Ash) and *Rosoideae* (Rose).

Given their size, species and proximity to the location of the trial pit/boreholes we consider that these roots have emanated from Ash T2, Raywood Ash T3 and Rose S2.

No roots relating to Butterfly Bush S1 and Hornbeam T1 were recovered during investigations. However, given their size and proximity to the insured property we consider that it is likely that roots from this vegetation have also extended beneath the depth of foundations.

5.2 Damage to the risk address has resulted due to the presence of these roots

The mechanism of movement as described by the Engineer is entirely consistent with the location of Butterfly Bush S1, Hornbeam T1, Ash T2, Raywood Ash T3 and Rose S2.

Shrinkable clay soils have been encountered beneath foundations at the front right corner of the front access steps and main house. These soils will be subject to volumetric changes due to fluctuations in their moisture content.

Engineers have confirmed that other potential causes of damage such as leaking or damaged drains have been discounted as a cause of the current damage.

Therefore it is our opinion that sufficient information has been provided to demonstrate that, on the balance of probabilities, Butterfly Bush S1, Hornbeam T1, Ash T2, Raywood Ash T3 and Rose S2 are the material cause of the current subsidence damage

We do not consider that there is any other vegetation growing adjacent the insured property that could be considered to be a factor in current damage.

6.0 Recommendations

Given their proximity to the insured property we do not consider that undertaking pruning works to Butterfly Bush S1, Hornbeam T1, Ash T2, Raywood Ash T3 and Rose S2 will provide either an effective or sustainable means of controlling their water use. Therefore and in order to provide a long-term solution to the current subsidence damage we recommend this vegetation be removed.

6.1 Recommended vegetation management to address the current subsidence:

Tree No:	Species	Works Required
S1	Butterfly Bush	Fell to as close to ground level as is practicable and treat stump with an appropriate herbicide to prevent future growth
S2	Rose	Fell to as close to ground level as is practicable and treat stump with an appropriate herbicide to prevent future growth
T1	Hornbeam	Fell to as close to ground level as is practicable and treat stump with an appropriate herbicide to prevent future growth
T2	Ash	Fell to as close to ground level as is practicable and treat stump with an appropriate herbicide to prevent future growth
T3	Raywood Ash	Fell to ground level and grind out the stump

Age Class	**YO** – Young. **SM** – Semi-Mature.**EM** – Early Mature. **MA** – Mature. **FM** – Fully Mature. **OM** – Over Mature	Ownership	**PH** – Within boundary of risk address. **P3P** – Within boundary of third party properties. **LA** – Within land owned by a Local Authority. **C3P** – Commercial third party. **U** – Within land of indeterminable ownership.
Condition	**G** – Good. **F** – Fair. **P** – Poor. **D** – Dead, Dying or Dangerous		
Stem Diameter	**MS** – Multi-stemmed tree		

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Tree No	Common Name	Age Class	Condition	Height (m)	Crown Spread (m)	Stem diam. (mm)	Dist to bldg (m)	Pruning history	Recommendation	Tree work constraints	Notes	Owner address	Owner
S1	Butterfly Bush	YO	F	5	1	20	1.1	No significant past tree works	Fell and treat stump	None		54 Fellows Road, London, NW3 3LJ	P3P
T1	Hornbeam	YO	F	3	1	40	1.3	No significant past tree works	Fell and treat stump	None		54 Fellows Road, London, NW3 3LJ	P3P
T2	Ash	SM	G	6.5	4	150	4.1	No significant past tree works	Fell and treat stump	None		54 Fellows Road, London, NW3 3LJ	P3P
S2	Rose	SM	F	3.5	3	30	2.4	No significant past tree works	Fell and treat stump	None		54 Fellows Road, London, NW3 3LJ	P3P
T3	Raywood Ash	EM	F	13.3	7.9	450	11.4	Crown lifted.	Fell and grind stump	Not applicable			LA
S3	Butterfly Bush	SM	F	3.9	4	80	7.4	No significant past tree works	No work required.	None		54 Fellows Road, London, NW3 3LJ	P3P
G1	Lawson Cypress	SM	F	3.9	2	80	7.5	No significant past tree works	No work required.	None		Garden Flat, 52 Fellows Road, London, NW3 3LJ	PH
G2	Privet	SM	G	2.2	1	10	5.7	No significant past tree works	No work required.	None		54 Fellows Road, London, NW3 3LJ	P3P

Site Photographs

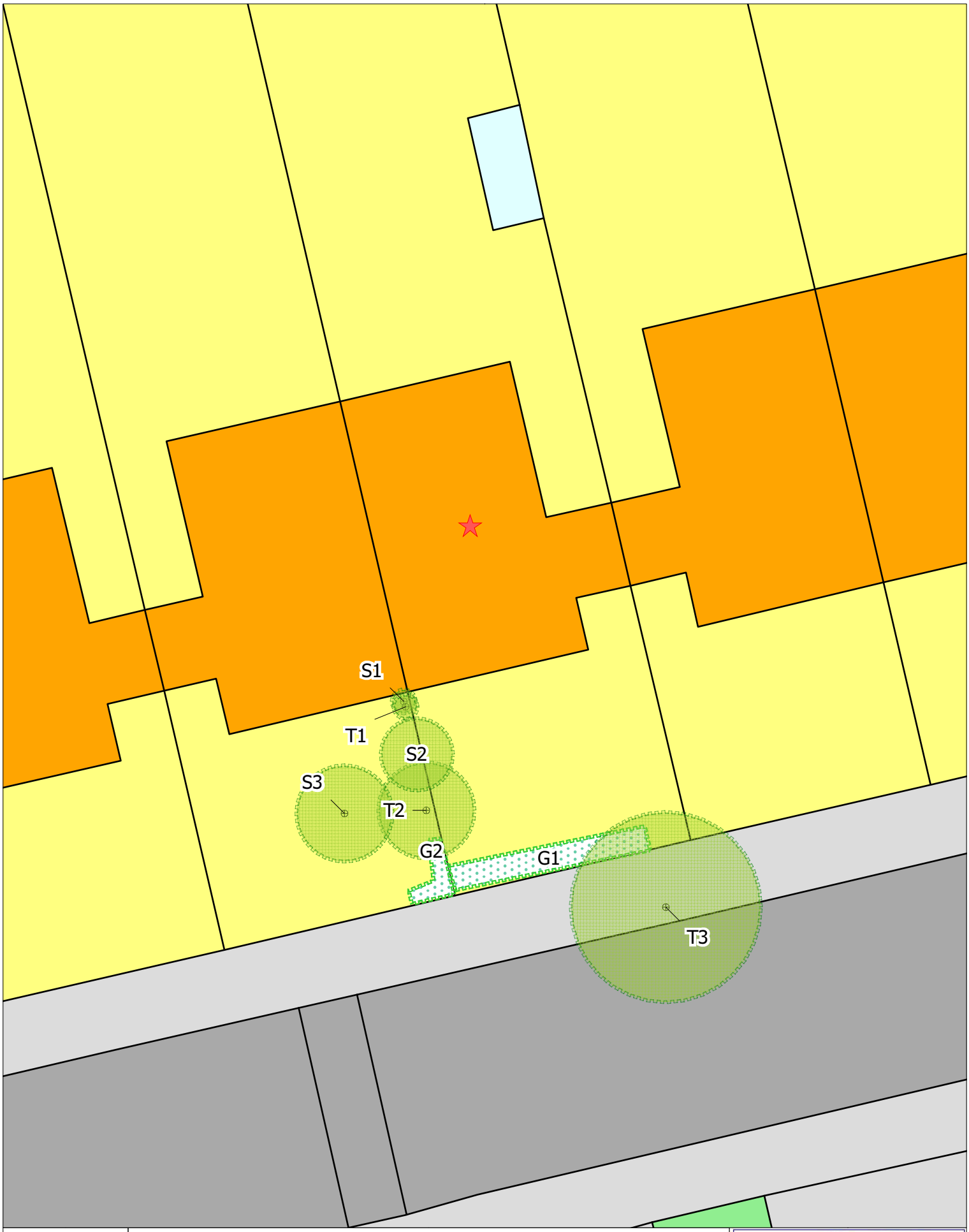
1. Butterfly Bush S1, Hornbeam T1, Ash T2

2. Lawson Cypress G1

3. Raywood Ash T3

4. Raywood Ash T3

5. View of Butterfly Bush S3 left hand side of photograph



Location:	Garden Flat, 52 Fellows Road, London, NW3 3LJ
Job Ref.:	54410
Survey Date:	28/05/2013
Scale:	1:200 @ A4

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