

Tree Surveys

BS5837 – Pre Planning – Mortgage – Risk Management & Prediction – Expert Witness



19th March 2019

Mr R Fountain
Reeves Arboricultural Services Ltd
Picard's Farm
Sandy Lane
Guilford
GU31 HD

Ref: SN/DD-01/06.03

Dear Mr Fountain

Re: Decay Detection at 14 Greville Road

Thank you for your instructions to undertake decay detection upon one tree located in the rear garden of 14 Greville Road, London NW6 5JA. A summary of our findings and opinion are included along with the management recommendations in accordance with your instructions.

Site visit:

The site visit was undertaken on 6th March 2019 by Steve Noble of Tree Surveys. The conditions were dry and bright with good visibility and we had full access to the tree.

The tree measurements were recorded using a TruPulse™ hypsometer and rounded down diameter tape; the results are recorded in Table 1 below.

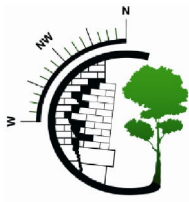
Table 1

Tree Number	Tree Species	Height (m)	Diameter (mm) @ 1.5m AGL	Age Class
1	Sycamore	23	840	Mature

Key to abbreviations:

m = metres mm = millimetres cm = centimetres AGL = above ground level

Age Class: Mature - trees within the final third of the useful life expectancy for the species.



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Decay Detection

The tree was tested with the Resi PD400 micro drill. For convenience we have set out below the test protocols and procedures with an overview of the equipment used.

Resi PD400 (Synopsis):

The Resi PD400 (Resi) is a mechanical drilling machine with a constant drive, which measures the drilling resistance and rotational speed along a needle, when inserted into the tree. The result is displayed on a digital panel and stored electronically at a scale of 1:1, measurement is in metric units.

The object data field (top left of each page) provides information on the date, depth, needle speed and site specific information. The assessment field (bottom left of each page) provides a detailed analysis of specific areas of dysfunction and is often colour coded. Readings are normally from right (entry into the tree) to left, with any specific comments in the box bottom right.

The drilling rate may be varied for hard or soft woods. The drilling resistance is correlated with the mechanical properties and the defective areas that have developed within the tree may be detected and assessed.

Examples of defects detected by the Resistograph may be dysfunctional areas such as internal cracks, areas of decay, resin pockets and hollows. Remaining wall thickness may be determined to a depth of 400 millimetres. The instrument is adept at detecting the early stages of decay in white rots as well as detecting brown rots at an early stage.

The drilling needle is specially formed and the tip is only 3 millimetres wide with a shaft diameter of 1.5 millimetres, thereby keeping internal damage to a minimum and reducing the risk of further fungal infection.

Location:

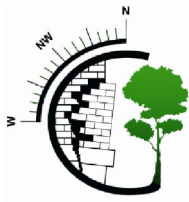
The tree is located to the rear of 14 Greville Road, London NW6 5JA. The garden to the rear of the property is open and forms part of a communal space. The tree is located 23 metres from the rear elevation of the building to the north, car parking and private properties are located to the south and are within falling distance of the tree.

Findings and opinion:

Fungal fruiting bodies were detected around the base of the tree to the south east and eastern sides. These fungal fruiting bodies are similar in appearance to *Ganoderma spp* and extend up the stem to a height of 0.7 metres above ground level (AGL) on the eastern side. See Figure 1 on page 3.

The base of the tree was tested with a nylon mallet and hollow intonations were returned from the area around the fungal fruiting bodies. The bark in this area was flaking and cracking and a cavity was detected on the eastern side of the stem base.

The stem of the tree was drilled six times with the Resi PD 400, once at 1.5 metres AGL to provide a control measurement, 4 times around the base and once at 1 metre AGL above the fungal fruiting bodies to ascertain whether the decay has spread up the main stem.



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Figure 1.



Conclusions:

Ganoderma spp is found on a wide variety of trees and can be found at ground level as well several metres AGL. The early decay is localised with a white rot but, as this advances, full degradation of the lignin occurs leaving a spongy mass that can compromise the integrity of the stem leading to tree failure.

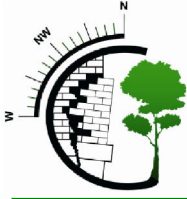
The results from the micro drillings at ground level indicates that there is significant decay at the test locations around the base of the tree with the readings from the south east, east and west showing decay within the basal area. The micro drillings conducted at 1 metre AGL above the fungal fruiting bodies confirms that the decay has extended up the stem. The change in wood structure has weakened the integrity of the stem and compromised the stem's ability to withstand any extra bio-mechanical loading that may be imparted to it in adverse weather conditions such as high winds.

There is no recognised method that predicts tree failure accurately, nor can we say with any confidence what the remaining life expectancy of the trees may be. The tree is hazardous and in a high-risk location and therefore remedial measures are required to mitigate the risk of failure and to reduce the risk of damage to people and property to acceptable levels.

Trees are dynamic structures and therefore subject to many changes. Wind loading, if sufficiently high enough, can blow over the healthiest of trees. Where decay or root structure is compromised there is an increased risk of failure.

Recommendations:

In preparing our recommendations consideration has been given to the landscape character and amenity provided by the tree and safety of visitors to the site.



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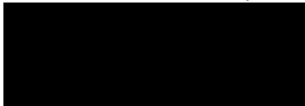
It is our recommendation that the tree should be felled to ground level and that the remaining stump is ground out to a minimum depth of 300mm below ground level. All work should be completed within 3 months of the date of this report.

Prior to authorising any tree works it is essential that you contact the Local Planning Authority to ascertain whether there are any Tree Preservation Orders or other restrictions upon the trees. Please note that consent is not required for the felling of dead or dangerous trees but a notification may be required prior to felling.

All tree works recommended should be carried out in accordance with British Standard *BS 3998:2010. Tree Work - Recommendations*, and should be undertaken by a properly qualified and experienced tree contracting company. It is advised that they should carry public and products liability insurance of £5 million cover.

We trust that our investigations and recommendations are of reassurance and assistance to you. Should you have any queries or concerns please do not hesitate to contact us.

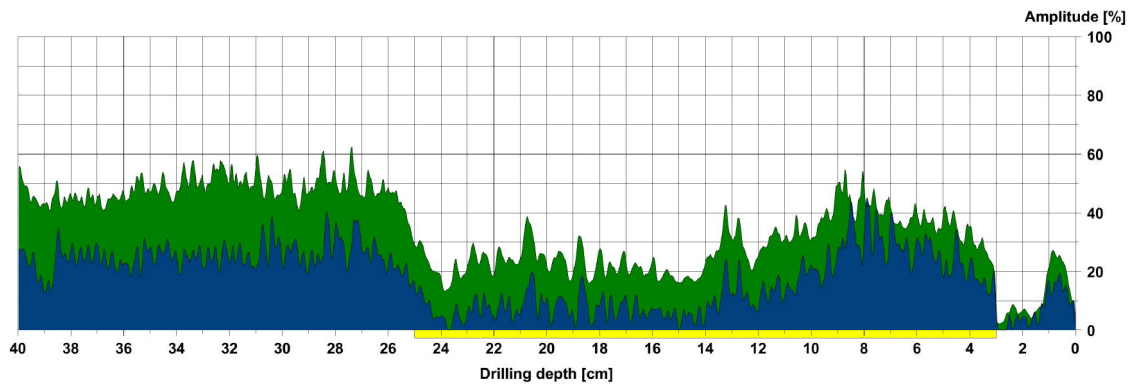
Yours sincerely



Steve Noble (TechArbor A.)
Consultant
Tree Surveys

Measuring / object data

Measurement no. : 9	Needle speed : 2500 r/min	Diameter : 84,0 cm
ID number : GREVILLE ROAD	Needle state : --	Level : 100,0 cm
Drilling depth : 39,97 cm	Tilt : 0°	Direction : East
Date : 06.03.2019	Offset : 136/273	Species : Sycamore
Time : 11:54:26	Avg. curve : off	Location : 14 Greville Road
Feed speed : 150 cm/min		Name : Mrs Collier



Assessment

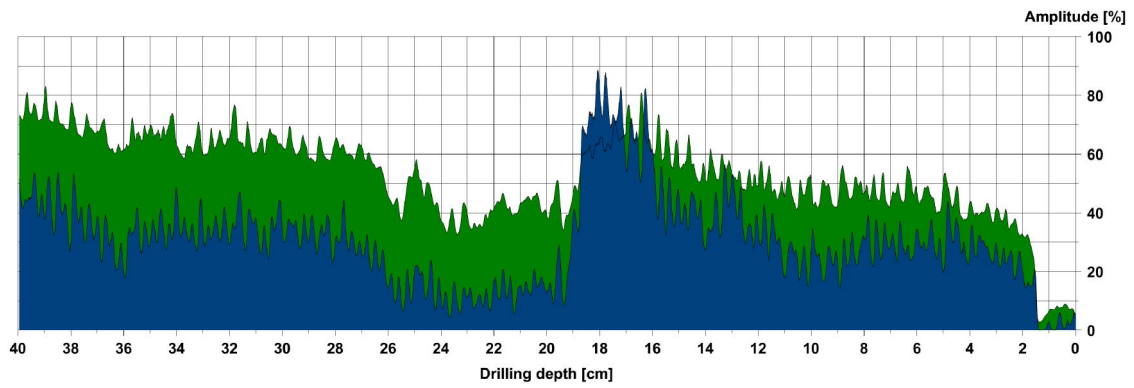
■	From 3,0 cm to 25,0 cm : Incipient decay
■	From 0,0 cm to 0,0 cm :
■	From 0,0 cm to 0,0 cm :
■	From 0,0 cm to 0,0 cm :
■	From 0,0 cm to 0,0 cm :
■	From 0,0 cm to 0,0 cm :

Comment

1 metre AGL east above fungal fruiting body.
Incipient decay from 3-25cm.

Measuring / object data

Measurement no. : 2	Needle speed : 2500 r/min	Diameter : 84,0 cm
ID number : GREVILLE ROAD	Needle state : --	Level : 150,0 cm
Drilling depth : 39,95 cm	Tilt : +1°	Direction : North
Date : 06.03.2019	Offset : 185/274	Species : Sycamore
Time : 11:44:28	Avg. curve : off	Location : 14 Greville Road
Feed speed : 150 cm/min		Name : Mrs Collier



Assessment

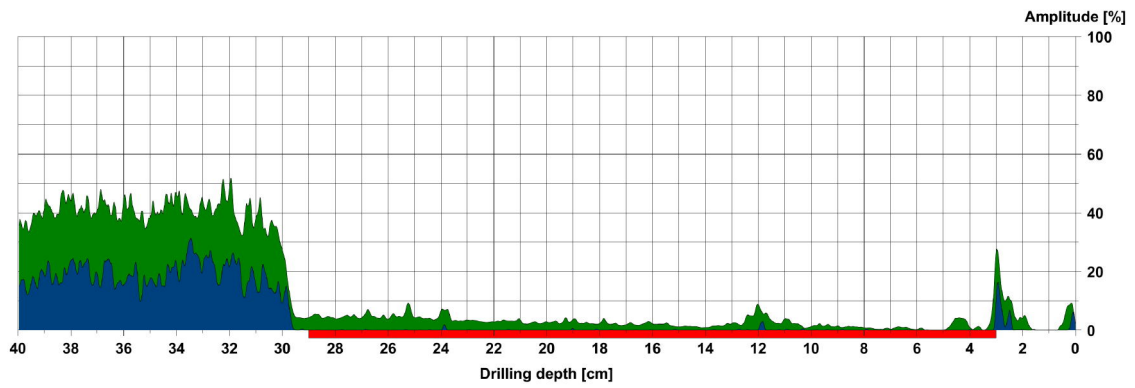
<input type="checkbox"/>	From 0,0 cm to 0,0 cm :
<input type="checkbox"/>	From 0,0 cm to 0,0 cm :
<input type="checkbox"/>	From 0,0 cm to 0,0 cm :
<input type="checkbox"/>	From 0,0 cm to 0,0 cm :
<input type="checkbox"/>	From 0,0 cm to 0,0 cm :
<input type="checkbox"/>	From 0,0 cm to 0,0 cm :

Comment

1.5 metres AGL north.

Measuring / object data

Measurement no. : 4	Needle speed : 2500 r/min	Diameter : 84,0 cm
ID number : GREVILLE ROAD	Needle state : --	Level : 10,0 cm
Drilling depth : 39,96 cm	Tilt : 0°	Direction : East
Date : 06.03.2019	Offset : 155/285	Species : Sycamore
Time : 11:49:29	Avg. curve : off	Location : 14 Greville Road
Feed speed : 150 cm/min		Name : Mrs Collier



Assessment

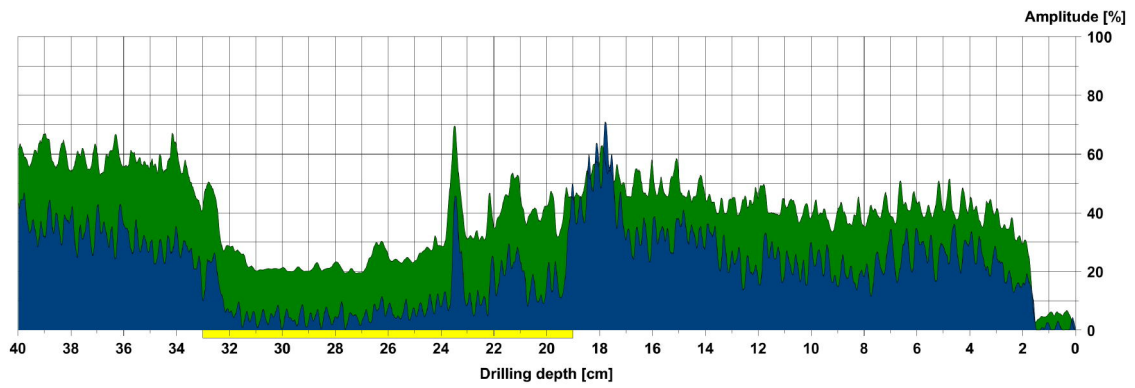
■	From 3,0 cm to 29,0 cm : Decay
□	From 0,0 cm to 0,0 cm :
□	From 0,0 cm to 0,0 cm :
□	From 0,0 cm to 0,0 cm :
□	From 0,0 cm to 0,0 cm :
□	From 0,0 cm to 0,0 cm :

Comment

Ground level east. Decay detected from 3-29cm.

Measuring / object data

Measurement no. : 3	Needle speed : 2500 r/min	Diameter : 84,0 cm
ID number : GREVILLE ROAD	Needle state : --	Level : 10,0 cm
Drilling depth : 39,98 cm	Tilt : 0°	Direction : North
Date : 06.03.2019	Offset : 159/292	Species : Sycamore
Time : 11:48:20	Avg. curve : off	Location : 14 Greville Road
Feed speed : 150 cm/min		Name : Mrs Collier



Assessment

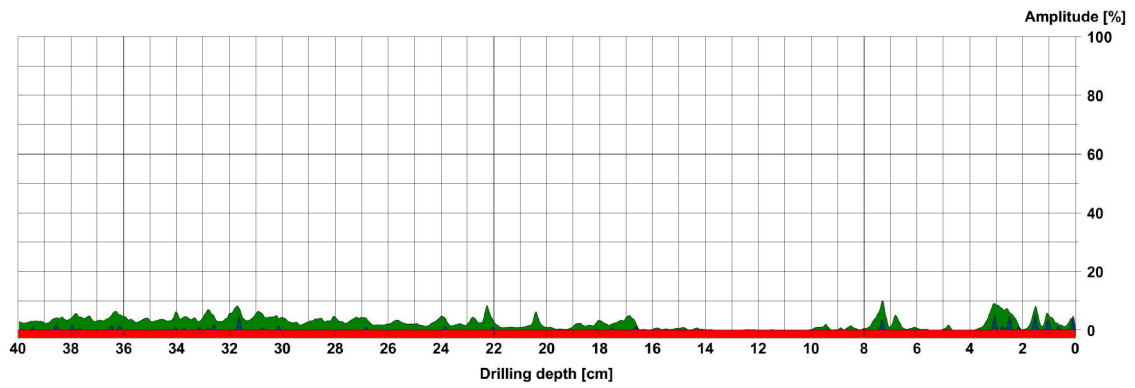
	From 19,0 cm to 33,0 cm : Incipient decay
	From 0,0 cm to 0,0 cm :
	From 0,0 cm to 0,0 cm :
	From 0,0 cm to 0,0 cm :
	From 0,0 cm to 0,0 cm :
	From 0,0 cm to 0,0 cm :

Comment

Ground level north. Incipient decay detected from 19-33cm.

Measuring / object data

Measurement no. : 7	Needle speed : 2500 r/min	Diameter : 84,0 cm
ID number : GREVILLE ROAD	Needle state : --	Level : 10,0 cm
Drilling depth : 39,96 cm	Tilt : 0°	Direction : South east
Date : 06.03.2019	Offset : 147/274	Species : Sycamore
Time : 11:52:30	Avg. curve : off	Location : 14 Greville Road
Feed speed : 150 cm/min		Name : Mrs Collier



Assessment

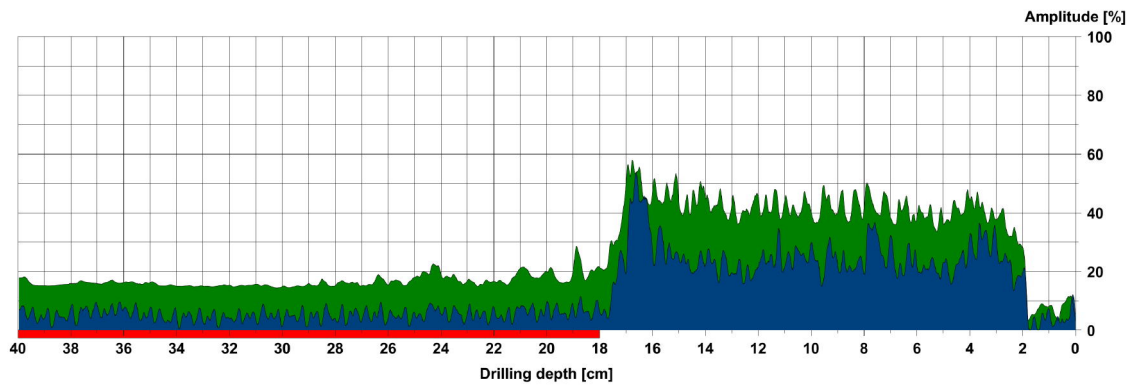
■	From 0,0 cm to 40,0 cm : Decay
□	From 0,0 cm to 0,0 cm :
□	From 0,0 cm to 0,0 cm :
□	From 0,0 cm to 0,0 cm :
□	From 0,0 cm to 0,0 cm :
□	From 0,0 cm to 0,0 cm :

Comment

Ground level south east. Extensive decay at test location.

Measuring / object data

Measurement no. : 8	Needle speed : 2500 r/min	Diameter : 84,0 cm
ID number : GREVILLE ROAD	Needle state : --	Level : 10,0 cm
Drilling depth : 39,96 cm	Tilt : 0°	Direction : West
Date : 06.03.2019	Offset : 135/270	Species : Sycamore
Time : 11:53:20	Avg. curve : off	Location : 14 Greville Road
Feed speed : 150 cm/min		Name : Mrs Collier



Assessment

	From 18,0 cm to 40,0 cm : Decay
	From 0,0 cm to 0,0 cm :
	From 0,0 cm to 0,0 cm :
	From 0,0 cm to 0,0 cm :
	From 0,0 cm to 0,0 cm :
	From 0,0 cm to 0,0 cm :

Comment

Ground level west. Decay detected from 18-40cm.