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ARBORICULTURAL ACOUSTIC TOMOGRAPH ASSESSMENT

Sloughbrook Close Play Area
Sloughbrook Close
Horsham
West Sussex
RH12 5JD

Client details:	Neal Matheson – Arboricultural Officer, Horsham District Council
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2 INTRODUCTION

2.1 SUMMARY

The purpose of this report is to evaluate the condition of English oak tree 7416 as identified by the client. In doing so, this will provide a document that identifies and evaluates any significant risks arising from the inspected trees and will advise recommendations for implementing a reasonable system of control for those risks.

2.2 SCOPE OF WORKS

This report has been commissioned by and is intended to provide the client with information with regard to any future management required following the results of the tomograph.

Landowners have a statutory duty under the Owner and Occupiers Liability Act 1984, to manage trees under their ownership and do all that is reasonably practical to safeguard against any risk to health and safety. This duty can be fulfilled by having a system in place to monitor and control the risks from trees. The findings and recommendations contained herein are intended to satisfy this legal obligation.

3 METHODOLOGY

3.1 GROUND-BASED VISUAL TREE ASSESSMENT

All trees are inspected using the ground based visual tree assessment (VTA) method developed by Claus Mattheck and Helge Breloer, presented in the publication “The Body Language of Trees – A handbook for failure analysis” D.O.E booklet research for amenity trees No. 4, 1994.

This involves reading the body language of the tree, considering biology and the biomechanical process of normal tree growth. The inspector will visually examine the structure, vitality, and close surrounding environment of each tree for defect symptoms and potential effects to the trees’ vigor. No boring or core sampling is undertaken, and comments made are based only on observable factors present at the time of the inspection and are based on maximizing the tree’s useful life expectancy given its current location.

3.2 ACOUSTIC TOMOGRAPHY ASSESSMENT

Tomography is the production of an image of a selected part of the tree by using soundwaves. The assessment, undertaken using the Fakopp ArborSonic 3D Acoustic Tomograph, measures the travel times of these waves between strategically placed sensors around the stem with microsecond precision, averaging these times and combining them to provide a collective image that identifies the density and condition of the wood, thereby showing the presence of any potential decay and/or hollowing.

Comments made are based on professional knowledge and understanding of the diagnostics and implementing factors this information provides. Combined with other observable factors present at the time of the inspection, the recommendations are based on maximizing the trees useful life expectancy given its current location.

4 TREE DETAILS

The English oak tree is approximately 15m in height, has a diameter of 61-100cm. It has a canopy spread of approximately 4m north, 5m east, 4m south and 4m west. The tree is a mature specimen and is located within a children's play area. At the time of my inspection, there was no visible evidence of past or present fungi fruiting at the base of the tree.

This tree has received significant crown reduction works in the past and the response growth is low with a declining, sparser than normal canopy.

4.1 INTERPRETATION OF DATA

Sensor 1 is placed on the northern aspect of the tree. Sensor 6 is placed on the southern aspect of the tree. Areas of black through to dark green indicate intact wood. Areas of light green through red into purple indicate decayed wood. Areas of purple through to blue indicate hollow wood.

4.2 TREE FINDINGS AND RECOMMENDATIONS

My initial inspection undertaken on 9th May 2024 focused on carrying out an internal investigation within the tree stem of the English oak tree.

The result of the acoustic tomography assessment revealed that there is significant underlying dysfunction within the stem of the tree to warrant tree removal at this stage.

The area where the tomograph was carried out has depleted in significant structural support and the cross-section of layer 1 at 20cm from ground level revealed a decayed area of 71%.

The tomography software used suggests, by default, that 71% of the cross-sectional area could be dysfunctional at this height. However, this should only be used as a guide in determining the internal condition of the trunk. A nylon-headed acoustic sounding mallet was also used, and this did reveal notable changes in tone when tapped around the area where the sensors were placed, confirming the presence of dysfunctional wood.

In my assessment and in consideration of the tree's evidently low vitality and growing condition, its location, and the significant areas of decay, I make recommendations for this tree to be removed for health and safety reasons within a 3-month timeframe for health and safety reasons and a replacent planted within the next growing season.

5 PHOTOS AND TOMOGRAPH RESULTS

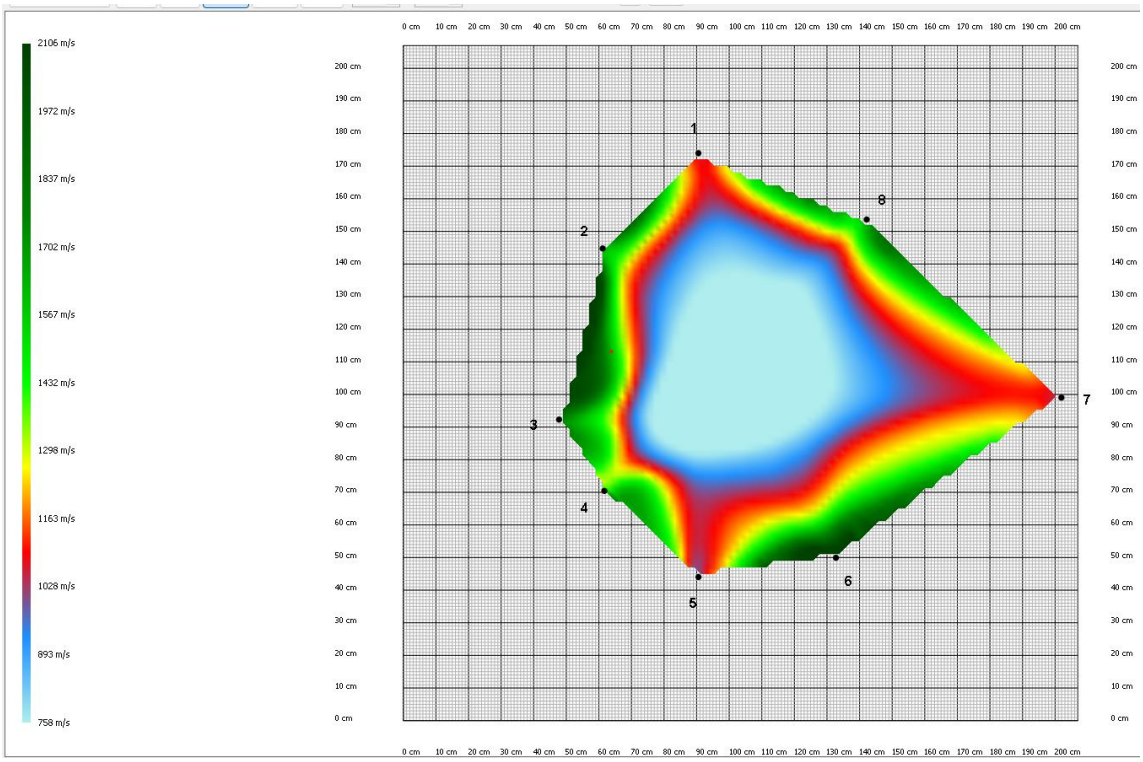
ENGLISH OAK TREE 7416



LOCATION OF SENSORS



TOMOGRAPH CROSS SECTION RESULT AT 16CM FROM GROUND LEVEL



6 WILDLIFE LEGISLATION ISSUES

It is an offence under current UK and European wildlife legislation to disturb nesting birds and bats.

There is a possibility that nesting birds and bats will be encountered when working on this tree.

It is recommended that the contractor carrying out any tree surgery work is aware of the signs of bat activity and maintain a high level of vigilance in this regard. Should bats or nesting birds be found or their presence suspected County Tree Surgeons Ltd will be happy to liaise with Natural England and other associated organisations if necessary. The presence of bats will not prevent the work from being carried out. It may, however, be necessary to carry out works to minimise the disturbance and implement mitigation measures.

7 DISCLAIMER

The statements made in this report do not consider the effects of extremes of climate, vandalism, or accident whether physical, chemical or fire. County Tree Surgeons Ltd cannot accept any liability in connection with these factors, nor where prescribed work is not carried out in a correct and professional manner with current good practice. The authority of this report ceases at any stated time limit within it or if none stated, after 2 years from the date of the Inspection/Survey, or when site conditions change, or pruning or other works unspecified in this report are carried out to, or affecting the subject tree, whichever is sooner.

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