

# Decay Detection Investigation and Climbing Inspection

Oak tree @ 12 Greenways

12 Greenways  
Chelmsford  
Essex  
CM1 4EF

April 2019

190235-DID-02

Project	190235-DID-02 – Chelmsford City Council Oak PiCUS
Report Type	Decay Detection Investigation
Checked by	Tim Moya
Date Checked	15/04/2019

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## 1 EXECUTIVE SUMMARY

1.1 The conclusion of this report is that some remedial tree works are required. Please see below and Appendix A for details.



## 2 INTRODUCTION

- 2.1 We received instructions from J Curry and Co Ltd to attend site and inspect a large oak tree at 12 Greenways, Chelmsford. Following the inspection we are instructed to prepare a report of our findings and make appropriate recommendations to manage the risks assessed.
- 2.2 J Curry and Co Ltd contacted us to arrange for this investigation to assess decay in the stem in conjunction with a climbing inspection (carried out by J Curry and Co Ltd) to assess any defects in the crown to provide information on tree condition and recommendations for future tree management.
- 2.3 The scope of this investigation is: to visually inspect<sup>1</sup> the identified tree from ground level and record relevant features; to inspect the tree's stem for decay using sonic tomography and/or a decay detecting drill (as considered appropriate); and to provide a report of our findings including recommendations for works where required and additional inspections where necessary. These decay detection methods are further explained at Appendix B of this report.
- 2.4 Trees are dynamic living organisms that change significantly over time. The observations and recommendations in this report can only be considered valid for a period of up to 2 years and all trees should be re-inspected within this time period or immediately following storm force winds which may increase the likelihood of structural failure.
- 2.5 All tree owners have legal duty of care regarding their trees under the Occupiers Liability Acts. Various guidance is available on how tree owners can meet their duty of care. A list of key guidance is attached at Appendix C.

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<sup>1</sup> - Mattheck, Updated field guide to visual tree assessment, ISBN-13: 978-3923704590



### 3 TREE INSPECTION

#### Inspection details

- 3.1 My name is James Chambers; I am a principal arboricultural consultant dealing with trees in relation to all forms of human activity including built development. I have a National Diploma in Arboriculture, I am a LANTRA qualified professional tree inspector, a registered Quantified Tree Risk Assessment (QTRA) user, a Technician member of the Arboricultural Association, an Associate member of the Institute of Chartered Foresters and I have extensive experience as a local authority tree officer and consultant.
- 3.2 James Curry is the director of J Curry and Co Ltd, an experienced arborist with over 25 years working in the industry. He is a LANTRA qualified professional tree inspector, is qualified ABC Level 3 Tech Cert (Arb) and in Arboriculture and Bats for practitioners (LANTRA) and CAVAT in Practice.
- 3.3 I inspected the tree with J Curry and Co Ltd on Tuesday 26th March and the findings of our investigations are set out below and in the attached appendices.
- 3.4 The details and condition notes for the inspected tree are attached in the schedule at Appendix A. This schedule also contains recommendations for works and/or further inspections as appropriate. Where tree work recommendations have been made they have been given a risk of harm (RoH) rating, and work should be prioritised accordingly. Further inspection/investigation works have been given a time-based priority and it is strongly recommended that these recommendations are carried out within the time limits stated.
- 3.5 As the tree is protected by a TPO it is necessary to obtain permission from Chelmsford City Council prior to carrying out any works. Unauthorised work to protected trees could lead to prosecution, resulting in enforcement action such as fines and a criminal record.

#### Decay investigation

- 3.6 The tree is growing on 'no man's land' situated immediately behind a residential garden, with the crown spreading across six additional residential gardens.
- 3.7 The tree is a large veteran oak, with a very large stem and broad spreading crown. It has been managed in the past with evidence of historic crown reduction and other pruning works having taken place. There is some exposed heartwood and fungal fruiting bodies (*Fistulina hepatica*, decayed and desiccated) around the stem, and a cavity in the crown.





*Oak tree at 12 Greenways: Clockwise from top left, map, accessing the tree, the tree viewed from the street, and from the back garden of the property*

- 3.8 The tree is a large veteran oak with high vitality and good physiological condition. There are numerous pruning wounds and minor deadwood around the crown, which is not unusual in a veteran tree.

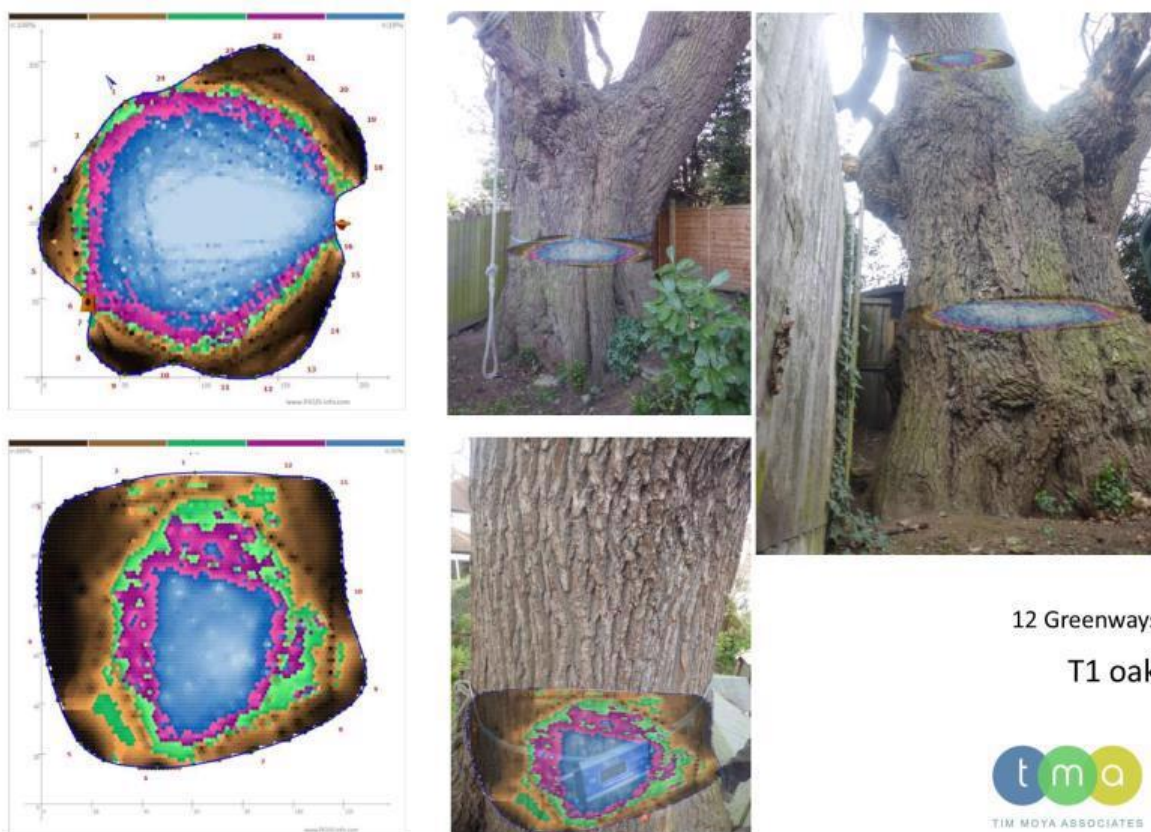




*Climbing inspection of crown: Clockwise from the top left, arborist Jim Curry in the tree, cavity in limb to the west, base of same cavity, Jim Curry undertaking PicUS test @ approximately 5.5m*

- 3.9 3 stems are present above the old pollard head, with the largest stem comprising approximately 80% of the crown and the remaining stems making up approximately 10% each of the crown. A cavity is present in the main trunk which appears to extend from the pollard head down to ground level. It is filled with detritus and an old rope (see above) which had become tightly lodged in the detritus/cavity was dragged out and removed.
- 3.10 There is a cavity on the upper side of the large limb to the west (see above) which extends approximately 5m along the stem. The underside of the leaning stem is intact and an acceptable proportion of sound wood remains. There is minor deadwood present in the mid and upper crown but not widely distributed. No other cracks, breaks, hazard beams or structural weaknesses were observed.
- 3.11 Large apparently healthy buds are present throughout the crown, with an even distribution of growth and viable inner branches present and are indicative of good prospects for the future of the tree following a sympathetic crown reduction. See Appendix A.





*PiCUS decay detection results: Clockwise from the top left, tomogram @ 1.8m, superimposed in approximate position on the tree, both tomograms superimposed, tomogram @ 5.5m superimposed on the tree and the tomogram @ 5.5m*

- 3.12 The tomogram at 1.8m above ground level (top left) reveals extensive internal decay (light blue, blue, pink) which appears to be well compartmentalised (narrow green, yellow and light brown strips) with a significant proportion of sound wood (dark brown) remaining around much of the circumference at the test height.
- 3.13 The tomogram at 5.5m above ground level (bottom left) reveals considerable internal decay (blue, pink) which is slowly developing (green, yellow, light brown) and a significant proportion of sound wood remaining around the circumference of the stem.
- 3.14 While the decay present in the stem is considerable, the remaining sound wood present in the tree is also very significant and the likelihood of either tree or stem failure is low. As the tree is a veteran, a crown management plan is recommended to minimise the risk of branch failure by reducing weight and wind loading stresses on the tree, with the intention of establishing a smaller crown and prolonging the longevity of the tree.



## 4 CONCLUSIONS

### Further actions

4.1 The test results indicate that the structural condition of the oak tree is fair. Due to the size of the crown and age of the tree, a management plan is recommended to reduce the crown to a smaller size over a period of years, see Appendix A for details. The tree should be reinspected within 2 years or after storm force events which may weaken its condition.



## 5 APPENDICES CONTENTS

### **APPENDIX A**

- Tree schedule

### **APPENDIX B**

- TMA decay detection appendix

### **APPENDIX C**

- Duty of Care Guidance



# APPENDIX A

- Tree schedule

# Health and Safety Tree Schedule & Works

## 12 Greenways, Chelmsford (No. of Trees: 1)

Tree / Group No.	Species	Most recent survey date	Height (m)	DBH (cm)	Crown spread (m)	Vitality	Reinspection	Safe Life (years)	Expectancy Age Class	Physiological Condition	Structural Condition	Targets	QTRA Risk Thresholds	Risk assessed	Condition Notes	Recommendations	Priority/Purpose of works	
T1	1 Quercus robur English Oak	26/03/19	28.0	211	25.0	High		20-40	Ancient / Veteran	Good	Fair	Tree overhangs neighbouring property. Seating area within crown spread. Building within crown spread.	<1/1 000 000	Branch failure on to other target(s)	13.27	Arboricultural work - Historic. Branch - Broken. Crown reduction - Historic. Decay / structural defect in crown limb / limbs - Major. Deadwood - Minor. Decay / structural defect - Extensive. Fungal fruiting body - structural decay suspected. Fork - Weak with included bark. Habitat - High value. Decay - Fistulina hepatica brackets to south and west	Reduce crown by - Specified extent RoH <1/1 000 000 height and branch length by up to 3m, to suitable growth points, in order to establish a smaller crown and minimise risk of branch failure. This process should be repeated (an additional reduction of up to 3m) in approximately 5-10 years time (depending on the epicormic reaction growth produced following these works) to continue to the reduction in size of the crown and veteranise the tree, the aim being to prolong its useful life for as long as possible.	To manage ancient or veteran trees



# APPENDIX B

- TMA decay detection appendix

# PiCUS

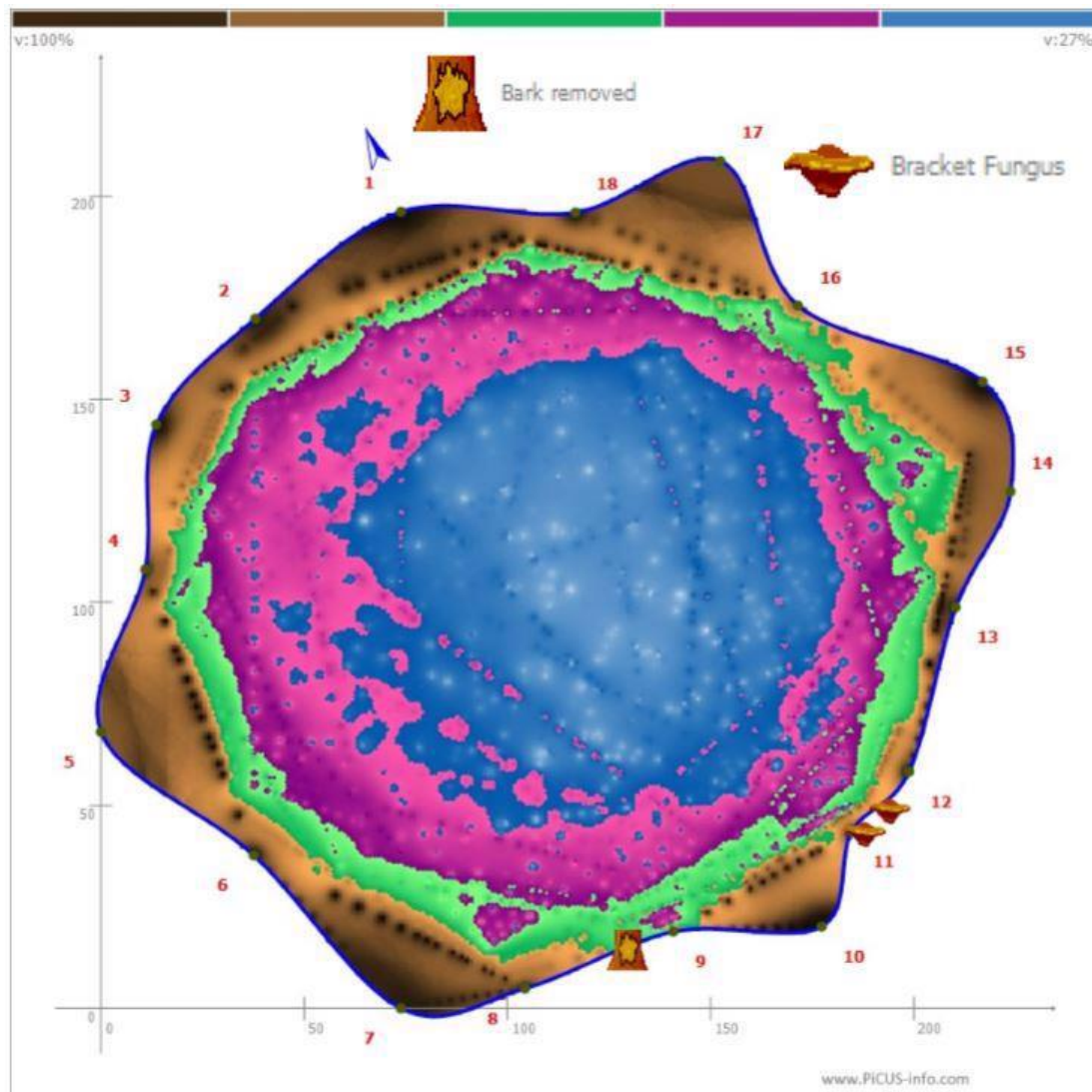


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PiCUS investigations involve an assessment of the consistency of wood within a tree by passing sound waves through the trunk and measuring how long they take to reach sensors placed around the circumference. Sound travels relatively slowly through decayed wood.

The Tomogram includes a scale at the top showing;

**HIGHER VELOCITY TO LOWER VELOCITY** indicating **SOUND WOOD TO DECAYED WOOD**



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**The above tomogram shows extensive internal decay (blue, pink) which continues to develop across the stem (green, yellow/light brown) with some sound wood (dark brown) remaining around the circumference**

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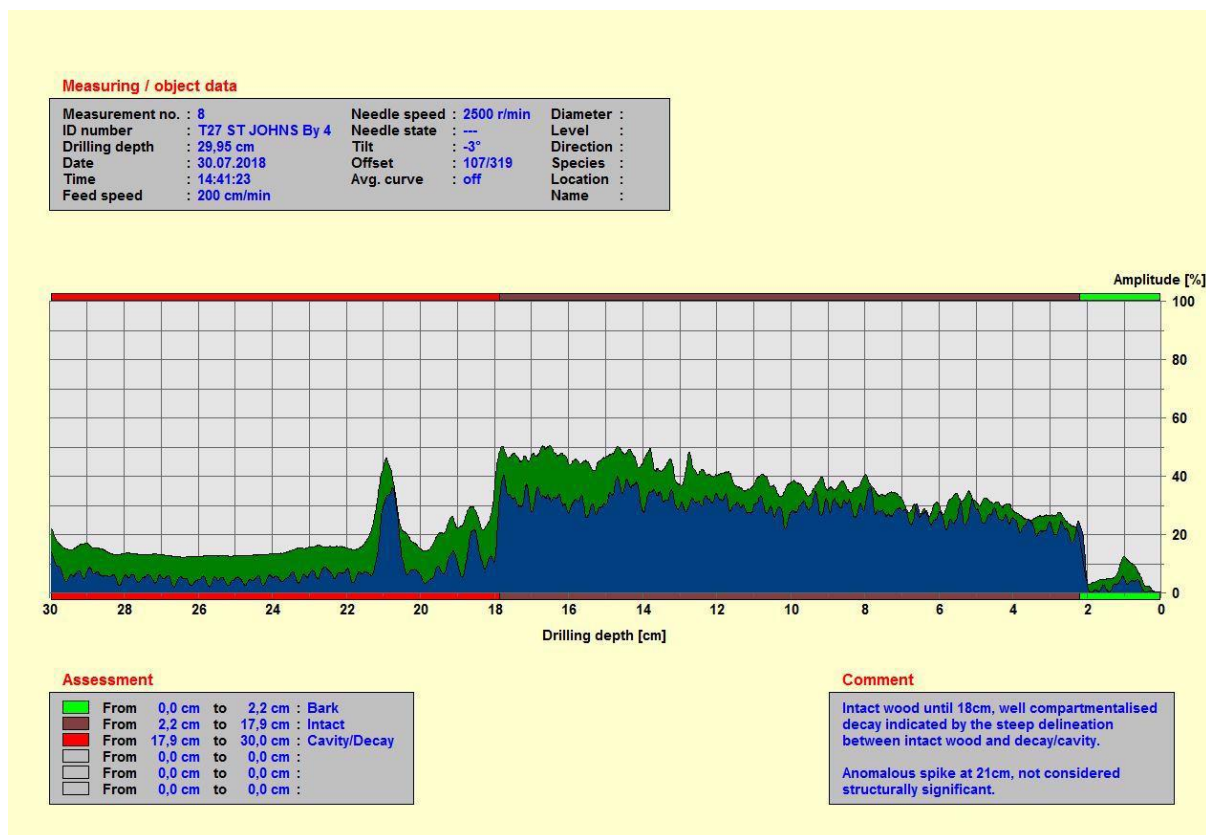
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# RESI PD

Resistograph testing involves measuring the levels of resistance to drilling by passing a very fine drill through the wood to determine its consistency. The results show high peaks and low peaks for relatively high and low resistance.

Decayed wood normally has lower resistance to drilling.



The above RESI PD trace (read from right to left) shows bark to 2cm, intact wood with high resistance until 18cm where resistance drops sharply, indicating well compartmentalised decay throughout the remainder of the trace



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# APPENDIX C

- Duty of Care Guidance

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## Meeting your duty of care - Guidance for tree owners

Please see below a selection of publicly available documents which offer guidance and information for tree owners regarding their legal duty of care as described in the Occupiers Liability Acts (1957 & 1984).

- [Common sense risk management of trees – National Tree Safety Group](#)
- [Hazards from trees – Forestry Commission](#)
- [Veteran Trees: A guide to risk and responsibility \(IN131\) – Natural England](#)
- [Guide to Trees and the Law – Arboricultural Association](#)
- [Planning Policy Guidance – Tree Preservation Orders and trees in Conservation Areas](#)



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