TIM MOYA ASSOCIATES

# Decay Detection Investigation

**PiCUS / RESI PD**

Bedford Square
Fitzrovia
London
WC1B 3DR

**April 2019**

**160523-DID-02**

| | |
|---|---|
| Project | 160523-DID-02 – Bedford Estates |
| Report Type | Decay Detection Investigation |
| Checked by | Tim Moya |
| Date Checked | 17/04/2019 |

**CONTENTS PAGE**

# 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 Bedford Estates Bloomsbury Ltd to attend site and inspect a large plane tree at 59 Gower Street, Fitzrovia. Following the inspection we are instructed to prepare a report of our findings and make appropriate recommendations to manage the risks assessed.

2.2 Bedford Estates Bloomsbury Ltd contacted us to arrange for this investigation due to damage and decay at the base of the tree.

2.3 The scope of this investigation is: to visually inspect[1] 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.

1 - Matthek, 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 I inspected the trees as arranged with Bedford Estates Bloomsbury Ltd on Thursday 28th March and the findings of my investigation are set out below and in the attached appendices.

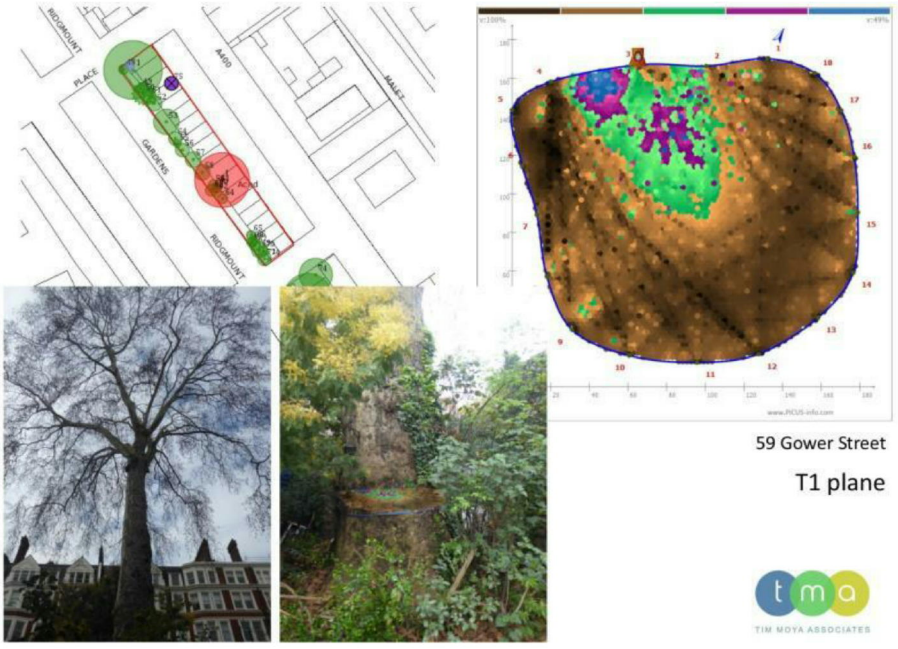
3.3 The details and condition notes for the inspected tree are attached in the schedule at Appendix A. This schedule also contains recommendations for works and/or further inspections as appropriate. Where tree work recommendations have been made they have been given a time based priority and it is strongly recommended that these recommendations are carried out within the time limits stated.

3.4 As the tree is protected by a TPO it is necessary to obtain permission from London Borough of Camden 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

3.5 The tree is situated within the rear garden of a terraced building with branches spreading over several gardens. It is within falling distance of residential buildings and a road. The boundary wall by the base of the tree is damaged.

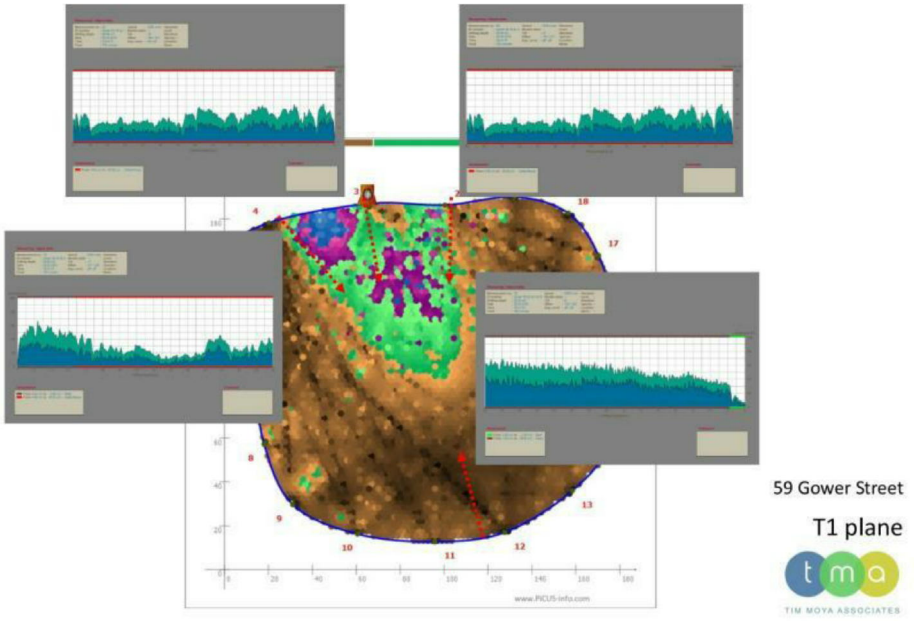
3.6 The tree is a large mature plane with some fire damage and decay at the base. There are some dead branches in the crown which have been colonised by Massaria disease of planes and other small lesions on branches and stems in the crown. The tree is very tall with a wide, spreading crown.




*Decay detection investigation: Clockwise from the top left, map, tomogram, tomogram superimposed on the tree, the tree*

3.7 The tomogram reveals a small area of decay (blue, pink) which is slowly developing (green, yellow) across the stem at the test height. The results indicate that the consistency of the wood at the test height is slightly compromised (light brown mixed with darker brown), however this is currently unlikely to be structurally significant.

3.8 The wood within the decayed area is still intact and not obviously degraded, so additional testing was undertaken using the RESI PD.




*RESI PD traces superimposed on tomogram for reference: RESI PD traces at measuring points 4, 3, and 2 (clockwise from the left) with the reference trace for comparison on the right*

3.9 The RESI PD traces by measuring points (mp) 4 (read from left to right) and mp's 3 and 2 (read from right to left) all show decayed and damaged wood. The reference trace from the south (read from right to left) shows intact wood throughout.

3.10 The decay revealed by the above testing does not currently present an unacceptable risk of tree failure. The development of decay will need to be monitored in the future.

3.11 Recommendations have been made to reduce the tree height and branch length for good arboricultural management purposes.

# 4 CONCLUSIONS

## Further actions

4.1 Some remedial tree work is required to reduce the risk of branch failure to acceptable levels and establish a smaller crown. Please see Appendix A for details. The tree should be re-inspected within 2 years or after storm force events which may weaken its condition.

# 5 APPENDICES CONTENTS

**APPENDIX A**

- Gower St 59 schedule

**APPENDIX B**

- TMA decay detection appendix

**APPENDIX C**

- Duty of Care Guidance

TIM MOYA ASSOCIATES

# APPENDIX A

- Gower St 59 schedule

## Tree Schedule & work recommendations

Gower Street 59

| Tree / Group No. | No. of Trees | Species | Height (m) | DBH (cm) | Crown spread(m) | Tree type | Age Class | Physiological Condition | Structural Condition | Targets | Condition Notes / Recommendations | Re-inspection | Access for works | BS Category |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T1 | 1 | *Platanus x hispanica* London Plane | 31.0 | 173 | 28.0 | | Mature | Fair | Fair | Building within falling distance of tree. Tree overhangs neighbouring property. | Access to inspect base - Restricted / obscured. Base / stems obscured - Debris. Base / stems obscured - Vegetation. Deadwood - Minor. Decay / structural defect - Base. Epicormic growth - Base. Fire damage - Base / bole / principal stems. Form - Spreading crown. Base partially obscured by vegetation and other items. Boundary wall cracked.<br>Massaria confirmed.<br>Neofusicoccum suspected.<br>Fire damage at base and lower stem.<br><br>Reduce crown by - Specified extent - height and lateral branch length by up to 3m to relieve loading and establish smaller crown. All final cuts to be made at suitable growth points. Remove dead wood. All work to be undertaken using hand saw WHICH MUST BE THOROUGHLY STERILISED after use and before use on another tree. Within 1 year<br>Detailed investigation - Internal decay Assessment - PiCUS and RESI PD investigation at 110cm above ground level on stem to monitor development of decay and inform future management decisions Within 2 years | | | |


# APPENDIX B

- TMA decay detection appendix

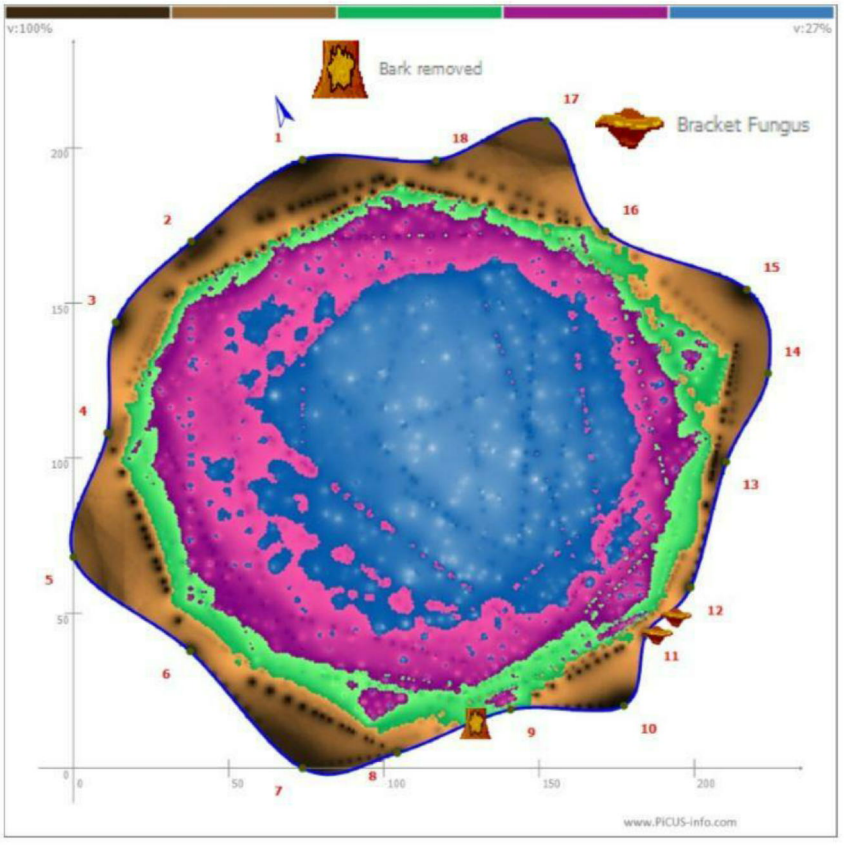
# PiCUS

TIM MOYA ASSOCIATES

**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;**

**HIGHERVELOCITYTOLOWERVELOCITY** *indicating* **SOUNDWOODTODECAYEDWOOD**




**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**

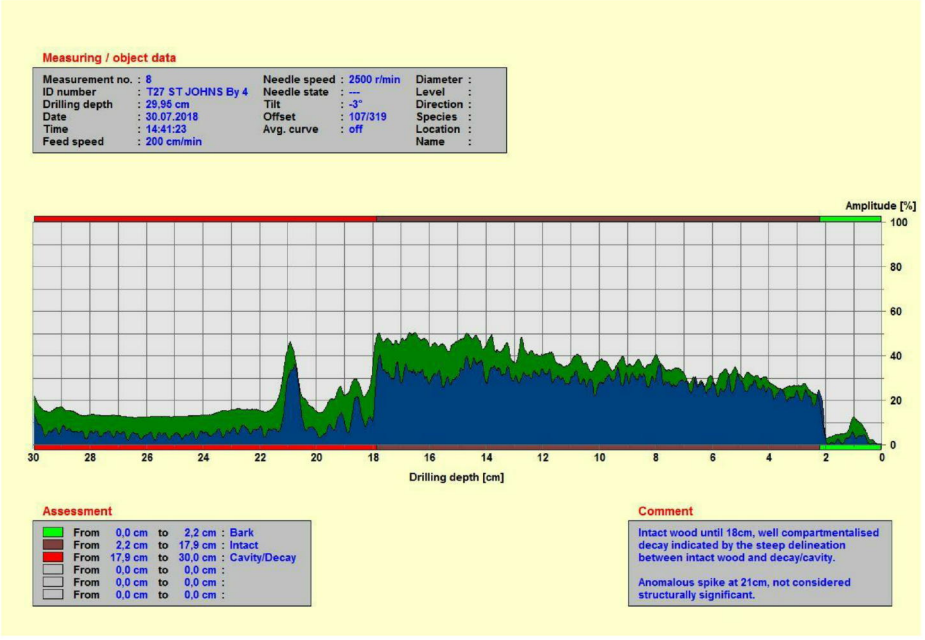


[redacted]

TIM MOYA ASSOCIATES

# 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**



[redacted]

TIM MOYA ASSOCIATES

# APPENDIX C

- Duty of Care Guidance

TIM MOYA ASSOCIATES

# 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




TIM MOYA ASSOCIATES

arboriculture ecology landscape innovation

[redacted]