



THE OLD VICARAGE, ASHTON KEYNES

DETAILED TREE ASSESSMENT

Prepared for: Mr Robert Laws

Prepared by: R Hyett

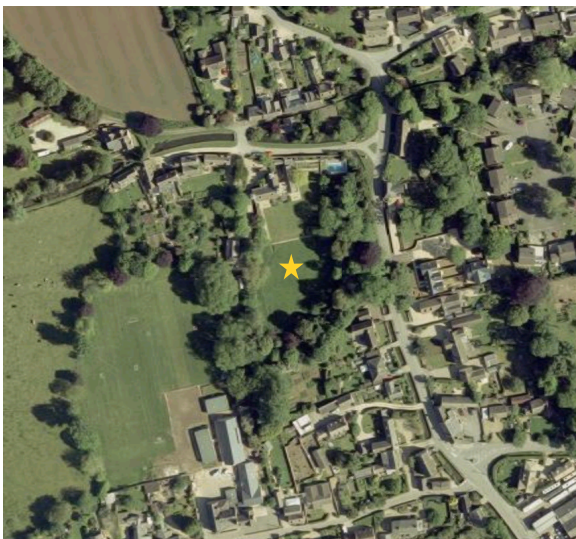
30 April 2019

Project reference: L.2893

1. INSTRUCTIONS

- 1.1. Received from: Mr Robert Laws, owner and resident at The Old Vicarage, Ashton Keynes.
- 1.2. Terms of reference: To inspect two ash trees in the rear garden of the property and prepare a report detailing their condition and making recommendations for future management.
- 1.3. Limitation: This report is based on the findings at the time of the inspection. Any subsequent change in relevant site conditions or the condition of the trees will invalidate the findings of this report. The contents of this report remain valid for a period of 12 months.

2. SUMMARY OF SITE

SITE ADDRESS	The Old Vicarage, Ashton Keynes	 Site location by star on aerial image. © Google Earth Pro 2019.
TREE REF:	T16 and T70	
REASON FOR ASSESSMENT	Detailed assessment recommended after a visual tree assessment and survey of trees at the property (2018).	
TREE LOCATION	Rear garden (T16 west boundary, T70 east boundary)	
ENVIRONMENT	Residential dwelling in a village setting	
EXPOSURE	T16 - school playing field to west with other trees located within school grounds. T70 - within tree group providing companion cover to north and south.	
ASSESSOR	R Hyett and I Howell	
DATE OF ASSESSMENT	25th March 2019	
CLIENT	Mr Robert Laws	

3. METHODOLOGY

- 3.1. I initially inspected the trees on the 6th December 2018 using the 'Visual Tree Assessment' methodology, as described by Mattheck and Breloer, 1994¹. Additionally, I used a sonic tomogram device (Fakopp ArborSonic 3D) to evaluate the internal condition of the stems on each trees. The device consists of 12 transducers attached to amplifier boxes which are in turn connected to a computer. The transducers can send and receive sound waves through wood.
- 3.2. Each transducer is tapped with a metal hammer in turn, in order to generate a sound wave that can be received by the remaining transducers/sensors. The principle of the assessment is that sound waves will take longer to travel through/around decayed wood or internal hollow areas than they do through dense, solid timber. The software then uses the differences in the relative speeds between sensors to construct a two-dimensional representation that shows the different transmission times through the stem.
- 3.3. The tomogram image uses colours to represent the sonic-speeds through the wood in order to give an indication of the location and size of areas of structurally poor (less dense) wood. It must be noted that other factors such as internal cracks can affect the assessments, so thoughtful interpretation of the tomograms is key to reaching any confident conclusions.
- 3.4. The location of the planes for the tomograph assessments are carefully decided following a visual inspection of the tree so that the most useful and critical part of the tree can be assessed in relation to its structural integrity.

¹ *The Body Language of Trees: A Handbook for Failure Analysis (Research for Amenity Trees)*

4. TREE DETAILS

TREE NO:	SPECIES	AGE	HEIGHT (M)	STEM DIAMETER (CM)	VITALITY
T16	Ash	Mature	20	152	Good

NOTE: the tree is protected by virtue of being located within a Conservation Area.

OBSERVATIONS

- The tree is a tall, broad crown ash located 4 metres from the west elevation of a garage/office building.
- The tree is twin stemmed from circa 1m.
- At the base of the trunk there is a small area on the south side where the bark has died and exposed the underlying sapwood.
- On the west side of the stem an old barbed wire fence has been occluded in to the wood
- Sounding the base of the stem with a mallet does not indicate significant changes in resonance, primarily due to the stem diameter.
- The crown has been lifted in the past with many of the lower secondary and tertiary lateral branches being removed.
- There are some minor cavities at pruning wound locations.
- The density of twigs in the upper crown is good and annual tip extension growth is fair.

TREE NO:	SPECIES	AGE	HEIGHT (M)	STEM DIAMETER (CM)	VITALITY
T70	Common Ash	Mature	25	110	Good

NOTE: the tree is protected by virtue of being located within a Conservation Area.

OBSERVATIONS

- The tree is a tall, slender ash located in the south-east corner of the garden. The tree overhangs the High Street, the River Thames and insulated overhead power lines.
- It has a single straight trunk to approximately 6m, where it divides in to two secondary stems.
- At approximately 2m up the primary stem is a large and historic limb loss scar with decayed heartwood visible and poor reaction growth.
- In the upper crown there are numerous dead limbs on the garden side with woodpeckers holes present.
- At circa 18m on the east side of the crown there is a previous limb loss scar where a limb failed on to the high street.
- The crown has been lifted in the past.
- The density of twigs and buds in the upper crown is good and annual tip extension growth is good.

5. TOMOGRAPHY ASSESSMENT FINDINGS

T16

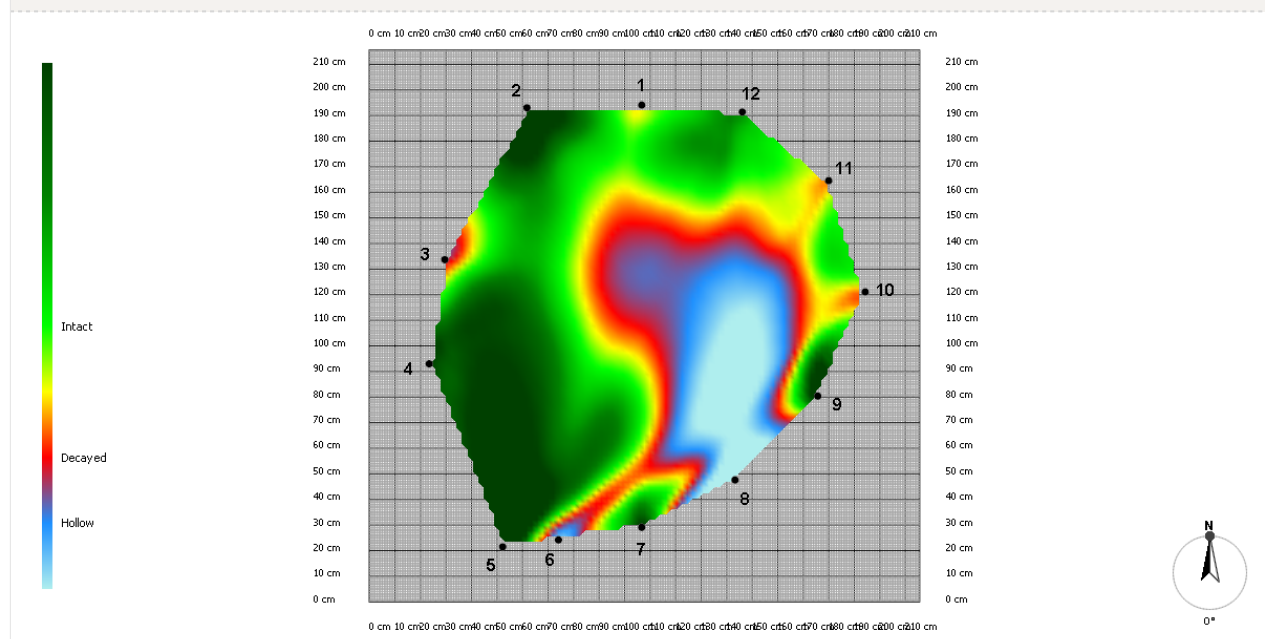
PHOTO 1: LOOKING WEST TO T16



PHOTO 2: BASE OF T16 ON SOUTH SIDE



SONIC TOMOGRAM - HEIGHT: 42 CM ABOVE GROUND LEVEL



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- 5.1. The tomograph assessment of T16 was made as close to ground level as possible, at approximately 40cm above the ground level. The tomogram image shows an offset zone in a blue colour which indicates an area of hollowness or degraded wood. The red-yellow colours indicated less degraded areas, possibly where there is incipient decay present. Dark to light green areas indicate intact wood.
 - 5.2. The ArborSonic software calculates the amount of 'decay' as approximately 25% of the cross sectional area on this plane.
 - 5.3. Given the nature of basal decay in trees this percentage of decay is likely to decrease further up the stem and increase towards ground level.
 - 5.4. Despite the likely increase in percentage decay towards ground level the visual inspection of the buttress roots, and localised excavation of leaf matter and soil, revealed the visible elements of the buttress roots to be of sound appearance.
 - 5.5. Given the nature of the decay it is likely the onset will be progressive in the future. It is not possible at this time to quantify with what speed the decay will progress but the visual indicators are that decay has been present on the base of the tree for some time.
 - 5.6. The sonic tomography results from this detailed inspection will serve as a baseline for comparison of results from future detailed inspections and so allow an assessment of progression to be made.

T70

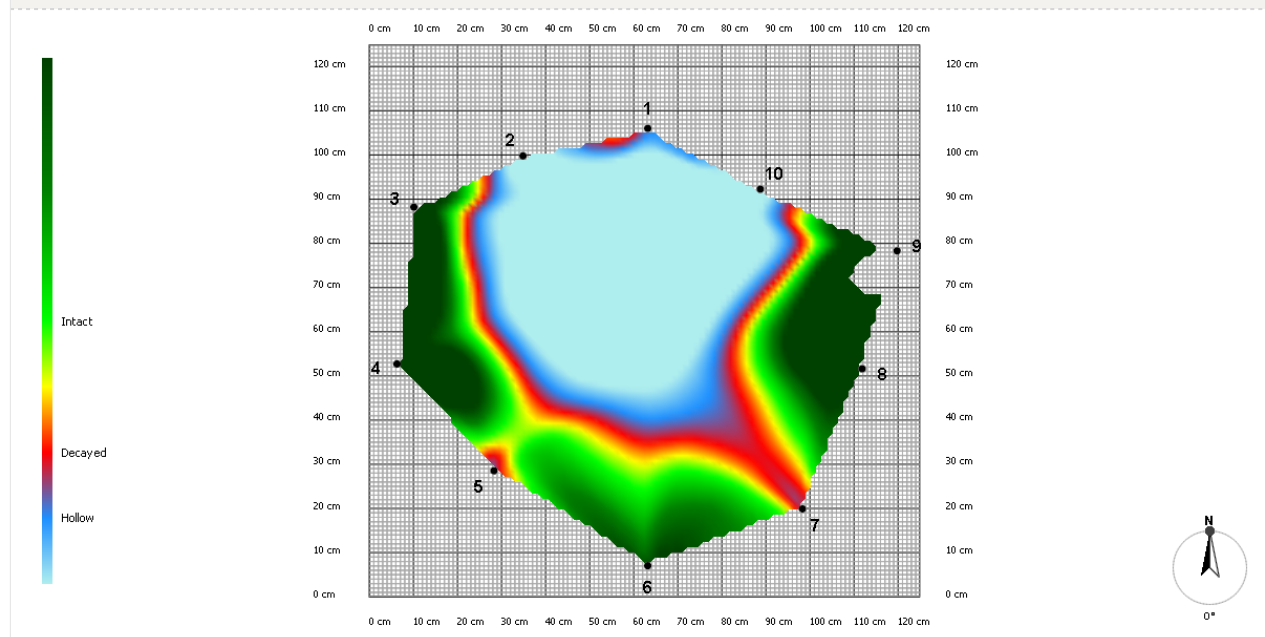
PHOTO 3: SENSORS 1-4 ON NORTH SIDE



PHOTO 4: TREE AND CONTEXT (CENTRE FRAME)



SONIC TOMOGRAM - HEIGHT: 180 CM ABOVE GROUND LEVEL



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- 5.7. The tomograph assessment of T70 was made at 1.8m, just below the open cavity at the point of previous limb loss. The tomogram image shows a central zone in a blue colour which indicates an area of hollowness or degraded wood. The red-yellow colours indicated less degraded areas, possibly where there is incipient decay present. Dark to light green areas indicate intact wood.
- 5.8. The ArborSonic software calculates the amount of 'decay' as 55% of the cross sectional area on this plane.
- 5.9. The decay at this point of the tree is well established. The nature of previous limb loss scar and the extent of decay noted on the tomogram would suggest the decay remains at this extent for some distance above the scan level.
- 5.10. The height of the tree and the mass of material in the upper crown of the tree suggests the dynamic loading applied to this point of the stem will be significant.
- 5.11. From the exposed nature of the decay and from a visual inspection with the probe it is apparent that the decay is progressive in nature.
- 5.12. Despite the limb loss occurring some years ago and the decay also having been present for some time the reaction of the tree through the putting down of new reaction wood is not as good as one would expect to see. In fact the reaction ribs either side of the decay cavity and noticeably small.
- 5.13. Whilst there is a large reaction wood rib noted around sensor 4, it was also noted that this is isolated by a small column of decay around sensor 5. The results around sensor 5 were checked and resonance testing with a sounding mallet indicated that this smaller column of decay extended by approximately 800mm below the plane of the scan and 600mm above.
- 5.14. In addition to the sonic tomography scan a climbing inspection of T70 was undertaken. This revealed that despite there being previous limb loss scars in the east side of the canopy these losses had not resulted in any significant structural weakness in the remaining stems. It also revealed that all sections of major deadwood (greater than 150mm diameter) are located over the infrequently occupied area of the garden and not over the public highway.
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6. CONCLUSIONS AND RECOMMENDATIONS

T16

- 6.1. My assessment of this ash tree has found that the base of the tree has a relatively small amount of internal decay. The orientation of the decay shows some correlation with the location of the bark wound on the south side of the stem sensor 8. Although some decay is present, there is a large amount of sound wood around the outer edges of the wound and near ground level which, in my opinion, has sufficient bearing capacity to support the tree. Therefore, I consider the risk of whole tree failure, to be low.
- 6.2. However, given the presence of the decay and the age of the tree it would be prudent to consider proactively managing the tree down in size to manage the future risk of failure. I believe this would be the correct approach as the tree is valuable in terms of its age and size. The felling of the tree to eliminate *all* risk would be disproportionate. It should be noted that the recommendations below are not required to address any short-term risk posed by the tree and so in terms of priority they may be seen as discretionary.
- 6.3. In light of the above conclusions, I recommend the following:
- ***That T16 be retained and managed*** with programme of crown reduction being undertaken over the next 5-10 years. This should commence with an initial crown reduction within the next 18 months to remove circa 2.5m from the canopy height and lateral spread. This should be accompanied by localised pruning to provide an overall natural crown shape. This work could be repeated on a 2-3 year cycle until the overall height of the tree is around 9-10m. The exact quantity and frequency of pruning after the initial works will need be specified at the time to reflect the physiological response of the tree to the previous years pruning works.

T70

- 6.4. I conclude that the extent of decay present within the lower stem of this tree has compromised its structural integrity to the point where the failure of the stem is likely within the short-term future. This potential for failure is particularly relevant when considering the location of the tree and the likely targets that could be affected by its failure.

6.5. In light of the above conclusion, I recommend the following:

- ***That T70 be removed*** within a guide timeframe of 1 calendar year from the date of this report. The tree could be felled to ground level or, if desired, it could be reduced to circa 5m in height and maintained as a pollard below a maximum height of 8m. It should be noted that topping a tree by this amount may result in the death of the tree, in which case the 'stump' could be left in a safe condition to degrade and to also provide a wildlife habitat.

General

6.6. As the trees are 'protected' by virtue of being present within a Conservation Area (as are all other trees on the property that are above the threshold size) a formal notification of intent will need to be submitted to Wiltshire Council. The notification must be made in writing, identify the relevant trees with a site plan, and detail out the proposed works. Wiltshire Council then have 6 weeks from the date of the notification to decide whether to further protect the tree (i.e. object to the works) by serving a Tree Preservation Order (TPO). If no TPO has been served by the time the 6 weeks expires the works can proceed. However, it should be noted that Wiltshire Council could serve a TPO at any point after the 6 week period has expired. This report can be submitted along with a notification of tree works to assist in demonstrating the need for the works.

6.7. I trust the contents of this report are clear and helpful, however, should you wish to chat through any element of the report then please feel free to get in touch.

Richard Hyett
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Chartered Arboriculturist



MEMBER PR 3529