

ARBORICULTURAL DECAY DETECTION

at:

Ash Tree Barn
Lands Farm
Cleckheaton
West Yorkshire
BD19 4EU

Client:
Dave Wassell

Client Address:
Ash Tree Barn
Lands Farm
Cliffe Lane
Cleckheaton
BD19 4EU

JCA Ref:
22340/DK

JCA Limited
Arboricultural & Ecological Consultants

Contents

Contents ***2***

1. Introduction ***3***

2. Decay Detection Equipment ***4***

3. Status Of The Tree ***5***

4. The Decay Detection Investigation ***6***

Appendix 1: Tree Descriptions and Recommendations ***11***

Appendix 2: Site Plan ***12***

Appendix 3: Author Qualifications ***13***

Appendix 4: General Guidelines ***14***

Appendix 5: Pruning Guide Image ***15***

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1. Introduction

1.1 Purpose of the Report

1.1.1 A Decay Detection Test has been requested by our client to assess the internal condition of the mature Common Ash tree at **Ash Tree Barn**, **Lands Farm**, **Cleckheaton**, **West Yorkshire**, **BD19 4EU**.

1.1.2 This report details the results obtained from the ArborSonic Decay Detection test and provides advice on the condition of the tree, and any recommendations which may be required based on the findings.

1.2 Terms of Reference

1.2.1 We are instructed by **David Wassell** of **Ash Tree Barn** to undertake the assessment, and prepare the findings in a report, providing advice where necessary.

1.3 Scope of the Report

1.3.1 The test was carried out on a *Fraxinus excelsior* (Common Ash). The tree is located to the southeast side of the main property, within a raised planted area close to the boundary fence with a field.

1.3.2 The tree is a prominent feature in the landscape and offers excellent amenity value to the local area. However, the tree was noted to have a cavity at ground level to the northwest side of the tree's main stem. A recently failed branch was also noted at approximately mid height to the northwest side of the tree's crown and some very minor dead branch ends were also noted, around the lower crown particularly, whilst the tree was being viewed more closely.

1.4 Survey Details

1.4.1 The test was conducted in September 2024 by **Dan Kemp** *FdSc (Arboriculture)*, *BTEC National Diploma in Amenity Horticulture (Arboriculture)* and **David de Peña** *BSc (Hons) Ecology and Conservation* with the assistance of **Adie Gray** (IT Officer).

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2. Decay Detection Equipment

2.1 ArborSonic Decay Detection (Sonic Tomograph)

2.1.1 The Sonic Tomograph is a specialised electronic instrument which is used to assess the internal structure of a tree branch or stem. The condition of the tree is assessed by measuring the speed that sound travels through the wood in a number of different directions from a number of set positions.

2.1.2 The ArborSonic Tomograph works on the basis that sound velocity travels faster through solid wood (healthy wood) than softer/denatured wood (decayed wood) or air/voids (cavities). Therefore, by measuring the speed it takes for sound to travel from one point to another through the tree, across a known distance, an idea of the structural condition of the wood can be obtained.

2.1.3 Specialist sensors, which are used to record the time taken for the sound to travel through the wood, are attached to the tree stem. Sound is generated by tapping each sensor in turn with a metal hammer. Each sensor records the time taken for the sound to travel through the wood, the results of which are relayed directly to a computer.

2.1.4 The results are displayed as computer generated images which show the cross section of the branch or stem tested. The image is colour coded, with each colour determined by the speed that sound travelled through the wood and therefore an indication of the wood density.

2.1.5 The colour generated images can be checked against the side bar which is plotted next to each image (see **Section 4**), which shows the colours in respect to the speeds recorded in metres a second (m/s). As a general guide, fast/normal speeds (indicating healthy wood), show up as Green, where slower speeds (indicating denatured or compromised wood, decayed areas or cavities) show up as Yellow, Red, Purple or Blue.

2.1.6 The images provide information about the internal structure of the tree and based upon this management recommendations can be made where necessary.

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3. Status Of The Tree

3.1 A check was made with ***Kirklees Metropolitan Borough Council*** in September 2024 to determine whether the Common Ash tree (**T1**) assessed within the scope of this report is subject to any statutory controls.

3.2 We are informed that the tree is subject to an Individual Tree Preservation Order (**TPO Ref: SP2/70/t11**).

3.3 No work must be undertaken to **T1** until an approved Works to Protected Trees application has been granted, or until planning permission has been granted which includes accurately specified tree works.

3.4 Prior to any works being undertaken to **T1**, those instructing and proposing to carry out the work should satisfy themselves that all appropriate consents are in place to prevent potential breach of legislation.

3.5 The presence of a Tree Preservation Order (TPO) represents the Local Authority's desire to retain trees within the landscape. As such, trees covered by a TPO are generally more likely to require retention within a proposed scheme and this should be taken into account during the design process. In some cases, the removal of TPO trees may be agreed upon, providing the benefits of the proposed development are deemed greater than the material loss of the trees. The value of existing vegetation is just one factor in the decision making process; all benefits of the proposed development will be taken into consideration in the usual manner.

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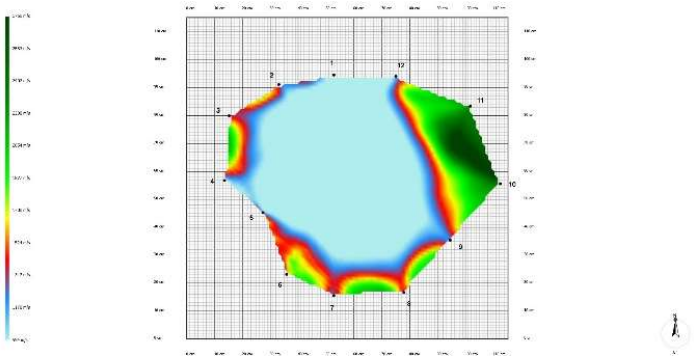
4. The Decay Detection Investigation

4.1 The ArborSonic Tomograph Results

Tree 1: *Fraxinus excelsior* (Common Ash).

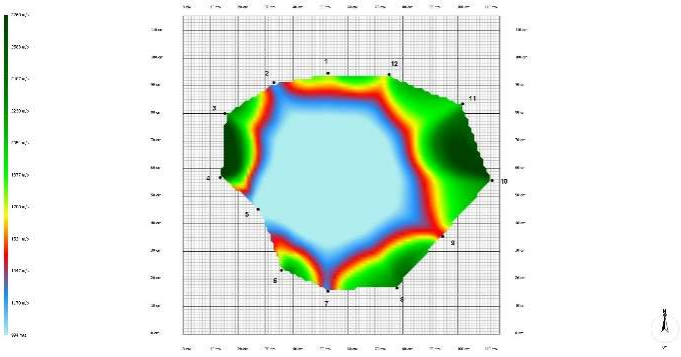
Defect: A cavity to the northwest side and at the base of the tree's main stem.

Investigation Height and Location: The main stem at 10cm.



Analysis: An large area of decay/hollowing has occurred. This was noted to extend to the outer areas of the tree's main stem (blue area). Some green areas indicate that the tree still has some relatively unaffected wood around the outer parts of the tree's main stem, although this is considered limited to several relatively small areas, the majority is to the east side (compression side) of the main stem opposed to the west side (tension side) which is where a leaning broadleaved tree would normally prioritise wood growth for it's support. Pin 5 was immediately above the cavity to the west side of the tree's main stem.

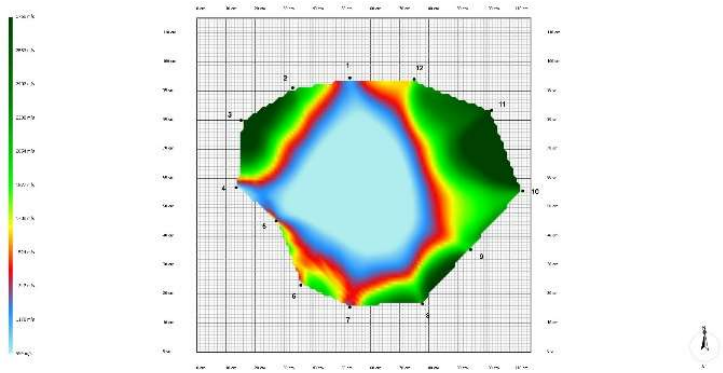
Investigation Height and Location: The main stem at 100cm.



Analysis: An large area of decay/hollowing has occurred. This was noted to extend to the outer areas of the tree's main stem (blue area). Some green areas indicate that the tree still has some relatively unaffected wood around the outer parts of the tree's main stem, although this is considered limited to several relatively small areas, the majority is to the east side (compression side) of the main stem opposed to the west side (tension side) which is where a leaning broadleaved tree would normally prioritise wood growth for it's support. The tomograph is clearly similar to the lower test and shows that decay has progressed extensively both longitudinally as well as laterally within the tree's main stem.

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Investigation Height and Location: The main stem at 200cm.

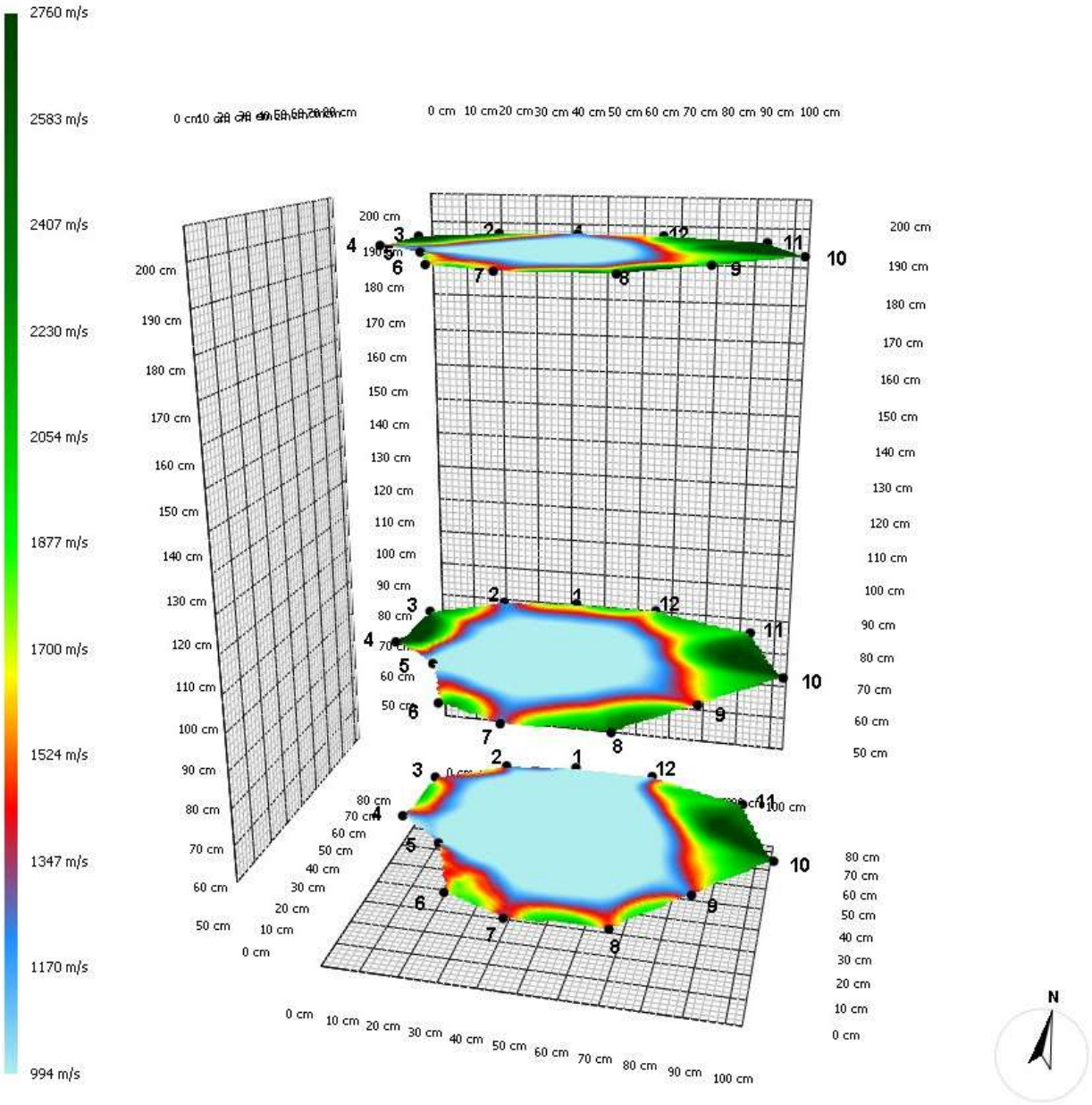


Analysis: Although less decay was generally noted, a significant area of decay/hollowing has occurred. This was noted to extend to the outer areas of the tree's main stem (blue area). Some green areas indicate that the tree still has some relatively unaffected wood around the outer parts of the tree's main stem, although this is considered limited to several relatively small areas, the majority is to the east side (compression side) of the main stem opposed to the west side (tension side) which is where a leaning broadleaved tree would normally prioritise wood growth for it's support. The tomograph is clearly similar to the lower two tests and shows that decay has progressed extensively both longitudinally as well as laterally within the tree's main stem.

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Multilayer 3D Model

Investigation Height and Location: The three tests have all been placed together in their respective positions to help to illustrate the overall result:



Analysis: The tests together look to indicate that the main stem up to and beyond 2 metres above ground level is generally hollow (blue areas). There looks to be some minor upward taper in the internal decay although this is considered negligible. Stem decay often tapers from the lower area upwards within the main stem of a tree. The longitudinal and lateral extents of this at differing levels help to indicate the extent and virulence of any such decay present.

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5. Discussion

5.1 The internal structure of one tree was tested using a Sonic Decay Detector (ArborSonic Tomograph).

5.2 **Tomograph Results:** The results from the ArborSonic Tomograph indicates that the tree has extensive decay within the main stem and the tree is therefore considered to be in a structurally compromised condition.

5.3 Having assessed the tree and based on the results obtained from the Arborsonic tests, due to the extent of the decay, the tree has only a limited future.

5.4 We therefore recommend one of the following two options:

Option 1: Remove; fell to ground level and treat the stump to prevent regrowth.

or

Option 2: Crown reduce by 30%/remove up to 3.5 metres from the tree's crown periphery and balance the crown on all sides.

We have provided an image of the tree at **Appendix 5** with some details to help guide the reduction works. Please bear in mind that this is an image from one side only and that care needs to be taken to reduce the canopy and balance the tree around the whole of the tree's crown.

Following the crown reduction work, the future health and condition of the tree needs to be closely monitored, and we therefore advise that the tree is re-inspected annually. The subsequent re-inspection is recommended during a similar time as the previous inspection, when the tree is still in leaf and when the tree will generally best show its vital signs.

Further Arborsonic tests should be considered at the same time, to monitor the progress of the decay, the development of any reaction wood and to monitor the tree's continuing crown size and crown density.

5.5 We would be happy to assist should you have any queries regarding any of the information provided within this report.

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Appendices

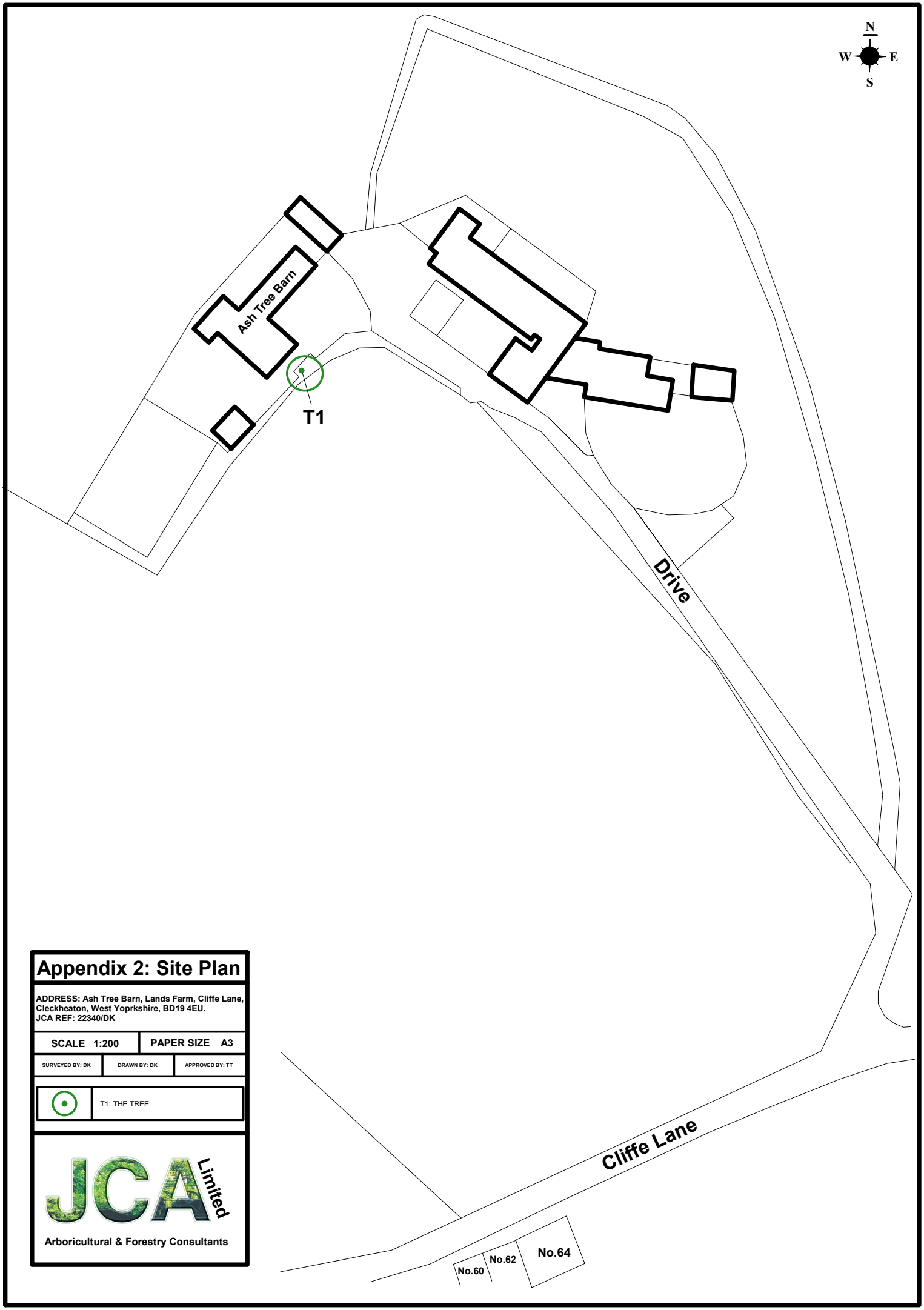
Appendix 1: Tree Descriptions and Recommendations

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Tree Ref.	Age Common Name *Botanical Name*	Height (m)	Crown Spread (m)	Crown Height (m)	Diameter (cm)	Observations	Physiological Condition	Structural Condition	Life Expectancy (yrs)	Target Value	Recommendations	Priority	Estimated Tree Age (yrs)
T 1	Mature Common Ash *Fraxinus excelsior*	13 #	9 to 10 #	2 #	93	The main stem curves to the southeast side - the crown is bias over the boundary to the field side. The tree was generally in full leaf. When viewed more closely, a number of very small dead branch ends were noted, possibly a symptom of Ash Dieback. The cavity on the north side of the main stem at ground level was probed and the main stem was noted to be very hollow around the base. Various burrs around the main stem are considered to be responsive growths. The tree was considered an individual feature and therefore its retention was considered an important factor to consider.	FAIR	POOR	<10	MOD	**Option 1:** Remove; fell to ground level and treat stump to prevent regrowth. or **Option 2:** Crown reduce by 3.5 metres (30%) - remove up to 3.5 metres from the tree's crown periphery (see image at **Appendix 5** for further details). Review annually - carry out a visual tree assessment at a similar time of year in 2025, whilst the tree is still in leaf and when the tree can best display its vital signs and undertake further Arborsonic tests to monitor the progress of decay.	HIGH	117+

Appendix 2: Site Plan

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Appendix 2: Site Plan

ADDRESS: Ash Tree Barn, Lands Farm, Cliffe Lane, Cleckheaton, West Yoprkshire, BD19 4EU.
JCA REF: 22340/DK

SCALE 1:200	PAPER SIZE A3

SURVEYED BY: DK	DRAWN BY: DK	APPROVED BY: TT

⊙ T1: THE TREE

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Appendix 3: Author Qualifications

Dan Kemp *FdSc (Arboriculture), BTEC National Diploma(Arboriculture), National Certificate In Horticulture, City & Guilds In Horticulture.* Dan joined JCA in February 2019 with nearly 30 years' experience in arboriculture with extensive Botanical and Mycological expertise. He worked as a London Tree Officer for 12 years and in several arboricultural and horticultural management posts, specialising particularly in tree risk assessments and tree related subsidence.

David de Peña *BSc (Hons) Ecology and Conservation.* After earning his degree from Manchester Metropolitan University, David worked as an ecologist at various consultancies, contributing to a wide range of projects, including major infrastructure projects across the UK. More recently, David transitioned to arboriculture and served as a surveyor for Manchester City of Trees, where he participated in a project to quantify the value of Greater Manchester's woodlands and trees.

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Appendix 4: General Guidelines

A4.1 All work must be to BS 3998: 2010 - '*Recommendations for tree work'*.

A4.2 Staff carrying out the work must be qualified, experienced and ideally be Arboricultural Association approved contractors, and should be covered by adequate public liability insurance.

A4.5 No liability can be accepted by the consultant in respect of the trees unless the recommendations of this report are carried out under his supervision and within his timescale.

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Appendix 5: Pruning Guide Image

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Remove by target pruning either side but close to the green line shown
~3.5m (reduce 30%)
~7.5m (finished crown height)
~13m (overall tree height)
~2m crown height

I hope that this report provides all the necessary information, but should any further advice be needed please do not hesitate to contact the author.

Dan Kemp *FdSc (Arboriculture)*

24th September 2024

For and on behalf of ***JCA Ltd***

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- Invasive Species Surveys
- Code for Sustainable Homes

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- Biodiversity Enhancement Plans
- Protected Species Mitigation
- Ecological Management (Bat and Bird box installation and inspection)



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