

SUPPLEMENTARY TOMOGRAPHIC ASSESSMENT REPORT

T1 and T3 - mature Douglas firs

Site: 28 Lakewood Road, Eastleigh
Survey reference: A0012-2026
Inspection date: 27 July 2026
Test conditions: Fine weather
Test level: Approximately 0.10 m above ground level
Method: PiCUS sonic tomography and visual observations/ **Model PiCUS 3 Software Expert Q74**
Assessment undertaken by Kim Gifford Arboricultural Consultant see profile page 14.

Executive conclusion T1 shows extensive altered timber at the test level, a major adverse change from the 2011 tomogram, a fungal bracket at the base consistent with the historically reported *Phaeolus schweinitzii*, and long vertical sap exudation on two sides of the stem. Taken together, these defects indicate a significant structural fault and an unacceptable risk of stem or basal failure. Complete removal is recommended. T3 appears sound at the tested level and should remain under routine monitoring.

1. Instruction and scope

This report records the results of the tomographic testing recommended in the tree survey for T1 and T3. It supplements the visual tree survey dated July 2026 and should be read alongside that document. The assessment is limited to the condition of the stems at the test level and the visible symptoms recorded on 27 July 2026. Assessment undertaken by Kim Gifford Arboricultural Consultant see profile page 14.

2. Background information

Tree	Species	Height	Stem diameter	Survey context
T1	Douglas fir (<i>Pseudotsuga menziesii</i>)	36.8 m	1.1 m	Mature; fair condition. 2011 tomography showed localised decay near the northern root buttress.
T3	Douglas fir (<i>Pseudotsuga menziesii</i>)	33.5 m	Approx. 1.0 m	Mature; good condition. Further investigation requested following sounding and basal observations.

3. Method and interpretation

PiCUS sonic tomography method

The method of decay detection is based on the principle that solid wood is generally a better conductor of stress waves than wood that is decayed, cracked, hollow or otherwise structurally altered. The velocity of sound through wood depends principally on the elasticity and density of the material. White rot, brown rot, soft rot, cavities, cracks and other structural discontinuities can reduce the measured stress-wave velocity.

For each tree, a set of PiCUS sensors was positioned strategically around the stem at approximately 0.10 m above ground level, within the area previously identified as potentially containing decay or a structural fault. Each sensor was connected to a small nail tapped through the bark into contact with the wood. This procedure is virtually non-invasive and causes only very limited local disturbance.

The sensors were linked by data cable to the power supply and computer. Each nail was tapped in sequence, generating stress waves whose travel times to the other sensors were recorded. The PiCUS software algorithm compiled these measurements into a matrix, producing a dense network of relative sound velocities through the tested cross-section.

Tomogram colour representation

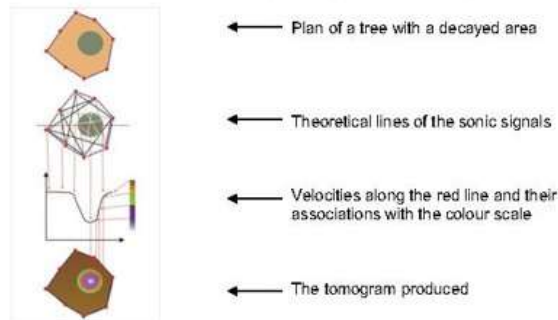
The software translates the sensor data into a representative colour tomographic image of the stem cross-section. The tomogram assists in identifying areas of differing acoustic conductivity and may indicate the presence and distribution of decay, cavities, cracks or other faults. The software can also support measurements such as remaining wall thickness, cavity opening angles and the relative percentages of wood classified as solid, damaged or altered.

- Black and brown generally represent the highest relative sound velocities and are normally associated with acoustically sounder wood.
- Green represents an intermediate or transitional response that the software cannot classify confidently as either fast or slow.
- Violet, blue and white represent the slowest relative velocities and should be considered together as one response class. These colours may indicate decay, a cavity, a crack or another cause of reduced acoustic conductivity.

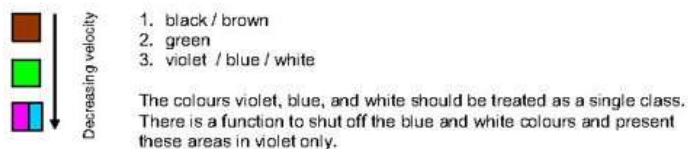
7.13.1. Tomogram colours

To display different acoustic conductivity of wood, the PiCUS program uses set colours, assigning one colour to each point of the tomograph. Areas of high velocity are represented in black or dark brown. Areas of low velocity appear in violet, white or blue, and these are the areas that indicate problems. Green areas mark those sections which could not be classified as being either fast or slow, and these areas must be interpreted together with the overall damage.

The colour scale (black, brown, green, violet, blue, white) ranges from 100% velocity (brown) to the slowest velocity (blue). Colours are switched at specific special trigger levels to show the differences, as shown in the following sketch (not drawn to scale):



There are three main colour groups to be considered:

**Warning!**

In order to read a tomogram correctly, you need **sound knowledge of trees and their diseases**, and you must be familiar with the **working principles of measuring instruments**. **DO NOT** fell a tree based solely on a tomogram reading. You must first analyse all possible reasons for slow acoustic conductivity, and you will have to apply different investigative methods as needed.

Unfortunately, the results of sonic measurements cannot give information about the exact type of structural loss in a tree. This means a tomogram does not tell us if the violet or blue areas are caused by a cavity, a crack, or by decay – it can only display the levels measured.

Method plate. PiCUS tomogram colour representation and relationship between sensor paths, relative velocity and the resulting image.

Interpretive caution A tomogram does not, by colour alone, identify the exact type of structural loss. Slow acoustic conductivity may be caused by decay, cracks, cavities, species-specific wood properties or other anatomical features. Results must be interpreted by a suitably experienced arboriculturist together with the tree's biology, visible symptoms, sounding, site context and other investigations.

A single test level represents only one cross-section and does not describe the whole stem or root system. Tomogram colours and software percentages are not direct measurements of mechanical strength and should not be treated as standalone safety factors.

4. Findings - T1 Douglas fir

Risk status: HIGH / urgent action Extensive altered timber and associated external symptoms indicate a significant and progressing structural defect. Complete removal is recommended.

Tomographic assessment

- The current tomogram displays extensive areas of altered acoustic response through the test cross-section, with the software summary indicating approximately 75% solid wood and 5% damaged response.
- The distribution is materially different from the 2011 test, which was described as showing a localised area of decay near the northern root buttress. The 2026 result indicates progression beyond a localised defect.
- The most pronounced anomalous response is concentrated around the sector adjacent to test points 3 to 5, with further altered zones extending across the central and lower portions of the test area.

Associated visual evidence

- A fungal bracket was found at the base of T1 adjacent to test points 3 to 5. Its position and appearance are consistent with the historically reported *Phaeolus schweinitzii*; this is a field identification unless subsequently confirmed by microscopy or laboratory analysis.
- The Tree Assist survey report records: “Historical reports of *Phaeolus schweinitzii* forming on the northeast side of the stem” and notes that symptoms appeared to have increased since the previous report.
- Sap exudation extends from approximately 8 m to ground level on two sides of the stem. The length and bilateral distribution are consistent with a major longitudinal dysfunction or structural fault.
- The combination of progressive internal alteration, basal fungal evidence and extensive exudation materially reduces confidence in the residual load-bearing capacity of the lower stem.

Significance of *Phaeolus schweinitzii*

Phaeolus schweinitzii (Dyer’s mazegill) is a significant root- and butt-decay fungus of conifers, including Douglas fir. The Tim Moya Associates TMA Fungi resource states that it is usually found at the base or on structural roots and attributes it to cubical brown rot of the heartwood, cavity formation, and both stem and root failure. Brown rot preferentially degrades the cellulose and hemicellulose that contribute substantially to wood strength; advanced decay can therefore cause a serious reduction in bending strength while an apparently intact outer shell and a vigorous crown remain.

In this case, the basal bracket is not considered in isolation. Its significance is increased by the adverse change from the 2011 tomogram, the widespread altered acoustic response at the 2026 test level, and extensive sap exudation on two sides of the stem. These mutually supporting findings indicate that the fungal association is accompanied by a material and progressing structural defect. This supports the recommendation for complete removal.

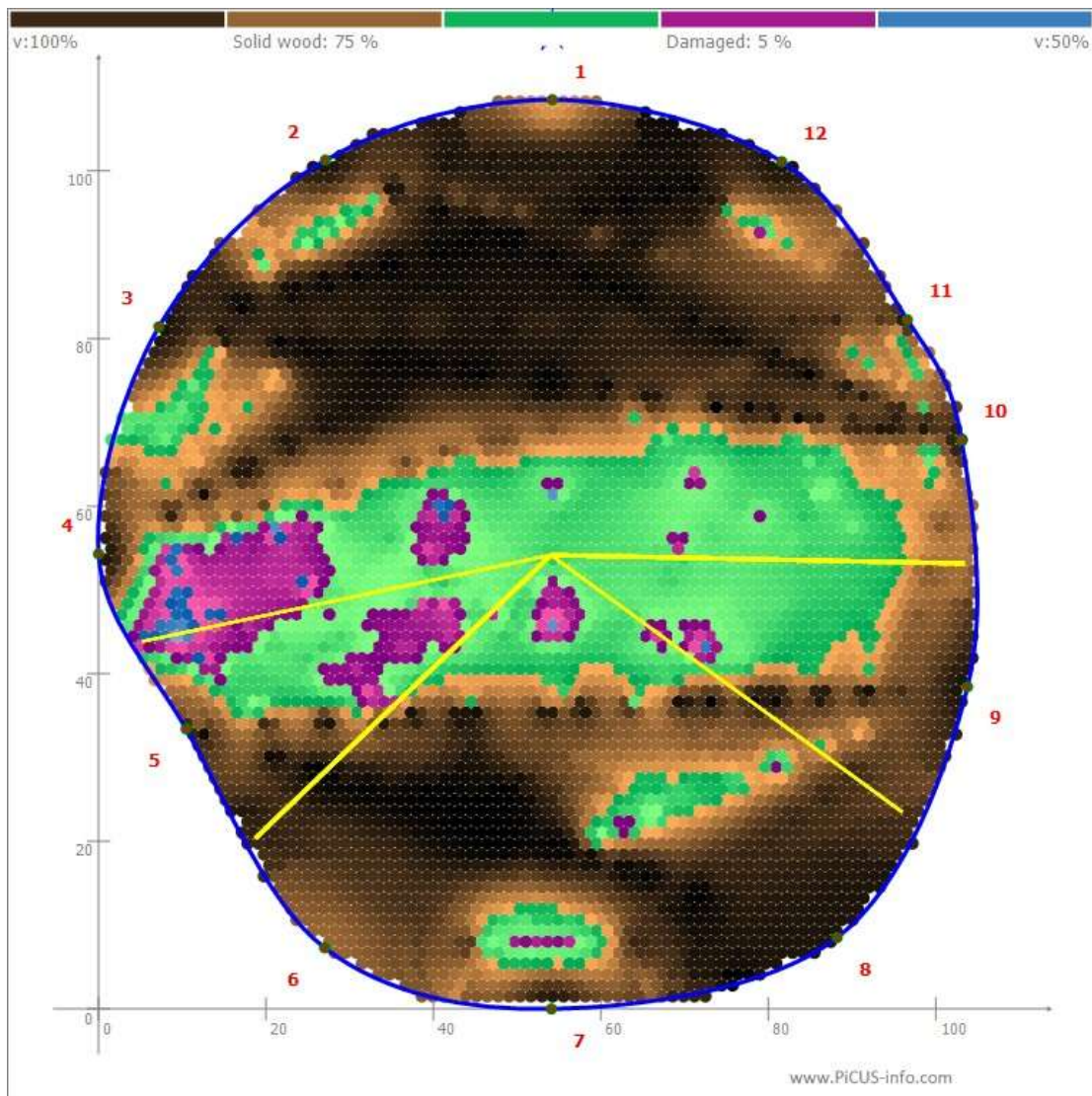


Figure 1. T1 PiCUS tomogram, test level approximately 0.10 m, 27 July 2026.

5. Findings - T3 Douglas fir

Risk status: monitor The tested cross-section appears substantially sound. No remedial work is recommended solely on the basis of this tomogram.

Tomographic assessment

- The tomogram is predominantly consistent with sound timber at the tested level, with the software summary indicating approximately 97% solid wood.
- Small areas of slower acoustic response are present, principally toward the lower and lower-right perimeter, but they do not form an extensive or continuous defect in this cross-section.
- The result does not presently indicate a material loss of load-bearing wood at the test level.

Management interpretation

- Retain T3 and continue routine inspection.
- Reinspect sooner if new fungal fruiting bodies, cracking, increasing exudation, cavities, root-plate movement, crown decline or other material changes are observed.

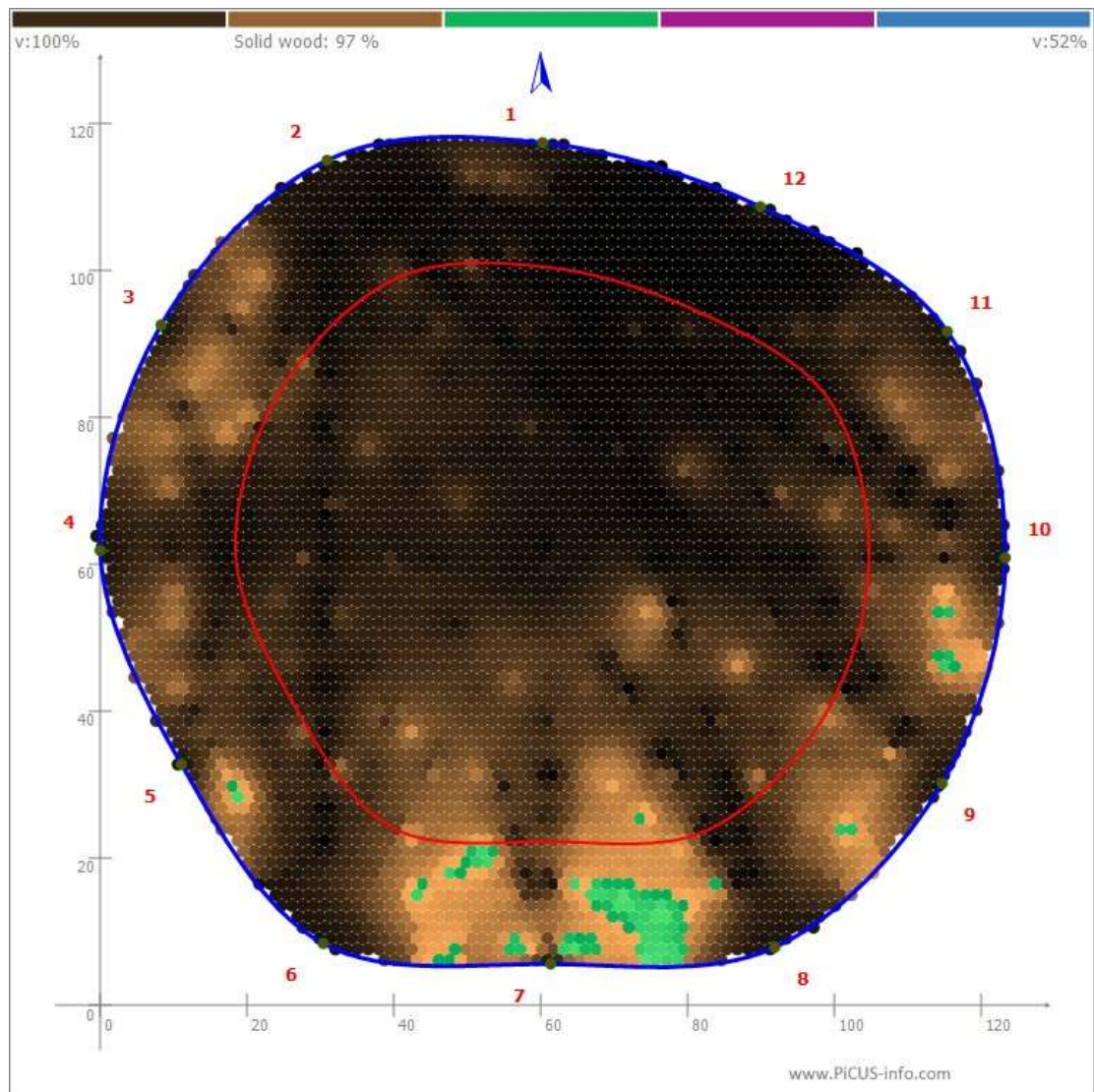


Figure 2. T3 PiCUS tomogram, test level approximately 0.10 m, 27 July 2026.

6. Recommendations

T1 - complete removal

- Arrange complete removal of T1 as a high-priority safety operation. Given the evidence of progression and significant failure potential, the work should be completed as soon as reasonably practicable and should not be deferred beyond the high-priority period stated in the original survey.
- Pending removal, restrict avoidable occupation within the potential fall zone. Review access arrangements and increase precautions during high winds or severe weather.
- The removal should be planned and undertaken by a competent, insured arboricultural contractor using a site-specific risk assessment and method statement. The suspected basal and stem defect should be considered when selecting climbing, rigging and dismantling methods.
- Before work begins, check for statutory tree protection, conservation-area controls, nesting birds, bats and other protected species, and obtain any required consent.
- Confirm the position of overhead and underground services and protect adjacent structures, boundaries and retained vegetation.
- If useful for future tree management, retain photographs or sections of the lower stem after removal to document the extent and character of internal deterioration.

T3 - retain and monitor

- Retain T3. Continue visual monitoring as part of the site's normal tree-risk management programme.
- Undertake a formal arboricultural inspection within 12 months, and after exceptional storms or any significant site change affecting the root zone.
- Repeat tomography only if clinical signs develop or a future inspection identifies a reason to quantify change. In the absence of new symptoms, a precautionary repeat test in approximately three years would provide a useful comparison.

7. Overall conclusion

The 2026 investigation identifies materially different management outcomes for the two Douglas firs. T1 has evidence of widespread altered timber at the lower stem, progression since 2011, a basal fungal bracket consistent with the historically reported *Phaeolus schweinitzii*, and extensive vertical sap exudation on two sides. These mutually supporting indicators are consistent with a significant progressing structural defect and a significant risk of failure; complete removal is recommended. T3 is substantially sound at the tested cross-section and may be retained subject to continued monitoring.

Appendix A - Site photographs



Figure 3. T1 stem showing extensive vertical sap exudation.



Figure 4. T1 base and tomography equipment at the test level.



Figure 5. T3 lower stem during tomography.



Figure 6. T3 site context and lower stem.

Appendix B - References

Tree Assist (2026). A0012-2026 - 28 Lakewood Road, Eastleigh: Tree Survey Document, particularly the T1 observations and recommendation for tomographic investigation.

Tim Moya Associates (2018). TMA Fungi: *Phaeolus schweinitzii* (Dyer's maze gill). <https://www.tma-fungi.co.uk/54.html> (accessed 28 July 2026).

Hagle, S.K. and Filip, G.M. (2010). *Schweinitzii* Root and Butt Rot of Western Conifers. Forest Insect & Disease Leaflet 177, USDA Forest Service.

argus electronic gmbh. PiCUS Sonic Tomograph manual: section 7.13.1, Tomogram colours (method extract supplied with this assessment).

Appendix C - Limitations

This report is based on conditions visible and testable on 27 July 2026. Trees are dynamic living structures and no inspection can eliminate all risk or predict the exact timing of failure. Sonic tomography is an investigative aid and should be interpreted with the visual assessment and site evidence. Concealed defects above or below the test plane, within roots, or outside accessible areas may not be represented. The recommendations should be reviewed if site use, exposure, tree condition or surrounding targets change.

Consultant Mr Kim Gifford: Profile

Before starting GTS, Kim Gifford completed a four-year apprenticeship in 1972 with the Royal Parks at Hampton Court Palace and gained City & Guilds qualifications in Horticulture and Arboriculture. In addition to these qualifications, Kim Gifford continued his professional development by attending seminars and conferences and by studying for a professional diploma and foundation degree in Arboriculture. Further work experience before starting the business included subcontracting for arboricultural companies, working as a lead arborist for the London Borough of Ealing, and working as an arborist in Berlin, Germany.

Kim Gifford t/a Gifford Tree Service started trading as a sole trader in 1980 and became a partnership in 1985. The company specialises in all aspects of arboriculture. From 2007, Kim Gifford again traded as a sole trader in his own right. In 1988, Kim Gifford became an Arboricultural Association Approved Contractor after a comprehensive assessment, with reassessments in 2002 and 2007. Kim Gifford served on Arboricultural Association committees for 10 years and became National Chairman of the Arboricultural Association in 2001. Kim Gifford is now an honorary member of the Arboricultural Association.

Kim Gifford personally undertakes Picus sonic decay tests for local authorities and other arboricultural contractors across southern England. Kim Gifford has owned Picus equipment through treetesting.com for 17 years and has completed more than 3,000 tests, giving him considerable experience in analysing tomographic images. This service complements other consultant reports and is supported by his 48 years' knowledge of arboriculture.

The Picus system has been updated and maintained in line with recent manufacturer improvements. In 2020, it was upgraded to Picus 3, Q74 Expert software, and Resistograph Micro Drill IML Resi PD400 Pro software.

Kim Gifford has undertaken many tree surveys, including mortgage reports and BS5837 surveys, to meet planning authority requirements for development proposals, Tree Preservation Order applications, and planning inspectorate appeals.

Kim Gifford was certified by Lantra Training Awards with a Professional Tree Inspection Certificate on 30 November 2013 and by the Arboricultural Association with a BS5837 Advanced Tree Assessment for Planning certificate on 4 May 2016.

Kim Gifford also provides quotations for recommended works, risk method statements, health and safety policies, site-specific procedures, operational supervision, and management services.

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