MODULE 1

FURTHER INVESTIGATION OF TREE RISK ASSESSMENT

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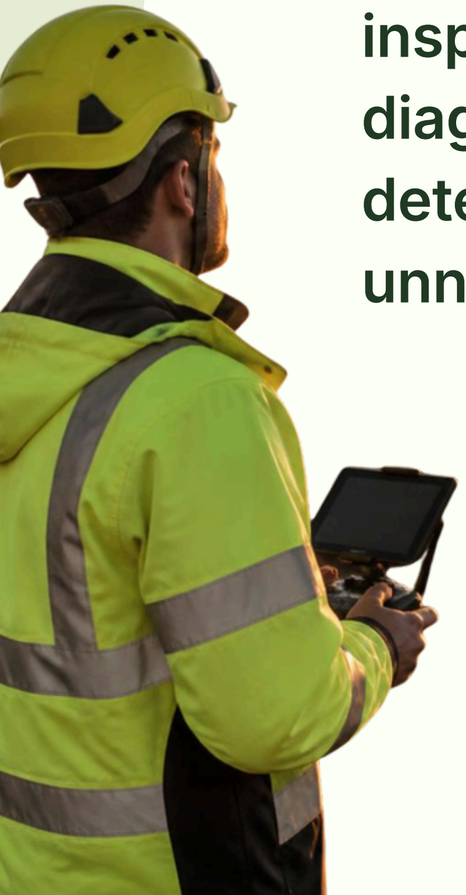
WHAT IS FURTHER INVESTIGATION OF TREE RISK ASSESSMENT?

Advanced tree risk assessment (Level 3) is necessary to evaluate the internal structural integrity and stability of trees. While standard visual inspections identify obvious defects, advanced assessments use diagnostic tools like sonic tomography and resistance drilling to detect hidden decay, cavities, and weak root systems, preventing unnecessary removal or sudden failures



WHEN DO WE NEED FURTHER INVESTIGATION OF TREE RISK ASSESSMENT?

Advanced assessments are specifically required in the following high-stakes scenarios:

- **High-Target Locations:** When a tree stands in a high-consequence zone where a failure would be catastrophic, such as over occupied buildings, playgrounds, or busy roadways.
- **Heritage & High-Value Trees:** For culturally significant, protected, or landmark trees where preservation is a top priority and removal is a last resort.
- **Suspicious Internal Decay:** When routine assessments detect suspicious symptoms—such as a hollow sound when tapping, odd leaning, or fungal brackets—that need to be measured.
- **Complex Root & Soil Issues:** To evaluate uprooting risks, root damage, or soil stability using non-invasive excavation (e.g., air spading).

HOW WE CONDUCT FURTHER INVESTIGATION OF TREE RISK ASSESSMENT

For this assessment we use specialized equipment and diagnostic techniques to precisely measure internal decay, structural integrity, and root health.

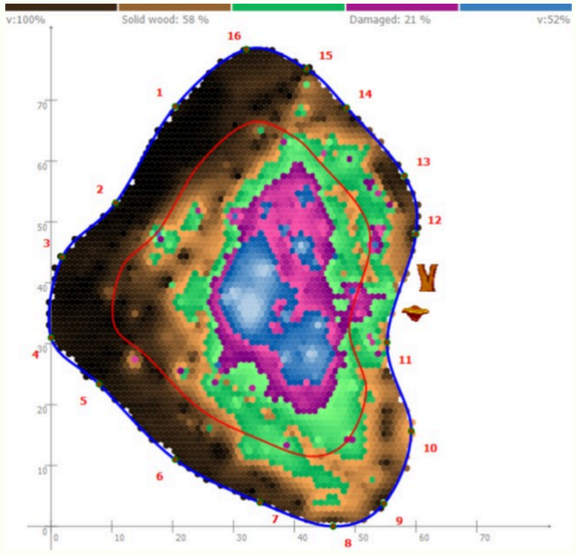
This method is deployed by certified arborists following a **Basic Assessment (Level 2)** to quantify the likelihood of failure, ultimately dictating targeted, data-backed mitigation strategies for high-value or high-risk trees.

COMMON TOOLS USED

Advanced tree risk assessments are built directly on visual (Level 2) inspections to eliminate guesswork when structural integrity is in question. Primary advanced methodologies include:

- Sonic Tomograph
- Resistance Drill (Resistograph)
- Static Loan Testing
- Root Collar Excavation (RCX)
- Aerial Inspection (Drone)

Sonic Tomography: Uses sound waves transmitted through the trunk to map internal decay, cavities, and cracks, providing a visual cross-section of the wood.

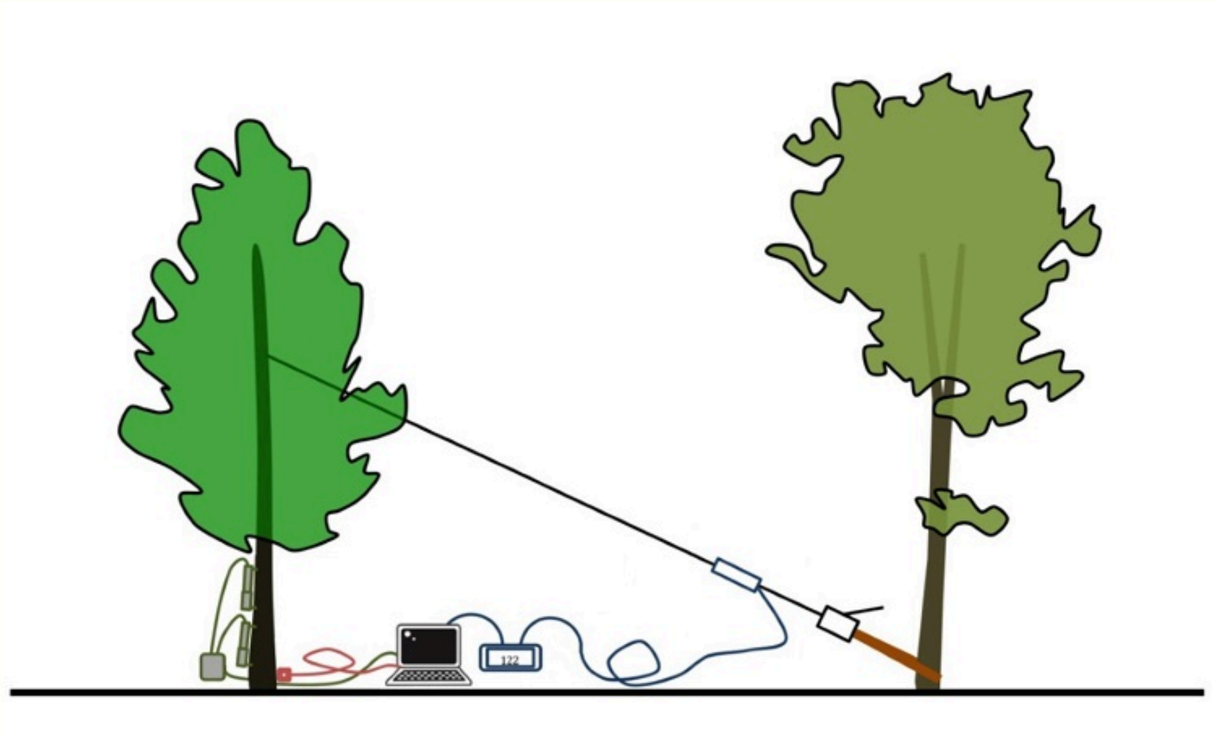


Resistance Drilling (e.g., Resistograph): Involves drilling a micro-needle into the tree to measure drilling resistance, determining the thickness of healthy wood versus decaying areas.

A Resistograph is a specialized, non-destructive drilling tool used to measure the relative density of wood. By inserting a thin, long needle into trees or timber structures, it records the mechanical resistance required to drill through the material, helping experts map internal cavities, decay, and insect damage without causing structural harm

The higher graph reading indicates solid wood. The lower graph reading indicates decay or a hollow area.

Static Load Testing: Also known as the elasto-inclino method or pulling test, this engineering approach measures how the stem bends and the root plate inclines under artificially applied wind loads.



A static load test for trees (also known as a tree pulling test) is a specialized arboricultural assessment that evaluates a tree's structural integrity and resistance to windthrow or stem breakage

Root Collar Excavation (RCX): Physically removing soil around the root flare using air spades or hand tools to inspect structural roots for decay, girdling, or damage.

An Air Spade root collar excavation (RCX) is a non-invasive arboricultural process that uses high-pressure compressed air to safely blast away soil and mulch from the base of a tree to expose its root flare.

Aerial Inspection: An aerial inspection for tree risk assessment is an advanced evaluation where a qualified arborist investigates a tree's upper canopy and structural defects from above ground level. It is used to closely examine hidden cavities, cracks, decay, and fungal activity that cannot be safely or accurately assessed from the ground.Unmanned Aerial Vehicles (UAVs) such as drones equipped with high-resolution or thermal cameras are used to survey damage, disease, and hazards quickly without the risk of climbing.

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THANK YOU

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