



Gale Tree Consultancy

Tree Condition Report

St John the Baptist, Westbourne

July 2023

Ref: TCR/449/23

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Summary

- A group of Yew trees ranging in age from mature to veteran located within a well-used church yard
- Eight trees form an avenue along the path to the church, three of these trees have decay forming in the stems - typical of trees of their age
- One tree requires further assessment after extreme wind gusts due to failed included unions
- One tree requires ivy severing at two levels with the severed band being removed
- No work has been categorised as URGENT
- No further work has been prescribed but a recommendation to undertake detailed decay evaluation equipment has been made so the extent of the decay can be better understood



1.0 Introduction

1.0 Client and Address

- Clerk to Westbourne Parish Council, PO Box 143, EMSWORTH, PO10 9DX

1.1 Site Address if Different from the Above

- St John the Baptist, Westbourne, PO10 8UL

1.2 Date of Inspection

- 3rd July 2023

1.3 Name of Inspector

- Andrew Gale *Dip Arb L6 (ABC) M.Arbor.A*

1.4 Our Reference

- TCR/449/23

1.5 Instructions Received

- I have been instructed by the client to undertake an assessment of the trees growing within the grounds of St John the Baptist Church
- I am to provide my findings in the form of a report, detailing any issues identified during the site visit

1.6 General Description

- St John the Baptist Church is accessed via two entrances, a Lychgate off Old Rectory Lane to the north and a further smaller gate off Westbourne Road, which runs along the eastern boundary wall
- To the west of the church is a row of properties that are accessed off Old Rectory Lane; to the south is a small stream
- There are eight late mature, veteran Yew trees which form an avenue along the path to the church; further mature Yews situated to the south



2.0 Scope of the Report

- The principal objective of the tree condition report is to identify whether the trees, or their parts, appear to be in a hazardous condition and to advise remedial action to reduce the risk they could pose those persons visiting the St John the Baptists Church, those persons using the footpath that crosses the land and those persons using Westbourne Road
- Only those trees with a stem diameter greater than 150mm when measured at 1.5m ground level are to be inspected
- It does not consider any below ground issues unless relating to an issue noted within the walk over survey
- The report addresses issues apparent on the trees at the time of the inspection, therefore the likelihood of failure is considered for three years from the reports date based on the information gained on the day of the report and on the assumption that any recommended work has been undertaken in the time frame specified

3.0 Method of Inspection

- A The trees were subject to ground level visual assessment of their external features in line with the 'Visual Tree Assessment' method described by Mattheck & Breloer (Body Language of Trees, Department of the Environment Research for Amenity Trees publication No. 4 1994)
- A plastic headed mallet was used to sound the stem area as an initial indication of the presence of decay
- A thin steel probe was used, where applicable, to assess the depth and condition of any cavities or concavities between buttress roots
- Binoculars were used to assess the upper crown branch structure
- All trees requiring further action were tagged with a round, numbered aluminium tag and placed in a prominent position on the stem at approximately 2m - see below:



- Individual trees are given the prefix T and groups G
- Those trees requiring further action are plotted on a site plan which is attached separately - see Appendix 1 TCR/449/23 Dwg01
- A number of digital photos were taken, some of which are included within the report for information - please see Appendix 3



4.0 Table of Results

Tree No	Tag No.	Species	Stem Dia.	Height	Crown Spread	Age Class	Phy. Cond.	Comments	Recommendations	Priority
T1	533	Yew	1000+	10-15	10-15	VET	FAIR	Open vertical wound/cavity on the south and west side of the stem, dull tone associated Numerous other wounds in mid to high crown	None at this time Consider detailed decay evaluations using PiCUS sonic tomography to better understand the extent of decay/hollowing	NA
T3	534	Yew	1000+	10-15	10-15	VET	FAIR	Crack in west side of stem 7cm deep, dull tone around that immediate area Cubical brown rot in central column decay in open cavity Multiple cavities and through wounds noted within mid stem area Stem bias east	None at this time Consider detailed decay evaluations using PiCUS sonic tomography to better understand the extent of decay/hollowing	NA
T8	535	Yew	1000+	10-15	10-15	VET	FAIR	Column of decay on north east side of stem from ground level up to c.5m	None at this time Consider detailed decay evaluations using PiCUS sonic tomography to better understand the extent of decay/hollowing	NA
T9	536	Yew	751-1000	10-15	5-10	M	FAIR	Three PSS with failing included unions, creaking noises heard during light wind gusts during assessment	None at this time Reassess after extreme wind events such as wind gusts in excess of Force 8 on the Beaufort Scale	GM
T10	537	Yew	751-1000	10-15	5-10	M	FAIR	Thick ivy c.90% of crown restricts thorough assessment	Sever ivy at ground level and again at 1m, removing the severed band	HS2



Survey Key

Tree No.	Relates to numbers shown on Tree Survey Plan(s). Positions of trees are plotted using GPS and are generally accurate to within 2 metres. Prefixed T in the case of individual trees or G in the case of groups of trees	Age Class (where used)	Young [Y]	recently planted or established within the last 5 years
Tag No. (where used)	Numbered aluminium tags may be attached to tree stems to aid with identification. In addition, trees may also be identified with red and white hazard tape		Semi Mature [SM]	a well-established youngish tree but far from full maturity
Species	Common name in English		Early Mature [EM]	long established nearing its full size but not fully mature
Stem Dia.	Stem diameter in centimetres at 1.5m above ground level or, in the case of multi-stemmed trees, just above the root flare or buttress [ARF]		Mature [M]	fully mature tree that has met its full size
Height	Height assessed visually to within the nearest 5 metre size band e.g., 10 to 15		Late Mature [LM]	a fully mature tree that has passed its peak; may exhibit areas of decline
Physiological Condition	In relation to all trees: GOOD no significant health problems FAIR some symptoms of ill health POOR significant symptoms of ill health MORIBUND (MOR) in a serious and irreversible decline DEAD not alive		Veteran [V]	a tree with the physical characteristics of an Ancient tree but is not ancient in years compared to other trees of the same species
Comments	Description of significant features, especially those requiring action or monitoring. Ivy is recorded the extent of the tree stem and canopy affected is usually expressed as a percentage	Ancient [A]	a tree that has past full maturity and is old or aged in comparison to other trees of the same species	
Physiological Condition		In relation to Ash and Ash Dieback: MILD 100-70% leaf cover remaining = no action at this stage MODERATE (MOD) 70-30% leaf cover remaining = start planning for action MORIBUND (MOR) 30-0% leaf cover remaining = deal with it before it becomes an issue		
Rec.	Specific recommendations for action or monitoring	Tree Structure	Main Stem	The stem, from ground level up to the point at which it bifurcates
Priority	Work recommended in the interests of health and safety: Urgent: Immediate attention required (will be reported verbally to the client/management on day of inspection) HS1: Within 2 month of the reports date HS2: Within 6 months of the reports date HS3: Within 12 months of the reports date HS4: Before the next survey date GM: Works recommended for general maintenance reasons or in the interests of good arboricultural management N/A: Not applicable / no work recommended at this time		Primary Stem Section (PSS)	The larger stem sections that emanate from the main stem after bifurcation; form the main crown structure
			Secondary Stem Section (SSS)	The stem sections that emanate from the primary stem sections that contribute to the inner crown structure
			Tertiary Stem Section (TSS)	The stem sections that emanate from the secondary stem sections that contribute to the inner and outer crown structure
			Subordinate Branch Structure (SBS)	The smaller diameter branches that help form the inner and outer branch structure; leaf bearing twigs emanate from these to form the crown



5.0 Summary of Results

- As yew trees age they can begin to form a hollow stem due to the actions of decay fungi, most notably *Laetiporus sulphureus*¹ (Chicken of the Wood), and more rarely *Ganoderma carnosum* (Fleshy bracket)
- In the case of the yew trees that are exhibiting hollowing and decay within their stems, I would suggest the active fungus is the *Laetiporus sulphureus* as cubical brown rot was clearly evident
- Many of the trees along the avenue also have decay extending into their low-mid crowns which exhibit brown rot cavities
- At the time of the assessment, I do not consider there a need to perform any remedial pruning work to the trees located within the avenue. However, a recommendation to consider undertaking decay evaluations using PiCUS Sonic Tomography and a Resi Microdrill has been made to help better understand the extent of the decay moving forward with their management
- T9/536 Yew has a number of failing included unions² which were opening and closing due to wind gusts whilst the tree was being assessed
- No immediate action is required at this time. However, a recommendation to inspect the tree after extreme weather events, such as wind gusts in excess of Force 8 on the Beaufort Scale has been made to assess whether the unions have opened further
- T10/537 Yew has ivy advancing high into the tree covering c.90% of the stem and crown structure which restricted the assessment process
- Ivy serves as valuable habitat for wildlife and wherever possible should be retained for this purpose
- However, where it obscures the main stem, major branch attachment points and the upper crown structure, it can cover anomalies that would otherwise be evident
- It will also increase the sail and 'mass' of the crown and in extreme cases can increase the risk of branch failure and where trees are located adjacent to areas of high footfall or vehicular access/movement this can increase the risk of injury or harm occurring
- Where it has been recommended, the ivy should be severed as close to the ground as possible and again at c.1m with the severed band being removed. This will allow the ivy ascending into the tree to die off naturally whilst the gap generated will mean any new ivy can be severed if/when it appears
- Alternatively, the ivy could be removed completely from the tree which will reduce the amount of debris that falls into the church grounds

¹ *Laetiporus sulphureus* (Chicken of the Wood) causes a brown rot to form where the cellulose is removed leaving the lignin behind which can result in a brittle fracture to occur

² Included unions - develops when two or more stems grow closely together causing weak, under supported branch angles. This results in a weakness due to the lack of a woody union and subsequently, any increase in lateral movement can result in the union failing



6.0 Recommendations

- Undertake the severance of the ivy to T10/537 in the time period specified
- Reassess in three years from the reports date
- This time frame should be shortened in the event:
 - The trees local environment changes significantly
 - Fruiting bodies emerge from anywhere on the tree
 - After extreme weather events such as:
 - Wind gusts in excess of Force 8 on the Beaufort Scale
 - After named extreme weather events such as Storm Eunice of February 2022

This concludes my report

Signed:

Andrew Gale *Dip Arb L6 (ABC) M.Arbor.A*

Date: 5th July 2023





7.0 Appendix 1

Site Plan

Please see TCR/449/23 Dwg01 attached separately



Appendix 2

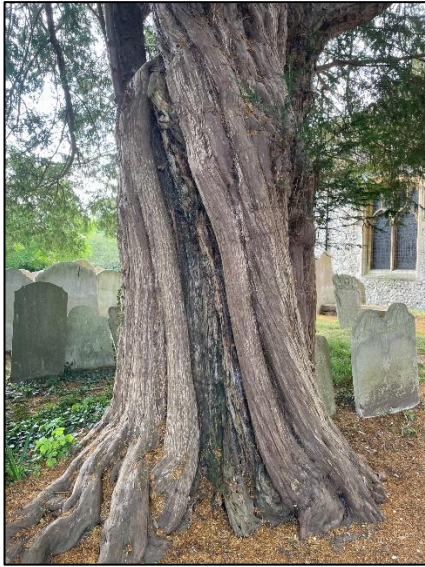
Beaufort Scale

Beaufort Number	Name	Knots	MPH	Effects Observed on Land
0	Calm	Under 1	Under 1	Calm, smoke rises vertically
1	Light Air	1-3	1-3	Direction of wind is shown by smoke drift but not by wind vanes
2	Light Breeze	4-6	4-7	Wind felt on face, leaves rustle, ordinary wind vane moved by wind
3	Gentle Breeze	7-10	8-12	Leaves and small twigs in constant motion, wind extends light flag
4	Moderate Breeze	11-16	13-18	Raises dust and loose paper, small branches are moved
5	Fresh Breeze	17-21	19-24	Small trees in leaf begin to sway, crested wavelets in inland waters
6	Strong Breeze	22-27	25-31	Large branches in motion, whistling heard in telegraph wires, umbrellas used with difficulty
7	Near Gale	28-33	32-38	Whole trees in motion, inconvenience felt in walking against the wind
8	Gale	34-40	39-46	Breaks twigs off trees, generally impedes progress
9	Strong Gale	41-47	47-54	Slight structural damage occurs - chimney pots, slates removed
10	Storm	48-55	55-63	Seldom experienced inland, trees uprooted, considerable structural damage occurs
11	Violent Storm	56-63	64-72	Very rarely experienced, accompanied by widespread damage
12	Hurricane	64 and over	73 and over	



Appendix 3

Site Photos



T1/533 note the open wound T3/534 showing the crack and steel ruler c.7cm deep



T8/535 location and extent of dull tone



T9/536 failed included unions



T10/537 dense ivy restricting thorough assessment



Appendix 4

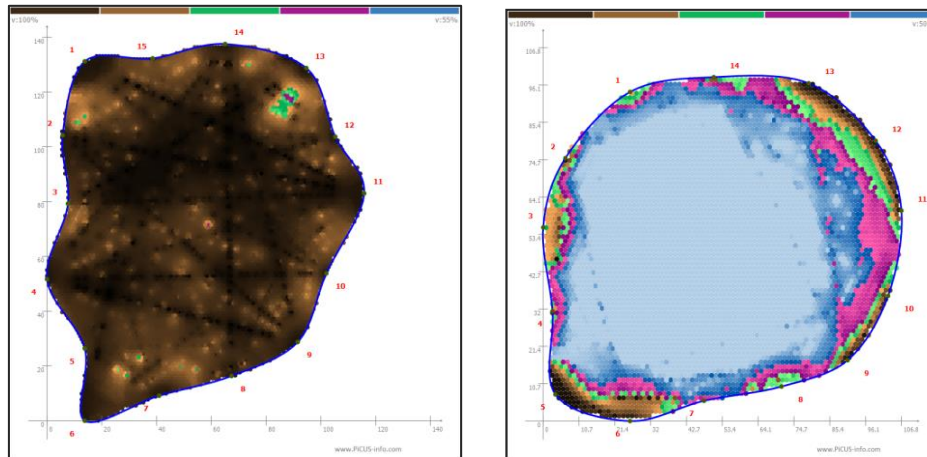
Decay Evaluation Equipment explanation

PiCUS 3 Sonic Tomography

Sonic tomography uses the relative velocity of sound waves induced across the stem to compose a colour-shift image with dark areas corresponding to higher velocities and therefore denser wood.

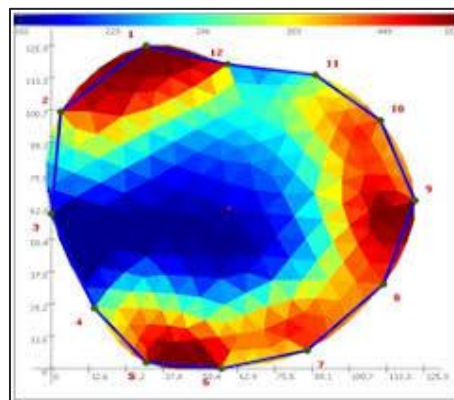
Decay or hollowing results in lower sound speeds and a shift to lighter colours with maroon and blue/white indicating more significant decay.

An example of a sound tree is on the left below and one with significant decay/hollowing on the right:



PiCUS Electrical Resistance Tomography

The PiCUS 2 Electrical Resistance Tomography unit produces an electrical current to assess the condition of the wood within the tree slightly above and below the assessment level. Changes in the water content, cell composition and chemical elements will change according to the condition of the wood - see below



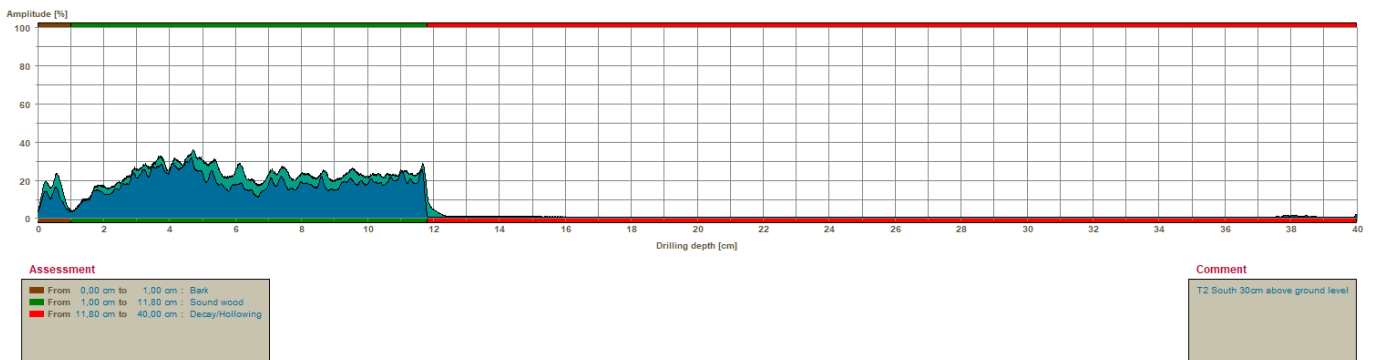
The blue colouration in the tomogram indicates an area of high conductivity suggesting advancing decay



IML Resi PD 400 Microdrill

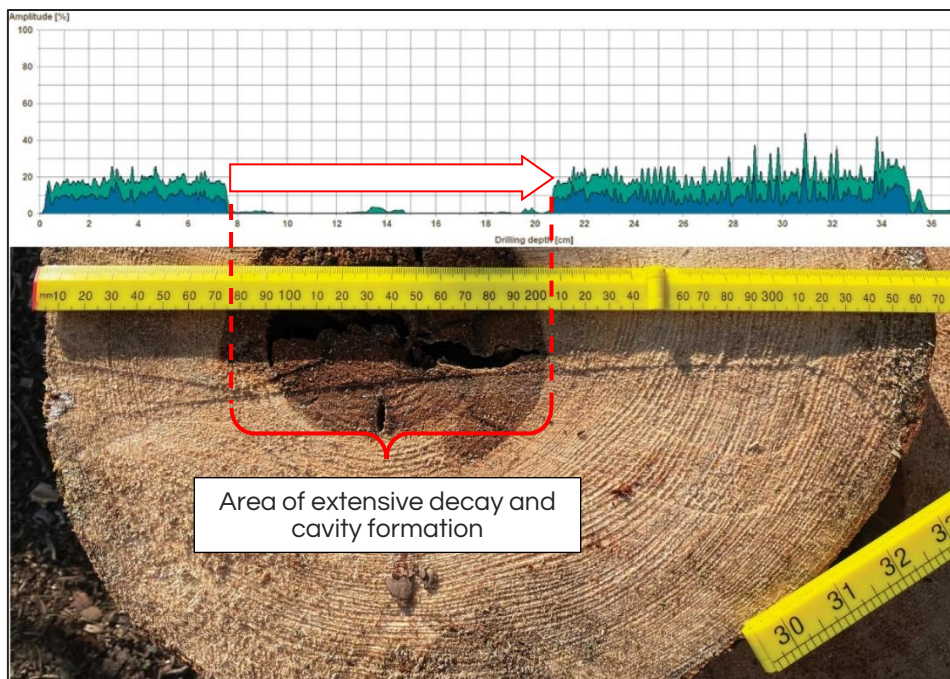
An IML Resi PD400 microdrill, which measures the resistance of a very fine drill bit to a depth of 400mm, can be used for further confirmation. Significant drops in drilling resistance are indicative of decay or hollowing

On the example below, extensive decay is indicated from a depth of 11.8cm through to the end of the assessment



Please note, historically Resi drill traces have read from right-to-left due to the configuration of the original machine. However, by using the software available, I have flipped the drill traces to read left-to-right, the more conventional way to read a graph

On the image below, you can see where the drill entered the area of extensive decay and cavity at c.7.5cm and re-entered the sound wood at c.20.8cm; the drill exited the stem at c.35.4cm





IML Micro Hammer

The IML Micro Hammer uses sound velocity, induced across the stem from opposing points, to measure for potential decay. The information is provided as a figure in metres per second (m/s) which is then compared against known measurements for the tree species being assessed.

The example below (undertaken on a Pedunculate oak) shows the time it took for sound waves to meet their opposing sensor.

Assessment No.	Sensor Arrangement	Distance Between Sensors in cm	Value m/s
1	North-to-South	70	443
2	East-to-West	98	731

The manufacturer of the IML Micro Hammer suggests an accepted standard value for Pedunculate oak is between 1200m/s - 1800m/s; therefore, the tree in question has an area of significant decay/hollowing present.