



Tree Assessment 26/10/2022

9 PRINCESS DRIVE, BRYNCOCH - TTS/539

Paul Hastings

TENDERLEAF LTD | 19, HEOL Y NANT, RHOS, PONTARDAWE, SA8 3BX

1.0 Survey Criteria

- 1.1 To carry out visual tree inspection of two Sycamores (three stems), located within the rear garden upon the rear boundary of 9 Princess Drive, Bryncoch.
- 1.2 The aim of this report is to: ensure the protection of residential assets, public safety and to monitor the health of the trees. This risk assessment, has been carried out on behalf of Mrs Ceri Wozencroft by Paul Hastings FDS Arb, M.Arbor.A.
- 1.3 Paul is the director of Tenderleaf Ltd and is qualified to foundation degree in arboriculture (FDS Arb). Graduating in 2004, the foundation degree is a level 5 qualification and provided the basis for his continued, professional development. Paul is member of the Arboricultural Association at professional level and has significant experience working with and surveying trees.
- 1.4 Paul was asked to carry out a visual tree inspection and managed to gain access around the full circumference of each tree. This has enabled Paul to assess all available evidence presented at the time of survey.
- 1.5 All results for this survey were gathered from the ground. Root and soil *analysis*, invasive decay detection and aerial inspection were not performed and shall not form part of this survey. Recommendations for further investigation such as decay testing and aerial crown inspection have been made where applicable.

2.0 Survey Limitations

- 2.1 As a dynamic structure trees can be affected by many external factors such as severe weather, human intervention and fungal invasion. As well these external factors, trees can also be influenced by internal biological symptoms that are not externally visible but can cause failure without warning. It is therefore not possible to state, with any certainty, that a tree is completely safe. This tree survey therefore can only be referenced as a record of tree condition on this date only and as a means of reference for future monitoring and surveying.
- 2.2 Soil testing to ascertain the plasticity index or shrinkable characteristics of the soil surrounding the trees, to provide information in relation to the likelihood of building damage caused by tree related subsidence or heave, where trees are within influencing distance has not been carried out. Investigation has however been made into the surface geology as per the British Geological Survey. The author cannot be held liable for building damage if the available information is incorrect or inaccurate.
- 2.4 Changes in tree health often occur over a number of growth seasons, however, various causes of the decline in a tree's health can be sudden. Foliage predation, wind scorch and drought can have a profound impact on a tree's health. These climatic and pathogenic influences can affect many trees, no matter their prior health. Time of year can also influence the available evidence presented to the surveyor; symptoms often appear at different stages of the growth cycle and indicate different aspects of tree health.

3.0 Survey Methodology

- 3.1 The aim of this tree inspection is to identify defects, whether mechanical or biological, and other failure-prone characteristics which present a greater risk to structures and people.
- 3.2 Another aim of this inspection is to help monitor the trees current health and be used to assess whether any tree management is required and what impact this management might have on the tree's health.
- 3.3 All data has been collected by visually identifying the condition of each tree section from the rooting area to the top of the canopy. Features such as bulges, ribs, bark cracks, exudation and leaning all contribute to identifying potential faults within trees. Other mechanical evidence is also used to establish a conclusion such as a 'compression fork' (narrow union between two stems with included (integrated) bark in which continued radial growth (annual rings) results in pressure which often pushes the limbs of the fork apart). This method of systematic surveying ensures all defects are noted and quantified.
- 3.4 The information provided by the British Geological Survey (BGS) website helps to identify the likelihood that the house has been built upon a shrinkable subsoil. This knowledge is vital in building a picture of the below ground conditions.
- 3.5 Verbal information provided by the client and resident of the property also help establish an understanding of the conditions in which the tree is growing and historic management.

4.0 The Site

- 4.1 The trees are located on the eastern boundary of the client's property, 9 Princess Drive.
- 4.2 As can be seen from figure 1, the trees lie adjacent to a public footpath.



Figure 1

- 4.3 The trees are growing from a raised embankment, with the house below to the west and the footpath at their rooting level to the east. The trees appear to outdate the construction of the house and contribute to a continual row of trees from north to south.
- 4.4 The tree's rooting environment is varied but less than ideal. From the embankment, of which the trees are growing, a wall descends to the west where to a lawn has been laid. To the east, the footpath is sealed with a Tarmac type surface. According to the resident, the ground conditions have been in place, unchanged, for many years.
- 4.5 The underlying ground conditions, according to the British Geological Survey (BGS), show sedimentary superficial deposit of predominantly Till, Devensian - Diamicton. The UK Soil Observatory states the soil to most likely be slowly permeable, seasonally wet acid loamy and clayey soil. The information gathered from these institutions would not indicate that the soil is prone to excessive shrinkage or heave and therefore no further investigation is required.
- 4.7 Further information regarding soil type is available on the land information system website provided by Cranfield University. Figure 2 below shows the approximated soil type for the area where the trees are growing.

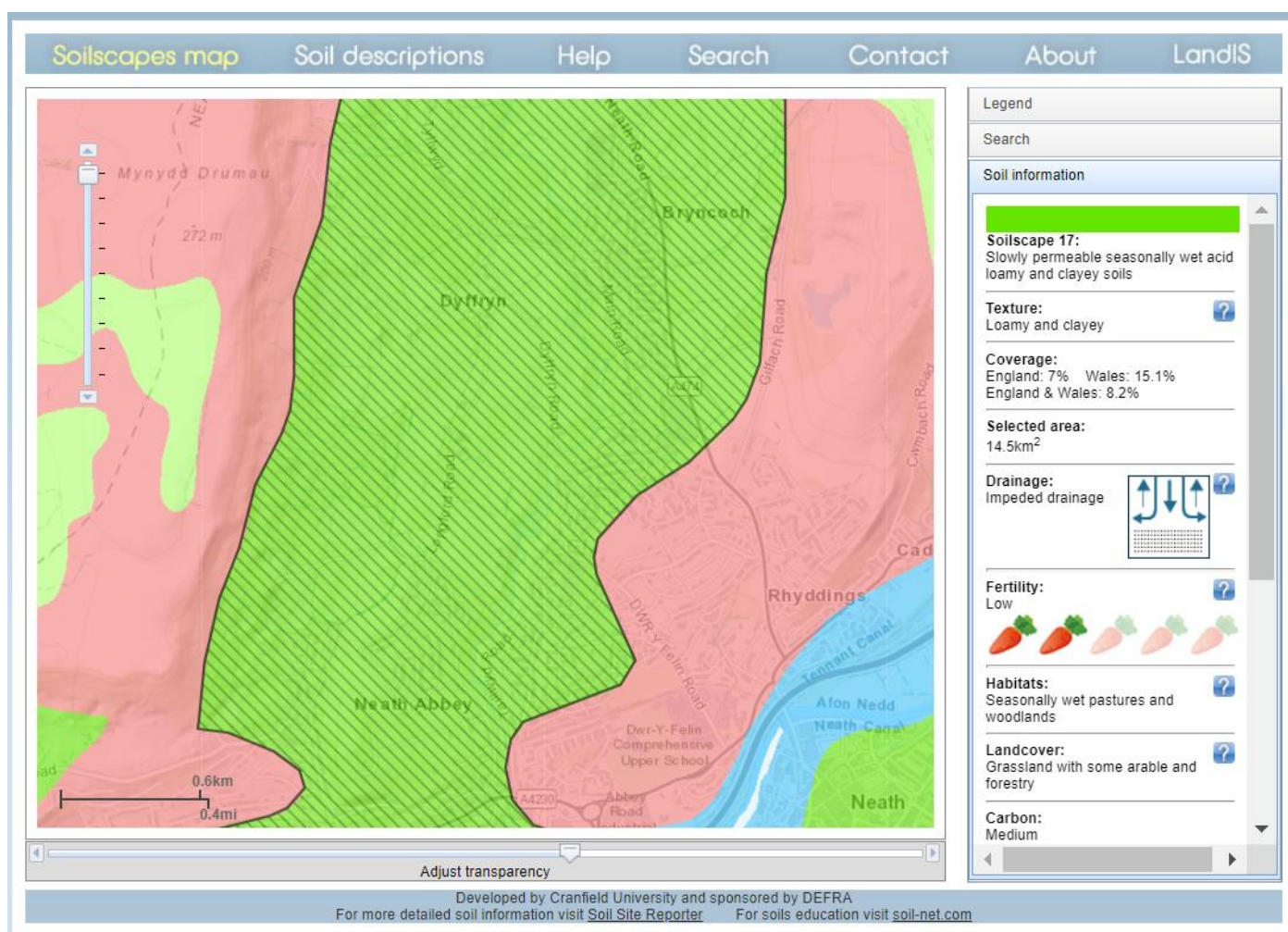


Figure 2

5.0 The Trees

There are two trees in total, but one tree divides at approximately one metre into two stems – These have been surveyed separately and are referred to as Stem one and Stem two throughout the report.

5.1 T1 (Stem 1) – Sycamore – *Acer pseudoplatanus*.

- 5.1.1 **Height:** Approx. 15m tall
Stem Diameter: @1.5m approx. 50 cm.
Crown spread: North – 4m
East – 5m
South – 1m
West – 4m

5.1.2 *Tree/Stem Characteristics*

Making up the northern half of the tree, this stem grows with an asymmetrical form, with dominant secondary branches extending outwards from the west through both quadrants to the east. Its growth habit is of a semi-mature vigorous tree without the maturing extension growth common within this species when mature. Forming the southern quadrants is its neighbouring stem, both of which separate at a union less than a metre from the ground.

5.1.3 *Previous Management*

Except some minor pruning of the lower branches, very little visible management has occurred on this stem.

5.1.4 *Rooting Environment*

Evidence would suggest there is a limited or impaired rooting environment for this tree. Located upon the embankment with half its roots submerged under a shed and the other half below a tarmac type surface, the need for adaptation is likely to cope with water and nutrient stress. Root severance during the processes of building the sheds and the resurfacing of the footpaths will contributed to reduced tree health.

Soil that has been compacted will not provide suitable growing conditions for the survival and development of tree roots. Soil compaction is a common issue trees face and will contribute to a decline in vigour and their ability to respond to pathogens. Compacted soil will adversely affect drainage, gas exchange, nutrient uptake and accessibility to organic content; it will also seriously impede or restrict root growth (BS5837). As a result of this compaction tree roots will have migrated to where nutrients and water can be accessed.

5.1.5 *Bole and Framework*

There is little available evidence to suggest decay or cavities are present within the bole, trunk or upper scaffold branches of this stem. Some previous pruning wounds have the potential to harbour insignificant amounts of decay but there is currently nothing overly concerning.

5.1.6 *Canopy*

The canopy appears healthy and without significant defect. *Rhytisma acerinum*, more commonly known as Tar Spots, infect the leaves but this is very common and does not significantly affect the health of the tree.

5.2 **T1 (Stem 2) – Sycamore – *Acer pseudoplatanus*.**

- 5.2.1 **Height:** Approx. 15m tall
Stem Diameter: @1.5m approx. 60 cm.
Crown spread: North – 1m
East – 5m
South – 3m
West – 4m

5.2.1 ***Tree/Stem Characteristics***

Similar to stem one, but dominating the southern half of the tree instead, this stem again grows with an asymmetrical form. The branch structure in this stem however is more fastigate (upright) with the greater percentage of secondary branches heading in a eastern direction. Again, its growth habit is of a semi-mature tree without the maturing extension growth common within this species when mature.

5.2.2 ***Previous Management***

This stem has seen some significant previous management including the removal of a substantial branch the southern side of the stem. Other small pruning wounds are present including evidence that epicormic growth has been repeatedly removed.

Ivy has been removed from the canopy at some point.

5.2.3 ***Rooting Environment***

Akin to it neighbouring stem, evidence would suggest there is a limited or impaired rooting environment for this tree. Located upon the embankment there are large roots visibly extending down the retaining wall and into the lawn area. It is not clear as to the condition of the rooting environment under the lawn. The other half of the trees rooting area has been laid with a tarmac type surface. These factors all have influence upon tree health.

5.2.4 ***Bole and Framework***

There are multiple pruning points where epicormic growth has been pruned, and as a result infection seems to have entered. The largest pruning wound on the southern side of the main stem, has a formed a cavity with decay. The full extent of the decay is not clear however the addition of a vertical crack or line where the bark has submerged forming decay beneath, suggests the tree's compartmentalisation mechanism is failing.

Bark delamination stretches from approximately one metre and continues to around five metres. There are also several areas with an exudate bleeding from the bark as pictured below. The cause of this exudate is suspected to be bacteria based.

Many branch unions throughout the tree are affected by a cankerous growth. It is not clear to what degree this canker is affecting the stability of the unions.

5.2.5 ***Canopy***

Evidence suggests premature leaf loss, as a result of the factors stated above. Leaf density, when compared to its neighbouring trees, is significantly sparser. Consideration has been made into the potential drought conditions faced by trees this summer and the resulting premature leaf drop. However, according to the owner the tree has been suffering

for some time prior to the dry summer. The link between the issues already raised and poor leaf density suggests the tree has seen a reduction in vitality and health.

5.2 **T2 – Sycamore – *Acer pseudoplatanus*.**

5.2.1	Height:	Approx. 14m tall
	Stem Diameter:	@1.5m approx. 70 cm.
	Crown spread:	North – 5m
		East – 5m
		South – 4m
		West – 6m

5.2.1 ***Tree/Stem Characteristics***

A single standard stem that divides into a framework of multiple secondary branches, at approximately three metres, with a loose fastigate form. Branches stretch relatively symmetrically in all directions.

5.2.2 ***Previous Management***

Approximately 4 rather significant stems have been removed from around the base of the retained tree. The stumps from these old stems are now decaying away.

The tree has undergone some significant management around 5-6 years ago. It appears the central, apical leader has been removed and the large wound as a result has developed quite significant decay. The replacement apical leader is now reliant upon the decayed union. Other pruning points have developed vigorous reaction growth, creating an overly dense crown.

Ivy has been removed from the canopy at some point.

5.2.3 ***Rooting Environment***

Again, this tree is located upon the embankment where the rooting environment is less than ideal. The other half of the tree's rooting area has been laid with a tarmac type surface. These factors all have influence upon tree health.

5.2.4 ***Bole, Framework and Canopy.***

There are multiple pruning points where epicormic growth has been pruned. Decay within these old wounds has developed but not to a significant degree.

Larger diameter historic pruning points have developed decay that because of their location will decrease the strength of the union, reducing the development potential for retained branches.

Leaf density is as expected for this species and time of year. It displays acceptable extension growth typical of this species and little other evidence to suggest a reduction in vitality.

6.0 Risk Analysis

6.1 Risk can be quantified by assessing three factors:

a) **The size of part which might fail i.e. the severity.**

Is it a small twig, large branch or whole tree that might fail/break and fall?

b) **The likelihood or potential of the part failing.**

Is there any evidence to suggest that the part will fail and if so what's the likelihood?

c) **The type of target and the frequency in which the target is within striking distance of the failing part.**

Is the target fixed in place and constant, moving fast or slowly past, volume, high or low value.

The following values are used to calculate a risk rating:

Target Value	Potential to Fail	Severity / Size of part
1 Very likely- Constant	1 Very likely- 75 – 100%	1 Fatality or high value damage / 300mm + dia.
2 Likely- Frequent	2 Likely- 50 – 75%	2 Significant injury or medium value damage/ 150 – 300mm Dia.
3 Unlikely- Infrequent	3 Unlikely- < 50%	3 Minor injury / 50 – 150mm Dia.

We then have to look at the benefits of the tree:

Benefits	Benefit Value
Ecological, Cultural and Aesthetic	3
Ecological OR Cultural and Aesthetic	2
Ecological OR Cultural OR Aesthetic	1
None	0

The Benefits defined:

Ecological benefit – Tree provides at least one confirmed habitat associated with a European protected species (EPS) and/or specialist habitat as confirmed by an ecologist.

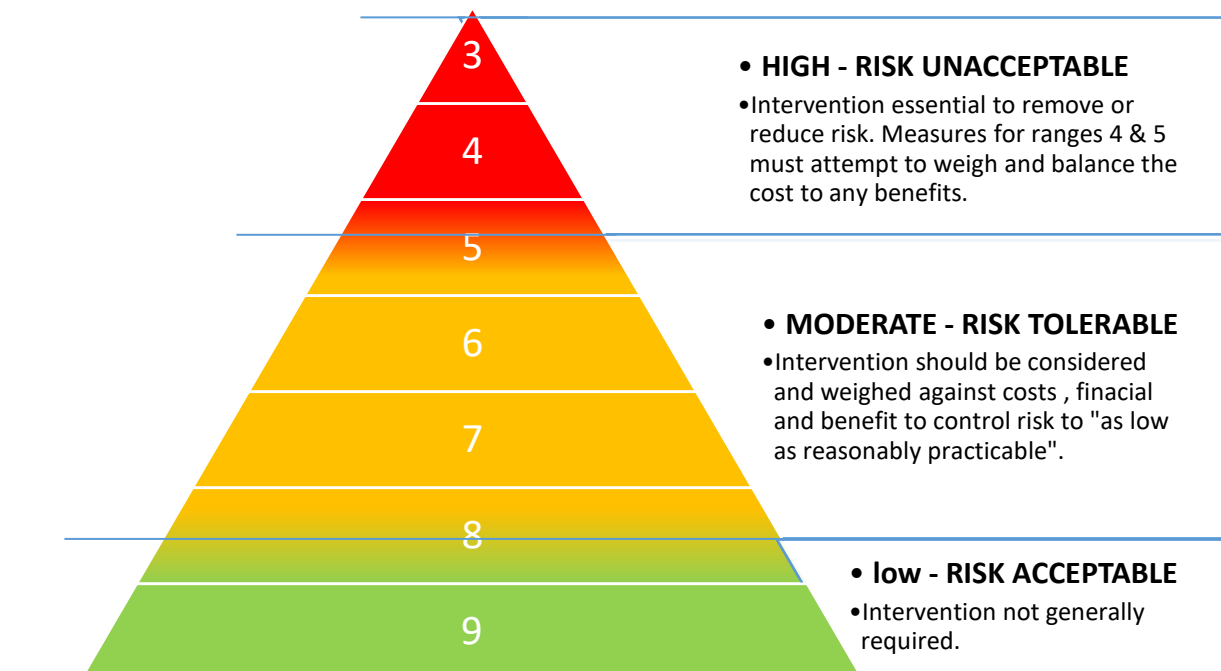
Cultural Benefit - Tree planted to commemorate a specific event, person or period that holds significance within local history.

Aesthetic Benefit – Tree contributes significantly to the wider landscape by itself or as part of a group or avenue.

The 'benefit value' is then added to the 'risk rating' to give us the 'risk tolerability score' tree in question.

The risk tolerability score can now be reference against the matrix to determine whether control measures are required. Any required intervention can then be prioritised using the intervention prioritisation matrix and a timeframe for these works established.

RISK MATRIX



INTERVENTION PRIORITISATION MATRIX

RISK	TOLERABILITY SCORE	INTERVENTION MEASURES	TIMEFRAME/PRIORITY OF IMPLEMENTATION
VERY HIGH	3	Remove or significantly reduce risk.	Within 1 month
HIGH	4-5	Remove or significantly reduce risk, balancing measures against their cost to the benefits of the tree. Firstly, consider options to remove or reduce target or that provide a "fail-to-safe".	Within 3 months
MEDIUM			
LOW	6-7	Consider any low-cost measure to reduce risk to as low as reasonably practicable.	Within 6 months
VERY LOW	8+	No action generally required.	Within 12 months

Tree/Stem	Target Value	Potential to Fail	Severity / Size of part	Total	Benefit Value	Total	Result	Intervention to Lower Risk
Stem 1	2	3	2	7	1	8	Very Low Risk	None required
Stem 2	2	2	2	6	0	6	Moderate Risk	Risk reduction required
Tree 2	2	3	2	7	1	8	Very Low Risk	None required

7.0 Recommendations

7.1 Using the information gathered above, including the risk analysis, it is clear to conclude that Stem 2 will require some intervention. Given the evidence it can be concluded that this tree's useful life expectancy has been significantly reduced by the onset of disease. Measures such as crown reduction or pruning would not sufficiently improve or mitigate the issues and so tree removal is recommended as the only viable option instead. This will enable the neighbouring stem to fill out and become more symmetrical over time.

Although Tree 2 is not requiring works urgently, there are indications of decay and reaction to historic pruning attempts. It would therefore be advantageous to carry out a crown thin of approximately 20%. This will allow the wind to pass through the crown with more ease thus relieving some of the wind sail effect. As well as reducing the windsail effect, crown thinning can also allow more sunlight to pass through, improving the association between the tree and its owner.

All treework must be carried out to BS3998:2010 Tree Work Recommendations, this will ensure a greater level of protection and improved useful life expectancy.

8.0 References

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- BRITISH STANDARDS INSTITUTE. (2010). *Recommendations for Tree Work BS 3998:2010* BSI, London.
- NATIONAL TREE SAFETY GROUP. 2011 *Common sense risk management of trees.*
- STROUTS.R.G, WINTER.T.G. (2005), *Diagnosis of ill Health in Trees.* 2nd ed. TSO Norwich
- C.MATTHECK, K BETHGE & H BRELOER, 2015 – *The body language of trees – Encyclopaedia of Visual Tree Inspection.*

Appendix 1 – Photos



Photo 1 – The view from the owners house up to the trees.

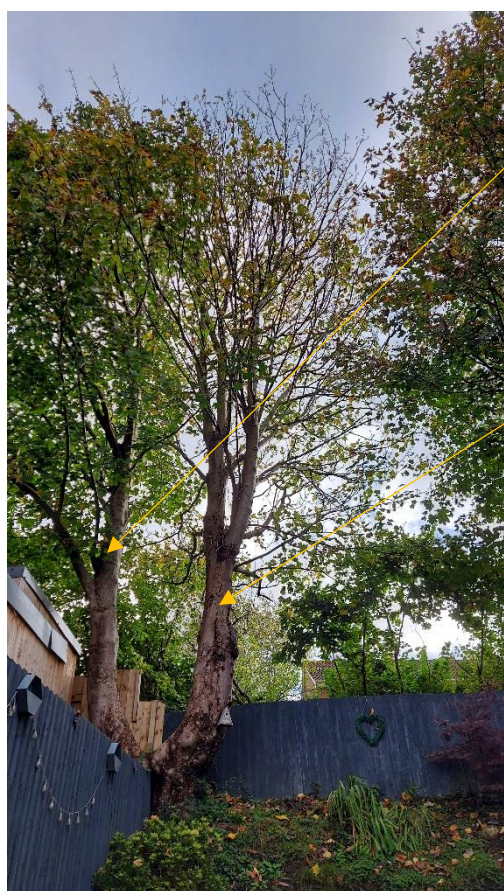


Photo 2

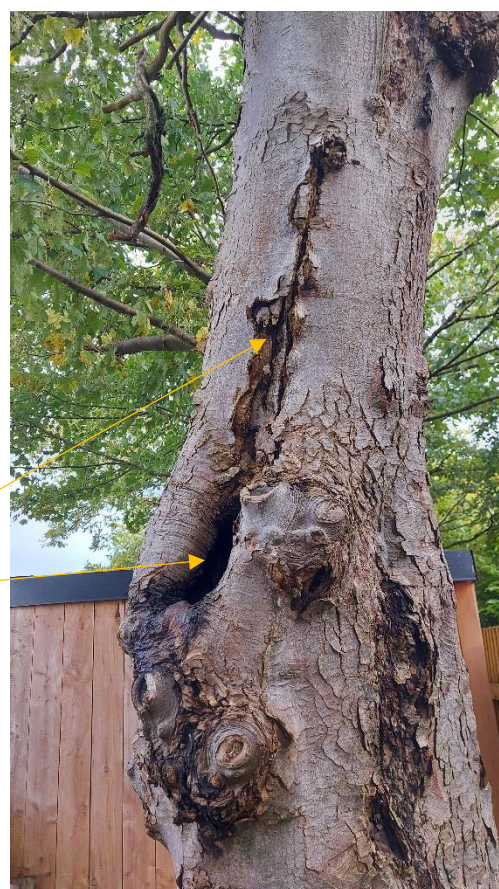


Photo 3 – Stem 2



Exudate

Cankrous growth around unions with further bark discolouration.

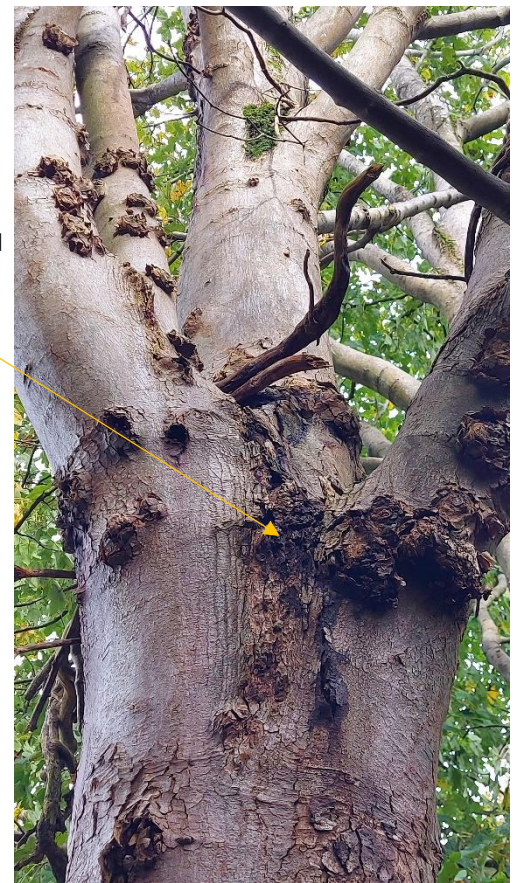
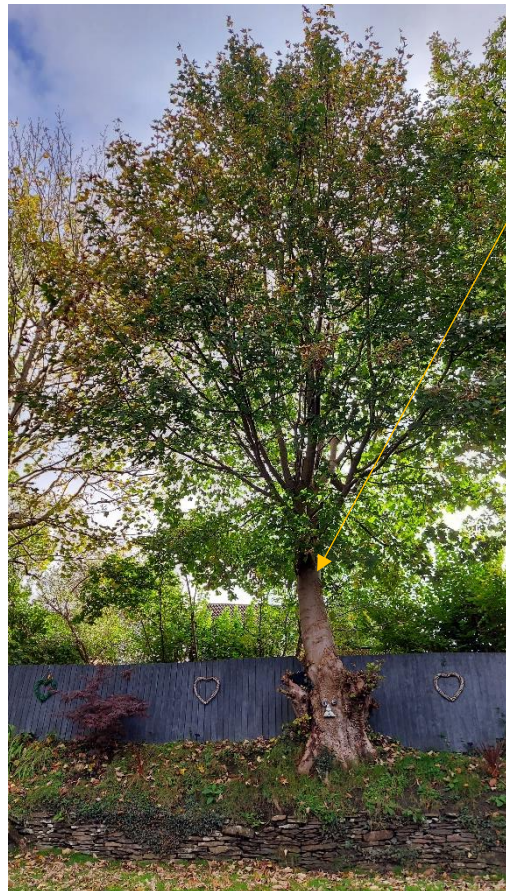


Photo 5 – Stem 2



Tree 2

Photo 6



Photo 7 – The pruning wound at the base of Tree 2

SITE LOCATION: 9 Princess Drive, Bryncoch, Neath, SA10 7PZ
DATE OF SURVEY: 26/10/2022