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Tree Hazard Evaluation Report

Group of 3x Mature Sycamores
Acer pseudoplatanus

At

Cross House
Broad Lane
Whalley
Clitheroe
BB7 9TW

Submitted to:

Lesley Ward
Cross House
Broad Lane
Whalley
Clitheroe
BB7 9TW

25March 2021

Prepared By:
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1. Introduction.

1.1

Acting for Lesley Ward an inspection of 3x mature Sycamore trees adjacent to Cross House, Broad Lane, Whalley was carried out on 26rd of March 2021 due to safety concerns. The tree inspection and Hazard evaluation report was carried out by Nathan Smith of Nathan Smith Tree Surgery Ltd.

1.2

Scope of the report and limitations.

The group of trees were inspected from ground level only. No excavations of the soil around the root zones were carried out. The report provides arboricultural information regarding the health and safety of the trees inspected and relates only to the conditions prevailing at the time and date of the survey.

The conclusions and recommendations contained within this report are valid for a period of one year from the date of the inspection. Any change in tree health, ground conditions or environmental factors within close proximity to the trees will reduce the validity of this report.

1.3

A Survey definition and glossary of terms are included, covering terms that are specific to arboriculture.

1.4

Only reputable, qualified and insured arboricultural contractors should be employed to carry out subsequent works recommended within this report. Works should be carried out to BS3998 2010: Recommendations for Tree Works and the Arboricultural Associations current guide to good practice.

1.5

At the time of this report no Tree Preservation Orders under the Town and Country Planning (Tree Preservation) (England) Regulations 2012 were observed. However, it is advised that future checks be made before the commencement of any works recommended within this survey.

The area covered in this survey does fall under conservation area status. Any tree works other than deadwood removal, Ivy removal or emergency works are subject to the submittal of a Section 211 Notice under the Town and Country Planning Act 1990.

1.6

It is possible that the trees listed in this report may be habitat to species of birds and bat which are protected under the countryside and wildlife act 1981. It is therefore advisable that appropriate surveys for nesting within the trees are carried out before any tree works commence, although none were observed during the survey.

2. Site Details.

2.1

This survey covers only the group of 3x mature Sycamore trees within the property boundary of Cross House.

2.2

Fig 1.

The site plan and approximate tree locations are marked below.

2.3

Fig 2.
Image of T1 T2 T3 group of Sycamore on the day of the survey. Taken from the North, Cross house on the left of the image.

2.4

Fig 3
Image of T1 T2 T3 group of Sycamore on the day of the survey. Taken from the East.

2.5

Local Planning Authority (LPA).

Tree Preservation Order Status:	No Confirmed TPO on site
Conservation Area Status	Site is within a conservation area
Local Planning Authority	Ribble Valley Borough Council

2.6

Site Conditions and observations.

Weather conditions at the time of the survey were changeable with strong gusts.

The trees were observed in early spring condition, showing visible elongation of buds and emergence of leaf throughout the canopy.

On the day of the survey, gas works were taking place on Ridding lane. Ridding lane and the footpath adjacent to T1 were busy with dogwalkers and pedestrians throughout the day.

3. Tree Details

3.1

Tree Number			**T1**
Species			Sycamore *Acer* *pseudoplatanus*
Age			mid to late Mature
Height (m)			22
Number of stems			1
DBH (cm)			93cm
Stem Lean			5-10 degrees N
Distance to building from stem (m)			11.8
Crown Spread (m)			
North	8.8	**East**	0
South	3.5	**West**	10.5
Leaf			emerging buds abundant
Vigour			Fair to good
Deadwood present in canopy %			<5%

3.2

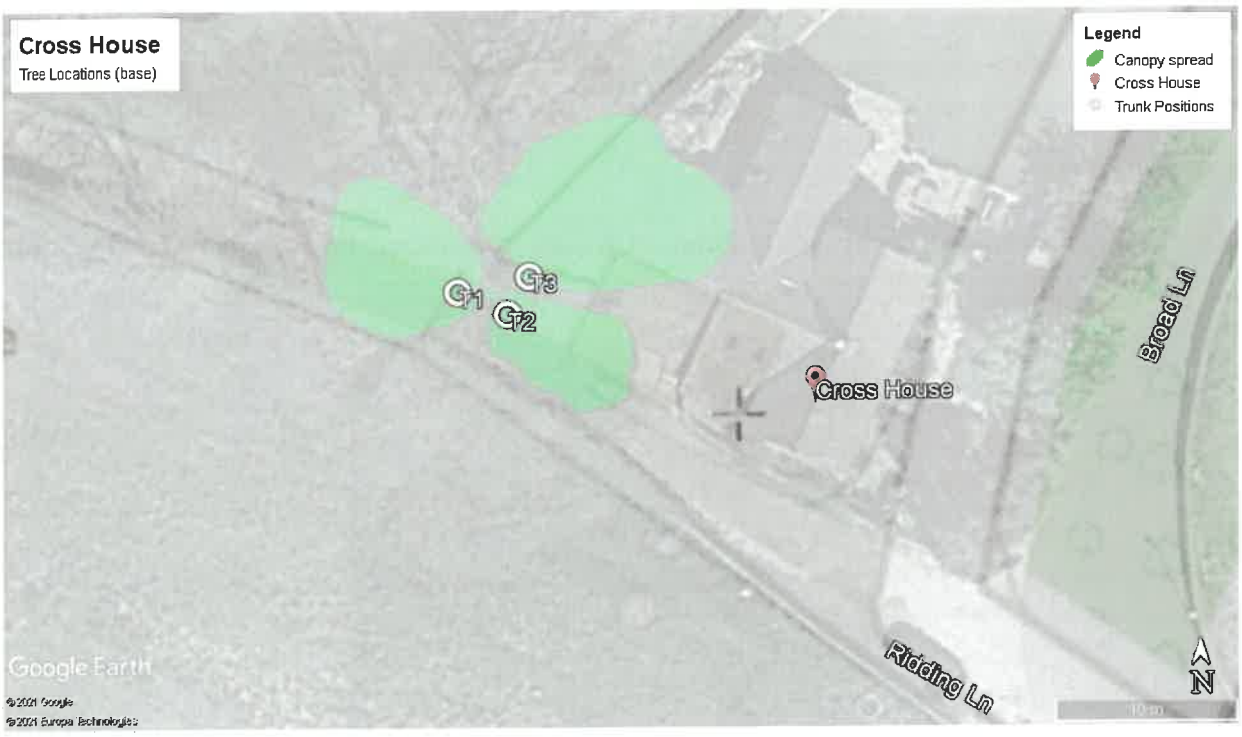
Tree number			**T2**
Species			Sycamore *Acer*
pseudoplatanus			
Age			mid to late Mature
Height (m)			23
Number of stems			1
DBH (cm)			91cm
Stem lean			10 degrees E
Crown Spread (m)			
North	5	**East**	11.6
South	10	**West**	0
Distance to building from stem (m)			5
Leaf			emerging buds abundant
Vigour			Fair
Deadwood present in canopy %			<5%

3.3

Tree number			**T3**
Species			Sycamore *Acer*
pseudoplatanus			
Age			mid to late Mature
Height (m)			24
Number of stems			1
DBH (cm)			99 cm
Stem lean			10 degrees N
Crown Spread (m)			
North	10	**East**	11.5
South	1.5	**West**	7.5
Distance to building from stem (m)			3.8
Leaf			emerging buds abundant
Vigour			Fair
Deadwood present in canopy %			<3%

3.4

Fig 4. Tree canopies in relation to trunk positions at ground level. Image illustrates major asymmetry in canopy shape due to codominant suppression from the proximity of neighbouring tree/s.



4. Tree Assessment.

4.1

Group Observations.

Because T1, T2 and T3 have grown together in co-dominance it is worth discussing them as a group.

A group of three mid-late mature Sycamore trees with a mean height of 23m and mean DBH of 94cm.

The three canopies together have a spread diameter of approximately 23.3m E/W and 14.95m N/S with a collective canopy area of approximately 264 square meters.

The group has grown on a raised area of ground approximately 21 square meters which is surrounded by excavation, building and pavement on all sides.

Canopy disengagement/ shyness is visible on all three trees as a result of trunk proximity. The three tree stems also lean heavily away from each other.

A freshly planted area with a large pile of bark chippings has been established from 6m to the north of the boundary wall, which is not ideal for the health of the tree group due to the risk of introduced pathogens and pests.

All three trees are heavily clad in Ivy to above 10m. The assessment of branch unions or trunk condition beneath the Ivy is not possible unless the Ivy is removed and/or an aerial survey is conducted.

The area in which the trees are situated was completely covered in ground Ivy on the day of the survey.

4.2

Fig 5. Image shows proximity and volume of freshly introduced bark mulch and depth of excavation on North side of trees.

4.3

T1 Visual observations.

A single stem mid to late-mature Sycamore, 22 meters tall with a trunk diameter of 93cm. The crown is suppressed and heavily weighted to the North and West. The trunk has a slight lean of approximately 5 degrees to 9m where it kinks a further 5 degrees to the North. The stem is heavily Ivy clad from the base to 14m.

The tree has been heavily crown lifted; the first branch is at 7.8m. The canopy has been excessively thinned and left with a "lion tailed" appearance. There are very few inner canopy growth points along the over-extended, end weighted limbs.

Deadwood is present in the canopy at <5 percent.

The base of T1 is 1m from the road which runs the length of the tree's root plate from East to West on the South side of the trunk.
The tree appears to be in fair health, although on its own would be classed as a poor specimen, it has grown in co-dominance with the neighbouring trees within the group and the canopy is heavily suppressed.

The tree has lost several branches to sheer failure in the past.

Necrotic lesions were visible from the ground on several limbs. Several pruning wound cavities can be seen from ground level, there is also visible "dog-legging"- reactionary direction changes of limbs at the point of the pruning wound cavities.

A boundary wall 2.5m North of the trunk runs East to West. The ground on the other side of the wall has been excavated/ levelled to a depth of 1.0m at some point.

4.4

Fig 6. Image illustrates the proximity of the road to T1/T2 and also the proximity to T1 of recently installed tarmac footpath.

4.5

T2 Visual observations.

Single stem, mid to late mature Sycamore, 23 meters tall. Suppressed. No canopy present on the Western side at all other than a small reactionary grown branch at 5m. Heavy stem lean to the East -the canopy is also heavily weighted to the East. There are four majorly over-extended limbs between 6m and 10m on the SE side. T2 appears to be of fair vigour. Extensive crown lifting and thinning has left the tree with no inner canopy and a "lion tailed" appearance. Multiple cut wound cavities can be observed throughout the canopy and there is a large branch tear stub of 4m length at 9-10m. Small fruiting bodies can be observed on the torn stub. Black fungus can also be seen at 20m on several broken branch wounds, indicating decay.

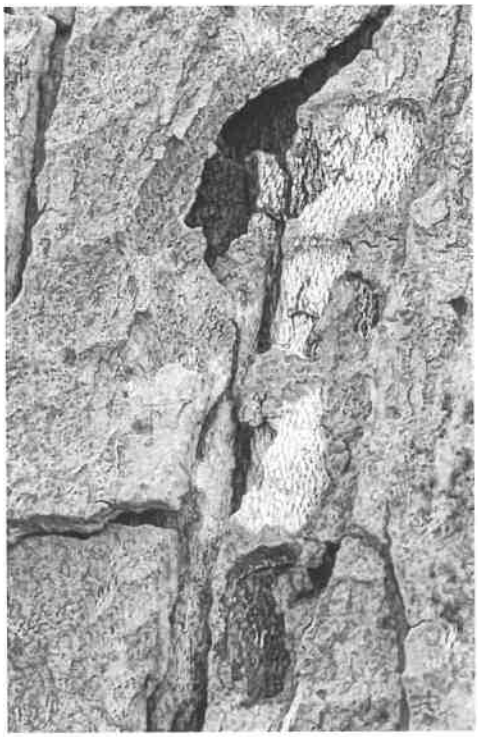
Small bark lesions were observed on the stem at 1m with patches of sooty spores present under the bark, most likely Cryptostroma corticale. Black lesions were also observed on several branches from ground level.

It was mentioned by the client that a large fruiting body had been removed from this tree in the past. The point at which it was attached is a large pruning wound approx. 30cm diameter at 8m on the East side of the stem. The wound is black in colour. On the day of the survey the wound was almost completely obscured by Ivy. Further inspection by aerial survey would be required to Identify the fungus and determine the level of decay in this area.

Budding appears sparse on the Lowest major limb on the Eastern side of the canopy with retrenchment visible.

4.6

Fig 7. Image shows the presence of sooty spores beneath the bark on T2.



4.7

T3 Visual observations.

T3 is a 24m Sycamore of mid-late maturity with a DBH of 99cm. The tree has a heavily leaning stem towards the North East. The majority of the branches are weighted on the side of the lean. No canopy is present at all on the South side due to co-dominance with T2. The stem is ivy clad to 13m. Major horizontal boughs are present from 8m. One major bough at 11m of approximately 45cm diameter extends over the house to 11.5 meters in length.

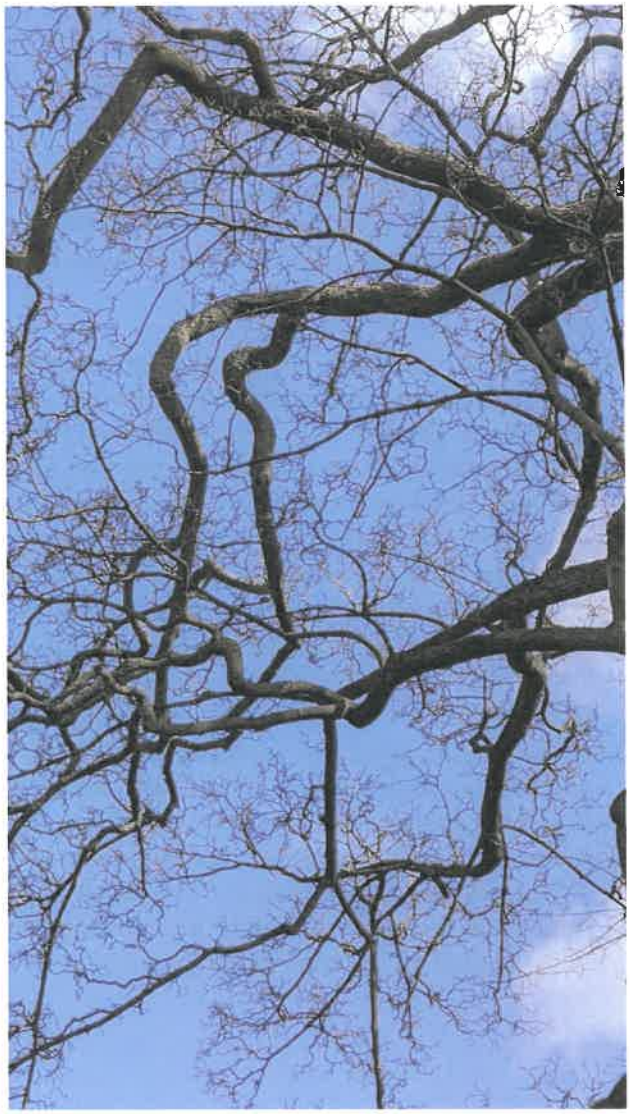
The root plate is terminated by the driveway wall running N/S 3.6m to the East of the stem. The ground level on the driveway is approx. 1.4m below the base of the trunk. The wall running E/W on the North side of the trunk terminates the root plate 0.8m from the trunk, and the ground level over the wall is approximately 0.8m lower than the trunk.

Main limbs throughout the canopy show twisting, dog-legged growth and direction changes at pruning cavities, creating major hazard beams. Included unions are present on the lowest, trifurcated Northward limbs. The inner canopy has been excessively thinned and lion-tailed, resulting in over elongated limbs. Necrotic lesions are visible on the first limb at 3m from the stem and on the adjacent branch. Bark stress fractures caused by transverse tension are visible on the Western most limb at 5m beyond the 90 degree change of direction. A fruiting body was noted at 16m on the westernmost leader, 4m from the stem. Fruiting bodies were observed on the Easternmost limb over the building on the end branches. Major branch cavities caused by poor pruning are also visible on the same limb 7.5m from the stem. Deadwood is present at <3%.

A basal cavity wound is present at the base on the North side of the trunk between two buttresses. The cavity measures 35cm wide at ground level and tapers up to 47cm from ground level. The cavity has been filled with concrete at ground level. White, dry and decayed wet-wood (acer heartwood) is present with black/orange oozing sap at the very top of the cavity. The presence of a Pseudomonas bacterial infection is suspected. At the time of the survey, it was possible to penetrate the wet-wood by 8cm with a 3.5mm probe. It is suspected the decay within the cavity extends below ground level. A Sonic Tomograph would be required to ascertain the extent of decay. The buttresses either side of the cavity appear to be truncating in reaction to compartmentalize the cavity.

4.8

Fig 8. Image shows trifurcated, dog-legged limbs on NE side of T3.



4.9

Fig 9. Basal cavity on North side of T3 trunk.

4.10

Fig 10. Black/ orange oozing sap at top of cavity suspected to be caused by Pseudomonas infection.

5. Discussion and recommendation.

5.1

Ground conditions.

The ground conditions surrounding these trees is not ideal for the health or structural integrity of Sycamores of this size and maturity. The root plate area for this given species would normally be around the canopy drip line of a naturally, open grown specimen with a symmetrical crown. The canopy disengagement and stem lean along with the road, recent footpath, excavation of the driveway and excavation of the housing estate leads one to fairly assume that the root distribution of these trees is not normal. The roots will have almost certainly been subject to damage and compaction on all sides of the root distribution area.

5.2

Tree condition and Risk.

The trees are of fair vigour and as described in section 4 numerous faults were noted in form and structure. Pathogens, and necrosis were identified as present in all three trees.

The mention of a large fruiting body being removed from T2 and the size and location of the wound it was attached to is a cause for concern, and further investigation would be required to ascertain the level of decay at this point, but the black colour indicates it is definitely present. The retrenchment is a sign that the tree is entering over maturity.

The lean direction of T3, excavation of root plate, the basal cavity and decay along with the weighting of the over-extended limbs coupled with numerous pruning wound cavities create a high risk of branch drop or failure at base towards the building.

The over elongation of limbs from over thinning have created a high risk of branch sheer failure.

It is my opinion that these trees pose a significant, high risk of failure.

5.3

My opinions.

This group of three Sycamore trees have grown together in symbiosis and co-dominance. It would be recommended under normal circumstances that any theoretical canopy works be carried out across the three trees at the same time to minimise any new stress factors, such as exposure to wind loading etc. The removal of one or more trees would leave the remaining asymmetrical leaning tree/s exposed to new factors of stress from wind loading. Because it is fair to assume that the root systems are inter-connected, it is also fair to assume that the physical strength of the remaining tree/s root plate would be affected.

These trees are in a late mature stage of life and if left to continue they will naturally enter over-maturity and eventually become Senescent. Retrenchment, the ingress of pathogens and decay, branch loss and structural failure are a natural part of the life cycle of trees. The management of risk

is of high importance in the case of these three trees because of the danger to the House and constant pedestrian traffic underneath the trees. This group of trees will not lend themselves to a canopy reduction to alleviate end/weighting and lean because the have been thinned heavily and crown lifted in the past. A crown reduction would most likely deteriorate the health of the trees further due to the size of cut wounds needed to alleviate the lean and weighting.

5.4

Recommendation and conclusion.

In conclusion to this survey/ report it is recommended that all three trees be felled to ground level to remove all risk of structural failure.

6 Survey Definitions and Arboricultural Glossary.

6.1

Survey Definitions

Tree ID

Given to a tree and correlates to the survey data sheet.

Tag No.

A numbered aluminium tag affixed at approximately 1.5m for identification of trees on site.

Species

Defined by botanical name and common name.

Age Classification

NP	Newly Planted
Y	Young
SM	Semi Mature
E	Early Mature
M	Mature
LM	Late mature
OM	Over Mature
S	Senescent

Height

The height of the tree measured from the ground at the base to the tallest part of the canopy. Measured in meters with an optical clinometer/ laser rangefinder.

DBH

Diameter at Breast Height

Diameter of trunk measured in millimetres at a height of 1.5m

Crown radius

The spread of the canopy from the trunk, measured at the widest part of the canopy, in meters.

Observations

Root Condition.

The visual assessment of the rooting area, taking into consideration any evidence of physical damage, soil compaction, excavation work, soil contamination or drainage problems.

Stem and Canopy Condition.

The visual assessment of the stem and main scaffold branches. Inspection for faults, hollows weaknesses in structural condition or exterior signs that may suggest the possibility of internal faults within the trees structure. Observation for dead wood, decay and pathogens within the trees structure.

Leaf and Bud.

The visual inspection of the amount and condition of foliage cover and or bud development, when compared against the foliage of a known healthy specimen of the same species.

6.2

Arboricultural Terms Glossary

Abiotic Factors

Non living factors of the environment, including temperature & wind.

Age-class

A general classification of the tree into either - young, semi-mature/maturing, mature, over-mature, or senescent.

Amenity Value

A general classification based on the trees contribution to local amenity. Factors such as location and visibility from public spaces, size, maturity and species are taken into account.

Apical Bud/Shoot

The apical bud, also known as the leading shoot, is responsible for shoot extension and is dominant.

Apical Dominance

A singular, leading shoot remains dominant.

Biotic factors

Living factors. For example, animals and pathogens.

Bottle Butt
Term used to describe shape of stem base, usually associated with an internal defect – refer to 'Reaction Wood' below.

Branch union/junction

The point at which a branch joins a larger stem. Can be a point of weakness, especially in certain species.

Cambium

A lateral meristem (see below) in vascular plants located just beneath the bark responsible for secondary growth, e.g. production of annual growth rings.

Canker
A clearly defined area of dead and sunken or malformed bark, caused by bacteria or fungi. Can have a bearing on structural integrity of infected limb(s) depending on size and location.

Chlorosis/Chlorotic

Abnormal yellow or yellow-green coloration of usually green leaves.
Essentially a reduction of chlorophyll levels often as a result disease or nutrient deficiency.

Co-dominant stems
A growth characteristic, where two or more stems of similar size grow from the same point. Can create an inherent weakness.

Coppice

The method of managing trees by cutting the stems at between 1.0 inch and 1.0 foot from the ground level on a regular cycle, the cut stumps of the trees or shrubs are allowed to re-grow many new stems.

Crown spread

Gives distances between extreme limits of the crown and the stem, usually along the four compass points. Helps to show crown symmetry.

Crown Reduction

The removal of branch ends to reduce the extreme limits of a trees branch spread and height.

Crown Thin

The removal of selected branches within the crown to thin the internal branch structure.

D.B.H.
'Diameter at Breast Height', an industry standard to gauge tree stem size and development. Within arboriculture, breast height is taken to be 1.5m above ground level.

Dieback

The reduction in crown vigour and extension growth progressing to death of distal parts; often associated with decline.

Epicormic/ adventitious growth

New growth from dormant buds that can often form tenuous attachments. Although some species readily form such shoots, it can be an indication of stress.

Hanger

Term used to describe a branch that has become detached and is being supported by other branches. Can be a hazard to persons and property below.

Hazard Beam

After the loss of a distal part, a limb concentrates growth upwards creating adverse end weights that can render the limb susceptible to failure.

Included bark

Growth characteristic usually caused when two or more stems/branches growing in close proximity 'fuse' together entrapping the bark from when the parts were separate in the middle, creating a potential structural weakness.

Meristem

The undifferentiated plant tissue from which new cells are formed, such as that at the tip of a stem or root.

Meristematic Disorder

A growth disorder caused by a disruption of the meristem (see above) from any of a number of biotic factors (see above). Manifests as growths such as 'Witches Brooms' & 'Galls'.

Necrosis/Necrotic

Death of tissues usually characterised by a blackening in colour.

Occlusion/Occluded

Normally used to describe the overgrowth of a wound. Also, immoveable foreign objects in contact with a tree part can become encased or 'occluded' by the tree as it grows incrementally.

Pathogen

An agent that causes disease, especially a living micro-organism such as a bacterium or fungus.

Pollard

The removal and subsequent regular re-removal of the crown of a tree above animal browsing height. Can be an effective method of controlling the size of trees in urban areas. This is ideally begun in the trees early stages and maintained throughout its life.

PSULE

Potential Safe Useful Life Expectancy. A general classification as to the trees life expectancy. 0-10; 10-20; 20-40; 40+ years.

Reaction Wood

Essentially additional wood laid down by the tree to compensate for structural defects such as a cavities.

Ring barking/Girdling

The removal of bark around the entire circumference of a stem or branch, causing the death of all distal parts.

Saprophyte

An organism which exists on dead plant material.

Scaffold branches

The main structural branches within the crown.

Veteran tree

Tree that, by recognised criteria, shows features of biological, cultural or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned.

Vigour

A general classification, as to the present and future potential growth and development of a tree. A comment regarding the health status of the tree specific to its species.