



AVArboriculture

Arboricultural Survey

Client: Charles White Ltd

Site: Carnbee, Edinburgh

Date of Survey: 21st March 2023

Survey Location:

Carnbee
Edinburgh

Survey commissioned by:

Charles White Ltd
14 New Mart Road
Edinburgh EH14 1RL

Prepared by:

Mike Charkow MA, Cert Arb L4 (ABC), PTI
Arbor Vitae Arboriculture Ltd
8 Harbour Place
Burntisland
KY3 9DP

Mobile: 07917335066
Web: www.avtree.co.uk

Signed:



Michael J Charkow

Date: 22nd March 2023

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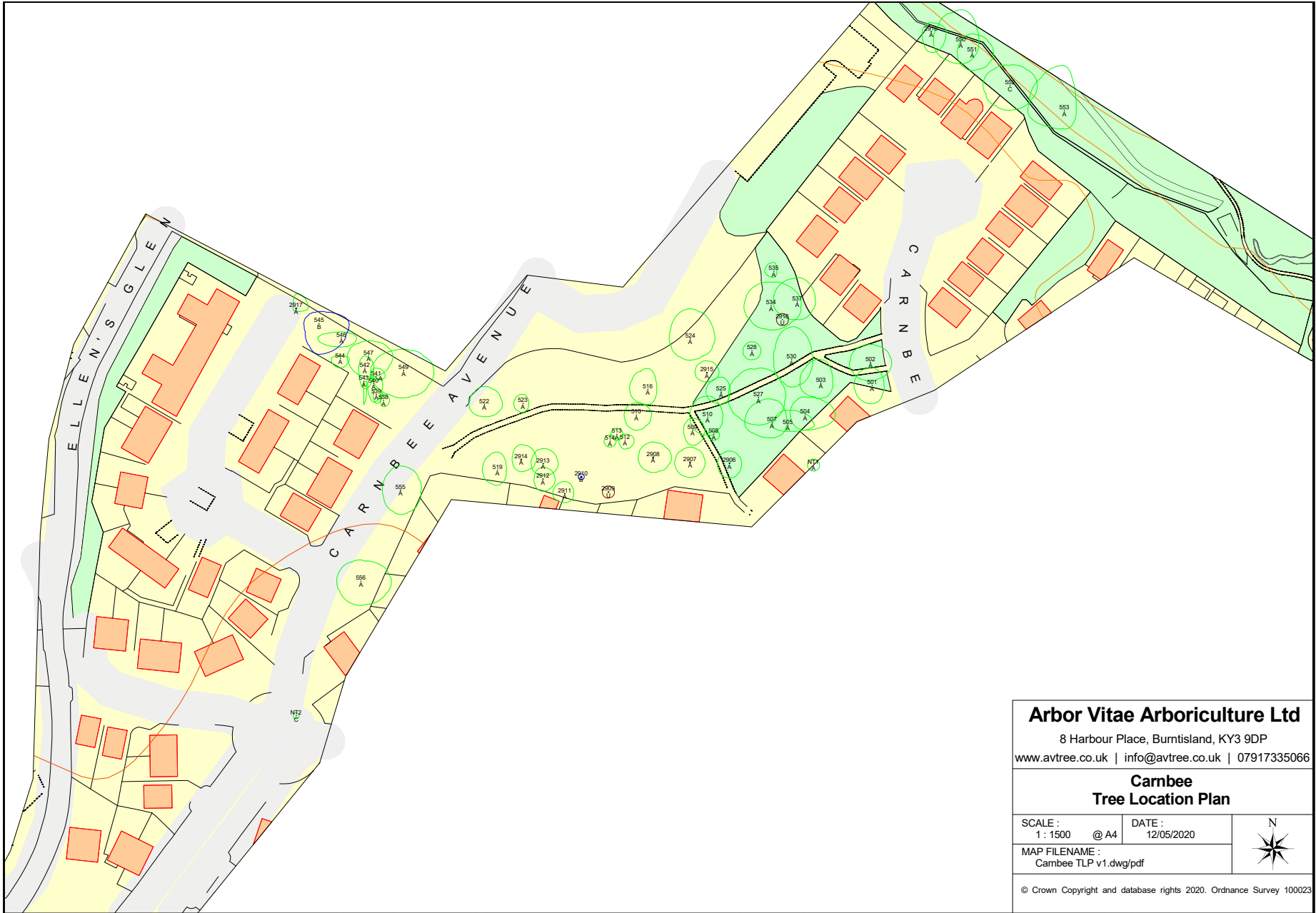
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1 Client Brief and Overview

- 1.1 Mike Charkow of Arbor Vitae Arboriculture Ltd was instructed by Charles White Ltd, to undertake a tree condition and nuisance assessment of specified trees at Carnbee, Edinburgh.
- 1.2 Tree preservation order 16 relates to this site, therefore permission must be sought from the local authority prior to carrying out tree works (Town and Country Planning Act (Scotland) 1997). This report may be used as evidence when making an application. No tree preservation orders relate to this site.
- 1.3 47 trees were assessed and recorded.
- 1.4 Visibility was good.
- 1.5 Decisions regarding risk from trees are made on the principle of what is reasonably practicable (Health and Safety Executive, 2001). In essence, this is the process of balancing the costs of implementing risk-control measures (i.e. money, time, effort etc) against the benefits that would be gained (i.e. risk reduction. If a risk is present but is deemed to be “as low as reasonably practicable” (ALARP) then the management decision may be ‘no work required’. For instance, it would be deemed unreasonable to spend thousands of pounds on removing all small dead branches from a public park in order to prevent one minor incident. The risk from trees can never be removed, however the tree owner’s duty of care is being met if this risk has been competently assessed as being acceptable.

Work recommendations have been made according to the assessor’s assessment of occupancy. The tree owner should assess the work recommendations according to their own knowledge of site usage; any proposed amendments to the tree management recommendations should be discussed with the tree assessor.



Arbor Vitae Arboriculture Ltd		
8 Harbour Place, Burntisland, KY3 9DP		
www.avtree.co.uk info@avtree.co.uk 07917335066		
Carnbee Tree Location Plan		
SCALE : 1 : 1500 @ A4	DATE : 12/05/2020	
MAP FILENAME : Carnbee TLP v1.dwg/pdf		
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3 Survey Findings

General

- 3.1 27 trees were in good condition, 17 were in moderate condition, and 2 could not be rated.
- 3.2 16 trees were mature, 24 were early-mature and 6 were young.
- 3.3 There are many young and small early-mature trees (mostly Ash, Oak and Cherry) that have established throughout the site. These have been briefly assessed but they may also need to be tagged and located in the future, as their size increases.
- 3.4 Specific recommendations and timescales are given in the [tree schedule](#).
- 3.6 Prioritised works recommendations are listed in [appendix 10](#).

Recommended Work

- 3.7 Two mature trees - an Oak (tag 534) and an Ash (537) have been recommended for further investigation using sonic tomography in order to determine the density of remaining wood. The Ash has a cavity at around 9 metres, and several old pruning cuts below. Due to its location, it is necessary to quantify the amount of decay in the stem around the cavity. The Oak has several brackets of the fungus *Ganoderma* between buttresses. This fungus usually decays dead wood, especially when the tree is healthy (as in this case). Nevertheless, there is likely to be some internal decay and it would be prudent to quantify this, due to the tree's location.
- 3.8 Two recently planted trees have established and are starting to grow through the protective wire mesh fencing. The stakes and fencing could be removed to allow the branches to develop without hindrance. The trees have not grown as quickly as could be expected and it may be that the ground is somewhat compacted. Therefore, it would also be beneficial to apply a 5 centimetre deep layer of mulch (mushroom compost or wood-chips are preferred) to a radius of at least 1 metre from the tree stems. The mulch should not touch the tree, and it may need to be reapplied every year or two.
- 3.9 A mature Lime (552) appears to be in good condition, however the lower stem could not be fully assessed due to the presence of epicormic growth. The epicormics should be removed prior to the next assessment; otherwise, the tree assessor could factor this in and carry out the necessary pruning themselves.
- 3.10 An Ash (2909) appeared to have reduced vigour, though it was difficult to properly assess this as the tree was not in leaf. Residents should be observant and contact an arborist if it looks sub-optimal. There is a fair chance that it has Ash dieback disease, though this was not observed on any of the other Ash trees in the area.
- 3.11 The same Ash was recommended for ivy removal or severance.

Ivy is an important native plant for wildlife habitat and as a food source, however its presence on trees can be problematic:

- It can impede the inspection of the tree;
- It can smother branches causing foliage to die;
- It can increase the 'sail-area' of the tree, making it more wind resistant and therefore prone to breakage.

Unless the tree is small, it is usually costly and impractical to remove all of the ivy from a tree, however it can be severed from near ground level to around 1.5 metres. This should be done on an annual basis to prevent the ivy from regrowing. The ivy may take a year to die, but then it can be removed much more easily, or it will fall off over time. The reinspection would therefore take place once the tree could be seen. It is the decision of the tree owner whether the risk of the tree warrants complete ivy removal or severing at base.

- 3.12 Two trees in Area 11 have features of concern, but have not been judged to require any works at present. A mature Sweet Chestnut (551) has a basal cavity, however it also has robust reaction wood (Photo 1). The tree is fairly squat for its age and is fairly sheltered, so the risk of failure is low. A mature Lime (553) has a basal cavity and robust reaction wood (Photos 2-4). It has a slight lean to the north, where the target rating is low. One tensile buttress to the southwest has a *Kretzschmaria deusta* infection. This is an aggressive pathogen that can completely decay wood. However, there are 3 or 4 other apparently intact tensile buttress roots and the tree is vigorous, so capable of growing wood to compensate for the decay.

Appendix 1: **Bibliography**

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Legislation

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Town and Country Planning Act (Scotland) (1997).

Appendix 2: **The Author's Qualifications and Experience**

Mike Charkow holds the Level 4 Certificate in Arboriculture, and also the LANTRA Professional Tree Inspection Certificate. He has been working in the industry since 2004 as both a contracting and consulting arborist.

As part of a continual professional development program, Mike regularly attends professional seminars, conferences, training days and meetings.

He has been accredited by 'Echoes Ecology Ltd' as a competent person to inspect trees for bats and their roosts.

He is a committee member of the Scottish Branch of the Arboricultural Association, and a member of the Consulting Arborist Society.

Appendix 3: Glossary of Arboricultural Terms

Adaptive growth. In tree biomechanics, the process whereby the rate of wood formation in the cambial zone, as well as wood quality, responds to gravity and other forces acting on the cambium. This helps to maintain a uniform distribution of mechanical stress.

Adaptive roots. The adaptive growth of existing roots; or the production of new roots in response to damage, decay or altered mechanical loading.

Adventitious shoots. Shoots that develop other than from apical, axillary or dormant buds; see also 'epicormic'.

Anchorage. The system whereby a tree is fixed within the soil, involving cohesion between roots and soil and the development of a branched system of roots which withstands wind and gravitational forces transmitted from the aerial parts of the tree.

Architecture. In a tree, a term describing the pattern of branching of the crown or root system.

Bacteria. Microscopic single-celled organisms, many species of which break down dead organic matter, and some of which cause diseases in other organisms.

Bark. A term usually applied to all the tissues of a woody plant lying outside the vascular cambium, thus including the phloem, cortex and periderm; occasionally applied only to the periderm or the phellem.

Bottle-butt. A broadening of the stem base and buttresses of a tree, in excess of normal and sometimes denoting a growth response to weakening in that region, especially due to decay by selective de-lignification.

Branch:

- Primary.** A first order branch arising from a stem

- Lateral.** A second order branch, subordinate to a primary branch or stem and bearing sub-lateral branches.

- Sub-lateral.** A third order branch, subordinate to a lateral or primary branch, or stem and usually bearing only twigs.

Branch bark ridge. The raised arc of bark tissues that forms within the acute angle between a branch and its parent stem.

Branch collar. A visible swelling formed at the base of a branch whose diameter growth has been disproportionately slow compared to that of the parent stem; a term sometimes applied also to the pattern of growth of the cells of the parent stem around the branch base.

Brown-rot. A type of wood decay in which cellulose is degraded, while lignin is only modified.

Buckling. An irreversible deformation of a structure subjected to a bending load.

Buttress zone. The region at the base of a tree where the major lateral roots join the stem, with buttress-like formations on the upper side of the junctions.

Cambium. Layer of dividing cells producing xylem (woody) tissue internally and phloem (bark) tissue externally.

Canker. A persistent lesion formed by the death of bark and cambium due to colonisation by fungi or bacteria.

Crown clean. The removal of dead, crossing, weak, and damaged branches, where this will not damage or spoil the overall stability or appearance of the tree.

Compartmentalisation. The confinement of disease, decay or other disfunction within an anatomically discrete region of plant tissue, due to passive and/or active defences operating at the boundaries of the affected region.

Condition. An indication of the physiological vitality and/or structural stability of the tree.

Crown/Canopy. The main foliage bearing section of the tree.

Crown lifting. The removal of limbs and small branches to a specified height above ground level.

Crown thinning. The removal of a proportion of secondary branch growth throughout the crown to produce an even density of foliage around a well-balanced branch structure.

Crown reduction/shaping. A specified reduction in crown size whilst preserving, as far as possible, the optimal tree shape.

Deadwood. Branch or stem wood bearing no live tissues. Retention of deadwood provides valuable habitat for a wide range of species and seldom represents a threat to the health of the tree. Removal of deadwood can result in the ingress of decay to otherwise sound tissues and climbing operations to access deadwood can cause significant damage to a tree. Removal of deadwood is generally recommended only where it represents an unacceptable level of hazard. Deadwood sizes: small (<25mm), moderate (<50mm), major (>50mm); the deadwood may be up- or down-rated depending on its overall volume.

Defect. In relation to tree hazards, any feature of a tree which detracts from the uniform distribution of mechanical stress, or which makes the tree mechanically unsuited to its environment.

Dieback. The death of parts of a woody plant, starting at shoot-tips or root-tips.

Disease. A malfunction in or destruction of tissues within a living organism, usually excluding mechanical damage; in trees, usually caused by pathogenic micro-organisms.

Disfunction. In woody tissues, the loss of physiological function, especially water conduction, in sapwood.

Epicormic shoot. A shoot having developed from a dormant or adventitious bud and not having developed from a first year shoot.

Girdling root. A root that circles and constricts the stem or roots possibly causing death of phloem and/or cambial tissue.

Hazard beam. An upwardly curved part of a tree in which strong internal stresses may occur without being reduced by adaptive growth; prone to longitudinal splitting.

Heartwood/false-heartwood/ripewood. Sapwood that has become disfunctional as part of the natural ageing processes

Incipient failure. In woody tissues, a mechanical failure which results only in deformation or cracking, and not in the fall or detachment of the affected part.

Included bark. Bark of adjacent parts of a tree (usually forks, acutely joined branches or basal flutes) which is in face-to-face contact.

Internode. The part of a stem between two nodes; not to be confused with a length of stem which bear nodes but no branches.

Lever arm. A mechanical term denoting the length of the lever represented by a structure that is free to move at one end, such as a tree or an individual branch.

Lignin. The hard, cement-like constituent of wood cells; deposition of lignin within the matrix of cellulose microfibrils in the cell wall is termed lignification.

Loading. A mechanical term describing the force acting on a structure from a particular source; e.g. the weight of the structure itself or wind pressure.

Longitudinal. Along the length (of a stem, root or branch).

Minor (small) deadwood. Deadwood of a diameter less than 25mm and or unlikely to cause significant harm or damage upon impact with a target beneath the tree.

Occluding tissues. A general term for the roll of wood, cambium and bark that forms around a wound on a woody plant (cf. woundwood)

Occlusion. The process whereby a wound is progressively closed by the formation of new wood and bark around it.

Pathogen. A microorganism which causes disease in another organism.

Photosynthesis. The process whereby plants use light energy to split hydrogen from water molecules, and combine it with carbon dioxide to form the molecular building blocks for synthesising carbohydrates and other biochemical products.

Phototropism: The growth of a tree or branch towards the light. Phototropic branches can become exposed and therefore prone to breakage.

Pollarding: A pruning system in which the upper branches of a young tree are removed, promoting a dense head of foliage and branches. Historically this was done to keep young shoots above grazing level; now used to keep trees at a manageable level. Not to be confused with topping.

Reactive Growth/Reaction Wood. Production of woody tissue in response to altered mechanical loading; often in response to internal defect or decay and associated strength loss (cf. adaptive growth).

Removal of dead wood. Unless otherwise specified, this refers to the removal of all accessible dead, dying and diseased branch-wood and broken snags.

Re-spacing. Selective removal of trees from a group or woodland to provide space and resources for the development of retained trees.

Residual wall. The wall of non-decayed wood remaining following decay of internal stem, branch or root tissues.

Sapwood. Living xylem tissues

Shedding. In woody plants, the normal abscission, rotting off or sloughing of leaves, floral parts, twigs, fine roots and bark scales.

Sprouts. Adventitious shoot growth erupting from beneath the bark

Stem/s. The main supporting structure/s, from ground level up to the first major division into branches. The stem (or stems if two or more co-dominant stems are present) may extend to the uppermost part of the tree.

Stress (plant physiology): A condition under which one or more physiological functions are not operating within their optimum range, for example due to lack of water, inadequate nutrition or extremes of temperature.

Stress (mechanics): The application of a force to an object.

Structural roots. Roots, generally having a diameter greater than ten millimetres, and contributing significantly to the structural support and stability of the tree; also containing water conducting vessels.

Taper. In stems and branches, the degree of change in girth along a given length.

Targets. In tree risk assessment (with slight misuse of normal meaning) persons or property or other things of value which might be harmed by mechanical failure of the tree or by objects falling from it

Topping. In arboriculture, the removal of the crown of an older tree, or of a major proportion of it. This is not generally advised as it can allow decay into the upper parts of the tree. Not to be confused with pollarding.

Torsional stress. Mechanical stress applied by a twisting force.

Understorey. A layer of vegetation beneath the main canopy of woodland or forest or plants forming this

Wind exposure. The degree to which a tree or other object is exposed to wind, both in terms of duration and velocity.

Wind-throw. The blowing over of a tree at its roots.

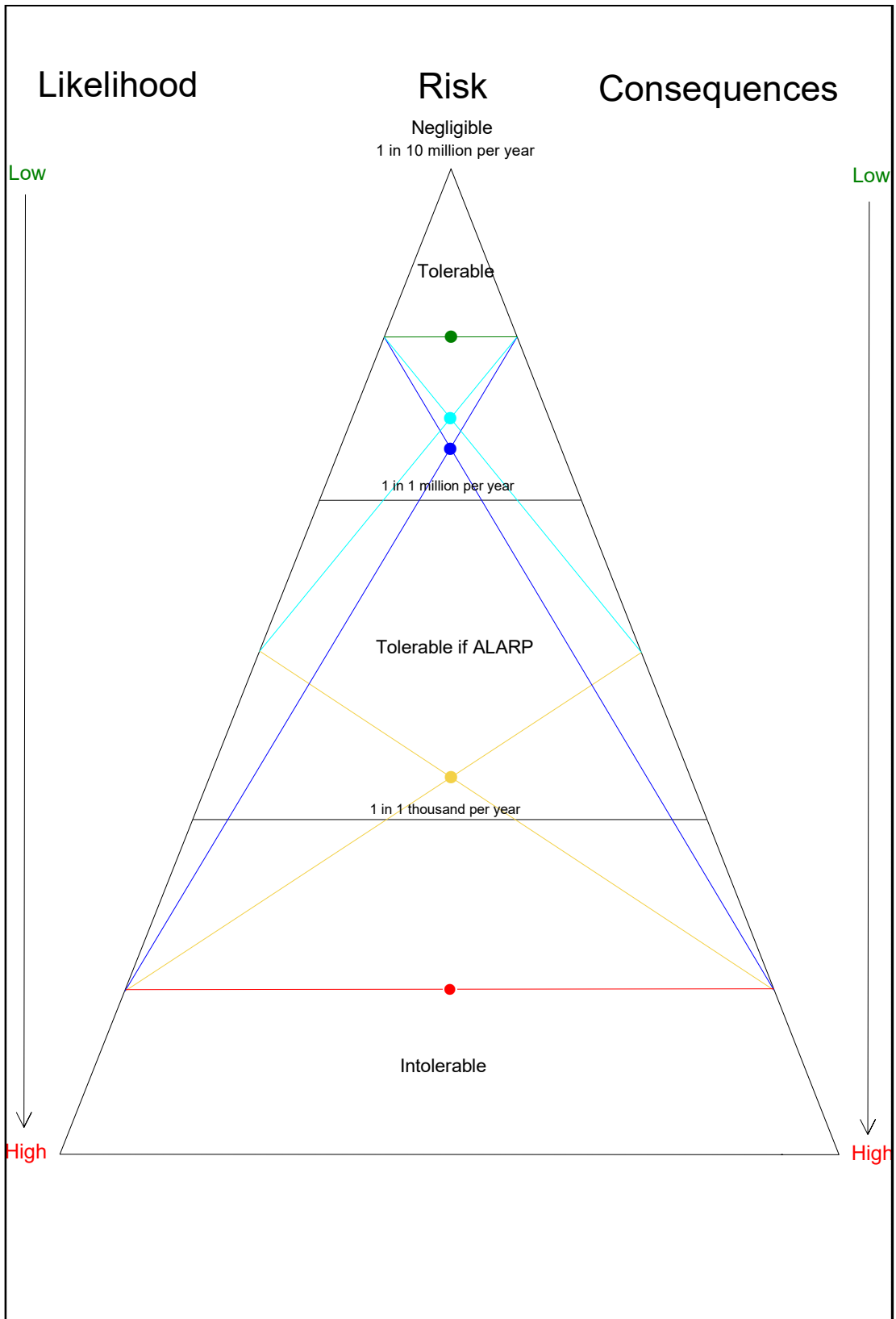
Woundwood. Wood with a typical anatomical features, formed in the vicinity of a wound.

Appendix 4: **Tree Survey Methodology**

- A4.1 All specified trees within the site were inspected.
- A4.2 Trees were located on an Ordnance Survey map image using an Android tablet with GPS capabilities and on-site features; exact tree locations are not guaranteed.
- A4.3 Individually numbered tree tags were attached to the larger trees with a nail. Many are now missing, though these trees are still easily located. In the future, due to the growth of a large number of trees throughout the area, there may be a necessity to carry out another round of tagging, so as to be able to identify individual trees.
- A4.4 Recommendations for management of the trees refer mainly to the alleviation or removal of risks and nuisances.
- A4.5 Trees were inspected - where possible - using the Visual Tree Assessment method (VTA) as developed by Claus Mattheck and Helge Breloer (1994). This is a widely accepted methodology that takes into account structural and physiological symptoms from which judgements can be made regarding the risk from the tree.
- A4.6 Tree condition criteria are based approximately on the following requirements:
- Good** = Full healthy canopy. Free from major cavities, wounds, pests or diseases.
- Moderate** = Slightly reduced leaf cover, minor deadwood or isolated major deadwood. Early stages of decay/disease. Structural faults.
- Poor** = Overall sparse leafing or extensive deadwood. Well established decay organisms. Structurally unsound cavities and or large wounds. Structural features prone to failure.
- Very Poor** = Large areas of dead crown. Advanced decay. Structurally unsound.
- A4.7 Tree risk ratings (based on 'THREATS', Table 5, Julian Forbes-Laird, 2006)

Value	Static target examples	Target occupancy examples
Very high (VH)	Building 24 hour use, railway	Constant vehicular traffic/busy playground
High (H)	Building 12 hour use, ≥11Kv power lines	Frequent vehicular traffic/constant pedestrian use
Medium (M)	Building/structure occasional use, <11Kv lines	Peak times traffic/intermittent use, eg commuter run
Low (L)	Garage, Summer house, Listed wall	Occasional traffic/sporadic use, eg slow country road
Very low (VL)	Unlisted wall, paving, garden features	Infrequently used access/public right of way/bridleway
None (N)	Grass	Hardly ever used, eg remote path

A4.8 As low as reasonably practicable (ALARP) model:



Appendix 5: **Caveats and Limitations**

- A5.1 This survey was conducted according to the VTA type 1 method (Mattheck & Breloer, 1994; Mattheck 2007) meaning survey work was carried out from ground level only.
- A5.2 No soil, foliage, wood, fungus or root samples were taken for analysis. Should any further investigation be required, this will be highlighted in the report.
- A5.3 No internal decay measurements were taken. Should any further investigation be required, this will be highlighted in the report.
- A5.4 Even apparently healthy, structurally sound trees can be adversely affected by extreme climatic conditions. Trees should be reinspected after such events.
- A5.5 Trees are living organisms and can decline in health rapidly due to biotic and abiotic influences. Therefore, due to the unpredictability of nature, the unforeseen failure of intact trees can never be ruled out. The findings of this report are based on observations made at one visit, and best judgement has been made to ensure that any remedial work has been recommended; however no guarantee can be given as to the safety of any individual tree. For this reason, findings and recommendations in this report are valid only for a period of 12 months from the survey date, or until any extreme weather event, whichever is soonest.
- A5.6 Only visible pathogens were recorded at the time of the survey. This does not confirm the absence of other pathogens but merely states that no annual fruiting bodies or other indications were observed at the time of the survey.
- A5.7 A Type 1 VTA cannot eliminate the possibility that any of the trees are used as a habitat for protected flora and fauna (e.g. bat roost). Reference to the legal documents 'Countryside Rights of Way Act' (2000) and 'Nature Conservation Act' (2004) (Scotland) is advised. The trees have been assessed for potential bat habitat, as well as bird nesting. Due to the difficulty of assessing the upper stems and crowns of larger trees from the ground (especially evergreen trees), some habitat features may not have been observed.
- A5.8 Due to physical constraints inherent on the site, some measurements have been estimated.

Appendix 6: Trees and the Law

Below are summaries of tree law that is most pertinent to property owners in the UK:

A6.1 Duty of Care: The owner of a tree has a responsibility in law to manage the hazards posed by trees in their ownership. The Occupier Liability Acts state:

“Wherever a person has a sufficient degree of control over premises that he ought to realise that any failure on his part to use care may result in injury to a person coming lawfully there, then he is an occupier and the person coming lawfully there is his visitor: and the occupier is under a duty to his visitor to use reasonable care.”

A6.2 Boundary Trees: Ownership of the tree is determined by the property on which the stem and surrounding soil are (Holder vs Coates). This includes all tree parts. Joint ownership of a tree(s) can occur where the stem and surrounding soil are on multiple properties (Lemmon vs Webbs; Heatherington vs Gault). The latter case suggests that the tree is a ‘boundary tree’, and the owners of both properties have equal rights to carry out work.

A6.3 Trees Encroaching into Neighbouring Property: A tree whose stem and surrounding soil are entirely within one property may encroach into a neighbour’s property with its branches and/or upper stem. Such a tree is still owned in its entirety by the owner of the property. This includes the fruit and leaves even when they have fallen from the tree (Mills vs Brooker).

A6.4 Protected Trees: Trees can be protected in the UK by Planning Law, i.e. The Town and Country Planning Act 1990 (As Amended) , Town and Country Planning Act 1997 (Scotland). This protection can take the form of Conservation Areas, Tree Protection Orders, and trees on development sites. Applications must be made to carry out work on protected trees.

A6.5 Protected Flora and Fauna: Trees can be habitats for protected species, especially for bats. Several threatened UK species are protected either at UK level by Schedule 5 of the Wildlife and Countryside Act (1981) or at European level by Schedule 2 of the Conservation of Habitats and Species Regulations (2010). UK protected woodland species include the red squirrel and the stag beetle. European protected species (EPS) include all bats, great crested newts and the Scottish Wildcat (Woodland Trust, 2012).

Tree owners and tree inspectors should be aware of any signs of protected species, especially before and during any tree or related work. Following the discovery of any protected species, work should desist and the relevant statutory body should be contacted (i.e. Scottish Natural Heritage).

Appendix 7: **Tree Management Proposal**

- A7.1 The tree management proposals within this document should be carried out and the timescales for prioritised works respected.
- A7.2 All recommended arboricultural remedial work should be completed to the standards defined in BS3998 (2010) 'Recommendations for Tree Work' - or more recent best work practises - and be carried out by professional arborists with the relevant qualifications and insurance.
- A7.3 Standing deadwood is often created or maintained due to its habitat value. However, the deteriorating structural condition of dead trees is often impractical to monitor. Consequently, standing deadwood should not be retained if it is within falling distance of significant targets.
- A7.4 A qualified ecological worker should be consulted prior to any tree work in order to advise on the likely impact of tree work on any protected flora and fauna.
- A7.5 Trees that are potential bat habitats must be inspected by a suitably qualified person no more than 24 hours prior to tree surgery (April-September) or 48 hours (October -March).
- A7.6 Any proposed disturbance to trees containing bird nests should be carried out with mitigation, and only between October and February.
- A7.7 During periods of extreme weather, especially high wind or gusts (i.e. Beaufort Scale 7, above 30 miles per hour), it is advisable to warn residents, visitors and other site users of the potential risks, given the failure rate of trees under such conditions.

Appendix 8: **Key to the Tree Schedule**

Abbreviation	Explanation
TN	Tree Number: sequential number of the tree in order inspected.
Tag	Unique number on tag attached to the tree. NT = no tag.
Species	Tree species: Common English name (Botanical name)
H	Approximate tree height (metres).
D	Approximate stem diameter: (millimetres).
AC	<u>Age Class:</u> Young (up to the first 1/3rd of expected height), Early-mature (1/3rd to 2/3rds of expected height), Mature (close to expected ultimate height with rapid girth expansion), Over-mature (a senescing tree), Veteran (a valued tree surviving beyond the typical age for the species), Dead.
V	Vigour (physiological condition) of the tree. N = normal F = fair P = poor D = dead
Condition	Observations, particularly of structural and/or physiological condition (e.g. the presence of decay, defects and pathological infections), as well as nuisances caused by the tree. Good = Full healthy canopy. Free from major cavities, wounds, pests or diseases. Moderate = Slightly reduced leaf cover, minor deadwood or isolated major deadwood. Early stages of decay/disease. Structural faults. Poor = Overall sparse leafing or extensive deadwood. Well established decay organisms. Structurally unsound cavities and or large wounds. Structural features prone to failure. Very Poor = Large areas of dead crown. Advanced decay. Structurally unsound. TBD = To be determined further investigations may be required.
Recommendations	Management recommendations for the tree. 'NWR' = No work required.
U	Urgency of the recommended tree works (in months).
ERC	Estimated remaining contribution of the tree (in years).
RC	Recommendation category: A = No work required, B = Pruning, C = Other work, T = To be determined, U = Tree removal.
Bat	Based on observations of possible bat roosting features - this does not indicate the actual presence of bats, rather the possibility of the tree being used by bats. H = high likelihood of roosting feature. L = low likelihood of roosting feature. U = unknown.
RI	Recommended maximum time until the next tree inspection (in months).

TN	Tag	Species	H	D	AC	V	Condition	Recommendations	U	ERC	RC	Bat	RI
1	501	Common Beech (Fagus sylvatica)	15	600	EM	N	GOOD	NWR	-	>40	A	L	60
2	502	Common Beech (Fagus sylvatica)	17	600	EM	N	GOOD	NWR	-	>40	A	L	60
3	503	Norway Maple (Acer platanoides)	14	600	EM	N	MODERATE Lower stem wound with robust wound wood.	NWR	-	>40	A	L	60
4	530	Copper Beech (Fagus sylvatica 'Purpurea')	19	600	M	N	MODERATE Lower stem wounds with robust reaction-wood.	NWR	-	>40	A	L	60
5	504	Norway Maple (Acer platanoides)	18	450	EM	N	GOOD	NWR	-	>40	A	L	60
6	505	Norway Maple (Acer platanoides)	18	450	EM	N	MODERATE Stem wound at 3 metres north on southern stem, with robust reaction wood.	NWR	-	>40	A	H	60
7	507	Copper Beech (Fagus sylvatica 'Purpurea')	19	750	M	N	GOOD	NWR	-	>40	A	H	60
8	509	Thuja (Chamaecyparis lawsoniana)	17	600	EM	N	GOOD	NWR	-	>40	A	L	60
9	516	Common Yew (Taxus baccata)	10	600	EM	N	MODERATE Bark missing from a stem to the SE and southern base but it is still vital and vigorous.	NWR	-	>40	A	L	24
10	2909	Common Ash (Fraxinus excelsior)	9	250	EM	F	MODERATE Reduced vigour. Possible Ash dieback. Incomplete assessment due to ivy on the stem.	IVY Remove the ivy prior to the next assessment.	36	20-40	C	L	24
11	2910	Common Holly (Ilex aquifolium)	3	400	EM	F	MODERATE Some stem decay but the tree is moderately vigorous.	NWR	-	10-20	A	L	60
12	2911	Common Ash (Fraxinus excelsior)	13	300	Y	N	GOOD	NWR	-	>40	A	L	60
13	519	Sycamore (Acer pseudoplatanus)	19	550	EM	F	MODERATE A high crown with reduced vigour.	NWR	-	20-40	A	L	36
14	522	Common Lime (Tilia europaea)	18	650	EM	N	MODERATE Some small deadwood in upper crown with a low risk of harm.	NWR	-	>40	A	L	60
15	523	Common Lime (Tilia europaea)	18	700	M	N	MODERATE Small and moderate deadwood in the upper crown. Large dead branch at 10E. All have a low risk of harm. Retain the deadwood for ecological habitat.	NWR	-	>40	A	L	60
16	527	Copper Beech (Fagus sylvatica 'Purpurea')	25	110	M	N	MODERATE Some lower stem wounds but robust reaction-wood.	NWR	-	>40	A	H	60
17	528	Lawson Cypress (Chamaecyparis lawsoniana)	15	350	EM	N	MODERATE Previous stem break but the tree has recovered.	NWR	-	>40	A	L	60

TN	Tag	Species	H	D	AC	V	Condition	Recommendations	U	ERC	RC	Bat	RI
18	534	Copper Beech (<i>Fagus sylvatica</i> 'Purpurea')	23	700	M	N	TBD Inter-buttress fruiting bodies of <i>Ganoderma</i> in lower stem to north, west and southeast. The stem appears to be largely intact and the buttress roots appear to be intact and robust. A vigorous tree.	FURTHER INVESTIGATION Optional: Sonic Tomograph investigation of the lower stem.	6	TBD	T	L	60
19	535	Common Holly (<i>Ilex aquifolium</i>)	10	350	EM	N	GOOD	NWR	-	>40	A	L	60
20	2915	Sycamore (<i>Acer pseudoplatanus</i>)	13	300	EM	N	MODERATE Lower stem wound but otherwise an intact and healthy tree.	NWR	-	>40	A	L	60
21	537	Common Ash (<i>Fraxinus excelsior</i>)	16	450	EM	N	TBD Cavity at around 9 metres on southern side of southern stem. The tree has been over pruned and has multiple stem wounds and a high crown.	FURTHER INVESTIGATION Sonic tomograph at around 8.5 and 9 metres; below and at the cavity.	6	TBD	T	H	T
22	545	Common Beech (<i>Fagus sylvatica</i>)	21	650	M	N	GOOD	NWR	-	>40	A	H	60
23	2917	Crimean Pine (<i>Pinus nigra</i> ssp. <i>pallasiana</i>)	9	300	EM	N	GOOD	NWR	-	>40	A	L	60
24	546	Common Oak (<i>Quercus robur</i>)	17	750	M	N	GOOD	NWR	-	>40	A	H	60
25	547	Common Oak (<i>Quercus robur</i>)	14	600	M	N	GOOD	NWR	-	>40	A	H	60
26	549	Sycamore (<i>Acer pseudoplatanus</i>)	25	900	M	N	MODERATE The stem at 12N has some wounding with robust wound wood.	NWR	-	>40	A	H	60
27	550	Common Lime (<i>Tilia europaea</i>)	19	500	M	N	GOOD	NWR	-	>40	A	L	60
28	551	Sweet Chestnut (<i>Castanea sativa</i>)	15	600	M	N	MODERATE Cavity and decay in lower stem to north and west. Robust buttress roots. A squat and reasonably vigorous tree.	NWR	-	>40	A	L	60
29	552	Common Lime (<i>Tilia europaea</i>)	18	700	M	N	GOOD Basal inspection impeded by epicormic growth. Possible decay in eastern buttress but new wood is forming. A vigorous tree.	EPICORMIC Carefully remove the epicormic growth to ground level, prior to the next inspection.	60	>40	C	H	60
30	553	Common Lime (<i>Tilia europaea</i>)	25	700	M	N	MODERATE Large basal cavity to west with robust wound wood and buttress roots. Slight lean to the north. The westernmost southern buttress has a <i>Kretzschmaria deusta</i> infection. There are 3 or 4 other intact tensile buttress-roots.	NWR	-	>40	A	L	24
31	555	Sycamore (<i>Acer pseudoplatanus</i>)	23	1000	M	N	MODERATE Reduced vigour.	NWR	-	>40	A	H	24
32	556	Common Oak (<i>Quercus robur</i>)	20	1000	M	N	GOOD Some moderate deadwood in the upper central crown with a very low risk of harm. Retain the deadwood for wildlife.	NWR	-	>40	A	L	60

TN	Tag	Species	H	D	AC	V	Condition	Recommendations	U	ERC	RC	Bat	RI
33	2918	English Elm (<i>Ulmus procera</i>)	17	283	EM	N	GOOD	NWR	-	>40	A	L	60
35	NT1	Common Ash (<i>Fraxinus excelsior</i>)	10	300	EM	N	GOOD	NWR	-	>40	A	L	60
36	NT2	Sycamore (<i>Acer pseudoplatanus</i>)	10	200	Y	N	GOOD	NWR	-	>40	A	L	60
37	NT3	Horse Chestnut (<i>Aesculus hippocastanum</i>)	9	200	Y	N	GOOD	NWR	-	>40	A	L	60
38	NT4	Common Oak (<i>Quercus robur</i>)	3	80	Y	F	MODERATE The tree is growing through the wire mesh.	OTHER Remove the mesh and stakes. Apply a woodchip mulch to a radius of 1m from the stem, to a depth of 5cm.	6	>40	C	L	60
39	NT5	Common Ash (<i>Fraxinus excelsior</i>)	4	60	Y	N	GOOD The tree has established.	OTHER Remove the mesh and stakes. Apply a woodchip mulch to a radius of 1m from the stem, to a depth of 5cm.	6	>40	C	L	60
40	NT6	Western Red Cedar (<i>Thuja plicata</i>)	25	700	M	N	GOOD	NWR	-	>40	A	L	60
41	NT7	Common Ash (<i>Fraxinus excelsior</i>)	10	280	EM	N	GOOD	NWR	-	>40	A	L	60
42	NT8	Common Ash (<i>Fraxinus excelsior</i>)	10	300	EM	N	GOOD	NWR	-	>40	A	L	60
43	NT9	Common Ash (<i>Fraxinus excelsior</i>)	7	180	Y	N	GOOD	NWR	-	>40	A	L	60
44	NT10	Common Oak (<i>Quercus robur</i>)	12	230	EM	N	GOOD	NWR	-	>40	A	L	60
45	NT11	Field Maple (<i>Acer campestre</i>)	12	280	EM	N	GOOD	NWR	-	>40	A	L	60
46	NT12	Field Maple (<i>Acer campestre</i>)	10	290	EM	N	GOOD	NWR	-	>40	A	L	60
47	NT13	Field Maple (<i>Acer campestre</i>)	10	485	EM	N	GOOD	NWR	-	>40	A	L	60

Appendix 10: **Prioritised Work Recommendations**

TN	Tag	Species	AC	V	Condition	Recommendations	Bat
Within 6 Months							
38	NT4	Common Oak (Quercus robur)	Y	F	MODERATE The tree is growing through the wire mesh.	OTHER Remove the mesh and stakes. Apply a woodchip mulch to a radius of 1m from the stem, to a depth of 5cm.	L
39	NT5	Common Ash (Fraxinus excelsior)	Y	N	GOOD The tree has established.	OTHER Remove the mesh and stakes. Apply a woodchip mulch to a radius of 1m from the stem, to a depth of 5cm.	L
Within 12 Months							
21	537	Common Ash (Fraxinus excelsior)	EM	N	TBD Cavity at around 9 metres on southern side of southern stem. The tree has been over pruned and has multiple stem wounds and a high crown.	FURTHER INVESTIGATION Sonic tomograph at around 8.5 and 9 metres; below and at the cavity.	H
Within 24 Months							
10	2909	Common Ash (Fraxinus excelsior)	EM	F	MODERATE Reduced vigour. Possible Ash dieback. Incomplete assessment due to ivy on the stem.	IVY Remove the ivy prior to the next assessment.	L
29	552	Common Lime (Tilia europaea)	M	N	GOOD Basal inspection impeded by epicormic growth. Possible decay in eastern buttress but new wood is forming. A vigorous tree.	EPICORMIC Carefully remove the epicormic growth to ground level, prior to the next inspection.	H

Appendix 11: **Re-assessment Timetable**

TN	Tag	Species	Notes	Done?
12 months				
31	555	Sycamore (<i>Acer pseudoplatanus</i>)		
9	516	Common Yew (<i>Taxus baccata</i>)		
10	2909	Common Ash (<i>Fraxinus excelsior</i>)		
30	553	Common Lime (<i>Tilia europaea</i>)		
36 months				
13	519	Sycamore (<i>Acer pseudoplatanus</i>)		
60 months				
1	501	Common Beech (<i>Fagus sylvatica</i>)		
2	502	Common Beech (<i>Fagus sylvatica</i>)		
3	503	Norway Maple (<i>Acer platanoides</i>)		
4	530	Copper Beech (<i>Fagus sylvatica</i> 'Purpurea')		
5	504	Norway Maple (<i>Acer platanoides</i>)		
6	505	Norway Maple (<i>Acer platanoides</i>)		
7	507	Copper Beech (<i>Fagus sylvatica</i> 'Purpurea')		
8	509	Thuja (<i>Chamaecyparis lawsoniana</i>)		
11	2910	Common Holly (<i>Ilex aquifolium</i>)		
12	2911	Common Ash (<i>Fraxinus excelsior</i>)		
14	522	Common Lime (<i>Tilia europaea</i>)		
15	523	Common Lime (<i>Tilia europaea</i>)		
16	527	Copper Beech (<i>Fagus sylvatica</i> 'Purpurea')		
17	528	Lawson Cypress (<i>Chamaecyparis lawsoniana</i>)		
18	534	Copper Beech (<i>Fagus sylvatica</i> 'Purpurea')		
19	535	Common Holly (<i>Ilex aquifolium</i>)		
20	2915	Sycamore (<i>Acer pseudoplatanus</i>)		
22	545	Common Beech (<i>Fagus sylvatica</i>)		
23	2917	Crimean Pine (<i>Pinus nigra</i> ssp. <i>pallasiana</i>)		
24	546	Common Oak (<i>Quercus robur</i>)		
25	547	Common Oak (<i>Quercus robur</i>)		
26	549	Sycamore (<i>Acer pseudoplatanus</i>)		
27	550	Common Lime (<i>Tilia europaea</i>)		
28	551	Sweet Chestnut (<i>Castanea sativa</i>)		
29	552	Common Lime (<i>Tilia europaea</i>)		
32	556	Common Oak (<i>Quercus robur</i>)		
33	2918	English Elm (<i>Ulmus procera</i>)		
34	NT1	Common Ash (<i>Fraxinus excelsior</i>)		
35	NT2	Sycamore (<i>Acer pseudoplatanus</i>)		
36	NT3	Horse Chestnut (<i>Aesculus hippocastanum</i>)		
37	NT4	Common Oak (<i>Quercus robur</i>)		
38	NT5	Common Ash (<i>Fraxinus excelsior</i>)		
39	NT6	Western Red Cedar (<i>Thuja plicata</i>)		
40	NT7	Common Ash (<i>Fraxinus excelsior</i>)		
41	NT8	Common Ash (<i>Fraxinus excelsior</i>)		
42	NT9	Common Ash (<i>Fraxinus excelsior</i>)		

TN	Tag	Species	Notes	Done?
43	NT10	Common Oak (<i>Quercus robur</i>)		
44	NT11	Field Maple (<i>Acer campestre</i>)		
45	NT12	Field Maple (<i>Acer campestre</i>)		
46	NT13	Field Maple (<i>Acer campestre</i>)		
21	537	Common Ash (<i>Fraxinus excelsior</i>)		

Appendix 12: **Photographs**



Photo 1: Sweet Chestnut (tag 551). Cavity and reaction wood.

Photo 2: Lime (553). Cavity with reaction wood. Buttress with *K. deusta* to the right.



Photo 3: Lime (553). Buttress with *Kretzschmaria deusta*.

Photo 4: Lime (553). Buttress with *K. deusta* (bottom left) and 3 or 4 robust buttresses to the right.