



Location: Oakhaven, Showley Road, Clayton Le Dale

Report Type: **Arboricultural Impact Assessment** 

Ref: ARB/CP/2089

Date: **May 2019** 

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### 1 Introduction

1.1 Acting upon the request of the client a survey of trees at Oakhaven, Showley Road, Clayton Le Dale was carried out on the 8<sup>th</sup> of May 2019 to form the basis of this impact assessment. The tree survey and report production were undertaken by Charles Prowse of Elliott Consultancy Ltd.

#### 1.2 Scope of the report:

- This report provides arboricultural information and advice in relation to inform re-development decisions for the site.
- All trees within the site were assessed and categorised with regard to their quality and a retention value was assigned using criteria outlined in British Standard 5837:2012 – 'Trees in Relation to Design, Demolition & Construction' (BS5837:2012). Appendix 4 provides information regarding the categorisation.
- Matters pertinent to tree retention and protection are briefly discussed within Section 4. Following receipt of detailed engineering drawings providing service runs and ground level alterations all measures relating to tree removal, tree retention and protection should be finalised within an Arboricultural Method Statement.
- Section 5 evaluates the proposals in context to the existing trees, with potential issues discussed and remedial options offered.
- 1.3 This report should be read in conjunction with the Tree Constraints Plans (Appendix2) and the Arboricultural Impact Plan (Appendix 3).

### 2 Site Information

2.1 The survey area covers part of the garden of Oakhaven, a residential property, and some agricultural buildings used for stables and small ménage. Figure 1 shows the extent of the site.





Map data ©Google Imagery

- 2.2 The eastern half of the area consists of the garden of the detached dwelling and surfaced access driveway which leads to the agricultural buildings in the western half. The majority of the trees are positioned within the garden and adjacent to an area of hard-standing south of the buildings.
- 2.3 On the day the site was surveyed the sky was overcast which presented only reasonable levels of light. Any visibility issues encountered are noted within Appendix 1).

### 3 Tree Category Evaluation

- 3.1 The criteria used for evaluating how suitable each tree is for retention within a development is that suggested within 5837:2012; a copy of the categorisation sheet can be found within Appendix 4.
- 3.2 BS5837:2012 notes that all trees apart from those with stem diameters <150mm or classified as Category U should be considered for retention and viewed as a potential site constraint. When inspected, each tree and or group feature is assigned one of four categories that signify how suitable that tree/group would be for retention within any development proposals, and therefore the degree to which it should constrain the site. The four categories are as follows:
  - 3.2.1 Category A (coloured green) trees are those of high quality and value, and of a condition whereby they could make a substantial contribution to the site. The retention of Category A trees should be considered during the design phase and afforded adequate physical protection during the construction phase in accordance with BS 5837:2012 where retained. This means keeping proposed features and alterations to ground levels outside of root protection areas and crown spreads so as to ensure that the tree remains in an adequate condition post-development. Root protection areas and crown spreads are displayed upon the Tree Constraints Plan, Appendix 2. Two of the trees were classified as Category A.
  - 3.2.2 Category B (coloured blue) trees are those of moderate quality and value, and of a condition that they make a substantial contribution to the site. The retention of Category B trees should be considered during the design phase and afforded adequate physical protection during the construction phase in accordance with BS 5837:2012 where retained. Four individual trees and three hedgerows were classified as Category B.
  - 3.2.3 Category C (coloured grey) trees are considered to be of low quality and value, but of an adequate condition to remain in the short-term. Trees with a stem diameter of less than 150mm (measured at 1.5m above ground level) are classified as Category C; these trees should also be retained where possible but where they form a significant constraint to development their removal should be permitted. Where they are to be retained they should be

- afforded adequate consideration during the design phase and physical protection during the construction phase in accordance with BS 5837:2012. Fourteen individual trees and three hedgerows were classified as Category C.
- 3.2.4 Category U (coloured red) trees are of such a condition that any existing value would be lost within 10 years. As a result it is recommended that Category U trees are not considered a constraint for development and are removed prior to construction commencing. One of the trees was classified as Category U.
- 3.2.5 In addition to the four main categories explained above, each tree/group is assigned a sub-category which signifies its overriding value as determined by the surveyor, which is noted by adding a suffix of 1, 2 or 3 alongside the category letter. 1 signifies that the trees/groups main value is arboricultural e.g. it may be a particularly good example or may be rare. 2 signifies that the overriding factor was due to the landscape value that the tree/group provides e.g. it may be part of a group feature such as a screen. 3 indicates that a cultural factor was the overriding value e.g. it may have historical or commemorative importance.

	Summary of Cate	egories Awarded	
Category	Tree Numbers	Group Numbers	Hedgerow Numbers
Α	11, 15		
В	8-10, 14		1, 2, 6
С	1, 2, 4-7, 12, 13, 16-21		3-5
U	3		

3.3 Overall the majority of the trees within the site are of reasonable to good physiological and structural condition with few arboricultural issues noted. Specific details for trees and groups can be found within Appendix 1.

#### 4 Constraints and Retention Considerations

- 4.1 Any tree retained within the design will require protection in accordance with *BS*5837 'Trees in relation to design, demolition and construction' 2012 regardless of its initial retention category. This protection will usually require trees enclosed by a barrier in areas equal to the Root Protection Areas (As detailed within Appendix 2); this should be undertaken prior to any work beginning, including demolition and site preparation works. The specification for the fencing and for any other protection measures required must be provided within the **Arboricultural Method Statement** and approved by the Local Planning Authority.
- 4.2 Root protection areas should be considered sacrosanct from any disturbance throughout the entire development process with no ground disturbance, material storage, or physical encroachment allowed. Where possible trees should be protected with continuous barriers protecting trees as groups rather than individual specimens this is of particular merit around the periphery of the site to protect boundary trees on and off-site.
- 4.3 Areas that have been identified for post-development tree planting should also be protected to ensure that the soil does not become compacted or contaminated.
- 4.4 No new utility runs must be located within any of the retained trees root protection areas. Any works to existing utilities will be undertaken with regard for the retained tree cover and will be in accordance with NJUG (National Joint Utility Groups) guidelines.

#### 5 **Arboricultural Impact Assessment**

- 5.1 This section concentrates on the proposed development and how it relates to the current tree population within the site. Any conflict issues between the proposed layout and existing trees are discussed and remedial options, where possible, suggested.
- 5.2 It is proposed that a small housing development with supporting infrastructure will be constructed within the site, as displayed in figures 2 and 3, and in greater detail within the Arboricultural Impact Plan (Appendix 3).



Figure 2: Proposed Layout - Eastern Area

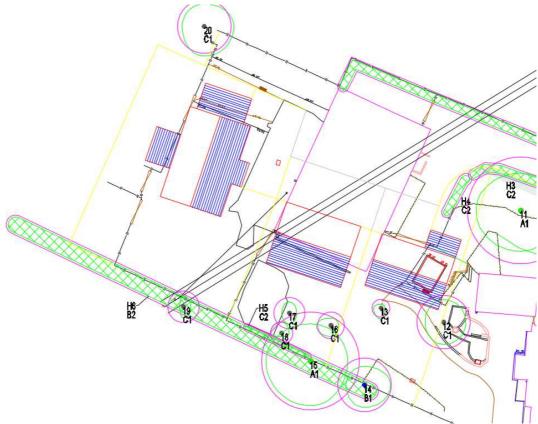


Figure 3: Proposed Layout - Western Area

#### 5.3 Conflict 1: Loss of trees due to the proposed layout.

As shown within Figures 2 and 3 the construction of the proposed layout will necessitate the removal of three trees, an entire hedge and a section of one other.

Mitigation / Countermeasure: One of the trees needing to be removed (T10) and both hedgerows affected (H1 & H3) were classified as Category B. The remaining two trees (T12 & T13) were classified as Category C. Trees 12 and 13 would need to be removed to enable construction of a proposed dwelling. Tree 10 and Hedge 3 would need to be removed to widen the existing driveway. A section of Hedgerow 1 would need to be removed to achieve the required visibility splay. Replacement hedges are proposed to be planted to mitigate the losses. With the exception of the section of Hedgerow 1 it is unlikely that the loss of the remaining trees and hedges will be particularly noticeable due to their positions within the site and tree cover that would be retained.

#### 5.4 Conflict 2: Construction within root protection areas.

The proposed widened driveway encroaches within several root protection areas.

**Mitigation / Countermeasure:** The driveway width will be increased by approximately 1000mm on the southern side which will necessitate a degree of ground works within the root protection areas of the adjacent trees. The intended surface treatment is as yet unconfirmed. However, provided that the construction methods used are sympathetic to the tree roots then given the relatively minor encroachments beyond the existing driveway it should be achievable without affecting the trees to a significantly detrimental degree.

# 5.5 Potential Conflict 3: Location of proposed boundary features within root protection areas.

Boundary features passing through the root protection areas of retained trees have the potential to cause damage to root tissue.

**Mitigation / Countermeasure:** Any boundary features that pass through root protection areas would need to be limited to post-supported fences or railings. Post holes would need to be created using hand-operated tools only with care taken to minimise any disruption to root tissue. Details of how and when such features should be constructed will need to be detailed within an Arboricultural Method Statement.

#### 5.6 Potential Conflict 4: Location of utilities runs with Root Protection Areas.

Damage can be caused to root tissue during the installation of utilities runs.

**Mitigation / Countermeasure:** No new utility runs must be located within any of the retained trees root protection areas. Any works to existing utilities will be undertaken with regard for the retained tree cover and will be in accordance with NJUG (National Joint Utility Groups) guidelines. Details of intended service runs should be made available once the technical information has been drafted in order to complete the Arboricultural Method Statement.

# 5.7 Potential Conflict 5: Damage to trees within site during demolition and construction.

Trees may be damaged due to a variety of reasons during a demolition and development process.

**Mitigation / Countermeasure:** A physical demarcation will be created between the retained trees and demolition/development areas to ensure that the trees and the

medium within which they are rooting are protected from damage. The actual method of creating the demarcation might vary, where appropriate, but will typically be a physical barrier. The barrier, along with any additional tree protection requirements should be specified within an Arboricultural Method Statement prior to any site works commencing.

#### 5.8 Potential Conflict 6: Pruning trees to create clearance to structures.

Trees overhanging gardens may require pruning operations..

**Mitigation / Countermeasure:** Pruning operations would primarily be limited to crown lifting and would be undertaken in accordance with BS 3998:2010 Tree work. Recommendations.

#### 5.9 Potential Conflict 7: Damage to structures from trees.

Trees are capable causing damage to structures either directly, such as physical contact damage or indirectly given the right conditions, such as subsidence.

**Mitigation / Countermeasure:** Chapter 4.2 'Building near Trees' of the NHBC Standards should be consulted by those responsible regarding building foundation depths required according to the species of adjacent trees, and for suitable species to be planted given their intended positions to new and existing structures.

# **Appendix 1** Tree Details

Key for Tree & Group Data tables:

No. Tree Number

**Species** Tree Name (common)

Age Y = Young; SM = Semi-mature; EM = Early-mature M =

Mature; OM = Over-mature; V = Veteran; D = Dead

**DBH** Diameter at Breast Height (measured at 1.5m above ground

level to the nearest cm)

**Stems** The number of stems the tree has

**Height** Overall tree height measured in metres

**Crown Spread** Measured along the four cardinal points in metres

**CH** Canopy Height (height of crown above ground)

**1st Branch** The height and aspect of the 1st significant limb e.g. 2 NE =

1<sup>st</sup> limb at 2m growing in a north-easterly direction.

**EstD** Indication of whether any of the trees dimensions were

estimated: Y=Yes, N=No.

General Observations Appraisal of trees general condition

**EstCont** Estimated remaining contribution (years)

BS Cat British Standard 5837:2012 retention category

**Recommendation** Remedial works that may be required should the tree be

retained (Note: these recommendations do not relate to

proposed development requirements - such

recommendations should be covered within the Arboricultural

Method Statement)

# Tree Survey Data

No.	Species	Age	DBH	Stems	Height	Cr	own	Spre	ad	СН	EstD	General Observations	EstCont	BS Cat	Recommendation
						N	S	E	W						
1	Pissards Plum	М	33	1	7	5	4	5	3	1.5	N	Included bark union(s) present. Continuous canopy with adjacent tree(s).	40+	C2	No work required
2	Rowan	EM	41	2-5	6.5	3	2	4	3	0	N	Multi-stemmed at base.	40+	C2	No work required
3	Cherry spp	D	30	1	4	2	2	3	2	2	N	Dead. Ivy covered stem.	<10	U	No work required
4	Goat Willow	Y	20	2-5	5	3	3	3	2	1	N	Codominant stems with included bark union(s) at 1m. Stem leaning 10 degrees. Continuous canopy with adjacent tree(s).	40+	C2	No work required
5	Cherry spp	EM	18	1	5	3	3	4	2	2	N	Ivy covered stem. Continuous canopy with adjacent tree(s).	40+	C2	No work required
6	Cherry spp	EM	24	1	4.5	3	3	3	2	2	N	Ivy covered stem. Continuous canopy with adjacent tree(s).	40+	C2	No work required
7	Apple	EM	23	1	4.5	3	2	1	3	2	N		40+	C2	No work required
8	Birch spp	SM	21	1	9	4	4	4	1	2	N	Continuous canopy with adjacent tree(s).	40+	B2	No work required
9	Birch spp	SM	20	1	9	3	4	1	3	2	N	Continuous canopy with adjacent tree(s).	40+	B2	No work required
10	Birch spp	SM	20	1	9	3	3	1	2	2	N	Continuous canopy with adjacent tree(s).	40+	B2	No work required

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No.	Species	Age	DBH	Stems	Height	Cr	own	Spre	ad	СН	EstD	General Observations	EstCont	BS Cat	Recommendation
						N	S	Е	W						
11	Horse Chestnut	EM	60	1	11	5	6	5	6	1.5	N	Trellis attached to stem. Included bark union(s) present. Branch failure stubs.	40+	A1	No work required
12	Cherry spp	SM	29	1	5	3	3	3	3	1.5	N	Stem leaning 15 degrees.	20+	C1	No work required
13	Prunus spp	Y	11	1	3	0.5	2	0.5	1	0	N	Poor form.	20+	C1	No work required
14	Hawthorn	M	29	2-5	7	3	3	4	3	0.5	N	Multi-stemmed. Within hedgerow.	40+	B1	No work required
15	Oak spp	SM	56	1	12	5	6	5	6	2.5	N	Pruning wounds upon stem.	40+	A1	No work required
16	Apple	SM	14	1	3	1	2	1	2	0	N	Stem leaning 10 degrees. Slightly suppressed form.	40+	C1	No work required
17	Pear spp	SM	18	1	5	2	2	1	1	2	N	Epicormic growth at base. Stem wound.	40+	C1	No work required
18	Pear spp	SM	13	1	4	2	0.5	1	2	2	N	Slightly suppressed form.	40+	C1	No work required
19	Hawthorn	EM	18	1	5	2	2	1	0.5	2	N	Within hedgerow. Stem wound.	40+	C1	No work required
20	Cherry spp	EM	30	1	6	3	4	4	3	1.5	N	Stem wound with minor decay. Intertwined codominant stems with included bark union(s) at 1.4m.	20+	C1	No work required
21	Whitebeam	Y	16	1	3.5	3	1	2	2	1.5	N	Within hedgerow. Ivy covered stem.	40+	C1	No work required

# **Hedgerow Data**

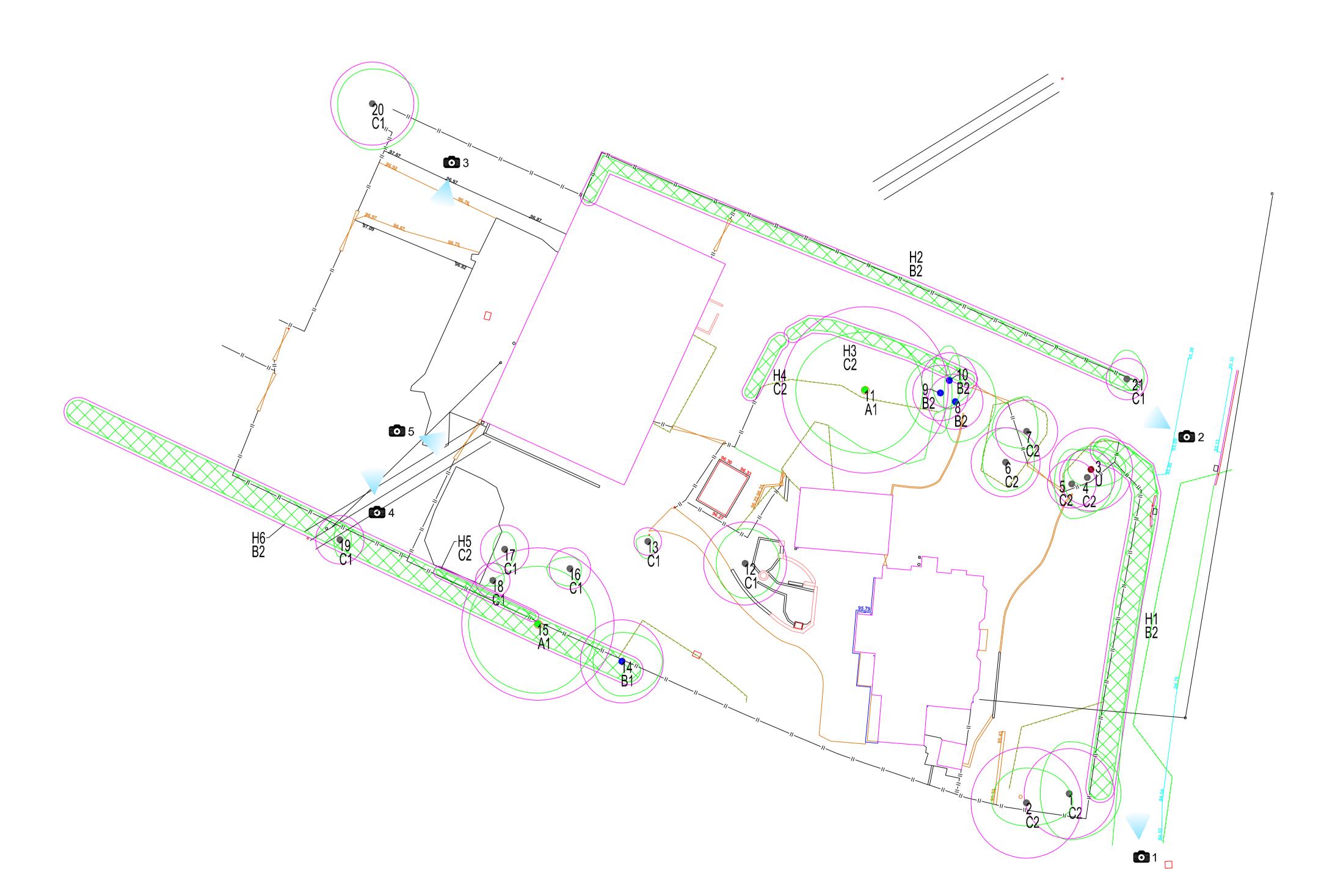
Hedge Number	Dominant Species	Lesser Species	Age	Average Height	Average Depth	Historically Managed Height	Historically Managed Depth	Condition/Comments	Recommendations	EstCont	BS Cat
1	Hawthorn	Elder	EM	2.5	1	1.5	As current depth	Managed hedgerow adjacent to road.	No work required	40+	B2
2	Hawthorn		EM	1.5	0.5	As current height	As current depth	Managed hedgerow.	No work required	40+	B2
3	Beech		SM	2	0.5	As current height	As current depth	Managed hedge.	No work required	40+	C2
4	Leyland Cypress		SM	1.5	0.5	As current height	As current depth	Managed hedge.	No work required	20+	C2

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Hedge Number	Dominant Species	Lesser Species	Age	Average Height	Average Depth	Historically Managed Height	Historically Managed Depth	Condition/Comments	Recommendations	EstCont	BS Cat
5	Portugese Laurel		Y	1	0.5	As current height	As current depth	Young unmanaged group planted as hedge.	No work required	20+	C2
6	Hawthorn		EM	2	1	As current height	As current depth	Unmanaged hedgerow (possibly located on adjacent land.	No work required	20+	B2

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Tree Position Showing Crown Extents and BS5837 Category A

Tree Position Showing Crown Extents and BS5837 Category B

Tree Position Showing Crown Extents and BS5837 Category C

Tree Position Showing Crown Extents and BS5837 Category U

Root Protection Area - to remain free from disturbance

Group of Trees

Hedge

\_\_\_\_

1/G1 Tree/Group

A1/B1/ C1/U BS5837 Retention Category

Tree and Poot Protection Area within Adias

Tree and Root Protection Area within Adjacent Property (position and size possibly estimated)

Position of Tree within Adjacent Property

Average Crown Spread within Site

Root Protection Area

N1 ID of Tree Located within Adjacent Property

Group within Adjacent Property (size and position possibly estimated)

Hedgerow within Adjacent Property (size and position possibly estimated)

# **APPENDIX 2**

0 2.5 5 7.5 10 12.5 15 17.5 20 22.5 25 [m]

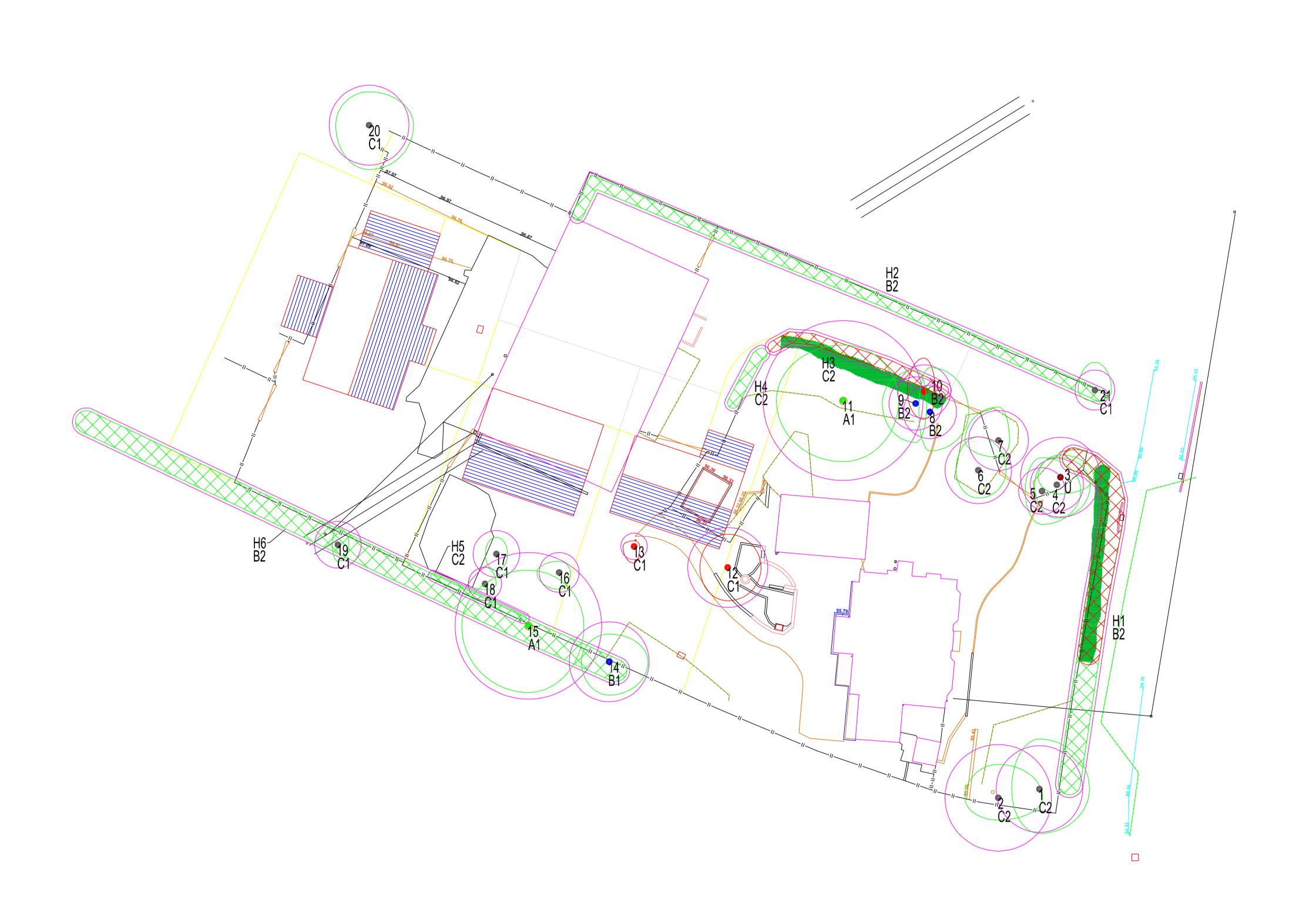
Drawing Title: Tree Constraints Plan

Project: Oakhaven, Showley Road

Drawing Number: ARB/CP/2089/TCP

Date: May 2019

Scale: 1:200 @ A1





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Tree Requiring Removal

Hedgerow Requiring Removal

Tree Position Showing Crown Extents and BS5837 Category A

Tree Position Showing Crown Extents and BS5837 Category B

Tree Position Showing Crown Extents and BS5837 Category C

Tree Position Showing Crown Extents and BS5837 Category U

Root Protection Area - to remain free from disturbance

Group of T

Hedgero

1/G1 Tree/Group

BS5837 Retention Category

APPENDIX 3

Drawing Title: Arboricultural Impact Plan

Project: Oakhaven, Showley Road

Drawing Number: ARB/CP/2089/AIP

Date: May 2019

1:200 @ A1

0 2.5 5 7.5 10 12.5 15 17.5 20 22.5 25 [m]

# Appendix 4 BS 5837 Tree Quality Assessment Chart

Trees unsuitable for retention (see Note)  Category U  Category U  These in such a condition that they cannot realistically be expected as living trees in reduding those that will become unwable after reanon be that they cannot realistically the context of the current of the current of the current of see 4.5.7.  These in such a condition that they cannot realistically the context of the current of and use for longer than 10 years  These to be considered for retention  The stop of at least of with an extinated remaining life expectancy of at least inference of ignificant and or semi-formal arboricultural and though the meeting of septembly with an estimated remaining life expectancy of at least inference of ignificant though the nestimated remaining life expectancy of at least inference of ignificant though the category A. But are downgraded as groups with an estimated remaining life expectancy of at least inference of ignificant though the category A. But are downgraded as groups presence of ignificant though the category A. But are downgraded as groups included in the standard and an agoly, such that they are unlikely to be suitable for retention for beyond 40 years; or these lacking the special quality necessary to merit the category A designation.  These than an expectancy of at least including unlikely to be suitable for retention for beyond 40 years; or these lacking the special quality necessary to merit the category at least with an extimated remaining life expectancy of at least including in higher categories significant though a category at least with an extimated remaining life expectancy of at least including in higher categories significant though a least with an extimated remaining life expectancy of at least including in higher categories significant though a least with an extimated remaining life expectancy of at least including in higher categories significant though an extimated remaining life expectancy of at least including in the page of the pa	Lascade chart for tree quality assessment			
* * * * * * * * * * * * * * * * * * *	eria (including subcategories where appropriate)			Identification on plan
Trees exam rare feature prince a story prince a story catego became unity story unlike best catego became rare ment unity story specification in they specificated became rare a story catego became rare a story story story story specification in the story specifica	Note)			
A Tree 4.5.  **AOTE**  **AOTE**  **AOTE**  **I Main	Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning)	ect, such that their early loss i val of other category U trees ated by pruning)	is expected due to collapse, (e.g. where, for whatever	See Table 2
tangent of the standard of the	Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline	t, immediate, and irreversible	overall decline	
see 4.5.  1 Main  2 Exampla  2 Exampla  2 Exampla  2 Exampla  2 Exampla  2 Exampla  3 Exampla  4 Exampla  5 Exampla  6 E	Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality	ealth and/or safety of other t ity	trees nearby, or very low	
tention  Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)  Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation  Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	TE Category U trees can have existing or potential conservation value which it might be desirable to preserve; 4.5.7.	iservation value which it migi	ht be desirable to preserve;	
Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)  Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation  Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories		ape qualities	3 Mainly cultural values, including conservation	
Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)  Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation  Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories				
Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation  Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	<u>+</u>	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	See Table 2
category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years, or trees lacking the special quality necessary to merit the category A designation  Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories		Trees present in numbers, usually growing	Trees with material	See Table 2
Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories with	_ 0	as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	conservation or other cultural value	
a stem diameter below 150 mm	° 0	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	See Table 2

Table excerpt from BS5837:2012

# **Appendix 5** Arboricultural Glossary

- Abiotic Factors Nonliving factors of the environment, including temperature & wind.
- **Age-class** A general classification of the tree into either young, semi-mature, early-mature, 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 regrow 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.
- **Hyphae** Fine branching tubes that make up the body (or mycelium) of a multi-cellular fungus.
- 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. Some trees are able to strengthen such 'weakened' unions with adaptive growth.
- **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'.
- **Mycelium** Mass of hyphae that constitutes the vegetative part of a fungus.
- **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.

- **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.
- **Rhizomorphs** Dense bundles of mycelium, blackened by melanin for protection, that aid in the spread of the fungus.
- **Root Protection Area** An area, usually represented as a circle, around each tree which should remain free from disturbance during a development in order to protect the roots of a tree.
- **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.