

Stage 1 Arboricultural Report



For planning purposes at

**Sheerien Close
Athersley
Barnsley
S71 3NQ**



Dated
30th October 2012



CROWN
Consultants

Tree consultants throughout England and Wales

Navigation

This report has coloured headers to help you get straight to the bits you need...

Red Headers

Important Material: All should read carefully, including those familiar with the site and British Standard 5837.

Orange Headers

Detailed Material: Spend a few seconds familiarising yourself with the general layout of this material. You may need to reference it more closely later.

Green Headers

General Material: An overview of the report, the site and its vegetation, as well as material to assist laypersons unfamiliar with tree reports. Skip through these bits.

Drawings

All drawings are at the very end of the report beyond the Appendices. If viewing on a computer you may wish to open two copies so that you may easily flick between the drawings and the text (you may need to rename a copy).

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1. Introduction

1.1. Instruction

- 1.1.1. We are instructed by Marc Pearson of Acanthus WSM Architects to undertake an Arboricultural Survey at Sheerien Close and produce our findings in a report.

1.2. Scope and Purpose of the Report

- 1.2.1. This report is designed to accompany a planning application for development proposals at the above site. Its purpose is to assist and inform the design and planning process. It is produced according to the guidance and recommendations within *BS 5837: 2012 - Trees in Relation to Design, Demolition and Construction*. This report does not take into account specific design proposals which are yet to be finalised.

1.3. Drawings

- 1.3.1. We have been supplied with a measured plan of the site with tree positions already plotted. Where applicable, additional trees have been plotted according to measurements taken on site.

- 1.3.2. The *Tree Constraints Plan* shows the existing layout. For each tree the stem location is indicated and scaled according to its diameter, the canopy is indicated according to measurements taken along the four cardinal points of the compass. Root protection areas are indicated which are calculated according to the guidelines within BS 5837 (2012).

2. Site Overview

2.1. Location

2.1.1. The site is located behind residential properties on Hill Top Avenue (to the north), Sheerien Close (to the west) and Newstead Road (to the east). To the south are school grounds. The co-ordinates are 53.585321° -1.482699° and the altitude is 95m above sea level. (Co-ordinates may be pasted or typed into the following site: <http://maps.google.co.uk/> where maps, satellite imagery and street views may be accessed).

2.1.2. Our survey covered the trees within the area indicated in Figure 1.



Figure 1 Extent of the survey (image may not be current).

2.2. Site Description

2.2.1. The site is currently unused and mostly covered in rough grass. There are no buildings within the site.

2.2.2. The site is approximately flat with no abrupt level changes. Vehicular access is available from the north-eastern corner and pedestrian access is available from the north-western corner.

2.2.3. The Tree Constraints Plan and Tree Data Schedule should be referred to for descriptions and locations of all trees.

2.2.4. Photographs of the site are included in Section 6.

3. Tree Data Schedule

3.1. Survey Details

3.1.1. The Tree Data Schedule following this page contains information gathered for each tree during a ground level survey undertaken on 30th October 2012. No climbed inspections or specialist decay detection were undertaken. Only trees with a stem diameter over 75mm were included, which lie within the site boundary or relatively close to it.

3.1.2. Where applicable, trees with significant defects have been highlighted and appropriate remedial works have been recommended. However, this report should not be seen as a substitute for a full *Safety Survey* or *Management Plan* which are specifically designed to minimise risk and liability associated with responsibility for trees.

3.1.3. Wherever possible, dimensions are obtained using diameter tapes, logger's tapes, distometers and clinometers. Where obstacles prevent accurate measurement, dimensions are estimated. Trees on privately owned third party are surveyed from the best available vantage point and observations relating to the condition of these trees should be treated accordingly. All height measurements should be regarded as approximate.

3.2. Scaled Images

3.2.1. The Schedule includes scaled tree images based on measurements recorded for stem diameter, crown spread, crown height and overall height. Their purpose is to indicate, at a glance, the relative dimensions of each tree.

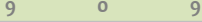







3.3. Stem Diameters – Multiple Stems

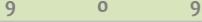







3.3.1. Where a tree has more than one stem, the equivalent-single-stem diameter is usually recorded. This is calculated by adding the squares of the stems and then finding the square root of this total. The radius of the Root Protection Area is then calculated by multiplying the equivalent-stem-diameter by 12.


3.3.2. Occasionally this method is not appropriate (e.g. for coppiced specimens where there are numerous stems). In such cases the diameter at ground level may be recorded or a stem diameter which would provide a suitable Root Protection Area calculation. The form of the tree is recorded in the notes section.

3.4. Supporting Information

3.4.1. A definition of the Retention Categories can be found in Appendix 1. All other terms used within the Tree Data Schedule are defined and explained in Appendix 3.

Reference G = Group H = Hedge	Age & Species	Height (m)	Crown Ht (m)	Diameter (cm)	Crown Spread (m) N W S E	Scaled Tree Diagram (m) 	Notes	Recommendations		Vigour		Amenity Value
										Physiological Condition		Life Expectancy (yrs)
								Priority	Inspect Freq (yrs)	Structural Condition		Retention Category
T1	Semi-Mature Willow Salix sp.	6	1.5	10	4.5 4.5 4.5		Position: Adjacent west boundary. Form: Multi-stemmed at 0.5m with a low, weeping habit. History: No evidence of significant pruning. Defects: No significant defects.	No action required.	High Good Fair	Moderate 20-40 C		
											n/a	3
G2	Semi-Mature Willow Salix sp.	av 8	av 1	av 10	av 5 4 4 each		Position: Centre of site, in grassed area. Form: Group of multiple-stemmed, close growing specimens (some leaning). History: No evidence of significant pruning. Defects: Minor deadwood to lower crown, bark wounds to stem. Other: Poorly formed specimens.	Monitor.	Moderate Fair Poor	Moderate 10-20 C -		
											Low	1.5
T3	Early-Mature Hawthorn Crataegus monogyna.	5.5	1	31	3.5 3.5 3.5		Position: In grassed area. Form: Multi-stemmed at 2m with a balanced crown. History: No evidence of significant pruning. Defects: Multiple crossing branches and minor deadwood throughout.	No action required.	Moderate Fair Fair	Low 10-20 C		
											n/a	1.5
G4	Semi-Mature Hawthorn Crataegus sp.	av 4.5	av 0.5	av 14	av 2.5 2.5 2.5 each		Position: Adjacent west boundary. Form: Line of Hawthorn with occasional small Privet growing close to boundary fence. History: No evidence of significant pruning. Defects: No significant defects.	No action required.	High Good Fair	Moderate 10-20 C		
											n/a	3
T5	Semi-Mature Oak Quercus sp.	6.5	3	20	2 1.5 2.5		Position: Adjacent site entrance. Form: Single stemmed and vertical with a compact crown. History: Occasional pruning wounds due to crown lifting (healing well). Defects: No significant defects.	No action required.	High Good Good	Moderate 40+ C		
											n/a	3
T6	Early-Mature Cherry Prunus sp.	11	4.5	37	4 4 4.5		Position: Adjacent north boundary. Form: Single stemmed and vertical with a balanced crown. History: Occasional pruning wounds due to crown lifting (healing slowly). Defects: Bark wounds to lower stem, healing well.	No action required.	High Good Good	High 20-40 C +		
											n/a	3
T7	Early-Mature Rowan Sorbus aucuparia.	9.5	3	33	4 3.5 4.5 4		Position: Adjacent north boundary. Form: Multi-stemmed at 2m with a balanced crown. History: Occasional pruning wounds due to crown lifting (healing well). Defects: Minor bark wounds throughout.	No action required.	High Good Fair	High 20-40 C +		
											n/a	1.5

Reference G = Group H = Hedge	Age & Species	Height (m)	Crown Ht (m)	Diameter (cm)	Crown Spread (m) N W S E	Scaled Tree Diagram (m) 	Notes	Recommendations		Vigour	Amenity Value
								Priority	Inspect Freq (yrs)	Physiological Condition	Life Expectancy (yrs)
										Structural Condition	Retention Category
G8	Semi-Mature Apple Malus sp.	av 6	av 2	av 22	3.5 3.5 3.5 each		Position: Centre of site, in grassed area. Form: Twin-stemmed at 1.5m with a balanced crown. History: No evidence of significant pruning. Defects: No significant defects.	No action required.	Moderate Fair Fair	Low 10-20 C	
											n/a
T9	Semi-Mature Apple Malus sp.	5	2.5	20	1 1.5 2 2.5		Position: In grassed area. Form: Single stemmed with a slight lean and an unbalanced crown. History: No evidence of significant pruning. Defects: Significant bark wounds with cavities at 1m & 1.5m (hollowed stem).	Remove.	Moderate Fair Very Poor	Low <10 U	
											Moderate
T10	Semi-Mature Apple Malus sp.	4.5	2	16	1.5 3 1		Position: In grassed area. Form: Twin-stemmed at 2m with a slightly unbalanced crown. History: No evidence of significant pruning. Defects: No significant defects.	No action required.	High Good Fair	Low 10-20 C	
											n/a
T11	Semi-Mature Rowan Sorbus aucuparia.	6	2.5	21	2 0.5 3		Position: Centre of site, in grassed area. Form: Single stemmed and vertical with a slightly unbalanced crown. History: Occasional pruning wounds due to crown lifting (healing slowly). Defects: Significant cavity at 0-1.2m (hollowed stem).	Remove.	Low Poor Very Poor	Low <10 U	
											High
T12	Early-Mature Red Oak Quercus rubra.	13	4	33	4 5 6 4		Position: Adjacent north boundary, in grassed area. Form: Single stemmed and vertical with a well-formed crown. History: Occasional pruning wounds due to crown lifting (healing well). Defects: No significant defects.	No action required.	High Good Good	High 40+ B	
											n/a
T13	Semi-Mature Scots Pine Pinus sylvestris.	12	4	37	4 3 4.5 4		Position: Adjacent north boundary, in grassed area. Form: Single stemmed and vertical with a balanced crown. History: Occasional pruning wounds due to crown lifting (healing well). Defects: Significant bark wound at 0.5m-1.5m, acceptable condition at present.	No action required.	High Good Good	High 40+ B	
											n/a
T14	Semi-Mature Atlas Cedar Cedrus atlantica.	12	3.5	28	2 4 3		Position: Adjacent north boundary, in grassed area. Form: Single stemmed and vertical with a well-formed crown. History: Occasional pruning wounds due to crown lifting (healing well). Defects: No significant defects.	No action required.	High Good Good	High 40+ C+	
											n/a

Reference G = Group H = Hedge	Age & Species	Height (m)	Crown Ht (m)	Diameter (cm)	Crown Spread (m) N W E S	Scaled Tree Diagram (m)	Notes	Recommendations		Vigour	Amenity Value
								Priority	Inspect Freq (yrs)	Physiological Condition	Life Expectancy (yrs)
										Structural Condition	Retention Category
T15	Semi-Mature Holly <i>Ilex aquifolium</i> .	6	0	20	3 3		Position: In adjacent compound. Form: Single stemmed and vertical with a domed crown. History: No evidence of significant pruning. Defects: No significant defects. Other: Access prevented detailed inspection.	No action required.	3	High Good Good	Low 10-20 C

4. Vegetation Overview

This section summarises the recommendations within the Tree Data Schedule and explains the protection status of the trees. It does not specify works that may be required to facilitate the development proposals.

4.1. Preliminary Management Recommendations

4.1.1. The following recommendations are made in order to maintain the trees in an acceptable condition:

4.1.2. The apple, T9, and rowan, T11 are recommended for removal due to their poor condition.

4.1.3. The willows within G2 have poor form and are recommended for monitoring if they are to be retained.

4.1.4. All other trees were deemed to be in an acceptable condition.

4.2. Work Priority and Future Inspections

4.2.1. The table below suggests a schedule for completing the works recommended in the Tree Data Schedule based on the perceived risk:

Work Priority	Definition	Tree Number
Urgent	As soon as possible	None
Very High	Within 1 Month	None
High	Within 3 Months	T11
Moderate	Within 1 year	T9
Low	Within 3 years	G2

4.2.2. The table below suggests a schedule of future inspections based on the condition and location of each tree:

Inspection Frequency (years)	Tree Number
0.5	None
1	None
1.5	G2, T3, T7, T13
3	T1, G4, T5, T6, G8, T10, T12, T14, T15

4.2.3. The trees should be inspected sooner if there is a noticeable decline in their condition, or following extreme weather events.

4.3. Tree Protection Status– Site Specific

4.3.1. We are informed, by Ed Jowett of Barnsley Metropolitan Borough Council that:

- The site is not within a conservation area.
- There are no tree preservation orders affecting trees within the site.

4.3.2. Heavy fines exist for carrying out unauthorised works to protected trees so we advise that further checks are made before any works are undertaken to trees.

4.4. Species Present – Additional Information

4.4.1. The table below contains general information about the tree species that were observed within the survey. It does not contain information about the individual trees surveyed. Its purpose is to assist readers who are unfamiliar with the characteristics of the various species.

Species	Typical Height at Maturity	Typical Canopy Spread at Maturity	General Notes
Apple	6	8	Deciduous tree native across Europe and W. Asia. Hundreds of cultivars available due to its popular fruit. Flowers white, pink or red in spring. Some species will self pollinate. Most species have a relatively untidy habit. Older specimens are susceptible to a variety of rusts, moulds and cankers. Excellent habitat tree. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Malus+domestica for more info.
Atlas Cedar	30	18	Ornamental evergreen tree native to the Atlas Mountains. Hardy and tolerant of atmospheric pollution. Ascending branch tips differentiate it from other common cedars. There are green and blue varieties. Commonly planted in gardens but due to their large size they are only able to mature in very large gardens and parks. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Cedrus+atlantica for more info.
Cherry	8	10	Many cultivars available, bred for their abundance of spring flowers, edible cherries or ornamental bark (e.g. Tibetan Cherry). Usually white or pink flowering, often in very early spring. Usually with a single bole to around 2.5m and multi-stemmed thereafter. Most varieties have excellent autumn colour.
Hawthorn	6	6	Arguably Britain's most common tree due to its abundance in field and roadside hedges. Deciduous, prickly and one of our most hardy trees, it will tolerate almost all conditions including drought, pollution and coastal winds. Also known as Mayflower because of its abundance of white flowers in May. Red 'haws' ripen from September to November and have only one pip (unlike Midland hawthorn which contains 2 pips). Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Crataegus+monogyna for more info.
Holly	16	12	Evergreen tree native across Western Europe. Many cultivars available, often with variegated leaves. Females produce bright red berries. Good wildlife value. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Ilex+aquifolium for more info.
Oak	22	18	Deciduous, long lived tree native and common throughout Europe with very durable timber. Excellent habitat tree - provides food and shelter for thousands of native species. Can be very attractive as a mature open grown specimen though not particularly ornamental, having no autumn colour or showy flowers. Responds well to pruning. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Quercus+robur for more info.
Rowan	14	12	Deciduous tree native across Europe and N Africa. Also known as mountain ash due to its pinnate leaves and ability to grow at high altitudes. Attractive autumn colour and berries along with spring flowers. Good wildlife tree. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Sorbus+aucuparia for more info.
Scots Pine	35	16	Evergreen tree native to Scotland Spain and Norway. Distinguished from other pines by an orange tinge to the bark of the upper stem. One of Britain's few native conifers. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Pinus+sylvestris for more info.
Willow	20	18	Fast growing deciduous tree with many different species which often hybridise. A high water demand tree which is often implicated in subsidence cases. Most willows have little ornamental value due to their lack of noticeable flowers, sizeable fruits autumn colour or ornamental bark.

4.4.2. The figures quoted regarding typical height and canopy spread should be treated as approximate. Actual heights and spreads vary according to several environmental factors such as soil conditions, climate and presence of competing vegetation.

5. Implications for Development

5.1. Overview

here are few trees within the site that are considered to be a material planning consideration and worthy of retention and designing around. Close to the northern boundary there are two Retention Category B trees (T12 and T13 (red oak and scots pine). However these are not particularly large trees and do not have a high amenity value.

Any proposed development should take into account views into the site from the rear gardens of the surrounding properties. A well designed post-construction planting scheme could screen much of the site and ensure a long term improvement in tree cover and general amenity.

The remainder of this section of the report offers general advice on dealing with tree related constraints. It is intended to assist designers to work with the Tree Constraints Plan. Examples of mitigation strategies are included which may reduce potential impacts on trees. Persons familiar with BS 5837 Arboricultural Reports (e.g. tree officers) may wish to skip this section and go straight to the following section (photographs).

5.2. Retention Categories

5.2.1. The Tree Constraints Plan at Appendix 6 indicates the BS 5837 Retention Categories for each tree. These should be taken into account during the design stage of any development proposals according to the following criteria:

5.2.2. Wherever possible, Category A trees should be retained. These are usually large trees with a relatively high amenity value. They are generally in good condition, well suited to their surroundings and with a significant life expectancy.

5.2.3. The retention of Category B trees is also desirable, though these trees are of a lesser quality, or have a reduced life expectancy or are smaller than category A trees.

5.2.4. The retention of Category C trees should be seen as optional. These are usually small trees or trees of no particular merit and are not considered to be a material planning consideration.

5.2.5. Category U trees have been recommended for removal due to their poor condition, and should be removed regardless of development proposals.

5.3. Root Protection Areas

5.3.1. The Tree Constraints Plan at Appendix 6 indicates the Root Protection Areas of each tree. This does not represent the maximum extent of rooting activity; rather, it defines the area within which the majority of roots are expected to be confined. Wherever possible, this should be left undisturbed for all trees to be retained. Significant disturbances such as changes in ground level, soil compaction caused by vehicles, excavation of trenches, or interference with oxygen and rainwater exchange may have a significant impact on the health of the tree.

5.3.2. Some disturbance of the Root Protection Area may be acceptable but must be kept to a minimum. Construction methods should be adopted that are sympathetic to root requirements:

- 5.3.3. Concrete strip foundations should be avoided except at the very extremity of the Root Protection Area. Instead, pile/pier and beam foundations or raft foundations should be utilised. These will minimise root severance.
- 5.3.4. Hard surfaces should be installed with the minimum of excavation. The majority of roots lie within the upper soil horizons and are relatively fine. Roots do not need to be as thick as branches, since they do not have to combat gravity and high winds etc. A root as thin as a finger is able to transport a lot of nutrients. Thus, excavation as shallow as 30cm can have a significant impact on the health of a tree even though large roots might not be severed. Cellular confinement systems help to reduce the amount of excavation required to give a driveway adequate strength.
- 5.3.5. Hard surfaces should ideally be porous to allow rainwater and oxygen to pass into the soil. Gravel is the ideal medium and can be retained in a cellular system to prevent rutting. Block paving and flagstones without mortar joints are a good alternative. Tarmac is not very porous; the use of a no-fines tarmac is preferable.
- 5.3.6. Trenches for underground services are commonly overlooked but can cause major damage to trees. Further arboricultural advice should be sought if underground services are to pass within Root Protection Areas. Trenchless techniques can sometimes be utilised but are not usually practical for installing drains.
- 5.3.7. If ground levels are to be raised, this should always be done with a loose granular material such as gravel or coarse sand. Ground levels must never be raised against the trunks of trees as this may cause them to rot.
- 5.3.8. It is sometimes possible to mitigate against root disturbance, by above ground pruning or by improving rooting conditions for existing roots. The introduction of mycorrhizal fungi and earth worms significantly improves rooting conditions, as does the removal of competing vegetation such as grass.
- 5.3.9. Soil compaction occurs when vehicles repeatedly pass over rooting areas without some kind of structure to disperse their weight. Healthy soils will contain approximately 25% airspace. When soils become compacted these air spaces disappear and roots are unable to respire. It is possible to de-compact soils but this is an expensive operation. It is preferable to avoid compaction, by spreading the load of traffic passing over Root Protection Areas with the use of metal road plates or suitable boards.

5.4. Tree Canopies

- 5.4.1. Where trees are to be retained, adequate space should be allowed between buildings and tree canopies. A minimum distance of 3m is recommended. For high quality trees (Category A or B) which have not yet reached maturity a further allowance should be made to allow the canopies to mature without the need for extensive pruning.
- 5.4.2. For residential dwellings, the shade cast by trees should be also taken into account. Particularly where buildings are located north or north-east of sizeable trees. Some species e.g. birch, have light airy canopies so shade is less of an issue. Commonly occurring trees which cast quite dense shade include beech, oak, ash, chestnut, sycamore, lime and most evergreen species. Shade constraints are less of an issue for garages and other non-residential buildings.
- 5.4.3. The Tree Constraints Plan within Appendix 6 indicates the shade constraint defined within BS 5837 which is determined according to the existing tree heights. This represents an approximation of the areas most affected by shade throughout the year.

It does not reflect the actual shade cast at any one time of the day or at any one time of the year. Ideally, the windows of high occupancy living quarters (kitchens, living rooms and dining rooms) should be located outside of the BS 58937 shade constraints. Where they are located within the shade constraints it is advised that a more detailed assessment is undertaken to ascertain the availability of skylight and sunlight available at key windows. Consideration should also be given to allowing adequate amenity space within gardens that will enjoy some sunshine.

- 5.4.4. More sources of information regarding the above points can be found within Appendix 5. Crown Consultants will gladly offer any further advice, and you are invited to contact the author of this report on 01422 316660.

5.5. Arboricultural Impact Assessment

- 5.5.1. When development proposals are available we recommend that an Impact Assessment is carried out before submission to the Local Planning Authority. This will identify any potential issues so that they may be resolved or mitigated against.

5.6. Tree Protection During Construction

- 5.6.1. BS 5837 recommends that an Arboricultural Method Statement is adhered to which ensures that all retained trees are adequately protected during the construction phase. This should be highly site specific and take into account such things as hard surface design, implementation of services and foundations, storage of materials, scaffolding, use of heavy plant such as cranes or excavators, protective fencing specification, and necessary tree works. Adherence to such a Method Statement will help to minimise the impact of the development.

6. Photographs

Refer to the Tree Constraints Plan for photo locations

Photo 1.



Photo 2.



Photo 3.



Photo 4.



Photo 5.



Photo 6.



Photo 7.



Photo 8.



Photo 9.



Photo 10.



Photo 11.



Photo 12.



Photo 13.



Photo 14.



Photo 15.



Photo 16.



Photo 17.



Photo 18.



Photo 19.



Photo 20.



Photo 21.



Photo 22.



Photo 23.



Photo 24.



Photo 25.



Photo 26.



Photo 27.



Photo 28.



Photo 29.



7. Signature

This report represents a true and factual account of the trees at

**Sheerien Close
Athersley
Barnsley
S71 3NQ**

Signed



.....

Ivan Button N.C.H. (Arb), FDS^c (Arb), BSc (Hons), P.G.C.E., M. Arbor. A.

on behalf of

Crown Consultants Ltd

Dated

30th October 2012



Appendix 1: BS 5837: 2012 – Guidance Notes

This Standard prescribes the principles to be applied to achieve a satisfactory juxtaposition of trees and structures. It sets out to assist those concerned with trees in relation to design, demolition and construction to form balanced judgements.

It acknowledges the positive contribution trees may offer to a site, as well as the negative aspects of retaining inappropriate trees. It addresses the negative impacts that construction activity may have upon trees and offers mitigation strategies to minimise these impacts.

The Standard suggests a three stage approach to ensure best practice is followed when developing close to trees:

A1.1 Stage 1: Survey of Existing Trees

This identifies the existing trees on and adjacent to the site. Data is recorded for each tree and is presented in a Tree Data Schedule. Each tree is allocated a **Retention Category** according to its size, amenity value, condition and safe useful life expectancy. The categories are allocated independently of development proposals. Our interpretation of the Retention Categories is explained below:

A1.1.1 Retention Categories

A Category: Trees of high quality and amenity value. Usually, mature trees with a significant life expectancy which would enhance any development. Retention of these trees is strongly encouraged.

B Category: Trees of moderate quality and amenity value. Usually these are maturing trees or younger trees with exceptional form. Retention of these trees is desirable though the removal of occasional specimens may be acceptable.

C Category: Trees of low quality or small specimens with a relatively low amenity value. These trees are not considered to be a material planning constraint and their removal will generally be seen as acceptable in order to facilitate development.

U Category: Trees of such low quality that their removal is recommended regardless of development proposals.

A1.1.2 Occasionally trees are borderline and do not fall neatly into one of the categories A, B or C. In such cases we apply a superscript (+/-) such that:

C⁺ Indicates borderline C/B, though Category C is deemed to be most appropriate.

B⁻ Indicates borderline C/B, though Category B is deemed to be most appropriate.

A1.1.3 The British Standard suggests that each of the A, B and C categories may be further subdivided (A1, A2, A3, B1, B2, B3 etc) such that subcategory 1 denotes mainly arboricultural values, subcategory 2 denotes mainly landscape values and subcategory 3 denotes mainly cultural values (including conservation). Multiple subcategories may be used.

Our experience suggests that these subdivisions lack clarity and can be confusing. Within this report subcategories are **not** denoted. Where appropriate, the use of phrases such as 'Part of a formal group', or 'Has a high ecological value', or 'Offers good screening to the site' are incorporated into the observation section of the Tree Data Schedule. We believe this conveys all relevant landscape and cultural information without any confusion.

A1.1.4 **Tree Constraints Plan (TCP).** This indicates the position, crown spread, Retention Category and Root Protection Area of each tree. It is used to inform where development may proceed without causing damage to trees.

A1.1.5 **Root Protection Area (RPA).** This is the area around each tree likely to contain the majority of roots. It should ideally remain undisturbed to avoid a detrimental impact on tree health. It is calculated according to the formula “radius of RPA” = “12 x stem diameter”. This shape can then be modified to take into account site factors which influence rooting activity, e.g. underground structures. Where development works are proposed within the RPA they should be undertaken in a sympathetic manner to minimise root disturbance.

A1.1.5 **Shade Constraints.** BS 5837 suggests that shade constraints should be indicated on the TCP. This is denoted as a circle-segment drawn northwest to due east with a radius equal to the height of the tree. This does not represent the actual shade pattern which varies through the seasons. Rather, it indicates the area most shaded by the tree throughout the course of the year. Ideally habitable room windows should be located outside of these shade constraints.

A1.2 Stage 2: Arboricultural Impact Assessment

After the initial survey and the production of the Tree Constraints Plan, arborists and designers are encouraged to work together to establish a design proposal with minimal impact on the high quality trees. An assessment should be made of all possible impacts including the impact that the trees may have upon the proposal. The arborist may recommend mitigation strategies to minimise these impacts and help achieve a more harmonious juxtaposition between buildings and trees.

A1.3 Stage 3: Arboricultural Method Statement

This type of report specifies the measures necessary to protect trees against damage from construction activity. The Method Statement should be written in a manner that it may be conditioned and enforced by the local authority upon granting of planning permission. The site manager should be familiar with all aspects of the Method Statement and should ensure that all persons working on the site are aware of those aspects which appertain to their work. This includes service installation engineers and operators of plant machinery.

Appendix 2: Explanation of Tree Data and Glossary

This section explains the terms used in the **Tree Data Schedule** within Section 3.

A4.1 General Observations

A4.1.1	Numbering System:	Each item of vegetation has its own unique number prefixed by a letter such that T1=Tree 1, G2=Group 2, H3=Hedge 3 and W4=Woodland 4, S5=Shrub 5.
A4.1.2	Age Categories: Young Semi-Mature Early-Mature Mature Veteran Over Mature	Usually less than 10 years old. Significant future growth to be expected, both in height and crown spread (typically below 30% of life expectancy). Full height almost attained. Significant growth may be expected in terms of crown spread (typically 30-60% of life expectancy). Full height attained. Crown spread will increase but growth increments will be slight (typically 60% or more of life expectancy). A level of maturity whereby significant management may be required in order to keep the tree in a safe condition. As for veteran except management is not considered worthwhile.
A4.1.3	Species:	Common names and Latin names are given.
A4.1.4	Height:	Measured from ground level to the top of the crown.
A4.1.5	Stem Diameter:	Taken at 1.5m above ground level where possible. On multi-stemmed trees this measurement may be taken at ground level, though usually an indication of the number of stems and average diameter is given, e.g. 3 x 30cm.
A4.1.6	Crown Height:	Measured from ground level to the height at which the main crown begins. Where the crown is unbalanced it is measured on the side deemed to be most relevant. This is usually the side facing the area of anticipated development.
A4.1.7	Tree Diagram:	This scaled drawing is computer generated based on measurements taken for stem diameter, crown height and spread, and overall height. It is designed to help the reader rapidly assess the data. It is not an accurate representation of the form of the tree.
A4.1.8	Crown Spread:	Measured N, E, S & W, taken from the centre of the stem and usually rounded up to the nearest metre.
A4.1.9	Observations:	If a tree's position is considered to be relevant it will be commented upon (e.g. overhanging a children's play area). Tree form and pruning history are also recorded along with an account of any significant defects. Defects and descriptive terms are dealt with in more detail at the end of this section.
A4.1.10	Recommendations:	Usually based on any defects observed and intended to ensure that the tree is in an acceptable condition.
A4.1.11	Priority Scale:	Depending upon the threat posed by the tree, and the likelihood of failure, recommendations should be carried out according to the following priority scale: Urgent To be carried out as soon as possible. Very High To be carried out within 1 month. High To be carried out within 3 months. Moderate To be carried out within 1 year. Low To be carried out within 3 years.
A4.1.12	Inspection Frequency:	An interval of 6 months, 1 year, 1.5 years or 3 years is allocated before the next inspection is due. Wherever practical, consideration should be given to seasonal changes so that deciduous trees are not always surveyed in winter when they have no leaves, or in summer when leaves may obscure branches within the upper crown.
A4.1.13	Vigour: High Moderate Low Very Low	An indication of growth rate and the tree's ability to cope with stresses: Having above average vigour. Having average vigour. Having below average vigour. Tree is struggling to survive and may be dying.
A4.1.14	Physiological Condition: Good Fair Poor Very Poor	Healthy and with no symptoms of significant disease. Disease present or vigour is impaired. Significant disease present or vigour is extremely low. Tree is dying.
A4.1.15	Structural Condition: Good Fair Poor Very Poor	Having no significant structural defects. Some defects observed though no high priority works are required. Significant defects found. Tree requires monitoring or remedial works. Major defects which will usually require significant remedial works or tree removal.
A4.1.16	Amenity Value: Very High High Moderate Low	Exceptional specimen, observable by a large number of people. Attractive specimen, observable by a significant number of people. One of the above factors is not applicable. Unattractive specimen or largely hidden from view.
A4.1.17	Life Expectancy:	The estimated number of years before the tree may require removal. Classified as (<10), (10 – 20), (20 – 40), or (40+).
A4.1.18	Retention Category:	These are explained in detail in Appendix 1.

A4.2 Evaluation of Defects

A4.2.1	Cavities, wounds, deadwood etc are all evaluated as follows:	
	Major	Such that structural integrity is, or will become, compromised and the tree is, or will inevitably become, hazardous.
	Significant	A defect that may over time become a major defect, though not necessarily so. This will depend on the vigour of the tree and its ability to deal with decay etc.
	Minor	A defect that is not likely to compromise the tree's structural integrity.

General Glossary

Adaptive growth	In tree biomechanics, the process whereby wood formation is influenced both in quantity and quality by the action of gravitational forces and mechanical stresses on the cambial zone.
Aerobic	Conditions in which oxygen is freely available, or to biomechanical processes that depend on the presence of oxygen.
Anaerobic	A condition marked by the absence of oxygen; Generally such areas are unsuitable for normal life and growth of plant tissues. These sites tend to be populated by bacteria capable of surviving low oxygen conditions often associated with Slime Flux.
Arboriculture	The culture and management of trees as groups and individuals primarily for amenity and other non-forestry purposes.
Arborist	A person possessing the technical competence through experience and related training to provide management of trees or other woody plants in a landscape setting. Generally involved with the development or management of trees for visual amenity or land management rather than the growth of trees for product or profit.
Barrier zone	A layer within an annual increment of wood which contains abnormal xylem cells, laid down by the cambium in response to wounding or other trauma.
Body language	In trees, the outward display of growth responses and or deformation in response to mechanical stress.
Bole	Or Trunk, the main stem of a tree below its first major branch.
Bracket	A type of fruiting body produced by various fungal species, plate like to hoof like in shape and often a one sided attachment to the wood or bark.
Branch bark ridge	A ridged area located at the union of a branch to a trunk or stem.
Branch Collar	Trunk tissue that forms around the base of a branch between the main stem and the branch, or between a main branch and a lateral branch. As a branch decreases in vigour or begins to die, the collar usually becomes more pronounced and completely encircles the branch.
Brown Rot	Form of decay where cellulose is degraded, while lignin is only modified.
Buttress Root	Roots that emerge from the base of the tree stem, normally large and well developed that rapidly reduce in diameter to create the Root Plate this offers structural support for the tree. Buttress roots divide rapidly forming the connection between the stem and the transport roots.
Cabling Bracing	Installing cables within the crown of a tree to prevent collapse.
Callus	Undifferentiated cells often formed at the edges of recent injuries. This tissue quickly becomes differentiated, forming cells of the type characteristic of that position on the tree (e.g. forming wood, bark, roots, etc.) see wound response tissue.
Cambium	A thin layer of actively growing and dividing cells, located between the xylem (sapwood) and bark of a plant; the part responsible for radial growth of a tree stem or branch.
Canopy	The topmost layer of twigs and foliage in a woodland, tree or group of trees.
Canker	A localised area of dead bark and cambium on a stem or branch, caused by fungal or bacterial organisms, characterised by woundwood development on the periphery. This may be annual or perennial.
Cavity	An open and exposed area of wood, where the bark is missing and internal wood has been decayed and dissolved.
Chlorotic	Also Chlorosis. A condition of the plant marked by yellowing of normally green foliage, often indicating nutrient deficiency or plant dysfunction.
Clinometer	Devices that measures vertical angles, and provides direct height measurements of objects by triangulation.
Co-dominant stems/trunk	Are forked branches or trunks of nearly the same size in diameter and lacking a normal branch union.
Compacted soils	Soils in which the air-space (oxygen space) has been reduced or eliminated, reducing water infiltration and percolation, reducing root presence and inhibiting new root development.
Compartmentalisation	The physiological process that creates the chemical and mechanical boundaries that act to limit the spread of disease and decay organisms.
Compression Failure	Localized buckling of fibres and other longitudinal elements produced by compression of wood along the grain; compression failures sometimes develop in standing trees.
Compression Strength	The ability of a material or structure to resist failure when subjected to compressive loading; measurable in trees using special drilling devices
Compression Wood	Abnormal wood formed on the lower side of branches and curved stems, with physical properties different from normal wood.
Conservation Area	In Great Britain, designated areas of architectural or historical interest, in which there are special procedures for planning applications. Additionally tree works cannot generally be undertaken without prior notification (Currently 6 weeks) to the relevant local planning authority. See also Tree Preservation Orders.
Core Sample	A sample of wood extracted from a trunk or branch, using an increment borer tool. The resulting core can be analysed for characteristics of growth, wood strength, structure, decay, and for species identification.
Crotch	The union of two or more branches; the auxiliary zone between branches.
Crown	The upper canopy of a tree, including upper trunk, scaffold branches, secondary branches, stems and leaves.
Crown lifting / raising	Crown Lift The removal of the lowest branches, usually to a given height. It allows more residual light and greater clearance underneath for vehicles etc.
Crown reduction	The reduction of a tree's height or spread while preserving its natural shape.
Crown thinning	The removal of some of the density of a tree's crown, usually 5-25% allowing more light through its canopy and reducing wind resistance.
Deadwood (noun)	Deadwood is often present within the crown or on the stems of trees. It may be an indication of ill health, however, it may also indicate natural growth processes. If a target is present beneath the tree, deadwood may fall and cause injury or damage and should be removed, otherwise deadwood can remain intact for conservation purposes (insects, fungi, birds etc.).
Deadwood (verb)	The removal of dead branches from a tree's canopy, usually of a specified size (in diameter).
Decay	Progressive deterioration of organic tissues, usually caused by fungal or bacterial organisms, resulting in loss of cell structure, strength, and function. In wood, the loss of structural strength.
Decay Detection	The assessment of decay within a tree has been traditionally difficult, but recent advances have made it possible to achieve accurate representations of the internal section of a tree in both 2D and 3D, removing doubt over the condition of the tree and allowing accurate management decisions.
Decurrent	In trees a, system of branching in which the crown is borne on a number of major widely spreading limbs of similar size. In fungi relates to toadstools whose gills run down the stem and leaves and other plant organs, which extend down the stem.
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.
Defoliation	The losing of plants foliage.
Dieback	Progressive death of buds, twigs and branch tissues, on individual limbs resulting in Deadwood, or throughout the canopy,

	extreme cases can result in Stag Heading.
Dripline	A projected line on the ground that corresponds to the spread of branches in the canopy; the farthest spread of branches.
Epicormic shoots	Fast growing, weakly attached shoots/branches that often grow as a response to stress factors upon a tree or branch removal.
Excurrent	In trees, a system of branching that a single leader remains dominant, through the control of lateral branches.
Failure	In connection with tree hazards, a partial or total fracture within the wood tissue or loss of cohesion between roots and soil. (In total failure affected parts will snap or tear away completely, Partial failure there is a crack or deformation, which results in an altered distribution of mechanical stress.
Feeder Roots	Fine fibrous Water and nutrient absorbing roots located in the outer root system.
Flush-Cut	In trees and shrubs, a pruning cut close to the parent stem, which removes the branch bark ridge.
Foliage	The live leaves or needles of the tree; the plant part primarily responsible for photosynthesis.
Formative pruning	The trimming of a tree to remove weaknesses and irregularities which may lead to problems. The formative pruning operation is aimed at reducing the potential for future weaknesses or problems within the tree's crown.
Gall	An abnormal, disorganized growth of plant tissues, caused by parasitic or infectious organisms such as insects, fungi, bacteria, or viruses.
Girdling	In woody plants, any form of damage that destroys the bark and / or the Cambium all the way around the stem, branch or root, normally resulting in death of the damaged section.
Girdling Root	In woody plants, a root that grows across the buttress, or across other roots, eventually causing constriction of the radial growth.
Growth Increment	The incremental growth added as new annual ring develops each season over existing wood. This is seen as (growth) rings in cross-sections of wood.
Hazard beam	An upwardly curved branch in which strong internal stresses may occur without the compensatory formation of extra wood (longitudinal splitting may occur in some cases).
Heartwood	Inner non functioning tissues that provide structural support to trunk.
Heave	In relation to shrinkable clay soils, expansion due to rewetting of a volume of soil previously subjected to the removal or water by plant / trees following felling or root severance. Also in relation to root growth, the lifting of pavements and other structures by radial expansion. Also in relation to tree stability, the lifting of one side of a wind rocked root plate.
Herbicide	A chemical compound that causes the death of a plant.
Included Bark	Bark that becomes embedded in a crotch between branch and trunk or between co-dominant stems, usually found in narrow or tight crotches, and causes a weak structure.
Increment Borer	A tool that cuts and extracts a narrow cylinder of wood from a tree for analysis of the wood tissue and growth increments.
Leader	The primary terminal shoot or trunk of a tree.
Limb	A large lateral branch growing from the main trunk or from another larger branch.
Lion Tailing	Often the result of poor pruning practices; the main leader or branches are largely devoid of side branches, growth is restricted to the end of branches and is likely to suffer damage through end loading.
Lopping	In trees, a general term that related to the removal of branches from a tree.
Monitoring	Due to the relative life span of trees in relation to our own, long-term monitoring provides a valuable insight to the health of trees, identifying decline and or stabilisation and or improvement.
Mulch	A material laid over the root system of a tree to help conserve moisture within the soil. Additionally it may help control the development of weeds close to the tree.
Mycelium	A mass of growing filaments (hyphae) formed by fungi.
Mycorrhizae	The symbiotic relationship between roots and certain beneficial fungi. Mycorrhizae are the combined root / fungal growth.
Natural Pruning	The shedding of a branch or twig that has died back naturally and has become decayed at or near its base.
Necrosis	The failure and subsequent death of a branch, leader or tree.
Negligence	A failure to take reasonable action to deal with a hazard to prevent damage to property or person.
Nutrient	Substances that are absorbed by living organisms for the maintenance of internal processes.
Occluding tissue	The general term of wood, cambium and bark that develop around the site of a wound on a woody plant
Pathogen	A microorganism that causes diseases within another organism.
Phloem	The principle conductive tissue that the products of Photosynthesis are transported around the plant
Photosynthesis	The process were light energy is used to create energy (Carbohydrate) for use within the plant.
Pollard	A term for a pollarded tree.
Pollard head	The swollen section of branch / stem that forms behind the pollarding cut.
Pollarding	The complete or partial removal of the crown of a young tree so as to encourage the development of numerous branches either for amenity or historically as fodder, repeated management is required cyclically to maintain the feature
Prune or Pruning	Selective removal of woody plant parts of any size, using saws, Loppers, Secateurs, or other pruning tools.
Reaction Wood	Wood with distinctive anatomical characteristics, formed in parts of leaning or crooked stems and in branches to provide additional strength / support. In hardwoods, tension wood usually forms. In conifers, compression wood is usually found.
Reaction Zone	A zone normally darker than surrounding wood that denoted the boundary often a defensive one between functional sapwood and dysfunctional or decaying wood.
Re-grading	The raising or lowering of a soil profile from its original grade.
Rejuvenation pruning	Where historically or environmentally important trees are to be retained, their life spans can be significantly extended through the adoption of particular pruning regimes.
Rejuvenation root treatment	Management of the root zone can have a significant positive effect upon the health of trees. Physical, mechanical and biological approaches are available and can be prescribed in accordance within the constraints of individual sites.
Remedial pruning	The removal of old stubs, deadwood, epicormic growth, rubbing or crossing branches and other unwanted items from the tree's crown.
Resistograph	Invasive decay detection technique whereby the resistance offered by the timber to a spinning probe is measured and plotted.
Rib	In tree body language, a long narrow, axial protuberance which often over lays a crack.
Ring Barking	Artificial Girdling of the stem, to result in the death of a tree. May be used in habitat creation were the retention of dead standing trees is required.
Rod Bracing / Bolting	Traditionally, this has relied upon the installation of steel rods or bolts through the stems or limbs, to reduce twisting or splitting of the wood. The installation of such features does require legal interpretation.
Root Barriers	Both Buildings and services can benefit from the installation of root barriers to protect a soil volume from the ingress of roots.
Root Collar	The basal area of the tree; transition zone from trunk to root. Also sometimes called trunk flare.

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Root Plate	The primary support area for the tree; an area of the root system close to the base that structurally anchors the tree to the soil.
Root Rot	Either a general term for decay within the wood of the lower stem / buttress roots, or a disease in which the fine roots are killed.
Root System	The portion of the tree containing the root organs, including buttress roots, transport roots, and fine absorbing roots; all underground parts of the tree.
Root Zone	The area and volume of soil around the tree in which roots are expected. May extend to three or more times the branch spread of the tree, or several times the height of the tree.
Sail Area	That area of the tree subjected to wind load.
Sanitation	In plant disease control, the removal of material that could be a source of infection by a pathogen. Removal of diseased plant parts, such as fallen leaves and twigs, and pruning of dead and diseased branches. Diseased parts should be burned or buried under soil or active compost.
Sapwood	Xylem wood tissue, usually light in colour, representing the outer growth rings of the wood. Usually living, reactive wood tissue, in a healthy tree. See heartwood
Scaffold limbs / scaffold Branches	The branches that form the main network framework of the crown of a tree.
Senescent	A decline in growth and vigour due to age or stress factors.
Shrub	A woody plant that branches at or close to the ground level and so does not have a single stem.
Slime Flux	Relating to a toxic condition from the spreading of bacteria or their products from a source of infection; characterized by malodorous gases, or salt deposits upon the bark. If these products enter the sap stream, localised vessel necrosis can result, usually associated with anaerobic conditions.
Soft Rot	A kind of wood decay, where a fungi degrades cellulose within the cell wall, without causing overall degradation.
Soil Compaction	The compression of soil, causing a reduction of pore space and an increase in the density of the soil. Air is squeezed out and nutrients become locked. Tree roots cannot grow in compacted soil.
Soil Profile	The characteristics of a soil as regards to relative depth; the changes in soil texture and composition that occur with depth.
Soil Texture	The classification of the constituent particles of soil; includes sand, silt and clay particles. Directly related to soil porosity, permeability, and aeration.
Sonic Decay Detection	Non invasive method whereby sound waves are passed through the tree and the speed is measured. Slow speeds indicate decay and a tomography picture representing the inner stem is produced.
Stag Heading	In a tree, a state of dieback where dead branches protrude beyond the current living crown.
Stress	In plant physiology, conditions where one or more physiological functions are not working within normal parameters.
Stump Grinding	The removal of a tree stump using a specialist grinding machine.
Subsidence	In relation to vegetation, the removal of water by plant growth resulting in localised shrinkage in the soil volume.
Sucker	Same as sprout.
Suppressed	Trees which are dominated by surrounding vegetation and whose crown development is restricted from above.
Systemic	Affecting the whole plant or organism. A systemic compound is carried throughout the entire plant to all parts through the vascular system.
Target	Any person or object within reach of a falling tree or part of a tree that may be injured or damaged.
Target Pruning	The pruning of a branch where the wound affects only branch material, often results in a target shaped wound.
Tension Wood	Reaction wood typically formed on the upper side of limbs or curved stems; characterized by lack of cell wall lignifications (higher ratios of cellulose to lignin).
Tight Union / Tight Crotch	Also, narrow crotch. A crotch with a narrow angle between branches, often having included bark.
Tomography	The comparison of sound or stress waves through the tree allows the creation of a 2D or 3D representation of the internal structure of a stem or branch section and highlights areas of damage. Virtually non-injurious.
Topography	The configuration of surface features, including the vertical and horizontal relationships of the ground and other features.
Topping	Cutting large limbs back severely, without regard to form or habit of the tree. Cuts are usually made between lateral branch nodes. This practice is extremely injurious to trees, and promotes decay and structural weakness within the crown.
Tree	A woody plant that typically has a single stem, at maturity has a height of at least 4 metres and a stem diameter at breast height of at least 75mm.
Tree Preservation Order	In Great Britain, an order made by the local planning authority, where consent must be gained before undertaking all but exempt works to a tree.
Trunk Flare	The basal area of the trunk that flares or widens, and merges with the main roots. See root collar
Veteran Tree	Veteran trees are often found in large parks or estates and commonly affected by extensive decay or have been subject to extensive works. These trees are retained for historical importance and often pose greater risk than normal, which is generally justified. They need careful management and often propping or bracing to support them, some require fencing to limit access.
Vigour	Active, healthy growth of plants: ability to respond to stress factors.
Visual Tree Assessment (VTA)	An assessment of the mechanical condition of trees based upon their 'body language'. Trees are dynamic and respond to faults / decay / environmental factors in various ways, these responses can be indicative of structural integrity.
Wetwood	An infection caused by bacteria living inside the plant tissues. The bacteria ferment the plant fluids, resulting in death of nearby cells, and often causing exudations of fluid from the bark, often referred to as a Slime Flux.
White Rot	A kind of wood decay where a fungi attacks the lignin within the wood matrix
Wind loading	Forces placed upon tree canopy, branches, trunk and roots of a tree under windy conditions.
Wind Throw	The failure of a tree due to wind loading.
Witches Broom	A deformed or unusual growth of twigs from adventitious buds, caused by insects, disease, or dieback of twigs and buds.
Wood	Secondary Xylem; the main structural support and water conducting tissue of trees and shrubs.
Wound Response Tissue	Also Occluding Tissue, Wound Wood or Callus. Differentiated wood tissue that grows around the margins of a wound or injury.
Wound Wood	Wood with atypical features, formed in the vicinity of a wound and a term to describe the occluding tissues around a wound
Xylem	Plant tissues with special function of translocation of water and dissolved nutrients.

Appendix 3: Survey Methodology

- A2.1 Ground level visual surveys are carried out using the *Visual Tree Assessment* technique described by Mattheck and Broeler (1994) and endorsed by the Arboricultural Association (LANTRA Professional Tree Inspection course, 2007).
- A2.2 Structural condition is assessed by inspecting the stem and scaffold branches from all angles looking for weak branch junctions or symptoms of decay. Particular attention is paid to the stem-base. Cavities are explored using a metal probe in order to assess the extent of any decay. If this is not possible further inspection is recommended in the form of a climbed inspection or using specialist decay detection equipment.
- A2.3 The physiological condition is assessed by inspecting the stem, branches and foliage for symptoms of disease. The overall vigour of the tree is also taken into account.
- A2.4 Where significant defects are observed, recommendations are made according to a scale of priority in order to reduce the likelihood of structural failure. The position of the tree and its potential targets are taken into account.
- A2.5 Measurements are obtained using a diameter tape, clinometer, distometer and loggers tape. Where this is not practical measurements are estimated.
- A2.6 Some trees are surveyed as groups, though this is usually avoided close to areas likely to be developed.
- A2.7 Finally, a *Retention Category* is allocated as described in Appendix 1.1.1.

Appendix 4: Author's Qualifications

Qualifications & Experience of Ivan Button N.C.H. (Arb), FDS (Arb), BSc (Hons), P.G.C.E., M. Arbor. A.

Construction

Between 1983 and 1995 Ivan worked primarily within the construction industry and received training in a broad range of practical building skills and general construction principles. During this time he obtained a BSc (Hons) at Leeds University followed by a P.G.C.E at The University of Wales.

Arboriculture

He obtained a NCH (Arboriculture) at the University of Lincoln and became a member of the Arboricultural Association. He then worked for an Arboricultural Consultancy for one year before establishing a tree surgery and landscaping business in 1998. In 2005 Ivan commenced full time employment with a leading Arboricultural Association approved consultancy and soon adopted a senior role responsible for five consultants.

He obtained a FDS in arboriculture at the University of Lancashire, which he passed with distinction and is now a Director and Principal Consultant of Crown Consultants Ltd. He is accredited as a LANTRA *Professional Tree Inspector*. A qualification produced in association with the Arboricultural Association and generally recognised as appropriate for all levels of tree inspection.

He is a member of the Consulting Arborist Society and is listed within their areas of professional expertise for QTRA and as an expert witness.

Ivan is a professional member of the Arboricultural Association and the International Society of Arboriculture.

He is a licensed Quantified Tree Risk Assessment user.

Ivan has undertaken professional expert witness training and has been registered as a Sweet and Maxwell Checked Expert Witness since 2008.

Throughout 2009 acted as the principal Tree Officer for Barnsley Metropolitan Borough Council.

Ivan has produced several hundred Arboricultural Reports for the purposes of Development, Safety, Management, Mortgage, Subsidence, Mitigation and Litigation.

Appendix 5: Further Information

Building Near Trees – General

National Joint Utilities Group publication # 10 (1995), *Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees*. Downloadable at www.njug.demon.co.uk/pdf/NJUG%20Publication10.pdf

NHBC Standards Chapter 4.2., *Trees and Buildings*.

Horticulture LINK project 212. (University of Cambridge, 2004), *Controlling Water Use of Trees to Alleviate Subsidence Risk*.

Tree Planting and aftercare

See www.trees.org.uk/leaflets.php# for downloadable leaflets on selecting a garden tree, planting, aftercare and veteran tree management.

British Standards

BS 5837: 2012. Trees in Relation to Design, Demolition and Construction – Recommendations.

BS 3998: 2010. Recommendations for Tree Work.

BS 3936: 1992. Nursery Stock. Part 1: Specification for Trees and Shrubs.

BS 3936: 1992. Nursery Stock. Part 10: Specification for Groundcover Plants.

BS 4043: 1989. Transplanting Root-balled Trees.

BS 8004: 1986. Foundations.

BS 8103: 1995. Structural design of Low-Rise Buildings.

BS 8206: 1992. Lighting for Buildings.

BS 3882: 2007. Topsoil.

BS 4428: 1989. General Landscaping Operations (excluding hard surfaces).

Permission to do Works to Protected Trees / Tree Law

Forestry Commission (Edinburgh, 2003), *Tree Felling – Getting Permission*. Country Services Division - Forestry Commission. Downloadable at [www.forestry.gov.uk/website/pdf.nsf/pdf/wgsfell.pdf/\\$FILE/wgsfell.pdf](http://www.forestry.gov.uk/website/pdf.nsf/pdf/wgsfell.pdf/$FILE/wgsfell.pdf)

Transport and the Regions (Department of the Environment, 2000), *Tree Preservation Orders, A Guide to the Law and Good Practice*. Downloadable at www.communities.gov.uk/publications/planningandbuilding/tposguide

C. Mynors, *The Law of Trees, Forests and Hedgerows* (Sweet and Maxwell, London, 2002)

Communities and Local Government website with numerous downloadable documents, from:

<http://www.communities.gov.uk/planningandbuilding/planning/treeshighhedges/>

Lighting Levels

P.J. Littlefair, *B.R.E. 209: Site layout planning for daylight and sunlight A guide to good practice*. B.R.E. Bookshop, London.

British Standards Institution. Code of practice for day lighting. *British Standard BS 8206: Part 2* (1992).

Chartered Institution of Building Services Engineers. *Applications manual: Window Design* (London, 1987).

NBA Tectonics. A study of passive solar housing estate layout. *ETSU Report S-1126*. Harwell, Energy Technology Support Unit (1988).

I.P. Duncan; D. Hawkes, *Passive solar design in non-domestic buildings. ETSU Report S-1110*. Harwell, Energy Technology.

P. J. Littlefair, *Measuring Daylight, BRE Information Paper 23/93 f3.50*. (Advises on measuring daylight under the real sky or an artificial sky, allowing for the changing nature of sky light).

High Hedges

Communities and Local Government website with numerous downloadable documents, from:

<http://www.communities.gov.uk/planningandbuilding/planning/treeshighhedges/>

Tree Specific Websites

www.crowntrees.co.uk

Crown Consultants site containing useful information

www.trees.org.uk

Arboricultural Association

www.rfs.co.uk

Royal Forestry Society of England, Wales and N. Ireland

www.treehelp.info

The Tree Advice Trust

www.woodland-trust.org.uk

The Woodland Trust

www.treecouncil.org.uk

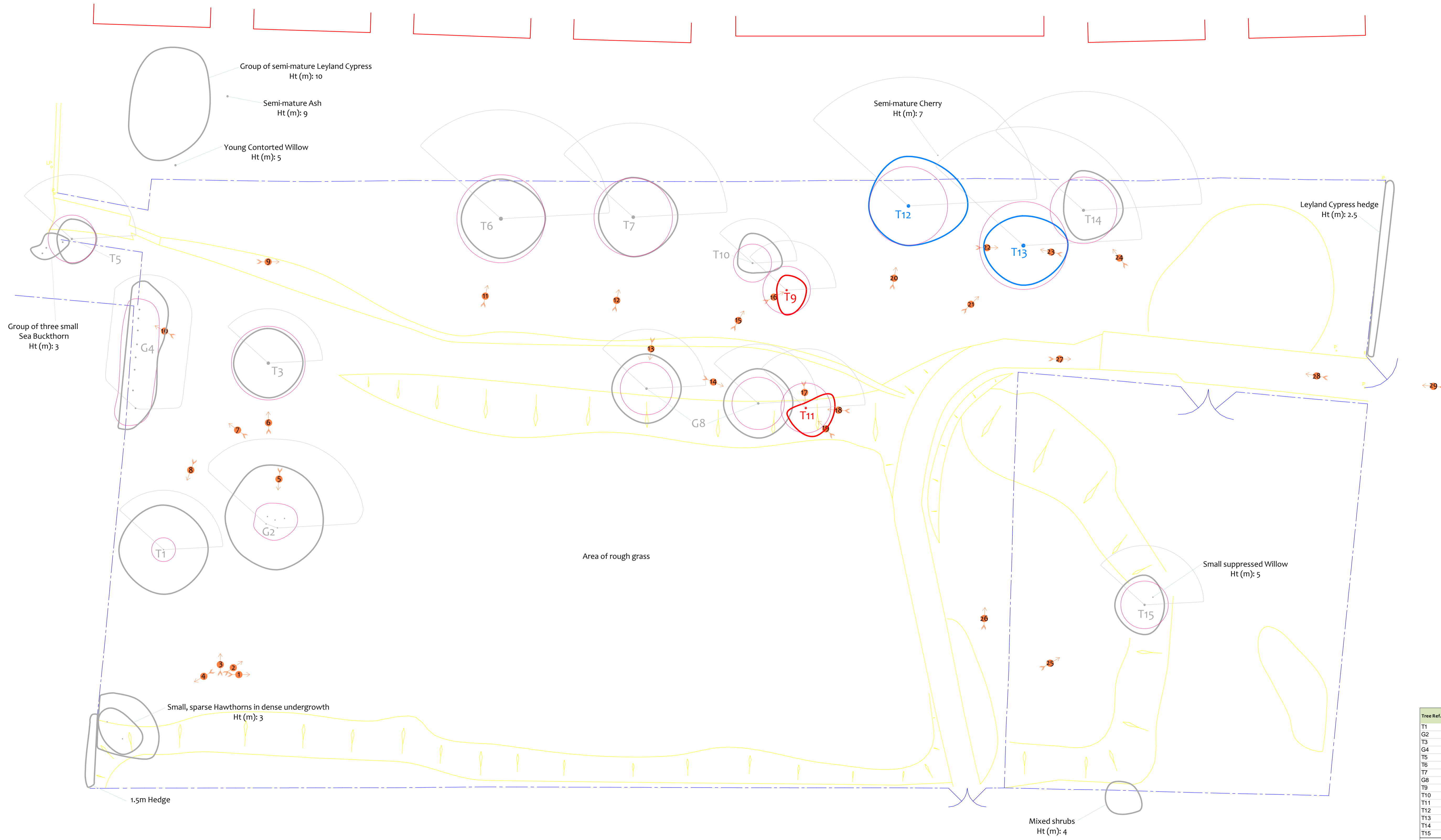
The Tree Council

Appendix 6: Site Plan(s)

The plan(s) referred to within the report follow this page.

Tree Constraints Plan

(Existing Layout)



Tree Ref.	Species	Height (m)	Root Protection Area		
			Radius (m)	m ²	Square (m)
T1	Willow	6	1.2	5	2.1
G2	Willow	8	1.2	5	2.1
T3	Hawthorn	5.5	3.7	43	6.6
G4	Hawthorn	4.5	1.7	9	3.0
T5	Oak	6.5	2.4	18	4.3
T6	Cherry	11	4.4	62	7.9
T7	Rowan	9.5	4.0	49	7.0
G8	Apple	6	2.6	22	4.7
T9	Apple	5	2.4	18	4.3
T10	Apple	4.5	1.9	12	3.4
T11	Rowan	6	2.5	20	4.5
T12	Red Oak	13	4.0	49	7.0
T13	Scots Pine	12	4.4	62	7.9
T14	Atlas Cedar	12	3.4	35	6.0
T15	Holly	6	2.4	18	4.3

BS 5837 Retention Categories

Category A:
Trees of high quality and amenity. Usually mature trees with a significant life expectancy which would enhance any development. Retention of these trees is strongly encouraged.

Category B:
Trees of moderate quality and amenity. Usually mature trees, or younger trees with exceptional form. Retention of these trees is desirable through the removal of occasional specimens may be acceptable.

Category C:
Trees of low quality and amenity. The removal of these trees should generally be seen as acceptable in order to facilitate development.

Category U:
Trees whose structural condition is such that they should be removed if development is to proceed.

CROWN
Arboricultural Consultants
01422 316660

Site: Sheerfen Close, Athersley, Barnsley S71 3NQ

Ref No: 08835

Revision: 1

Scale: 1:200

Paper Size: A1

BS 5837 Shade Pattern

BS 5837 Root Protection Area

T1 Tree number 1

G2 Group number 2

H3 Hedge number 3

Location of photo No 1

Stem & canopy of Category A tree

Stem & canopy of Category B tree

Stem & canopy of Category C tree

Stem & canopy of Category U tree

