

*C.B.E. Consulting*

BS5837: 2012 Tree Survey  
Land adjacent to Limestone Road  
Burniston  
Scarborough  
NGR TA 004 932

Survey by  
Christopher Barker CEnv dipHort AIEEM

 www.smasltd.com <small>site recognised by</small>  SAFETY SCHEMES IN PROCUREMENT	Report prepared by: C Barker	Date Issued: 07 November 2013 Report Version: V1
	Reviewed by: KLB	C B E Consulting Highbank, 5 Grantham Road, Navenby Lincoln. LN5 0JJ. Telephone (01522) 810086. www.cbeconsulting.co.uk
	Report ref: P552 /1113-01	

## **BS5837 Tree Survey, Land at Limestone Road, Burniston, Scarborough**

### **Contents**

1. Introduction
  - 1.1 Site Description and Location
  - 1.2 Neighboring land uses
2. Tree Survey Appraisal Methodology
  - 2.1 Survey Objectives
  - 2.2 Survey Methodology
  - 2.3 Trees
  - 2.4 Site Plan and Tree Schedules
  - 2.5 Root Protection Area
  - 2.6 Protected Species
3. Tree Survey Findings
  - 3.1 Survey Details
  - 3.2 Individual tree descriptions
4. Tree Management

### **Appendices**

Appendix 1 - Tree Survey Table

### **Figures**

Figure 1 – Site Location Plan  
Figure 2 – Aerial Context Photograph  
Figure 3A – Tree Plan South  
Figure 3B – Tree Plan North

## 1. Introduction

### 1.1 Site Description and Location

The site surveyed comprises an 'L' shaped area of gently sloping grazing land presently occupied by a small herd of sheep on the northern outskirts of Burniston at NGR TA004 932. The field is separated into two parts by an overgrown hedge and fencing. At the south end of the field, adjacent to Limestone Road, is a small bungalow and a number of stables, all of which are unoccupied. The location of the site is shown on the plan within **Figure 1** and an aerial photograph has been provided within **Figure 2** to place the site in context.

The site was originally inspected in September 2011 and a tree survey report to BS5837:2005 prepared. As a result of the time period that has elapsed since the original report and the issue of new survey and reporting guidelines within BS5837:2012 a new survey has been commissioned in order to facilitate an application to obtain permission to redevelop the site.

An re-inspection of the site and the immediate surrounding areas was carried out in October 2013. The findings of this inspection have been compared to the original survey of September 2011. A photographic record of key trees within the site and along the boundary areas is included within section 3.

**Figure 1: Location Plan** Copyright Microsoft Corporation 2013



### 1.2 Neighboring Land Uses

The land surrounding the site is part of a well established residential suburb on the northern edge of Burniston, near Scarborough. To the south, east and west of the field are existing residential houses with gardens that back onto the site area. To the north is a large landscaped garden containing a pond that is separated from the site by a well established line of coniferous trees.

There is open agricultural ground to the north and northwest that is a mixture of arable and pasture. The village of Burniston lies to the south and east and overall the location can be best described as urban fringe as can be seen in the aerial photograph below.

**Figure 2: Site Contextual Aerial Photograph** Copyright Microsoft Corporation 2013



## 2. Tree Survey Appraisal Methodology

### 2.1 Survey Objectives

This tree survey has been carried out with the objective of:

- Identifying the individual tree species present at the site by means of visual inspection;
- To define the approximate age, condition and canopy spread of all individual mature trees identified and the value of these within the development context;
- To identify any trees that present a risk to existing or proposed foundations or other structures that may be constructed on the site and recommend action to remove this risk; and
- Recommend tree management / mitigation measures where appropriate.

The survey took the form of an inspection of the site carried out in October 2013. The survey broadly assessed the condition and arboricultural value of the trees lying in or adjacent to the property, paying particular attention to any mature individual trees present within or adjacent to the site area, in order to prepare an assessment in accordance with BS5837 Trees in Relation to Design, Development and Construction (2012).

### 2.2 Survey Methodology

The methodology set out below is a detailed summary of the suggested approach to tree assessment as described in British Standard 5837:2012. This report has applied the methodology to all significant individual trees or groups of trees present at or near to the site. A plan of the site provided by the Architect has been used to prepare the Tree Location Plan within Section 3 of the report. This plan is approximately to scale but should not be used to measure off distances. Trees below 15 cm trunk diameter were generally excluded from the survey.

### 2.3 Trees

Trees have been broadly assessed based on guidance set out within the British Standard BS 5837:(2012) Trees in Relation to Design, Development and Construction. This standard provides recommendations and guidance on the principles to be applied to achieve successful integration of development with trees, shrubs and hedgerows. Where development is to occur, the standard provides guidance on the approach needed to decide which trees are appropriate for retention, and the means for protecting these trees during the development (including demolition and construction work) and the means of incorporating trees into the developed landscape.

Trees on the site have been divided into one of four categories (based on the cascade chart for tree quality assessment). These are classed as A, B, C or U (Section 4 of BS 5837) within the table in Appendix 1. This gives an indication as to the tree's importance in relation to the site, the local landscape and, also, the value and quality of the existing trees on site. This assists informal decisions concerning which trees should be removed or retained should development occur. For a tree to qualify under any given category it should fall within the scope of that category's definition (see below). Categories A, B and C cover trees that should be a material consideration in the development process, each with three further sub-categories (i, ii, iii) which are intended to reflect arboricultural, landscape and cultural (nature conservation) values.

Category U trees may have no significant landscape value but it is not presumed that there is any overriding need to remove these unless stated otherwise in the description and recommendations. They are for this reason not considered as being significant within the planning process. In assigning trees to the A, B or C categories, and the presence of any serious disease or tree-related hazard is taken into account. If the disease is considered fatal and/or irremediable, or likely to require sanitation for the protection of other trees it may be

categorised as U with a recommendation for work or even removal, even if they are otherwise of considerable value.

**Category (A):** Trees whose retention is most desirable and are of high quality and value. These trees are considered to be in such a condition as to be able to make a lasting contribution (a minimum of 40 years) and may comprise:

- (i) Trees which are particularly good examples of their species especially rare or unusual, or essential components of groups or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue);
- (ii) Trees, or groups of trees which provide a definite screening or softening effect to the locality in relation to views into or out of the site, or those of particular visual importance (e.g. avenues or other arboricultural features assessed as groups);
- (iii) Trees or groups of significant conservation, historical, commemorative or other value (e.g. Veteran or wood-pasture trees).

**Category (B):** Trees whose retention is considered desirable and are of moderate quality and value. These trees are considered to be in such a condition as to make a significant contribution (a minimum of 20 years) and may comprise:

- (i) Trees that might be included in the high category but because of their numbers or slightly impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage), are downgraded in favour of the best individuals;
- (ii) Trees present in numbers such that they form distinct landscape features and attract a higher collective rating than they would as individuals. Individually these trees are not essential components of formal or semi-formal arboricultural features, or trees situated mainly internally to the site and have little visual impact beyond the site;
- (iii) Trees with clearly identifiable conservation or other cultural benefits.

**Category (C):** Trees that could be retained and are considered to be of low quality and value. These trees are in an adequate condition to remain until new planting could be established (a minimum of ten years) or are young trees with a stem diameter below 150 mm and may comprise:

- (i) Trees not qualifying in higher categories;
- (ii) Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value and or trees offering low or only temporary screening benefit;
- (iii) Trees with very limited conservation or other cultural benefits.

**Category (U):** Trees that are considered to have no significant landscape value but it is not presumed that there is any overriding need to remove these unless stated otherwise in the description and recommendations. They are for this reason not considered as being significant within the planning process. These trees will be in such a condition that any existing value would be lost within 10 years and which should in the current context be ignored or removed for reasons of sound arboricultural management. Trees within this category are:

- (i) 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;
- (ii) Trees that are dead or are showing signs of significant, immediate or irreversible overall decline;
- (iii) 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.

Species have been recorded by common and scientific name. Height has been estimated in metres and stem diameter measured in centimetres unless impractical, taken at a height of 1.5 m from the base of the tree.

In the assessment particular consideration has been given to:

- (a) The health, vigour and condition of each tree;
- (b) The presence of any structural defects in each tree and its life expectancy;
- (c) The size and form of each tree and its suitability within the context of the proposed scheme;
- (d) The location of each tree relative to existing site features, e.g. its value as a screen or as a skyline feature.

Age class is assessed according to the age class categories referred to in BS 5837.

YNG: Young trees age less than 1/3 life expectancy.

SM: Middle age trees 1/3 – 2/3 life expectancy.

M: Mature trees over 2/3 life expectancy.

OM: Over mature – declining or moribund trees of low vigour.

The overall condition of any individual tree, or group of trees, has been referred to using one of the definitions listed below. A more detailed description of condition has been noted in the Tree Schedule.

**G Good:** A sound tree or trees needing little, if any, attention

**F Fair:** A tree or trees with minor but rectifiable defects or in the early stages of stress, from which it may recover

**P Poor:** A tree or trees with major structural and physiological defects or stressed such that it would be very expensive and inappropriate to retain

**D Dead:** A tree or trees no longer alive. However, this could also apply to those trees that are dying and will be unlikely to recover, or are becoming or have become dangerous

Major defects or diseases and relevant observations have also been recorded. Dead wood has been defined as the following:

Twigs and small branch material	Up to 5 cm in diameter
Minor dead wood	5 cm to 10 cm in diameter
Major dead wood	10 cm in diameter and above

The survey was completed from ground level only. Aerial inspections were not undertaken. Evaluations of tree conditions given within this assessment apply to the date of survey and cannot be assumed to remain unchanged, and it may be necessary to review these within 24 months, in accordance with good arboricultural practice.

#### 2.4 Site Plans & Tree schedules

The position of significant individual trees or groups of trees is shown on the Tree Location Plans within Section 3. As a proposed development plan has not been provided a Constraints Plan has not been prepared at the present time. A summary table providing detailed information on the trees and tree groups is included in Appendix 1. Within the summary table maximum RPA's (m<sup>2</sup>) for estimated tree diameters have been included where appropriate, as well as a calculated corresponding radius of the circle for that RPA. The Root Protection Areas are formulated as described below and assist when designing layouts in relation to trees.

#### 2.5 Root Protection Area (RPA)

Below ground constraints to development are represented by the root plate around a tree which needs protecting in order for the tree to be incorporated into a proposed scheme, without adverse harm to the tree or structural integrity of any proposed foundation structures.

This area is illustrated by the Root Protection Area (RPA) and is calculated according to the formula set out in BS 5837 (2012) clause 4.6.1.

<p><b>Single Stem Trees:</b></p> <p><b>RPA (m<sup>2</sup>) = (stem diameter (mm) x 12 / 1000) <sup>2</sup> x 3.142</b></p> <p><b>Multiple Stem Trees:</b></p> <p><b>RPA (m<sup>2</sup>) = (combined stem diameters (mm) x 12 / 1000) <sup>2</sup> x 3.142</b></p> <p>This figure should be capped to 707 m<sup>2</sup>, that is, equivalent to a circle with a radius of 15 m, or a square with approximately 26 m sides</p>
--

Taken from BS5837 (2012) clause 4.6.1.

## 2.6 Potential for Protected Species

Potential bat roost locations are described within this report using the methodology as that recommended by the Bat Conservation Trust (BCT). Each tree of significant size assessed within this survey has also been assessed for the potential to provide roosts for bats and the table in Appendix 1 includes reference to this.

Potential	Field Signs
<b>Roost</b> confirmed	Confirmed bat roost in tree. Field evidence past or current presence of bats confirmed by droppings, staining or flight.
<b>High</b> roost potential	Splits or cracks in major limbs which develop upwards, smooth surfaces around potential entry points, dense ivy covering, woodpecker / rot holes, significant lifting bark, Artificial bat boxes. Ancient or over mature trees where the canopy cannot be fully inspected from the ground.
<b>Medium</b> roost potential	Some splits in branches, dense ivy covering, and small cavities visible, dense epicormic growth. Flies may be present around a potential entry point.
<b>Low</b> roost potential	Splits may be present in minor branches, sparse ivy cover, and some loose bark evident. Young healthy trees with good visibility to the canopy top.
<b>No</b> roost potential	Tree with a negligible potential to support bat roosts (not supporting any of the above features).

### 3 Tree Survey Findings

#### 3.1 Survey Details

The tree inspection took the form of a walkover inspection completed by Christopher Barker dipHort, CEnv in October 2013, following an earlier inspection in September 2011. Each individual semi-mature or mature tree of significance that could be impacted by the proposed redevelopment was identified and visually inspected and classified. The trees identified during the survey of the site have been individually noted and identified within this report and are shown in the two site plans within Section 3.2. The character of the site is shown within photographs contained within **Appendix 2**.

A total of twenty individual trees (T1 –T20) and six tree groups (TG1 – TG6) have been identified and assessed as part of the tree survey and each is described and assessed within the Tree Schedule within **Appendix 1**. The locations of the individual trees and tree groups are shown on the site plans within section of 3.2 below.

#### 3.2 Mature and Semi-mature Trees at the site and surrounding area

The trees that have been surveyed lie along the boundaries of the site with a small number present within an internal hedgerow that divides the area into two fields. Some of the trees are located on the boundary lines and the ownership of these is uncertain. There are few trees within the central areas of the site. No indication of any Tree Preservation Order (TPO) was seen during the survey such as a number tag or notation and the site does not lie in a Conservation Area.

##### 3.2.1 Trees along Limestone Road

The south boundary of the site running along Limestone Road is dominated by a line of trees of which some large Cypress (T1, T7 and T10) are the most significant in size and visual impact. These large trees visually dominate the road side and provide visual amenity and screening to the properties facing Limestone Road. These, due to their landscape significance, have all been placed within Category A and recommended for retention within any development proposals that may be put forward. Rather lost between the Cypress are some smaller Pine with high canopies and Cherry trees (T5, T6, T8-9 and T11-12), none of which are of significant size or stature. All of these trees are suppressed to variable extent by the larger Cypress but they do provide lower canopy screening along the road side. There is a well-shaped and visually attractive Weeping Ash (T2) in the garden of the bungalow that is recommended for retention if practical within any development proposal. In the south west corner at the junction of Limestone Road and a property access track in a group of Beech (T4) and a single dominant Ash (T3). The Beech trees are being suppressed by the Ash and adjacent Cypress and should be removed to make canopy space.



Trees along Limestone Road



Trees along Limestone Road

### 3.2.2 South West Boundary trees

Running along the edge of the track forming the west boundary of the site is a line of Pine (TG1) within which there are occasional Rowan, Birch and Ash trees. These trees appear to be outside of the site within the adjacent property. This line of mature and semi-mature trees is of considerable landscape significance and they form an excellent boundary screen and provide canopy cover and visual amenity to the site boundary. These trees should be protected from any impact if the site is to be developed by the provision of fencing along this boundary.

At the northern end of this line of trees is a single, significant Ash (T20). This tree is over-mature and was noted in September 2011 as "showing signs of decline". As can be seen in the photograph below, this tree has now dropped a large section of the west canopy and has become very unbalanced and unsightly. Originally, canopy reduction was recommended for this Ash but it is now recommended that the eastern section of the canopy extending over the site boundary should be pollarded to remove risk of further branch fall. An inspection for nesting birds and roosting bats is recommended before any work that has been approved takes place.



Ash T20, partial collapse Oct 2013



TG1 to the rear of stables



Oak T14



Ash T20 pictured in September 2011

### 3.2.3 Trees opposite Ashdown Rise

There is a small group of trees identified as TG2 providing dense screening to nearby properties. These require trimming back to improve shape and improve the screening qualities along this boundary. In addition, there is the remnant of a hedgerow comprising out-grown Elder, Crab Apple and Hawthorn running across the centre of the site, dividing the site into two fields and within this is a single specimen Oak (T14) that is of good quality and worth retaining if possible within any proposed development. Whilst not of large size or significant stature, this tree has sufficient height and landscape impact to provide a significant landscape benefit from the outset if included within any development area. None of the other small trees in this area are of significance in quality or stature.

### 3.2.4 Northern and North East Boundary

The northern boundary of the site is well screened by a dense plantation of Leyland Cypress within which are occasional Hawthorn, Rowan, Elder and Ash. This line of dense coniferous trees divides the site from the gardens to the north. None of the broad-leaved trees within this tree screen are of significant size. The Cypress trees are located on the boundary with land adjacent to the site but they are probably within the site boundary and protection of the RPA's will be required if these are retained as recommended. Within the rear gardens of properties in the north east corner of the site are a number of Cypress and small broad-leaved trees identified as T15 –T17 on the plan. These trees are located outside of the site area and the canopies do not extend over the boundary.

The boundary running along the top of 'The Lines' and 'Ashdown Rise' in the northern part of the site area is a continuation of the hedgerow that divides the site internally and comprises predominantly out-grown Hawthorn and Elder. In one area a thicket of Goat Willow and Hawthorn have established and extended some distance into the site area (TG5).

There is one significant individual tree dominating this boundary. Alder (T19) lies on the boundary of a residential garden. The line of the garden fence would appear to position the tree within the area being surveyed but this cannot be guaranteed. The canopy of this tree is extensive and extends 7 -8 metres over the site area. This is a large example of Alder and is nearing senility. However, the impact of this tree is significant and it contains features of ecological interest. It is recommended that the Ivy which is beginning to choke the lower trunk and lower canopy should be removed and consideration is given to minor works to reduce the stress on this tree improve its shape. Such works would extend the life of the tree



Cypress TG4



Trees T15/T16



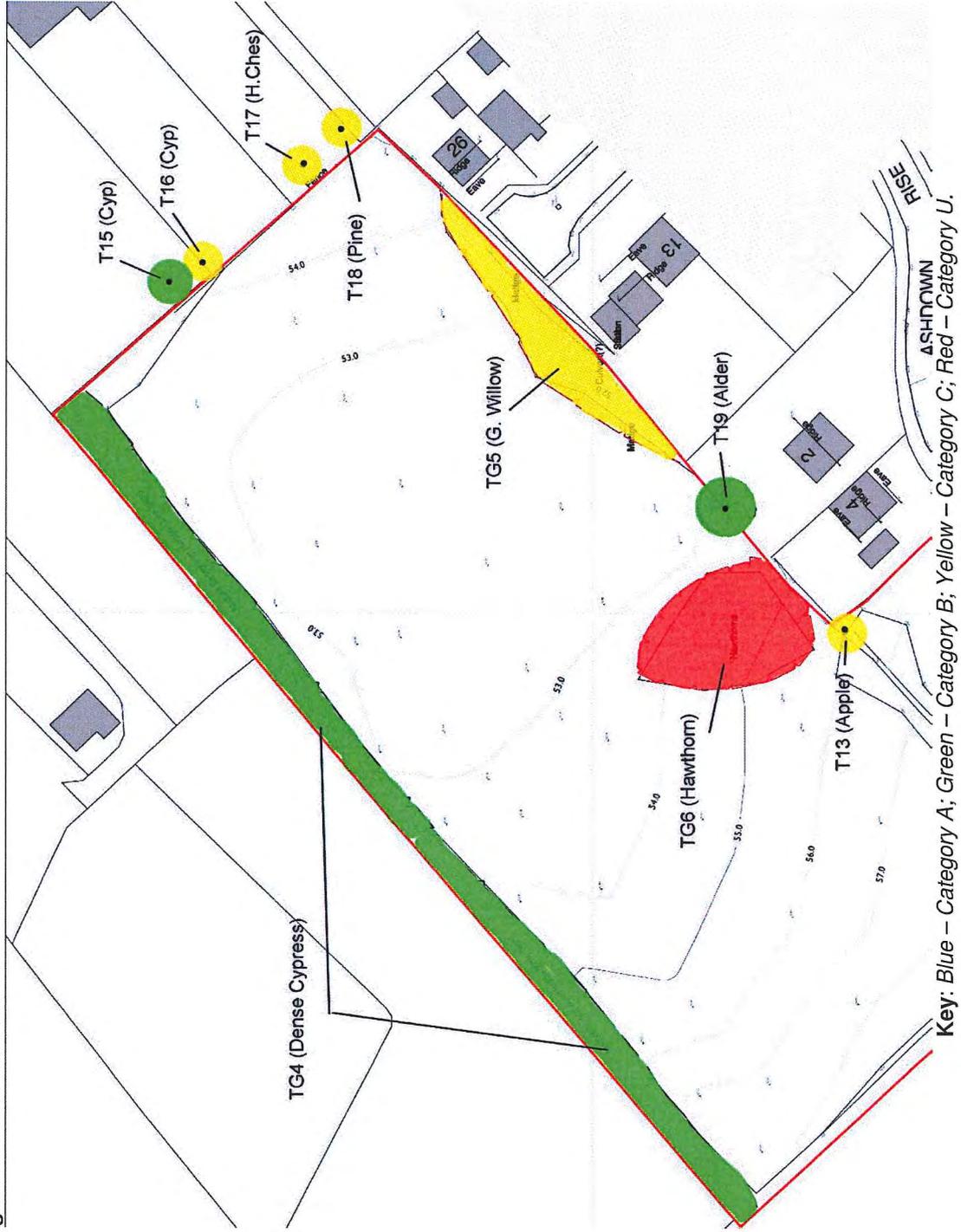
Alder T 19



Scrub Woodland TG5



Figure 3B: Tree Plan North



#### 4 Tree Management

Within or adjacent to the site area surveyed there are a number of significant trees that have been identified for, or recommended for work or for removal. The majority of the trees are positioned on or just outside of the site boundaries and some pruning back or lopping may be required. All of the trees have been assessed for potential presence of protected species, specifically bats. Two of the trees, Alder T19 and Ash T20 that have been recommended for retention but identified as potentially benefitting from canopy reduction, appear to have some potential to provide roost locations and therefore further assessment will be required if any such work is proposed. No nests were visible in these trees at the time of the survey and no physical evidence of roosting bats was found. Some boundary trees have been recommended for removal where the canopies are very crowded.

Summary table of proposed works

Tree	Category	Recommendation
T1: CYPRESS ( <i>Chamaecyparis Lawsoniana</i> )	A2	Retain. Provide protection fencing to BS5837.
T2: ASH ( <i>Fraxinus excelsior pendula</i> )	B2	Retain. Provide protection fencing to BS5837.
T3: ASH ( <i>Fraxinus excelsior</i> )	B2	Retain. Provide protection fencing to BS5837.
T4: 3 X BEECH ( <i>Fagus sylvatica</i> )	C2	Consider removing due to poor quality.
T5: PINE ( <i>Pinus sylvestris</i> )	C2	Retain. Provide protection fencing to BS5837.
T6: CHERRY ( <i>Prunus avium</i> )	C2	Poor quality. Consider removing.
T7: CYPRESS ( <i>Chamaecyparis Lawsoniana</i> )	A2	Retain. Provide protection fencing to BS5837.
T8: PINE ( <i>Pinus sylvestris</i> )	U	Consider removing to make canopy space.
T9: PINE ( <i>Pinus sylvestris</i> )	C2	Retain. Provide protection fencing to BS5837.
T10: CYPRESS ( <i>Chamaecyparis Lawsoniana</i> )	A2	Retain. Provide protection fencing to BS5837.
T11: PINE ( <i>Pinus sylvestris</i> )	B2	Retain. Provide protection fencing to BS5837.
T12: PINE ( <i>Pinus sylvestris</i> )	B2	Retain. Provide protection fencing to BS5837.
T13: CRAB APPLE ( <i>Malus sylvestris domestica</i> )	C2	Retain. Provide protection fencing to BS5837.
T14: OAK ( <i>Quercus petraea</i> )	B2	Retain. Provide protection fencing to BS5837.
T15: CYPRESS ( <i>Chamaecyparis Golden var</i> )	B2	Retain. Provide protection fencing to BS5837.
T16: CYPRESS ( <i>Chamaecyparis Leylandii</i> )	C2	Retain. Provide protection fencing to BS5837.
T17: HORSE CHESTNUT ( <i>Aesculus hippocastenum</i> )	C2	Retain. Provide protection fencing to BS5837.
T18: PINE ( <i>Pinus sylvestris</i> )	C2	Retain. Provide protection fencing to BS5837.
T19: ALDER ( <i>Alnus glutinosa</i> )	B2	Retain. Remove ivy and trim back canopy if necessary. Provide protection fencing to BS5837.
T20: ASH ( <i>Fraxinus excelsior</i> )	C2	Consider pollarding canopy to balance up tree or remove entirely if permitted.
TG1: PINE ( <i>Pinus sylvestris</i> )	B2	Retain. Provide protection fencing to BS5837.
TG2: Mixed broadleaf	B2	Retain but trim back canopy to tidy. Provide protection fencing to BS5837.
TG3: CRAB APPLE and HAWTHORN ( <i>Malus and Crataegus</i> )	C2	Remove or trim back to improve shape.
TG4: CYPRESS ( <i>Chamaecyparis Leylandii</i> )	C2	Retain. Provide protection fencing to BS5837.

TG5: Mixed Broadleaf	C2	Remove if necessary otherwise trim to tidy and provide protection fencing to BS5837.
TG6: HAWTHORN ( <i>Crataegus monogyna</i> )	C2	Remove if necessary otherwise trim to tidy and provide protection fencing to BS5837.

4.1 Any retained trees and woodland areas will need to be adequately protected during any approved works. Measures to protect these should follow the best practice principles set out in BS5837: Trees in Relation to Construction Recommendations (2005). Prior to any construction or development work proceeding, the RPA's of individual trees to be retained should be marked out using the distances provided in the table within **Appendix 1**. Marking out should be completed by a person with arboricultural or horticultural expertise as individual trees will have root zones that may be affected by local conditions and allowances will need to be made to accommodate this. The best practice principles have been broadly summarised below.

- All trees retained adjacent to the site should be protected by barriers or ground protection around the calculated Root Protection Area (RPA) and as indicated on any Tree Constraints Plan (TCP) that may be produced in association with the assessment (Clauses 5 and 7 of BS5837).
- Fencing should be erected prior to commencement of construction and before demolition including erection of any temporary structures. Once set up fences should not be removed or altered without prior consultation with the arboricultural advisor.
- Arrangements should be made for an arboriculturist to supervise works and tree protection where trees are particularly vulnerable or sited close to access points.
- Pre-development works may be undertaken prior to the installation of fencing with the agreement of the local planning authority.
- All tree works should follow best practice procedures as set out in BS 3998 (2010). All trees should be maintained in good condition on site and be inspected annually (where overall condition requires) or every 2 years and after any major storm events, with safety a priority.
- Fencing should be clearly visible and suitable for the location, type and proximity of construction activity.
- It may be appropriate on some sites to use temporary site offices as components of the protection barriers.
- Where it has been agreed and shown on a TPP, construction access may take place within the RPA if suitable ground protection measures are in place. This may comprise single scaffold boards over a compressible layer laid onto geo-textile materials for pedestrian movements. Vehicular movements over the RPA will require the calculation of expected loading and may require the use of proprietary protection systems.
- Once areas around trees have been protected by fencing, any works on the remaining site area may be commenced providing activities do not impinge on protected areas. Notices should be placed on fencing to indicate that operations are not permitted within the fenced area.
- Wide or tall loads etc should not come into contact with retained trees. Banksman should supervise transit of vehicles, jibs, booms etc where this is in close proximity to retained trees.
- Oil, bitumen, cement or other material that is potentially injurious to trees should not be stacked or discharged within 10m of a tree bole. No concrete mixing should be

done within 10m of a tree. Allowance should be made for the slope of ground to prevent materials running towards the tree.

- No fires will be lit where flames are anticipated to extend to within 5m of tree foliage, branches or trunk, taking into consideration wind direction and size of fire.
  - Notice boards, telephone cables or other services should not be attached to any part of a retained tree.
  - Where it is deemed necessary to operate a wide or tall load, plant bearing booms, jibs and counterweights or other such equipment, as part of construction works, and such equipment would have potential to cause injurious contact with crown material i.e. low branches and limbs, of retained trees within the RPA fencing, it is best advised that appropriate, but limited tree surgery, be carried out beforehand to remove any obvious problem branches. This is classed as 'Facilitation Pruning', BS 5837 (2005) 9.4.2 and 11.2.1. Any such pruning should be undertaken in accordance with a specification prepared by an arboriculturalist.
  - It is advised that a Pre-Commencement Site Meeting is held with contractors who are responsible for operating machinery, as described above. To firstly highlight the potential for damage occurring to tree crowns and to ensure that extra care is applied when manoeuvring machinery during such operations within close proximity to retained trees to avoid any contact.
  - In the event of having caused any such branch or limb damage to retained trees it is strongly recommended that suitable tree surgery be carried out, in accordance with BS 3998 (2010) Recommendations for Tree Work, to correct the damage, upon completion of development.
  - All of the above precautionary measures should be applied to minimise the effect of any damage to long-term tree health and safety.
- 4.2 It is also recommended that if any significant pruning or lopping works are to be carried out during the nesting or roosting season that the trees should be inspected by an ecologist prior to any work commencing.

Christopher Barker dipHort AIEEM

## Appendix 1: Tree Schedule

Key:	Measurements	Age – Class	Overall Condition	BS 5837 2005 : Cascade Chart for Quality Assessment/Retention Category	Symbols:
	MS – Multi-stemmed	YNG-MAT-Young Mature	G – Good	A – High	< = less than
	Ht – Height in metres	SM – Semi-mature	F – Fair	B – Moderate	~ = approximately
	Stem – Stem Diameter at 1.5m in mm	Mat – Mature	P – Poor	C – Low	> = greater than
	Crown – Crown spread in metres	OM – Over mature	D – Dead	R – Trees for Removal	
	TD - Trunk division (height in metres)	<b>Est Yrs</b> – estimate of years remaining (>40 years; 20 –40 years; <20 years)		<b>Sub-categories:</b> 1 = mainly arboricultural values 2 = mainly landscape values 3 = mainly cultural values.	

RPA = Root protection area (equivalent to a circle with a radius 12 x the stem diameter for single stem trees and 10 x the basal diameter for trees with more than one stem arising below 1.5m above ground level).

Tree No	Species	Ht (m)	Stem Diam cm@ 1.5m	Canopy Spread (m)	Height of Crown Clearance	Age Class	Est yrs	Overall Condition	Structural condition	Recommendations	BS 5837 Category	RPA (m <sup>2</sup> )	RPA Radius (m)
T1	CYPRESS ( <i>Chamaecyparis sp poss Lawsoniana</i> )	22	86	N-7 S-7 E-8 W-6	>5	M	20 - 40	G	Large visually dominant tree located along the edge of the site adjacent to Limestone Way. One of a line of mature Cypress in this location. Single trunk becomes multi-stemmed from 4m agl supporting an extensive well balanced canopy with all lower branches removed. Minor dead wood visible. No structural defects evident. No indication from ground level of nesting birds or suitable bat roost opportunities at the time of the survey.	Located on the boundary. Significant visual landscape feature in this location. PROTECT AND RETAIN.	A2	333	10.3
T2 -	ASH ( <i>Fraxinus excelsior pendula</i> )	9	38	N- 4 S- 5 E- 5 W-4	0	SM	20 – 40	G	Single trunk divides into 3 at 3m agl. Weeping canopy shape. Power line crossing through canopy. Hangs over adjacent path by 1.5m. No structural defects, nests of roost opportunities evident.	Located on the site boundary. Fairly significant visual landscape feature in this location. PROTECT AND RETAIN.	B2	63	4.5
T3	ASH ( <i>Fraxinus excelsior</i> )	18	52	N- 6 S- 7 E- 5 W-7	>5	M	20 - 40	G	Large visually dominant tree is adjacent land. Single trunk supporting a broad-headed canopy with lower branches removed on the south side. No structural defects, nests of roost opportunities evident.	Located outside the site but close to the boundary. PROTECT	B2	120	6.2

Tree No	Species	Ht (m)	Stem Diam cm@ 1.5m	Canopy Spread (m)	Height of Crown Clearance	Age Class	Est yrs	Overall Condition	Structural condition	Recommendations	BS 5837 Category	RPA (m <sup>2</sup> )	RPA Radius (m)
T4	3 X BEECH ( <i>Fagus sylvatica</i> )	10	20 - 54	N-4 S-3 E-5 W-4	2	SM	20 - 40	F	Group of three Beech close together with canopies merging into a single structure. All on edge of track and suppressed by T1. Poor shape and development. No nests of roost opportunities evident.	Located on the site boundary. Consider removal to provide canopy space for T1	C2	128	6.4
T5	PINE ( <i>Pinus sylvestris</i> )	10	21	N-2 S-2 E-2 W-2	>5	Y	<20	P	Single trunk supporting a high 'floating' canopy dominated by adjacent T1 and T7 No structural defects. nests of roost opportunities evident.	Located on the site boundary. Consider retaining if practical	C2	19	2.5
T6	CHERRY ( <i>Prunus avium</i> )	7	25	N-3 S-2 E-1 W-4	2	Y	<20	P	Sub dominant under-canopy tree on site boundary. Single trunk divides at 1m agl into 5 leaders support a poorly developed canopy.	Located on the site boundary. Retain if practical or remove to make space for better quality trees	C2	28	3.0
T7	CYPRESS ( <i>Chamaecyparis sp poss Lawsoniana</i> )	19	83	N-7 S-7 E-4 W-6	>5	M	>40	G	Large visually dominant tree with a single trunk dividing into 3 leaders at 3.5m agl. Balanced canopy with minor lower branches removed on south side. Provides good screening. No structural defects, nests of roost opportunities evident.	Protect and Retain for screening	A2	307	9.9
T8	PINE ( <i>Pinus sylvestris</i> )	13	30	N-0 S-7 E-3 W-1	>5	SM	<20	P	Single trunk leaning to the south due to competition. High canopy poorly shaped.	Consider removal as tree is leaning over path	U	n/a	n/a
T9	PINE ( <i>Pinus sylvestris</i> )	15	31	N-3 S-3 E-1 W-2	>5	SM	<20	P	Single trunk supporting a high floating canopy suppressed by T10.	Retain if practical or remove to make canopy space.	C2	43	3.7

Tree No	Species	Ht (m)	Stem Diam.cm@ 1.5m	Canopy Spread (m)	Height of Crown Clearance	Age Class	Est yrs	Overall Condition	Structural condition	Recommendations	BS 5837 Category	RPA (m <sup>2</sup> )	RPA Radius (m)
T10	CYPRESS ( <i>Chamaecyparis sp</i> poss <i>Lawsoniana</i> )	20	77	N-7 S-8 E-6 W-5	>5	M	20 - 40	G	Large visually prominent tree with single trunk becoming multi-stemmed from 2.5m agl. Minor dead wood in lower canopy. Small suppressed Plum underneath.	Retain for visual amenity and screening	A2	265	9.2
T11	PINE ( <i>Pinus sylvestris</i> )	9	42	N-4 S-3 E-3 W-3	>5	SM	20 - 40	F	Single trunk supporting a high but reasonable well balanced open canopy.	Retain if practical for visual amenity	B2	78	5.0
T12	PINE ( <i>Pinus sylvestris</i> )	14	46	N-4 S-4 E-5 W-3	4	SM	20 - 40	G	Single trunk supporting a high but reasonable well balanced open canopy.	Retain if practical for visual amenity	B2	95	5.5
T13	CRAB APPLE ( <i>Malus sylvestris domestica</i> )	8	48@gl	N-3 S-3 E-3 W-3	1	SM	20 - 40	F	Small crab apple on the corner of the internal hedgerow. Not visually dominant but provides useful screening to nearby residential house. Multi-stemmed coppice from ground level with five trunks of 15 – 25cm diameter.	Consider retaining if practical of replace with new planting	C2	72	4.8
T14	OAK ( <i>Quercus petraea</i> )	18	46	N-6 S-8 E-8 W-7	1	SM	>40	G	Excellent specimen within the internal hedgerow boundary. Single trunk supporting balanced, open canopy and a dense crown. No obvious structural faults or nest / roosting potential at the time of the survey.	Retain if possible for landscape visual amenity	B2	95	5.5
T15	CYPRESS ( <i>Chamaecyparis sp</i> ) Golden var	15	40@gl	N-2 S-2 E-2 W-2	0	SM	20 - 40	G	Single trunk supporting a columnar canopy in land adjacent to the site. Canopy does not extend into the site area.	Protect from impact	B2	50	4.0
T16	CYPRESS ( <i>Chamaecyparis Leylandii</i> )	9	30@gl	N-2 S-2 E-2 W-2	0	SM	20 - 40	G	End tree in a line of Leylandii within adjacent land. Compact columnar canopy.	Protect from any impact	C2	28	3.0

Tree No	Species	Ht (m)	Stem Diam cm@ 1.5m	Canopy Spread (m)	Height of Crown Clearance	Age Class	Est yrs	Overall Condition	Structural condition	Recommendations	BS 5837 Category	RPA (m <sup>2</sup> )	RPA Radius (m)
T17	HORSE CHESTNUT ( <i>Aesculus hippocastanum</i> )	8	30 approx	N-3 S-3 E-4 W-3	2	SM	>40	F	Small trimmed canopy on single trunk in land adjacent to the site. Canopy does not extend over the site boundary.	Protect from any impact	C2	40	3.6
T18	PINE ( <i>Pinus sylvestris</i> )	6	30 approx	N-1 S-2 E-1 W-4	0	SM	<20	P	Canopy entirely removed on east side making the canopy unbalanced and the tree rather unsightly. Located in land adjacent to the site.	Protect from any impact	C2	40	3.6
T19	ALDER ( <i>Alnus glutinosa</i> )	17	120@gl	N-7 S-7 E-8 W-7	>5	OM	20	F	Visually dominant landscape tree located on site boundary providing screening to adjacent properties. Four trunks each of 30-40cm diameter supporting an extensive broad-headed, open canopy with reasonable shape and balance. Significant potential for nest and roosting opportunities. Ivy is heavily encroaching trunk and lower canopy areas.	Retain for visual amenity and ecological reasons. Consider removing Ivy	B2	452	12.0
T20	ASH ( <i>Fraxinus excelsior</i> )	25	77	N-10 S-11 E-11 W-10	0	OM	10	P	Originally a large visually dominant tree with extensive broad-headed open crown on site boundary. This tree has now lost a large part of the western canopy and is noticeably deteriorating. Main trunk divides at 3m agl. Canopy extremities reaching down to ground level on the east side with some significant canopy die-back evident, presumably due to age. Significant dead wood in places. No obvious indications of roosting places.	This tree is in obvious decline. Consider crown reduction on the eastern side by pollarding.	C2	265	9.2
TG1	PINE ( <i>Pinus sylvestris</i> )	10 - 16	20 -45	Varies up to 4m	2	SM	20 - 40	G	Line of Pine trees running along adjacent track. Visually prominent and providing good screening. All of similar size and stature.	Protect and Retain	B2	n/a	5.4
TG2	Mixed broadleaf	8 -14	<15 - 35	Varies up to 3m	0	Y/SM	20 - 40	F	Group of closely planted small trees with joined canopies along the east boundary. Provides screening to adjacent houses. Dominated by Ash, Crab Apple and juvenile Sycamore with some Hawthorn.	Protect and retain. Consider minor trimming to tidy canopy hanging over the site boundary.	B2	n/a	4.2

Tree No	Species	Ht (m)	Stem Diam cm@ 1.5m	Canopy Spread (m)	Height of Crown Clearance	Age Class	Est yrs	Overall Condition	Structural condition	Recommendations	BS 5837 Category	RPA (m <sup>2</sup> )	RPA Radius (m)
TG3	CRAB APPLE and HAWTHORN ( <i>Malus and Crataegus</i> )	10	Up to 40	Varies up to 4m	1	SM	20 - 40	F	Small group of overgrown Hawthorn with Crab Apple. No significant visual impact. No nests or roost opportunities at time of survey.	Consider removing or trimming back	C2	n/a	4.8
TG4	CYPRESS ( <i>Chamaecyparis Leylandii</i> )	6 - 9	Up to 35	Varies up to 3m	0	SM	20 - 40	G	Line of Cypress established outside of the north boundary. Provides excellent screening from the north	Protect from impact	C2	n/a	4.2
TG5	Mixed Broadleaf	5 - 8	Up to 30	Varies up to 4m	0	M /OM	<20	P	Dense self-sett Goat Willow with occasional Hawthorn and juvenile Ash encroaching into the site in a slight depression. No individual tree of significant quality. No nests or roost opportunities.	Consider removing if necessary	C2	n/a	3.6
TG6	HAWTHORN ( <i>Crataegus monogyna</i> )	6	15 -25	Varies up to 4m	0	SM	20 - 40	F	Group of over-grown Hawthorn on the site boundary. Single 9m tall Ash with a diameter of 23cm is just beginning to dominate.	Requires trimming back or removing entirely.	C2	n/a	3.0