C.B.E. Consulting
Arboricultural Surveys to BS5837

BS5837:2012 Tree Survey
Garden at Keepers Cottage
Far End
Boothby Graffoe
Lincolnshire
NGR SK98202 59371

Survey by
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smas worksafe consultant www.smasltd.com as recognised by SSIP SAFETY SCHEMES IN PROCUREMENT	Report prepared by: C Barker	Date Issued: 20 February 2024
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BS5837 Tree Survey, Land

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1. Introduction

1.1 Site Description and Location

The site surveyed comprises part of a garden at Keepers Cottage, Far End, Boothby Graffoe, centred at NGR SK 98202 59371. 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 lies within North Kesteven and within the designated Boothby Graffoe Conservation Area. Any works to the trees within the area surveyed will require written approval from North Kesteven District Council.

In order to facilitate an application to obtain permission to develop the area surveyed the Applicant has requested a BS5837 (2012) Tree Survey should be completed to assess the quality of the trees within and close to the boundary of the field and the impact any development may have on these. An inspection of the site was completed on 22 January 2024. A photographic record of the trees at the site is included within the report.

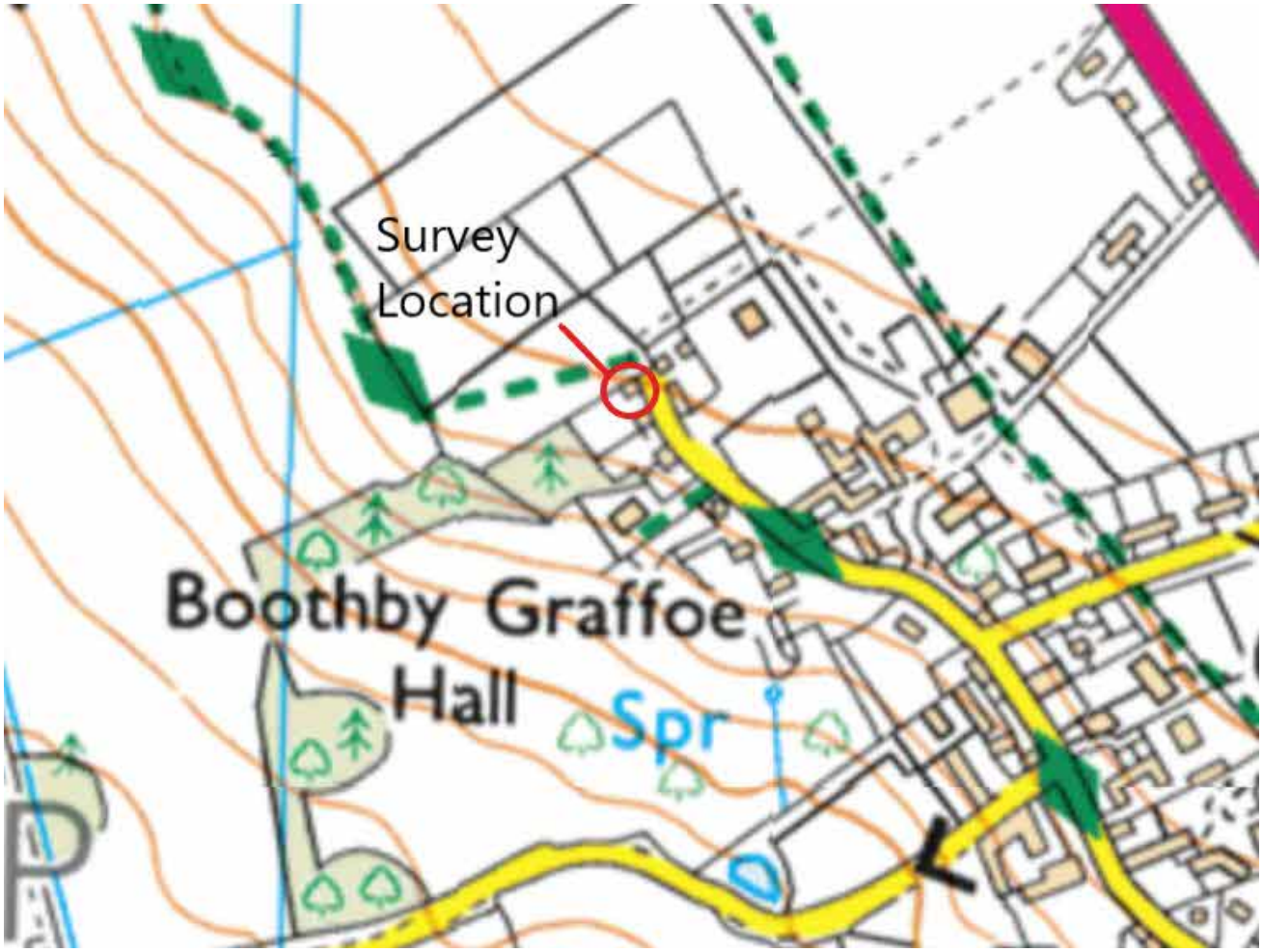


Figure 1: Site location.

1.2 Neighbouring Land Uses

The defined site area comprises part of a residential garden lying on the north western edge of the village of Boothby Graffoe. There is open agricultural land used primarily for arable production to the north, the garden which contains significant woodland extends to the west. To the south and east are residential houses and gardens. A contextual aerial photograph is provided below.

Figure 2: Site Contextual Aerial Photograph

In undertaking the tree survey the assessment has been carried out in accordance with the specifications contained within BS 5837 Trees in Relation to Design, Development and Construction (2012). An inspection of the site and the immediate surrounding areas was completed by Christopher Barker, dipHort, CEnv, an experienced arboricultural consultant and licensed bat worker.

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 and semi-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 broadly assessed the condition and arboricultural value of the trees lying in or adjacent to the site area, paying attention to any mature individual trees present within or adjacent to the site area in order to prepare an assessment in accordance with BS 5837 Trees in Relation to Design, Development and Construction (2012).

2.2 Survey Methodology

The methodology set out below is a summary of the suggested approach to tree assessment as described in British Standard 5837:2012.

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.

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.

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).

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).

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.

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. These include any trees in such poor condition that they cannot be retained in the context of current land use for more than 10 years. They are for this reason not considered as being significant within the planning process.

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.

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

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.

2.3 Site Plans & Tree schedules

The position of significant individual trees and tree group measured out on the site is shown on the Tree Location Plan **Figure 3**. Within the summary table at **Appendix 1** a calculated corresponding radius of the circle for each RPA has been calculated. The Root Protection Areas are formulated to assist when designing layouts in relation to trees and the calculated RPA's in Appendix 1 should be used to inform the design layout of this site. The extent of the RPAs and the proposed protection measures are shown within **Figure 4.**

3. Tree Survey Findings

3.1 Survey Details

The tree inspection took the form of a walkover inspection completed by Christopher Barker dipHort, CEnv. Each individual semi-mature or mature tree of significance that could be impacted by any proposed new development within the survey area was identified, visually inspected and classified. The character of the trees at the site is shown in photographs contained within this section.

3.2 Mature and Semi-Mature Trees

A total of six individual trees and one tree group have been identified and assessed as part of the tree survey.

T1 is a Silk Tassel Bush, this grows into a small tree and this is positioned on the south side of the existing access. The canopy of this tree has been trimmed on the north side to avoid it becoming a constraint to the access. This small tree has been placed into Category C2.

Group G2 is a tightly trimmed and shaped Leylandii screen close to the south western corner of the existing building and **Cooking Apple T3** is positioned close to this group, to the south, at the edge of the existing driveway. Both are placed within Category C2.

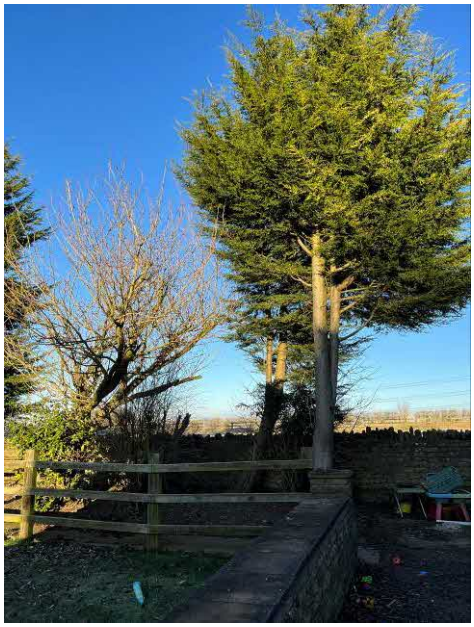
Silk Tassel T1

Leylandii G2 (right) and Apple T3 (left)

Trees T4 and T5 are Leylandii situated 6m from the west gable end of the existing building. Both trees have been crown lifted and have negligible low canopy to provide screening as a result. The RPA of T4 is significantly encroached by an existing concrete pad and hardstanding lying between the tree and the existing building. It is unlikely there has been any significant root developed on the eastern side of the tree under the concrete pad. Both trees are placed within Category C2.

Further to the west is **Cherry T6** which is a small tree supporting a trimmed, broadly ascending crown along the northern edge of the garden. This tree has sufficient space to mature and appears in good health and it has therefore been placed within Category B2.

Birch T7 is a pollarded specimen tree situated on the southern edge of the driveway, closer to the house and garden. This tree has been previously reduced to minimise shade and leaf drop over the garden and driveway area. The tree is regenerating vigorously and now supports a tight, lightly branching crown. This tree is placed within Category B2.



T4/T5 and Cherry T6

Concrete pad to east side of T4

Pollarded Birch T7

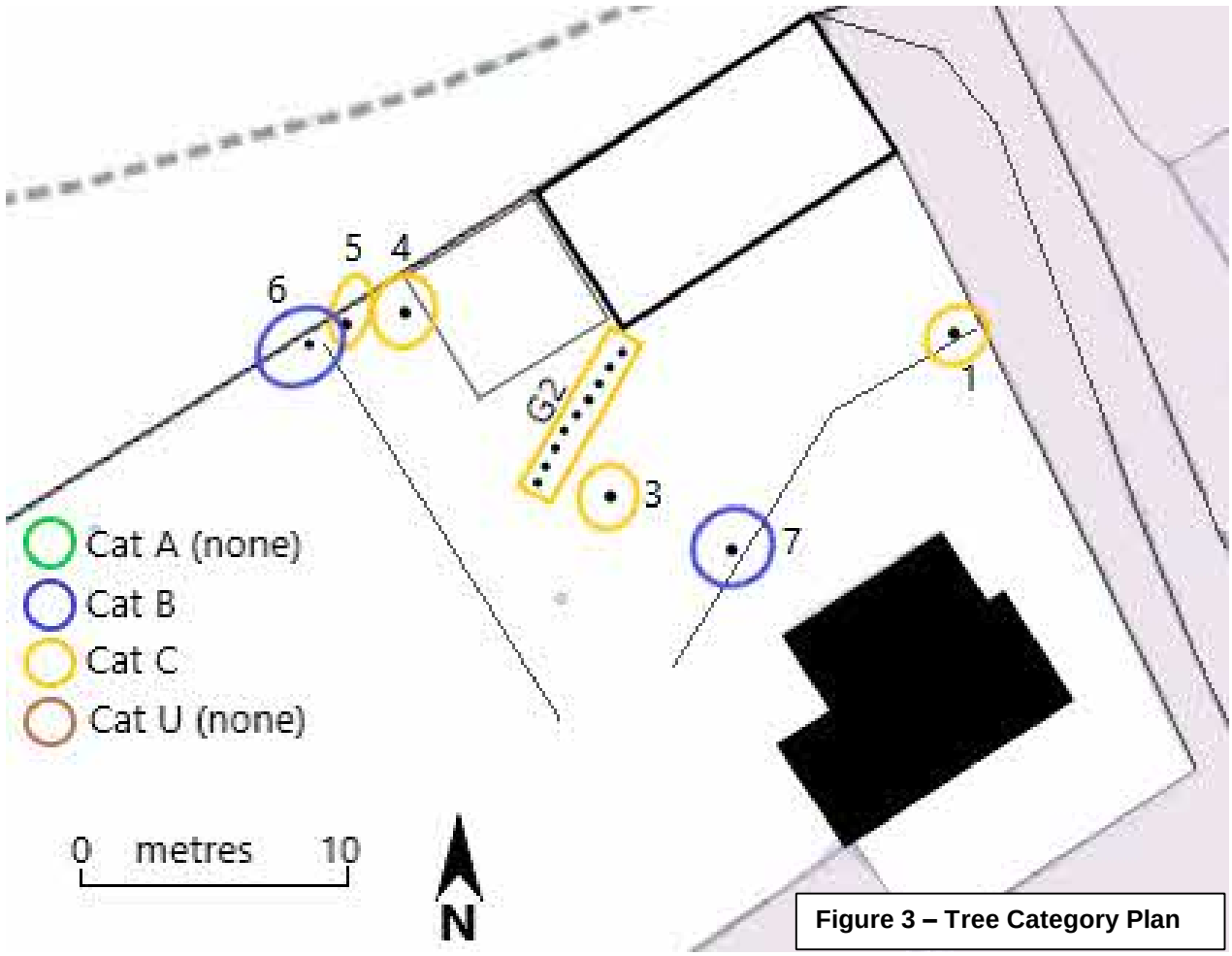


Figure 3 – Tree Category Plan

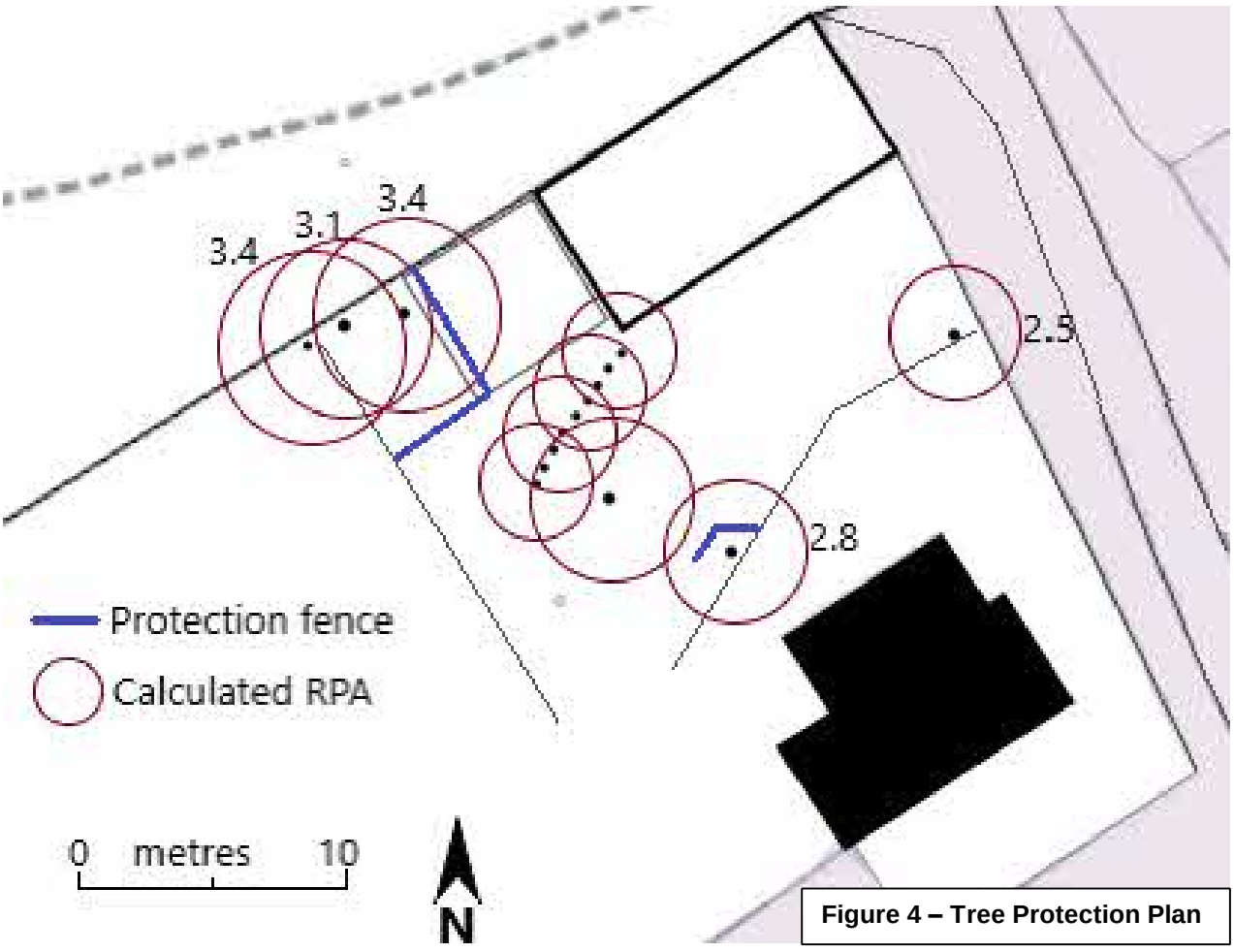


Figure 4 – Tree Protection Plan

4. Tree Management

4.1 Initial Arboricultural Assessment

In the context of this site the proposed development will comprise the conversion of the existing garden building which will become residential accommodation within the same building footprint. The table below summarises the potential impact of the proposed development on the trees present within the area surveyed.

Ref	Tree	Category	Impact of development
1	Silk Tassel Bush	C2	Not impacted. Canopy poses no constraint and the RPA is already under the existing hardstanding.
G2	Leylandii	C2	Recommended for removal due to the proximity of the existing building.
3	Cooking Apple	C2	This tree could be retained but apparently it is now cropping poorly and it would be prudent to consider removing this and replacing it with a new specimen tree in another location within the garden.
4	Leylandii	C2	Not impacted. The lifted columnar crown poses no constraint. The RPA on the eastern side is already protected by an existing concrete pad and hardstanding.
5	Leylandii	C2	Not impacted. The lifted columnar crown poses no constraint. The RPA on the eastern side is already protected by an existing concrete pad and hardstanding.
6	Cherry	B2	Not impacted. Sufficiently far from the existing building and protected by T4 and T5 which lie between this tree and the building to be converted.
7	Birch	B2	Not impacted. Crown is pollarded and provides no constraint. RPA is sufficiently far from the building to be converted to avoid any harm and already lies underneath the driveway.

It is a reasonable assumption that the trees of lower quality close to the existing building (G2 and T3) may need to be removed to provide sufficient space for access and works to be completed. Leylandii G2 is a closely trimmed and topped conifer screen of negligible landscape value so the removal of this will have no noticeable impact on canopy cover or visual amenity in this location. Removal of Apple T3 may not be necessary to facilitate the works but this tree is positioned within the centre of the driveway area and as it provides little useful fruit consideration should be given to removing this and replacing it with a tree elsewhere within the garden.

T1, T4 and T7 are positioned sufficiently far from the existing building to be converted that it is highly unlikely there will be any impact on these trees and they can be retained. All three trees have the RPA's protected by the existing driveway but it would be prudent to position protective fencing around the trunks, particularly T7, to ensure there are no accidental collisions whilst materials are being delivered for the work.

4.2 General Recommendations

The trees being retained within the garden will need to be adequately protected during any approved development works, although the existing driveway and hardstanding provide good protection to the calculated RPA's of these trees. As a general rule at this site, measures to protect trees should follow the best practice principles set out in BS5837: Trees in Relation to Design, Development and Construction (2012). 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.

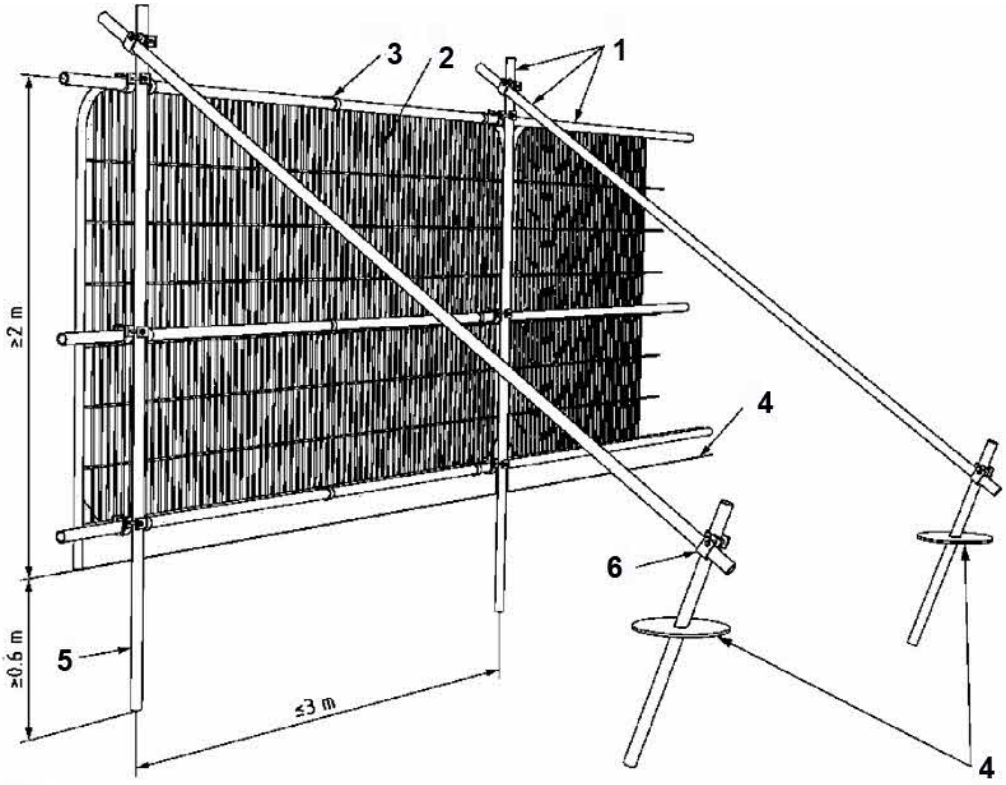
Marking out must be completed by a person with arboricultural or horticultural expertise as individual trees will have root zones that may be affected by local conditions and allowances will need to be made to accommodate this. The best practice principles have been broadly summarised below.

All trees retained adjacent to the site must 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.

Any fencing required must be erected prior to commencement of construction and before demolition including erection of any temporary structures. Once set up fences must not be removed or altered without prior consultation with the arboricultural advisor.

All tree works must 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 must be clearly visible and suitable for the location, type and proximity of construction activity.



1. Standard scaffold poles
2. Heavy Guage 2m tall galvanised tube and weld mesh infill panels
3. Panels secured to uprights and cross members with wire ties
4. Ground Level
5. Uprights driven into ground until secure (up to 0.6m)
6. Standard scaffold clamps

Where it has been agreed and shown on a Tree Protection Plan, construction access may take place within the RPA if suitable ground protection measures are in place (e.g. existing surfaced car park areas). In other areas 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.

- Wide or tall loads etc. must 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 must 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 must 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’ within BS 5837 (2012). 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.

Christopher Barker CEnv dipHort

Appendix 1: BS5837 Tree Schedule

Key:	Measurements	Age – Class	Overall Condition	BS 5837 2012 : 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	U – Trees of negligible significance	
	TD - Trunk division (height in metres)	**Est Yrs –** estimate of years remaining (>40 years; 20 –40 years; <20 years)		**Sub-categories:** **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 mm@ 1.5m	Canopy Spread (m)	Height of Crown Clearance	Age Class	Est yrs	Overall Condition	Structural condition	Recommendations	BS 5837 Category	RPA Radius (m)
T1	Silk Tassel Bush *Garry elliptica*	5	210	N-2 S-2 E-2 W-2	1	M	10+	G	Dense round crown very close to garden wall and entrance. Trimmed to reduce obstruction. No structural faults visible from ground level	Maintain trimmed to avoid obstruction of entrance	C2	2.5
G2	Leylandii *Cupressocyparis leylandii*	3	150	Up to 0.5m	0.3m	Y	10+	F	Line of dense, trimmed, merging conifers creating a screen. No structural faults visible from ground level	Consider removing due to proximity of existing building	C2	1.8
T3	Cooking Apple *Malus cul*	5	265	N-1 S-1 E-1 W-1	1	SM	10	F	Dense round canopy, crown lifted. No structural faults visible from ground level		C2	3.1
T4	Leylandii *Cupressocyparis leylandii*	10	290	N-1 S-2 E-2 W-2	4	SM	10+	F	Upright, lifted columnar crown. Concrete pad covering eastern half of RPA. No structural faults visible from ground level		C2	3.4
T5	Leylandii *Cupressocyparis leylandii*	8	265	N-2 S-1 E-1 W-1	3	SM	10+	F	Trunk and canopy leans north east. Lifted columnar crown. No structural faults visible from ground level but lean is of concern.		C2	3.1
T6	Cherry *Prunus avium*	5	285gl	N-2 S-3 E-3 W-2	2	SM	20	G	Trimmed and broadly ascending crown. No structural faults visible from ground level		B2	3.4

Tree No	Species	Ht (m)	Stem Diam mm@ 1.5m	Canopy Spread (m)	Height of Crown Clearance	Age Class	Est yrs	Overall Condition	Structural condition	Recommendations	BS 5837 Category	RPA Radius (m)
T7	Birch *Betula pendula*	7	240	N-2 S-3 E-3 W-3	2	SM	20	G	Pollarded and regenerating a tight, lightly branching, small canopy. No structural faults visible from ground level		B2	2.8