

BS5837(2012) Arboricultural Survey



for:

Gemma Hodgson at Westview.

Made by
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Cotswold Tree Care

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1. INTRODUCTION

My name is Pablo Sánchez Moreno,
I hold a Level 3 diploma in Arboriculture, a Professional Tree Inspection Award and other technical trade qualifications. I am a member of the Arboricultural Asociacion since 2012 and I have been working in arboriculture since 2007.

1.1 Site details

The site can be located in **Shipton Moyne, Tetbury** Gloucestershire,
and the site is called **West View**.

1.2 Instruction and scope

This Tree survey has been instructed by Gemma Hobgson to inspect and record the state of health and stability of some trees on his property in accordance with British Standards (BS) 5837:2012 ‘Trees in Relation to Design Demolition and Construction – Recommendations’ and to advise the best approach to laying down a drive under the canopies without compromising the long term health of those trees.

I am to prepare the following information in relation to the proposals:

- Tree survey in accordance with BS5837:2012
- Arboricultural Impacts Assessment
- Tree Protection Plan.
- Tree works recommendations

2 GENERAL

2.1 Statutory tree protection and other designations

2.1.1 I have carried out the following desk-based tree-related constraints checks in relation to the site.

	General summary information	Relevant to site?
Conservation Area ¹	<ul style="list-style-type: none"> All trees with a trunk diameter greater than 75mm at 1.5m height are protected in the same way as for TPO (see below). Six weeks' notice must be given to the Local Planning Authority (LPA) prior to carrying out any tree works so that possible requirement for TPO can be assessed. 	No
Tree Preservation Order (TPO) ²	<ul style="list-style-type: none"> It is an offence to cut down, uproot, top or lop, wilfully damage or wilfully destroy relevant trees or woodlands. Formal permission must be applied for (and granted) by the LPA before carrying out tree works. Penalties of up to £20K (Magistrates Court) or unlimited fine (Crown Court). 	No
Timber volume	<ul style="list-style-type: none"> Forestry Act 1967 limits felling of volumes of timber in any calendar quarter to 5 cubic metres (m³) unless a Felling Licence has been issued by the Forestry Commission. Any felling beyond this threshold may result in prosecution and/or issue of a Restocking Notice 	No
Ancient woodland ³	<ul style="list-style-type: none"> Ancient Woodland is broadly defined as land that has been continuously wooded since 1600AD. It is irreplaceable habitat and is afforded a high level of protection by the National Planning Policy Framework (NPPF). 	No

Ancient/veteran trees ⁴	<ul style="list-style-type: none"> • Broadly defined as trees that are old for their species that have biodiversity, cultural and heritage value. • Like ancient woodland such tree • s are irreplaceable habitats and are afforded a high level of protection by the National Planning Policy Framework (NPPF). 	No
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2.2 Limitations

Trees are living organisms and self-supporting dynamic structures. Their physiological and structural condition can change rapidly in response to a wide range of biotic/abiotic factors. As such, the findings and recommendations of my tree survey are limited to 24 months from the date of my site visit.

2.3 Wildlife informative

Tree works should not be carried out until a reasonably detailed inspection of relevant trees has been carried out to determine if bat roosts and/or bird nests are present.

It is a criminal offence to intentionally damage/destroy the nest of any wild bird while it is in use or being built. Similarly it is an offence to intentionally/recklessly disturb roosting bats or to damage or destroy a bat roost.

The Arboricultural Association publishes useful advice in relation to trees and nesting birds⁵. Helpful advice with regards to bats and tree work is published by the UK Government⁶, the Arboricultural Association⁷ and The Bat Conservation Trust⁸.

3 ARBORICULTURAL SURVEY

3.1 Site visit

I visited the site on 14th November 2023.

3.2 Findings

My findings are set out within the survey schedule at **Appendix 1**.

4 TREE CONSTRAINTS AND DESIGN ADVICE

4.1 Tree Quality Assessment

Surveyed trees are represented using colour coding to indicate their quality and their suitability for retention. The quality assessment is as follows:

Quality grade	Definition
A	Green: high quality with estimated remaining life expectancy of at least 40 years.
B	Blue: moderate quality with estimated remaining life expectancy of at least 20 years
C	Grey: low quality with estimated remaining life expectancy of at least 10 years
U	Red - unsuitable for retention. Cannot realistically be retained for longer than 10 years

4.2 Below Ground Constraints

In accordance with BS5837:2012, below ground constraints, or Root Protection Areas (RPAs), for the surveyed trees are plotted onto the Tree Survey and Constraints Plan. These are represented as a circle with a broken red line centred on the base of each tree stem with a radius of 12 times stem diameter (measured at 1.5m above ground level).

BS5837:2012, a root protection area (RPA) is defined as “*a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree’s viability, and where the protection of the roots and soil structure should be treated as a priority*”. “*The default position [when considering design layout in relation to RPAs] should be that structures are located outside the RPAs of trees to be retained*”.

Root systems can be damaged in several ways:

- Root severance
- Soil compaction
- Contamination by spilled materials eg cement/diesel.

4.3 Above Ground Constraints

Above ground constraints posed by trees describe the capacity for trees to have an overbearing or dominating effect on new developments; usually post occupancy. Typical above ground constraints include a number or combination of inconveniences including shading, branch spread, perceived fear of tree failure during strong winds and so on. If not adequately considered, above ground constraints can lead to repeated future requests to fell or heavily prune retained and protected trees.

The above ground parts of trees can be damaged in several ways:

- Impact damage through contact with construction site plant
- Inappropriate pruning

Other factors, for example, heat damage caused by bonfires

5 ARBORICULTURAL IMPACT ASSESSMENT (AIA) & TREE PROTECTION PLAN (TPP)

5.1 **Arboricultural Impact Assessment**

The development proposals will require groundworks to achieve finished ground levels. Most of the trees are outside the ground work area. It is likely that storage unit and or metal container is brought temporarily to site and be placed next to the apple trees.T1 and T2 .Although this is undesirable, it is my opinion that the root compaction associated with any storage unit will be within the RPA of those trees. T1 and T2. are healthy trees and very capable of coexisting with low compaction because they have open RPA all round.

5.2 **Tree Protection Plan**

The Tree Protection element of the plan demonstrates how the trees can be effectively retained as part of the construction of the proposals.

Tree protection barriers must be put in place before any other work is carried out on site and remain in place for the duration of construction works.

6 ROOT PROTECTION AREA (RPA)

The RPA is calculated using the diameter of the tree's trunk at 1.5m above ground level. The calculation is the same for all trees, regardless of their age.

For trees with a single stem, the RPA is calculated as an area equivalent to a circle with a radius 12 times the stem diameter.

The RPA for each tree should initially be plotted as a circle centred on the base of the stem. Where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon of equivalent area should be produced. Modifications to the shape of the RPA should reflect a soundly based arboricultural assessment of likely root distribution.

Any deviation in the RPA from the original circular plot should take account of the following factors whilst still providing adequate protection for the root system:

- 1 a) the morphology and disposition of the roots, when influenced by past or existing site conditions (e.g. the presence of roads, structures and underground apparatus);
- 2 b) topography and drainage;
- 3 c) the soil type and structure;
- 4 d) the likely tolerance of the tree to root disturbance or damage, based on factors such as species, age, condition and past management.

6.1 Permanent hard surfacing within the RPA

NOTE This subclause does not apply to veteran trees, where it is recommended that no construction, including the installation of new hard surfacing, occurs within the RPA.

General

Where permanent hard surfacing within the RPA is considered unavoidable, site-specific and specialist arboricultural and construction design advice should be sought to determine whether it is achievable without significant adverse impact on trees to be retained.

Design recommendations

The design should not require excavation into the soil, including through lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation. If it is intended to use the new surface for construction access, it is essential that the extra loading and wear arising from this are taken into account during the design process.

The structure of the hard surface should be designed to avoid localized compaction by evenly distributing the loading over the track width and wheelbase of any vehicles expected to use the access.

New permanent hard surfacing should not exceed 20% of any existing unsurfaced ground within the RPA.

If the new surface is likely to be subject to de-icing salt application, an impermeable barrier should be incorporated to prevent contamination of the rooting area. Run-off should be directed away from the RPA.

Where a permeable surface is to be used by vehicular traffic, a geotextile should be used at the base of construction to help prevent pollution contamination of the rooting area below.

Permeable hard surfacing can result in soil volume moisture content remaining at or near field capacity for long periods. Where there is a risk of waterlogging, the design should incorporate appropriate land drainage. Land drainage within the RPA should be designed to avoid damage to the tree and the soil structure, e.g. sand slitting formed by compressed air soil displacement with the slits set radially to the tree.

The hard surface should be resistant to or tolerant of deformation by tree roots, and should be set back from the stem of the tree and its above-ground root buttressing by a minimum of 500 mm to allow for growth and movement. Resulting gaps may be filled using appropriate inert granular material.

NOTE 1 Appropriate sub-base options for new hard surfacing include three-dimensional cellular confinement systems. Alternatively, piles, pads or elevated beams can be used to support surfaces to bridge over the RPA or, following exploratory investigations to determine location, to provide support within the RPA while allowing the retention of roots greater than 25 mm in diameter.

NOTE 2 The use of two-dimensional load suspension systems is not recommended for surfaces intended for use by vehicles.

Soil Compaction

T9 seems to be more exposed to damage by compaction or storage of building materials. So extra attention must be taking with this tree.

The majority of tree roots lie within the upper soil horizons. This is because the availability of oxygen decreases with depth and roots need to breathe to stay alive. In addition, nutrients are more readily available in the form of organic matter close to the soil surface.

Healthy soils contain about 25% air space between solid particles. Increased loading of the soils caused by construction activity causes air to be squeezed out as the soil becomes compacted preventing roots from breathing. Even an increase in pedestrian activity may cause some soil compaction.

It is important therefore that ground compaction and soil disturbance over Root Protection Areas should be avoided during the construction phase. This may be done by installing protective fencing and ground protection measures as recommended

7 TREE WORK RECOMMENDATIONS

All tree work is to be done using best arboricultural practices (the British Standard for tree work (*BS 3998: 2010 Tree Work – Recommendations*))

Most of the tree work has been recently done, so there is no mayor recommendations apart from the winter prune of the apple trees (T1 and T2)

In species which have relatively strong defences against decay but which produce non-durable heartwood or ripewood, at least two-thirds of the diameter of any cut should consist of wood that, according to characteristics of the species concerned, is assessed as still containing living tissue.

The shade-tolerance of the species being pruned and of any neighbouring trees should be taken into account, so that the tree(s) do not become excessively overshadowed by other foliage or by buildings as a result of being subjected to crown reduction. Conversely, pruning should be avoided if, by the removal of shading foliage, it would

expose extensive areas of thin bark (including the bark of a neighbouring tree) to a high probability of sunscorch.

When there is a need to prune species which tend to produce a proliferation of very dense growth of weakly attached shoots from around each wound, the resulting branches should be managed by cyclic cutting at appropriate intervals, or selectively pruned while time is allowed for a stronger branch structure to develop

Further details relating to the specifics of tree protection can be secured by means of a suitably worded pre-commencement planning condition requiring agreement (and subsequent implementation of) an arboricultural method statement.

8 CONCLUSION

I conclude that the development proposals are feasible from an arboricultural perspective because:

Impacts to the surveyed trees at the site have been minimised so that there will be little if any impact on the public visual amenities of the area so for the health and safety of those trees.

Tree protection measures can be put in place (and implemented in accordance with an approved arboricultural method statement) to ensure that construction works do not result in damage to the retained trees.



Appendix 1 – Tree Survey Schedule

