



BS5837:2012

**Trees in relation to design, demolition and construction –
Recommendations**

Arboricultural Impact Assessment

**The Bus,
The Avenue,
Hayling Island,
Hampshire,
PO11 0LX**

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If this report has been released electronically the appendices referred to herein can be found in the annexed zip folder/s as .pdf files. If this report has been released in hard copy the appendices will be bound into the back of this report. Plans are annexed separately as A0, A1, A2 or A3 as appropriate.

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Introduction

Arbtech Consulting Limited (Arbtech) received written instruction on 10th March 2020 from Mayfair Hayling Island Ltd to attend The Bus, The Avenue, Hayling Island, Hampshire, PO11 0LX (site) to undertake an arboricultural survey to BS5837:2012 guidance to assess trees, hedges and major shrub groups growing on and within influencing distance of the site and to produce a schedule of trees, tree constraints plan, arboricultural impact assessment, arboricultural method statement and tree protection plan.

Executive Summary

This report describes the extent and effect of the proposed development at Site on individual trees and groups of trees within and adjacent to the site.



Figure 1: Site location (Bing Maps)

Trees within the site were surveyed; using a methodology guided by British Standard 5837:2012 'Trees in relation to design, demolition and construction – Recommendations' ("BS5837").

Subsequently, this report has been produced, balancing the layout of the proposed development against the competing needs of trees. This report comprises all of the requisite elements of an arboricultural implications assessment, method statement and supporting plans.

Checklist for Submission to Local Planning Authority

Tree survey	✓
Tree constraints plan	✓
Arboricultural impact assessment	✓
Arboricultural method statement	
Tree protection plan	

This report and its appendices follow precisely the strategy for arboricultural appraisal intended to provide local planning authorities with evidence that trees have been properly considered throughout the development process.

It is the conclusion of this report that the overall quality and longevity of the amenity contribution provided for by the trees and groups of trees within and adjacent to the site will not be adversely affected as a result of the local planning authority consenting to the proposed development. It is considered that any issues raised in this report, or beyond the scope of it can be dealt with by planning conditions.

General Information

Client: Mayfair Hayling Island Ltd

Site: The Bus, The Avenue, Hayling Island, Hampshire, PO11 0LX.

Brief proposal description: Construction of five new dwellings.

Table 1: Documents referred to.

Document	Reference No.
Topographical survey drawing	ADP-005
Proposed layout drawing	1885-01
British Standard 5837:2012	"BS5837"
Arboricultural Impact Assessment	Arbtech AIA 01

Tree Survey

Survey: An arboricultural survey to BS5837 of all trees within impacting distance of the site was undertaken by Aran Nearn of Arbtech Consulting on 12th March 2020.

A total of 7No individual trees and 1No group of trees were surveyed. Details for each of the trees surveyed are provided in the Tree Survey Schedule (see **Appendix I**)

Table 2: Documents upon which this tree survey has been based

Document	Originator	Reference Number	Title
Topo	ADP Architects	ADP-005	Measured Survey

Limitations: The survey was made at ground level using visual observation only. Detailed examinations, such as climbing inspections and decay detection equipment were not employed, though may form part of the survey's management recommendations. Measurements were taken using specialist tapes, laser and GPS devices. Where this was not possible, measurements are estimated.

Scope: Pre-development tree surveys make arboricultural management recommendations based exclusively upon the individual tree or group of trees condition relative to their present context (*i.e. not in relation to the proposed development*).

Legal Status: No statutory protection check has been performed. BS5837 does not draw any distinction between trees subject to statutory protection, such as a Tree Preservation Order (TPO), and those trees without. This is principally because a detailed planning consent overrides any TPO protection. Consequently, we do not seek to offer any comparison between or infer any difference in the quality or importance of TPO trees and other trees.

* For more information on the surveyed trees please see Arbtech Consulting Ltd, Tree Survey Schedule (Appendix I), Tree Survey Report and Tree Constraints Plan.

Arboricultural Impact Assessment

Table 3: Documents upon which this assessment has been based

Document	Originator	Reference Number	Title
Topo	ADP Architects	ADP-005	Measured Survey
Site Plan	ADP Architects	1885-01	Site Plan

There are a number of issues that may need to be addressed in an arboricultural impact assessment between the trees and the proposed development, these are as follows:

- The effect and extent of the proposed development within the root protection areas (RPAs) of retained trees;
- The potential conflicts of the proposed development with canopies of retained trees; and
- The likelihood of any future remedial works to retained trees beyond which would have been scheduled as a part of usual management.

Table 4: Impacts upon the RPAs of retained trees

Tree Number	Species	Structure	Incursion
1	Sycamore	Crossover & Driveway	RPA
2	Lime	Crossover & Driveway	RPA
3	Oak	Driveway & Dwelling	RPA
5	Oak	Dwelling	RPA

These impacts can be seen on the Arboricultural Impact Assessment drawing number Arbtech AIA 01.

Trees to be removed

The implementation of this development requires the removal of 1No individual tree.

A breakdown of all tree removals and pruning works can be seen in **Table 7: Summary of Tree Works**

Table 5: Number of individual trees to be removed.

U	A	B	C
0	0	0	1

Table 6: Number of groups to be removed.

U	A	B	C
0	0	0	0

Canopy cover is ecologically important and the loss of canopy cover by these trees will be mitigated with planting within the development.

Tree Works

For reasons of public safety, all tree works referred to herein must be carried out prior to any site personnel commencing works or any building materials being delivered.

Table 7: Summary of Tree Works

No.	Species	Works	Category
1	Sycamore	Soil amelioration. Compressed air and biochar injections into soil.	B12
2	Lime	Soil amelioration. Compressed air and biochar injections into soil.	B12
3	Oak	Soil amelioration. Compressed air and biochar injections into soil.	A12
4	Oak	Fell tree to ground level; grind out stump.	C1

Notes

All tree work is to be undertaken in accordance with British Standard BS 3998:2010, Recommendations for tree work. All arising's are to be removed and the site is to be left as found. Care is to be taken of the ground around retained trees to make sure that it does not become compacted as a result of tree surgery operations. No equipment or vehicles such as timber lorries, tractors, excavators or cranes shall be parked or driven beneath the crowns of any retained trees, to prevent subsequent compaction and root death.

Tree removal

A tree shall be felled in one piece only when there is no significant risk of damage to people, property or protected species.

Where restrictions (e.g. lack of space, buildings, other features, land ownership or use, or other trees which are to be retained) cannot be overcome, trees shall be dismantled in sections.

This also applies where a tall stump is being retained but where branches are to be removed/pruned.

Extensively decayed trees can be unpredictable when they are being felled, and special precautions shall therefore be taken, such as the use of a winch to guide the direction of fall.

Stump removal – stump grinding

Stump grinding shall be to a minimum of 300mm deep or to extend through the base of the stump leaving the major roots disconnected if the intention is to reduce the potential for the spread of Honey fungus.

The grinding residue shall be treated as arising's and removed from site.

NOTE Mechanical destruction of a stump by stump grinding is less disruptive to the site than digging out.

The hole left by stump removal, shall be filled with soil or other material. The filling shall be appropriate for future site usage, and for any surface treatment that is to be installed. Where future plant growth is desired, the backfill material shall be firmed in 150 mm layers by treading, avoiding excessive compaction and destruction of the soil structure.

After stump removal

The hole left by stump removal, whether by digging out or grinding, shall be filled with soil or other material. The filling shall be appropriate for future site usage and for any surface treatment that is to be installed.

Where future plant growth is desired, the back-fill material shall be firmed in 150mm layers by treading, avoiding excessive compaction and destruction of the soil structure.

Soil amelioration

Soil is a natural medium in which plant roots propagate. It is formed of a combination of mineral aggregates of varying sizes, organic matter, macropores and micropores.

Macropores are larger spaces between aggregates allowing the soil to be aerated.

Micropores are smaller, generally holding water that is available to plants via their roots.

Roots use the air in soil and grow through this medium when the bulk density of the soil is below a particular threshold.

The action of downwards loads to the surface of a soil can cause the soil to be compressed, closing up first the macropores, and ultimately micropores. This increases the bulk density of the soil and is referred to as compaction. A compacted soil is less aerated and has a greater bulk density than a well-formed soil. This has two negative significant effects upon roots within that growing medium:

1. The cells in roots respire, they use oxygen from the soil for chemical processes and expel carbon dioxide into the soil. Gaseous exchange must be possible between the soil and the atmosphere to enable the ingress of oxygen and the egress of expelled carbon dioxide to the soil around a healthy root. Compaction of the soil closes the macropores between the soil aggregates and reduces/stops

this gaseous exchange. Compacted soil is often waterlogged.

2. Root elongation is only possible within soil bulk densities below a particular threshold, soil compaction increases soil bulk density and can limit/stop new root growth.

To improve the soil structure in the rooting area of trees which have been subjected to compacting forces, it needs to have the macropores reopened. A process known as decompaction. The correct soil biology must also be present (compacted soil will have a dramatically reduced Soil Food Web).

Compressed air will be injected to a depth of 600mm at 1m spacings, by way of a perforated soil probe (e.g. Terravent; Vogt etc.) to create fissures within the soil profile. This forces compressed air through the soil to create fissures within the soil. A mixture of Terramol and enriched biochar will then be injected into the newly fissured soil, again using the same high-pressure system. The Terramol will have the effect of physically holding open the new gaseous exchange pathways.

Biochar is a very pure, high-carbon form of charcoal that improves the structure, aeration, water-holding capacity and nutrient retention of soils and substrates while providing permanent refuge for beneficial microbiology. Enriched biochar has beneficial elements added to it including mycorrhizal fungi, Trichoderma, trace nutrients and beneficial bacteria.

Application rates will be determined by the specific equipment used and will be specified by the specialist contractor.

Protected Species (general informative for tree works)

British fauna enjoys a level of statutory protection. Undertaking tree work can impact upon some species directly. Bats and nesting birds shall be considered when undertaking tree works. The below information is not intended to be exhaustive but gives a brief overview of the protection afforded to these two groups of animals.

Conservation Status of British Bats

The general consensus in Britain and Europe is that virtually all bat species are declining and vulnerable. Our understanding of population status is poor as there is very little historical data for most bat species. Certain species, such as the horseshoe bats, are better understood and have well documented contractions in range and population size.

Given this general picture of decline in UK Government within the UK Biodiversity Action Plan has designated five species of bats as priority species (greater and lesser horseshoe bats, barbastelle, Bechstein's and pipistrelle). These plans provide an action pathway whereby the maintenance and restoration of the former populations levels are investigated.

Legal Status of British Bats

Given the above position all British bats as well as their breeding sites and resting places enjoy national and international protection.

All bat species in the UK are fully protected under the Wildlife and Countryside Act 1981 (as amended) through inclusion in Schedule 5. All bats are also listed on Annex IV (and some on Annex II) of the EC Habitats Directive giving further, European protection. Taken together the act and Conservation of Habitats and Species Regulations 2012 (as amended)* make it an offence to; intentionally or deliberately kill, injure or capture (take) bats;

- Deliberately disturb bats (whether in a roost or not);
- Damage, destroy or obstruct access to bat roosts;
- Possess or transport a bat or any part of a bat, unless acquired legally;
- Sell, barter or exchange bats, or parts of bats

The legislation although not strictly affording protection to foraging grounds does protect roost sites. Bat roosts are protected at all times of the year whether or not bats are present. Any disturbance of a roost due to development must be licenced.

**the regulations that delivered by the UK's commitments to the Habitats Directive.*

Breeding birds

All nesting birds are protected under the Wildlife and Countryside Act (as amended) 1981, which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. Furthermore, a number of birds enjoy further protection under that Act and are listed on Schedule 1 of the Act. These further protected birds are also protected from disturbance and it may be necessary to operate “no-go” buffer zones around such nests – typically out to 100m.

Planning policy guidance on the treatment of species identified as priorities under the biodiversity action programme suggests that local authorities should take measures to protect the habitats of these species from further decline through policies in local development documents and should ensure that they are protected from the adverse effects of development, where appropriate, by using planning conditions or obligations. The conservation of these species should be promoted through the incorporation of beneficial biodiversity designs within developments.

Document Production Record

Document number	Editor	Signature	Position	Issue number	Date
Arbtech AIA 01	Aran Nearn		Arboricultural Consultant	01	22/09/2020

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