

BS5837:2012

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

Tree Survey

Tyrone House,
Norton Lane,
Norton,
Aldingbourne,
PO20 3NH.

16 June 2020

Author: Matthew Middle Dip., (Arb.), Tech.Arbor.A.

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Arbtech Consulting Limited (Arbtech) received written instruction on 3rd June 2020 from Mr. Napthine to attend Tyrone House, Norton Lane, Norton, Aldingbourne, PO20 3NH; grid reference, SU 92743 06122 (site) to undertake an arboricultural survey a 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.

I hold a National Diploma in arboriculture, I also hold the LANTRA Professional Tree Inspector certification and have professional experience in contracting and in arboricultural consultancy spanning more than twenty years.

Table 1: Documents referred to.

2. Survey

A total of twenty four (24) individual trees and three (3) groups of trees were surveyed. Details for each of the trees surveyed are provided in the Schedule of Trees (see Appendix 2).

Document	Originator	Reference Number	Title
Topo	J. Brotherton & Partners	20323	Topographic Land 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 Arbtch Consulting Ltd, Tree Survey Schedule (Appendix 1), Tree Survey Report and Tree Constraints Plan.

Site description

The site is situated as the southern end of Norton Lane; it is a residential property with multiple outbuildings.

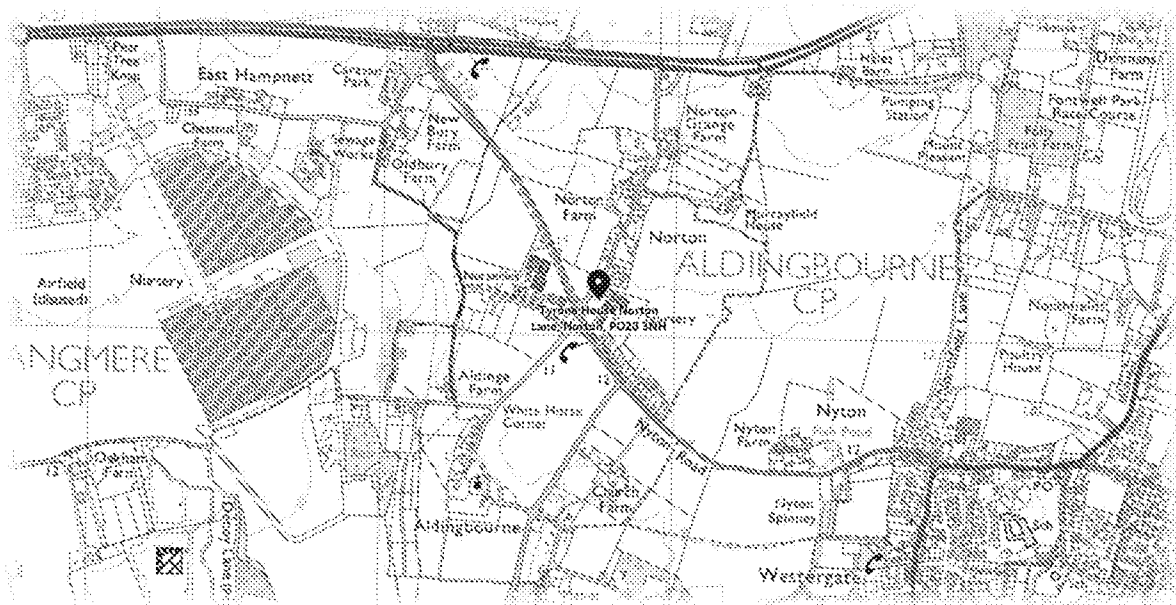


Figure 1: OS Map (Bing Maps)

Proposed scheme

The proposed scheme is to include the demolition of the existing house and outbuildings and for the construction of a new detached five bedroom dwelling with a detached garage.

It is likely that arboricultural impacts can be addressed with arboricultural methodology or minor amendments to the proposal.

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3. BS5837:2012 Scope

This standard recognises that there can be problems for development close to existing trees which are to be retained, and of planting trees close to existing structures. This standard sets out to assist those concerned with trees in relation to construction to form balanced judgements. It does not set out to put arguments for or against development, or for the removal or retention of trees. Where development, including demolition, is to occur, the standard provides guidance on how to decide which trees are appropriate for retention, on the means of protecting these trees during development, including demolition and construction work, and on the means of incorporating trees into the developed landscape.

4. Methodology

The methodology used to assess the trees was the British Standard 5837:2012 'Trees in Relation to Construction' tree survey method. The aim of the survey is to establish which trees are moderate and good quality; suitable for retention and justifying protection. And, which trees are low or poor quality; either undesirable or unsuitable to retain and protect.

The tree survey includes all trees included in the land survey red line boundary plan, as well as any that may have been missed, and it should categorize trees or groups of trees, including woodlands for their quality and value within the existing context, in a transparent, understandable and systematic way. Where the arboriculturist has deemed it appropriate, the trees have been tagged with small metal or plastic tags, placed as high as is convenient on the stem of each tree.

Whilst master plan proposals for the development of the site might be available, the trees have been surveyed without taking these into consideration. All detailed design work on site layout should take into consideration the results of the tree survey (and the TCP).

Trees forming groups and areas of woodland (including orchards, wood pasture and historic parkland) are identified and considered as groups where the arboriculturist has determined that this is appropriate, particularly where they contain a variety of species and age classes that could aid long-term management. It is often expedient to assess the quality and value of such groups of trees as a whole, rather than as individuals. However, an assessment of individuals within any group has been undertaken if they are open-grown or if there is a need to differentiate between them.

The quality and value of each tree or group of trees has been recorded by allocating it to one of the four categories; A, B, C, or U (highest to lowest quality respectively). The categories are differentiated on the tree survey plan by colour, or by suffixing the category adjacent to the tree identification number on the TCP.

The survey schedule lists all the trees or groups of trees. The following information is also provided:

- a) reference number (to be recorded on the tree survey plan);
- b) species (common or scientific names);
- c) height in meters (m);
- d) stem diameter in millimetres (mm) at 1.5 m above adjacent ground level or immediately above the root flare for multi-stemmed trees;
- e) branch spread in meters taken at the four cardinal compass points;
- f) height of crown clearance above adjacent ground level in meters (m);
- g) age class (Newly planted, Young, Semi-mature, Early mature, Mature, Over mature);
- h) physiological condition (e.g. good, fair, poor, decline and dead);
- i) structural condition (e.g. good, fair, poor and ivy);
- j) preliminary management recommendations, including further investigation of suspected defects that require more detailed assessment and potential for wildlife habitat; and
- k) The retention category referring to the quality and useful contribution in years; U = <10yrs; A = >40yrs; B = >20yrs; C = >10yrs. The retention sub category referring to the type of amenity; 1 = Arboricultural; 2 = Landscape; 3 = Cultural including conservation (see Table 1 Cascade chart for tree quality assessment).

5. Definitions

Arboriculturist

An arboriculturist (or arboricultural consultant) is a person who has, through relevant education, training and experience, gained recognized qualifications and expertise in the field of trees in relation to construction.

Tree Survey

A tree survey should be undertaken by an arboriculturist and should record information about the trees on a site independently of and prior to any specific design for development. As a subsequent task, and with reference to a design or potential design, the results of the survey should be included in the preparation of a tree constraints plan, which should be used to assist with site layout design.

Tree Constraints Plan

A TCP is plan, typically delivered as an AutoCAD drawing (.file format), prepared by an arboriculturist for the purposes of layout design showing the root protection area and representing the effect that the mature height and spread of retained trees will have on layouts through shade, dominance, etc.

Root Protection Area

An RPA is a layout design tool indicating the area surrounding a tree that contains sufficient rooting volume to ensure the survival of the tree, shown in plan form in m².

Construction Exclusion Zone (also termed Tree Protection Zone)

A construction exclusion or tree protection zone is an area based on the RPA (in m²), identified by an arboriculturist, to be protected during development, including demolition and construction work, by the use of barriers and/or ground protection fit for purpose to ensure the successful long-term retention of a tree.

Arboricultural Impact Assessment

This is a study, undertaken by an arboriculturist, to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees that may arise as a result of the implementation of any site layout proposal.

Tree Protection Plan

A TPP is plan, typically delivered as an AutoCAD drawing (.dwg file format), prepared by an arboriculturist showing the finalized layout proposals, tree retention and tree and landscape protection measures detailed within the arboricultural method statement, which can be shown graphically.

Arboricultural Method Statement

This is a methodology for the implementation of any aspect of development that has the potential to result in loss of or damage to a tree. The AMS is likely to include details of an on-site tree protection monitoring regime.

6. Recommendations

At this stage I have not made an assessment upon the proposed scheme and make the following recommendation to ensure that there are no irrevocable issues to the proposed retained trees and so that no conditions relating to arboriculture are attached to any planning consent secured; obtain an arboricultural report to include:

- a) An arboricultural impact assessment (AIA);
- b) An arboricultural method statement (AMS); and
- c) A tree protection plan drawing (TPP).

7. Limitations

Trees were inspected from using visual observation from ground level only. Trees were not climbed or inspected below ground level. Inaccessible trees will have best estimates made about the location, physical dimensions and characteristics. Trees have been grouped where BS5837 guides us that it is expedient to do so. Trees have been excluded from the survey if they are found by us to be sufficiently far away from the proposed developable area or if they are outside of the red line boundary plan showing the expectations of our Client for the extent of the survey. 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.

8. Appendices

The following documents were released to the Client as appendices to this report:

- Survey Schedule (.pdf)
- Tree Constraints Plan drawing (.dwg & .pdf)

If you require clarification of information contained herein, please do not hesitate to contact us via 01244 661170.

Yours Sincerely,



Matthew Middle
Senior Arboricultural Consultant

07872 127681
mm@arbtech.co.uk

Appendix 1: Table 1 Cascade chart for tree quality assessment



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BS5837:2012 Trees in relation to design, demolition and construction – Recommendations

Table 1

Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories when appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	• Trees that have 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 (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • 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 <i>NOTE: Category U trees can have existing or potential conservation value which might be desirable to preserve; see 4.5.7</i>			Dark red
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	
Trees to be considered for retention				
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual, or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominate and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	Light green
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remedial defects, including unsympathetic management and storm damage), such that they are unlikely to be suitable for retention of beyond 40 years, or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	Mid blue
Category C Trees of low quality with an estimated remaining expectancy of at least 10 years, or young trees with a stem diameter below 150mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape value	Trees with no material conservation or other cultural value	Grey

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Appendix 2: Schedule of Trees

Tree Survey Schedule

Tyrone House, Norton Lane, Norton, Aldingbourne, PO20 3NH

Client Mr. and Mrs. Naphthine

Survey Date 15th June 2020

Weather Conditions Clear, dry and bright

Surveyor Matthew Middle

Key:

Tree Number A unique number or reference to identify trees or groups as shown on associated plans.

Species Common and or taxonomic names.

Height The height of the tree in meters (m).

Trunk Diameter The stem diameter in millimetres (mm) taken at 1.5m above ground level unless otherwise specified.

Canopy Spread The extent of the canopy taken in meters (m) to the principle points of the compass, North (N), East (E), South (S) and West (W).

Crown Clearance The height of canopy clearance above ground level to the lowest point of the canopy, taken in meters (m).

Age Class Age classification; Young (Y), Middle Aged (MA), Mature (M), Late Mature (LM), Veteran (V).

Physiological Condition The general physiological condition of the tree; Average, Below average, Low, Dead.

Structural Condition The general structural condition of the tree; Good, Moderate, Indifferent, Poor, Hazardous.

Comments Notes and general comments on the structural condition of the tree, its environment and it estimated remaining contribution.

Category The retention category referring to the quality and useful contribution in years; U = <10yrs; A = >40yrs; B = >20yrs; C = >10yrs. The retention sub category referring to the type of amenity; 1 = Arboricultural; 2 = Landscape; 3 = Cultural including conservation.

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Tree No.	Species	Height (M)	Trunk Diameter (MM)	Canopy Spread (M)	Crown Clearance (M)	Age Class	Physiological Condition	Structural Condition	Comments	Category
1	Silver maple	12m	400mm ivy	N6.5m NE6.5m E0m S4m SW8m W8m NW8m	S4.5m W4.5m	Middle aged	Average	Indifferent	Ivy covered to over three quarters height; one-sided crown as suppressed by adjacent tree.	C (12)
2	Beech	14m	640mm @ 500mm	N8.5m E8.5m S6.5m W8.5m	3m	Middle aged	Average	Moderate	Linear group of trees growing along E boundary; single intermeshing aerodynamic canopy; T4; twin stemmed from base;#4 n stem forks into three stems by 1.25m; T5; three-stemmed from 1.7m; T6 & T7 are joined by a steel bar at 1.6m; bar is fully occluded within trunks & extends out N side of T6; T8; twin stemmed from base; T9; slightly sparsely foliated in upper canopy; smaller than normal leaf size in upper canopy.	B (12)
3			560mm @ 1.25m							
4			500mm 270mm 270mm 180mm							
5			680mm							
6			530mm							
7			500mm							
8			430mm 660mm							
9			630mm							C (12)

Tree No.	Species	Height (M)	Trunk Diameter (MM)	Canopy Spread (M)	Crown Clearance (M)	Age Class	Physiological Condition	Structural Condition	Comments	Category
10	Field maple	13m	600mm @500mm	N3m E5m S4m SW6m W8.5m NW8.5m	N4m E2m S5m W0m	Middle aged	Average	Moderate	Boundary tree; twin-stemmed from 1m; one-sided crown as suppressed by adjacent tree.	C (12)
11	Silver maple	15m	970mm @1m	N9.5m NE9m E9m SE10m S10m SW10m W10m NW7.5m	N8m S5m SW1m W8m NW5m	Mature	Below average	Indifferent	Boundary tree; significant mistletoe infection spreading throughout the canopy; slightly sparsely foliated; scattered deadwood.	C (12)
12	Lawson cypress	7m	320mm	3m	1.5m	Young	Average	Moderate	Suppressed as overtopped by adjacent tree.	B (1)
13	Sweet gum	8m	210mm	N0m E0m S0m SW5m W5m	SW3m W2m	Young	Average	Moderate	One-sided and overtopped canopy as suppressed by adjacent trees.	C (12)
14	Lawson cypress	5m	120mm	2.5m	0m	Young	Below average	Moderate	One-sided crown as suppressed by each other and adjacent trees.	C (12)
15			200mm							
16	Cabbage palm	5.5m	130mm	1m	4m	Middle aged	Average	Moderate	Twin-stemmed from 4m.	C (1)

Tree No.	Species	Height (M)	Trunk Diameter (MM)	Canopy Spread (M)	Crown Clearance (M)	Age Class	Physiological Condition	Structural Condition	Comments	Category
17	Box elder	4.5m	450mm	3m	1m	Middle aged	Average	Poor	Tear out on E side of trunk between 1m & 3m; topped at 3m; significant changes in tone when trunk is tapped with nylon mallet.	U
18	Small-leaved lime	14m	530mm @1m	N7.5m E6.5m S6.5m W7.5m	N1m E3m S2m W1m	Middle aged	Average	Moderate	Twin-stemmed from 1.5m; three-stemmed from 2m; tight compression forks.	B (12)
19	Hornbeam	10m	150mm 160mm 400mm	N7.5m E7.5m S6m SW8.5m W8m	1m	Middle aged	Below average	Moderate	Twin-stemmed from 0.5m; three-stemmed from 1m; slightly sparsely foliated.	B (12)
20	Lawson cypress	10m	310mm	3.5m	1.5m	Middle aged	Below average	Moderate	Single intermeshing aerodynamic canopy.	B (12)
21			250mm							
22	Lawson cypress	9m	240mm	2.5m	0m	Middle aged	Average	Moderate	Single intermeshing aerodynamic canopy; T23 is twin-stemmed from 0.5m; tight compression fork.	B (2)
23			230mm 190mm							
24	Flowering cherry	10m	600mm # @ 750mm	N7m E8m S8.5m W8m	N4m E3m S4m W1m	Mature	Average	Moderate	Single intermeshing aerodynamic canopy. T24 twin-stemmed from 1.5m. T25 twin-stemmed from 1.75m.	B (12)
25			450mm # @ 1m							

Tree No.	Species	Height (M)	Trunk Diameter (MM)	Canopy Spread (M)	Crown Clearance (M)	Age Class	Physiological Condition	Structural Condition	Comments	Category
G1	Various	9m	Min. 80mm Max. 420mm	3m	0m	Young to Middle aged	Average	Moderate	Boundary group; shared ownership; species include: Hornbeam, Holly, Lawson cypress, Corkscrew willow, Laurel, Crab apple and Purple maple.	C (12)
G2	Various	Min. 1m Max. 5m	Min. 100mm Max. 250mm	3.5m	0m	Young to Middle aged	Average	Moderate	Situated along E boundary; low level boundary screening; species include: Bay, Holly, Silver fir, Deciduous camellia, Japanese maple, Sweet gum, Laurel, Yew and Lawson cypress.	C (12)
G3	Various	Min. 1m Max. 6m	Min. 50mm Max. 300mm	4m	0m	Young to Middle aged	Average	Moderate	Low level boundary screening; species include: Japanese maple, Laurel, Box elder, Lawson cypress, Beech and Holly.	C (12)

Appendix 3: Tree Constraints Plan

9. Document Production Record

Document number	Editor	Signature	Position	Issue number	Date
Arbtech TSR 01	Matthew Middle		Senior Arboricultural Consultant	01	16/06/20

Limitations

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