



bawden
tree care

BS5837 2012 Trees in Relation to Design, Demolition and Construction

At

1 Orchard Cottage
Clarence Road
London
N22 8PL

Date of report
12th October 2022

Revision 1

Report by

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Summary

The report has been written following the recommendations and guidance given within British Standard 5837 (2012), Trees in relation to design, demolition, and construction. to provide a reasoned assessment of the potential impact to trees by the proposed development at 1 Orchard Cottage, Clarence Road, London, N22 8PL.

Nine trees to be retained have been identified which may be adversely affected by development, if reasonable care is not taken to protect the trees and their rooting systems.

One shrub has been identified for removal to facilitate the development.

Glossary

Term	Meaning
RPA	Root Protection Area
CEZ	Construction Exclusion Zone
BS5837:2012	British Standard for trees in relation to demolition, design, and construction
BS3998:2010	British Standard: tree work recommendations
AIA	Arboricultural Impact Assessment
AMS	Arboricultural Method Statement
TPP	Tree Protection Plan

Contents

1	Introduction	2
	Methodology	2
	Caveats and limitations	3
2	Arboricultural survey summary	4
	Tree Preservation Orders and other legal restrictions	4
	Arboricultural survey	5
3	The proposal.....	6
4	Tree impact assessment	6
	Impact Appraisal	6
5	Arboricultural Method Statement	8

APPENDIX A – TREE INVENTORY

APPENDIX B – SITE PLAN SHOWING RPAs, APPROXIMATE CROWN SPREAD

APPENDIX C – TREE PROTECTION MEASURES

1 Introduction

- 1.1 On instructions received from Dominic Snape, of Devprop, Michael Clements, Arboricultural Surveyor for Bawden Tree Care, undertook a ground level, visual assessment of the trees that could be affected by the development proposal in accordance with BS5837 2012, and best practice, and to prepare the following to accompany a planning submission: -
- A schedule of the relevant trees to include survey data and a condition assessment.
 - An appraisal of the constraints imposed by the trees and the potential consequences for the local amenity.
 - An Arboricultural Method Statement setting out appropriate protective measures and management for trees to be retained.
- 1.2 Each tree has been given a class rating and Root Protection Area (RPA) measurement worked out using the recognised method detailed within BS5837 2012. BS5837 2012 Tree Quality Assessment Definitions are given in section 2.6 of this report.
- 1.3 For the purposes of this survey, a drawing of the site, adapted from drawing number 20.0230-A-PL01 supplied by Chandni Patel of Architect UK Ltd, has been included to show tree locations, IDs, categories, and locations of required protective measures, (see Appendix B).
- 1.4 All trees of material consideration within and immediately adjacent to the proposed development site have been inspected. These trees are listed at Appendix A and annotated on the Tree Plan at Appendix B.

Methodology

- 1.5 The Arboricultural site survey was carried out on the 10th of October 2022. Weather conditions at time of inspection were sunny and dry, with good visibility.
- 1.6 All observations were carried out from ground level without detailed investigations. Tree stem diameters, tree height and crown spread have been measured unless otherwise indicated.
- 1.7 This report is prepared in line with the British Standard: BS5837:2012 - Trees in Relation to Demolition, Design and Construction. The purpose of the report is to provide Arboricultural information and recommendations for the support of the proposed development at 1 Orchard Cottage, Clarence Road, London, N22 8PL.
- 1.8 The British Standard makes provision for trees to be categorised for both quality (A, B, C or U) and a sub-category for each of 1, 2 or 3. Details of these categories are included in paragraphs 2.7.

- 1.9 A full description of the trees found, and their categories, is included in the tree survey data provided in Appendix A. The data table includes stem diameter measured from 1.5m above ground level for single stemmed trees, stem diameter measured above root flare for multi-stemmed trees, height, crown spread, age class, and physiological and structural condition. A tree quality assessment using the data is then formulated to categorise trees for removal or retention.
- 1.10 Stem diameters are used to calculate the root protection areas (RPAs), which have been plotted and adjusted for site features, (see Appendix B). The RPA is the area in which most tree roots are anticipated to be growing. As root damage is a common cause of tree loss, the RPA is an area of provisional exclusion for construction activity.
- 1.11 Trees are a material consideration in the planning process and, as such, must be included as part of the decision-making process.

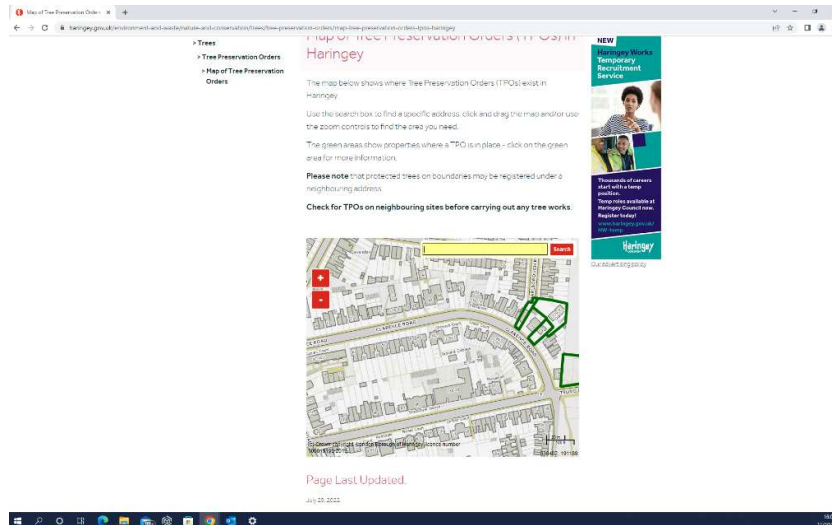
Caveats and limitations

- 1.12 The purpose of this report is to determine any constraints that need to be considered in relation to trees – both above and below ground – during the development design, to assess the potential impact of the development to the amenity value of trees, and to provide an Arboricultural Method statement with Tree Protection Plan in order to minimise, as far as is practical, damage to trees and their rooting systems.
- 1.13 Only trees with diameters greater than 75mm diameter and woodland groups with stems of 150mm or greater are included in the survey.
- 1.14 Root protection areas are calculated in line with BS5837:2012 and are adjusted to reflect topographical constraints on site. This is based on professional experience and has not been confirmed by trial pitting. There is a level of unpredictability in calculating exact tree root locations and therefore, where there is a possibility of obstruction or damage to roots, trial holes are recommended prior to construction.
- 1.15 The Arboricultural Method Statement outlined in section 5 of this report must be agreed with planning before the commencement of any works.
- 1.16 Trees are living organisms whose health and overall condition can change rapidly. The conclusions and recommendations contained within this report are valid for a period of twelve months. The period of validity may be reduced if significant changes occur to either the trees or to the landscape within the immediate proximity of the trees.

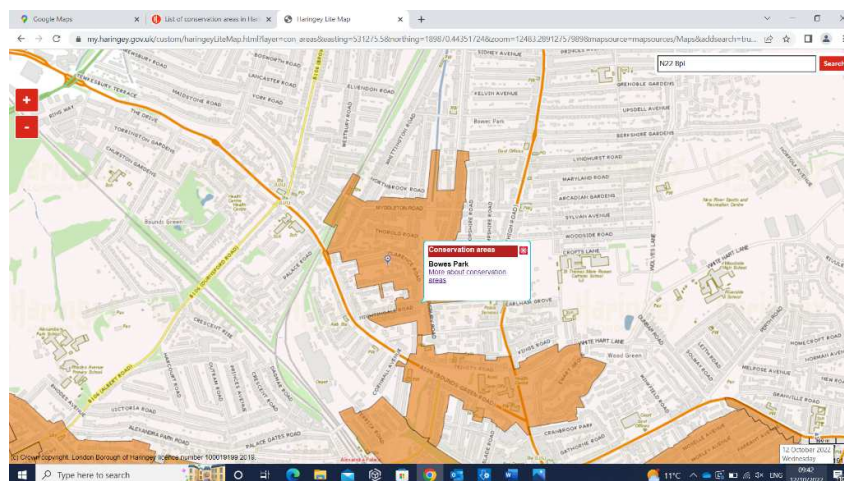
2 Arboricultural survey summary

- 2.1 The site is a small rectangular plot of land surrounded by private properties and is accessed by a single footpath down the side of Orchard court. There is one cottage building in the middle of the site. the majority of the tree stock is outside of the site perimeter. The site is situated in an urban residential area.

Tree Preservation Orders and other legal restrictions



- 2.2 Confirmation by the Haringey Council website shows no active tree preservation orders in place.



- 2.3 The site is within the Bowes Park conservation area. Confirmation by the Haringey Council website interactive map.
- 2.4 Reasonable care should always be taken not to damage trees to be retained.

Arboricultural survey

- 2.5 For tree survey information, see the Tree Survey Data in Appendix A.
- 2.6 Smaller trees and understory vegetation adjacent to the site have not been included as part of this Arboricultural report.
- 2.7 Trees are categorised in line with BS5837:2010 Trees in Relation to Design, Demolition and Construction as follows:

Table 1: Tree categories in line with BS5837:2010

A	Trees of high arboricultural value that should be retained and protected throughout the development. Veteran trees are automatically awarded 'A' status.
B	Retention preferable. Trees of good condition and character which are appropriate for the location and in good physiological and structural condition. These trees should be retained unless they will be a severe impediment to the proposal or there is an overriding public interest that warrants their removal.
C	Trees of generally lower arboricultural value by dint of character or condition. 'C' trees should not be a constraint on development.
U	Trees that should be removed on arboricultural grounds. Often trees in poor condition can be left 'in situ' until a proposal means the potential target increases, making their removal more urgent or necessary.

Trees are further categorised into sub-categories, using a numerical suffix to denote the following perceived values:

Table 2 Tree sub-categories in line with BS5837:2010

1.	Trees of primarily arboricultural qualities. High value trees might be because they are particularly good examples of their species, because they are rare or unusual or because they are important components of a group feature such as an avenue.
2.	Trees of landscape importance – for example, trees of particular visible importance in a setting or view.
3.	Trees of cultural value. This may be due to historic links or conservation value – such as veteran trees or commemorative trees.

For example, a veteran tree of landscape importance would be categorised as A2.

An overview of details of the trees surveyed is included in Appendix A – Tree Survey Data.

3 The proposal

3.1 Demolition of existing cottage dwelling and erection of five new mews dwellings.

4 Tree impact assessment

4.1 Trees to be retained adjacent to the development area, are unlikely to be adversely affected, provided that adequate precautions to protect the trees are implemented through the Arboricultural Method Statement outlined in section 5 of this report.

4.2 The proposal has the potential to damage the following trees and groups:

Impact	Reason	High value A class Trees	Moderate Value B class Trees	Low Value C Class Trees	Trees for Removal / U class trees
Trees to be removed	Poor Condition/ to facilitate build	-	-	T15	-
Retained trees that may be damaged through disturbance to RPAs	Removal of existing surfacing/ structures/ Landscaping/ Installation of new surfacing/ structures/ landscaping	T03	T10, T11, T13, T14.	T04, T05, T06, T12	-
Retained trees to be pruned	Crown raising away from proposed building	-	T10, T11, T13, T14	-	-

Impact Appraisal

4.3 The proposed development does not require the removal of any trees other than the small lilac shrub T15.

4.4 Pruning will be required for the group of trees by the main access point, T10, T11, T13 & T14. These trees are located off site and offer good screening, however they are grown close to the site boundary and significantly overhang into the site. given the layout of the proposed site, these will need to be pruned back to the boundary in order to maintain clear access. As far as I am aware this is also the only access route for the site and all materials may have to be transported via this point. Pruning of these trees back to the site boundary should not have a significant effect on these tree. they will require regular pruning to maintain clearance.

4.5 Demolition of the existing dwelling will have to be carried out in a sensitive manner to avoid having a detrimental effect on the RPA on site, in particular that of T03.

- 4.6 Construction activities will encroach into various RPA's on site. excavation for new foundations will be required in the RPA's of T10, T11, T12, T13 & T14. These trees are off site and offer good screening. The level of encroachment into RPA's should be tolerable for species and age, however close proximity of the trees may pose a problem by restricting available space.
- 4.7 Soil type is noted as London clay as indicated on the British Geological Survey map of north London. The plasticity index of this soil type is stated as 40-65% by Dr Peter Hobbs of the British Geological Survey Unit. This is a shrinkable soil type and therefore poses a risk of subsidence, particularly in conjunction with trees of high water demand. Most the trees on site are low to moderate water demand due to size and species however T03 will have a high water demand due to species and (growing) size. This will need to be accounted for in foundation depth for the proposed development.
- 4.8 Plans for the proposed development indicate the use of new hard surfacing in areas of frequent use. It will be best for new surfacing to be of permeable design particularly around the proposed new planting.
- 4.9 The restrictive size of the site will put limitations on room available to store materials and locate a site office/welfare, unit outside of RPA's, during construction. It is unclear if this will be possible in practise.
- 4.10 The new planting indicated in the design plan shows three trees to be planted in the central "corridor" between the mews houses. This soil in this area will be off poor condition due to the large amount of construction activity within this area throughout the construction period, including the demolition of the existing dwelling. Therefore remedial actions will be necessary to improve the soil in these areas so planted trees can establish and live a full life.
- 4.11 It will be best to choose trees species of typically smaller size for the new planting. Because the small area they will be located in, larger trees will not be appropriate.
- 4.12 There is the potential for tree roots of trees to be retained to be damaged during the proposed development. This could occur either through direct mechanical damage or through compaction from vehicles/plant or storage of materials. Damage can also occur through contamination from spillages from mixing areas.
- 4.13 The proposed development shall not have a detriments effect on trees to be retained as long as the method statement in section five of this report is adhered to.

5 Arboricultural Method Statement

5.1 Summary of recommendations

- 5.1.1 A copy of this AMS and the related TPP is to be retained on site at all times and all personnel associated with the construction process will be made familiar with the principles within.
- 5.1.2 A system of site monitoring by an arboriculturist at key stages in the development will be undertaken to ensure that all aspects of this AMS and related TPP have been understood and are implemented. This will include a pre-start meeting to ensure that the fencing has been erected in the correct location. Monitoring record sheet is included at the end of this method statement.
- 5.1.3 To protect the trees on site and off site and their relevant RPA's, construction exclusion zones have been marked out on the tree protection plan. These are to be fenced off as marked out in the tree protection plan and must be treated as such for the duration of the construction period.
- 5.1.4 Protective surfacing has been indicated in the TPP. To allow sufficient space for construction, protective surfacing is to be used in areas where fencing off space would be impractical. Protective surfacing must be appropriate for the intended purpose and weight load to be subjected.
- 5.1.5 The demolition of the existing cottage dwelling must be carried out in such a way to prevent damage to the RPA's on site, particularly the RPA's on the west of the site. Demolition by an infill technique will avoid debris falling into the adjacent RPA's. Machine activity must stay out of any RPA's along the west of the site.
- 5.1.6 New surfacing must be of permeable design to allow water and gaseous exchange in the rooting area of proposed planting areas. To preserve the permeability of this surfacing it must either be installed at the end of construction, or be protected with a membrane sheet, to stop dirt from blocking the pores.
- 5.1.7 Care should be taken when carrying out any excavations to ensure no significant roots are damaged. This includes by direct mechanical damage, or through compaction caused by plant movement, storage of materials, or contamination from spillages etc. during the building process.
- 5.1.8 In the unlikely event that tree roots are damaged by the development, exposed roots should be treated at once to avoid desiccation. Any roots smaller than 25mm in diameter, can be pruned back, preferably to a side branch, with suitable sharp pruning tools.
- 5.1.9 If significant roots are uncovered that cannot be pruned without detrimental effect to the tree, works in this area should cease and a new design and method statement should be agreed with planning before works may continue in this area.

- 5.1.10 Care should also be taken not to damage overhanging tree branches during the building process. facilitation pruning has been recommended for trees T10, T11, T13, T14. These trees are to be pruned back to the boundary line. This is to create sufficient clearance for site access. This sort of protective pruning is to prevent direct damage/torn branches etc. which may cause long term health or structural problems with these trees. Any pruning should be carried out to standards set out in BS3998: 2010 Tree Work Recommendations
- 5.1.11 Protective pruning and tree removal must be completed prior to commencing construction.
- 5.1.12 Trees to be removed T15, the small standalone lilac shrub.
- 5.1.13 All protective fencing must be installed before any construction works can commence.
- 5.1.14 New planting is to be undertaken after construction has been completed. Remedial works will be necessary to improve soil conditions before planting. Soil testing is recommended to determine accurate information on the soil condition and appropriate remedial works.
- 5.1.15 The extents of any site compound, storage/mixing areas, must not be near any Root Protection Area to prevent the risk of tree roots being damaged from the storage of materials, runoff/spillages etc. during the building process.
- 5.1.16 Barriers meeting best practice specifications for tree protection will be required to protect the root systems of trees to be retained. See figure 1 of this section for an example of an acceptable barrier specification. The location of protective measures is shown in the Tree Protection Plan.
- 5.1.17 There is no known need for the installation of new service runs within the RPAs of any trees to be retained. If services do need to be installed within the RPAs a method statement should be prepared and written approval obtained from the planning department before any works are carried out.

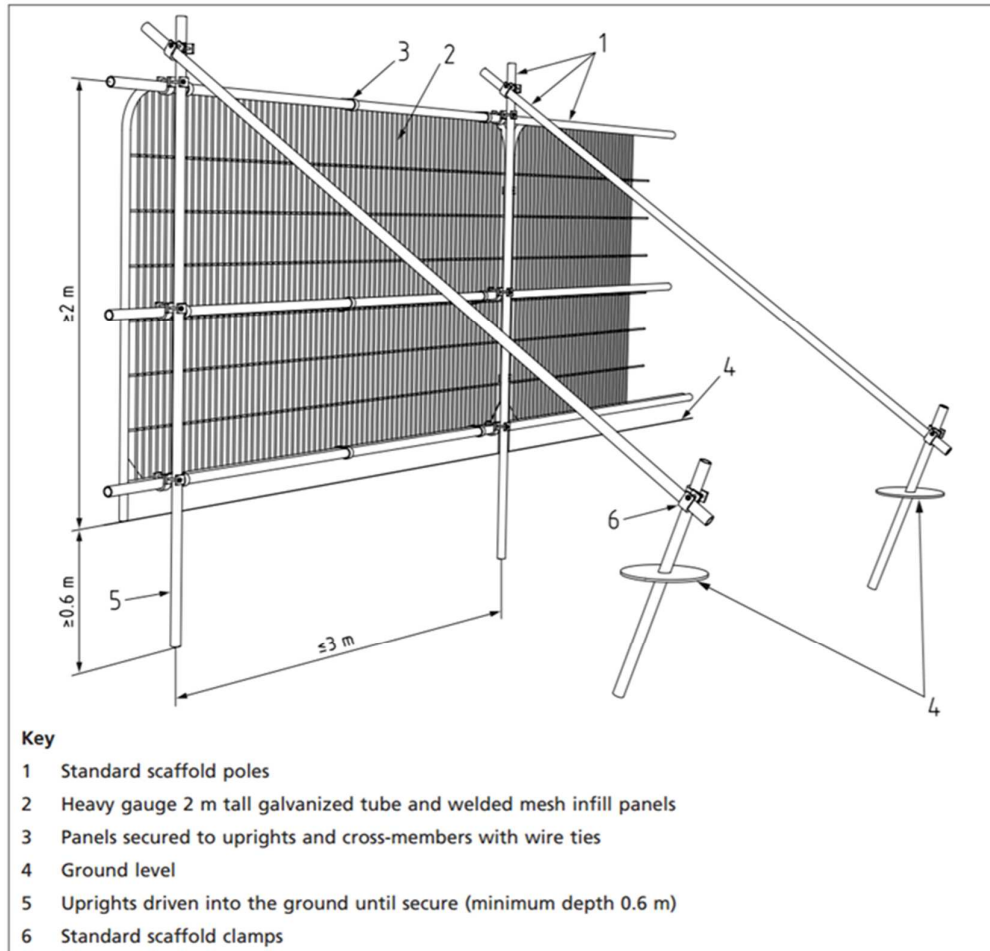


Figure 1 – Example of acceptable protective barrier specification

- 5.2.1 Fencing should contain appropriate information and warnings regarding the protection of trees. An example of acceptable signage is given in Figure 2 below.



Figure 2 – Example of protective barrier signage

- 5.1.18 Protective fencing shall remain in place for the entire development phase and until all equipment, machinery and surplus materials have been removed from the site. Such fencing shall not be removed or breached during construction operations.

ARBORICULTURAL SITE MONITORING RECORD

1 Orchard Cottage, Clarence Road, London N22 8PL

PURPOSE OF VISIT	TIMING	PERSONNEL PRESENT	OBSERVATIONS AND RECOMMENDATIONS	COMPLETE Y/N
1. Check Tree Protection is installed as AMS prior to the commencement of works	Pre-commencement			N
2. Monitoring site visits by approved Arboriculturalist to ensure continued compliance with AMS.	During Construction			N
3. Final completion inspection and identification of any remedial actions	Completion of scheme			N

Contacts			
Council Tree Officer:	[Name]	[Telephone]	[Email]
Site Manager:			
Arboriculturist: (BAWDEN TREE CARE)			
Project Agent:			

Notes:
[Inspector's comments and relevant information]

Photos:
[Photographic records]

Common causes of Tree Death

