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BS5837:2012 TREE SURVEY AND ARBORICULTURAL IMPACT ASSESSMENT: 69 Copse Wood Way, Northwood, HA6 2TZ

Dated: 25th April 2022

Our reference: GHA/DS/127660:22

CONTENTS

Arboricultural Impact Assessment

Location: 69 Copse Wood Way, Northwood, HA6 2TZ
Our reference: GHA/DS/127660:22
Client: DDA
Dated: 25th April 2022
Prepared by: Glen Harding MICFor, MSc (Forestry), MArborA
Date of Inspection: 16th February 2019

Instructions

Issued by – DDA

TERMS OF REFERENCE – GHA Trees were instructed to survey the subject trees within and adjacent to 69 Copse Wood Way, Northwood, in order to assess their general condition and to provide a planning integration statement for the indicative proposed development that safeguards the long term wellbeing of the retained trees in a sustainable manner.

Executive Summary

The proposal for the site is to demolish the existing house and then construct new detached dwelling on a similar footprint. The existing access will be reused for the new development. The proposed scheme requires the removal of a small number of relatively insignificant trees and shrubs, which will not significantly impact the local or wider landscape. The retained trees require protection in accordance with industry best practice and BS 5837: 2012 – Trees in relation to design, demolition and construction – recommendations, in order to ensure their longevity.

Documents Supplied

The client supplied the following documents:

- Existing layout plans
- Proposed layout plans

Scope of Survey

1.1 The survey is concerned with the arboricultural aspects of the site only.

1.2 The planning status of the subject property was not investigated in detail.

1.3 A qualified Arboriculturist undertook the report and site visit and the contents of this report are based on this. Whilst reference may be made to built structure or soils, these are only opinions and confirmation should be obtained from a qualified expert as required.

1.4 Trees in third party ownership were surveyed from within the subject property, therefore a detailed assessment was not possible and some (if not all) measurements were estimated. Where the stem location of a third party tree has been estimated, this is noted on the plan.

1.5 Dense vegetation or climbers (such as ivy) also prohibited full inspections for some trees; this is noted where applicable.

1.6 No discussions took place between the surveyor and any other party.

1.7 The trees were inspected on the basis of the Visual Tree Assessment method expounded by Mattheck and Breleor (The body language of tree, DoE booklet Research for Amenity Trees No. 4, 1994)

1.8 The survey was undertaken in accord with British Standard 5837: 2012 – Trees in relation to design, demolition and construction – recommendations.

1.9 Tree works will be required to be in accord with British Standard 3998 – 2010 (Tree Work - Recommendations).

1.10 Underground services near to trees will need to be installed in accord with the guidance given in BS5837.

1.11 The client's attention is drawn to the responsibilities under the Wildlife and Countryside Act (1981).

Survey Method

2.1 The survey was conducted from ground level with the aid of binoculars if needed.

2.2 No tissue samples were taken nor was any internal investigation of the subject trees undertaken.

2.3 No soil samples were taken.

2.4 The height of each subject tree was estimated using a clinometer and recorded to the nearest half metre.

2.5 The stem diameter for each tree was measured in line with the requirements set out in BS 5837: 2012 – Trees in relation to design, demolition and construction – recommendations.

2.6 The crown spreads were measured with an electronic distometer and recorded to the nearest half metre. Where the crown radius was notably different in any direction this has been noted on the Plan (appendix A) and within the tree table (Appendix B). The crowns of those trees that are proposed for removal, or trees where the crown spread is deemed insignificant in relation to the proposed development are not always shown on the appended plan; however their stem locations are marked for reference.

2.7 The Root Protection Area (RPA) for each tree is included in the tree table, both as an area, and as the radius of a circle.

2.8 The crown clearance was measured using a clinometer and recorded to the nearest half metre. Where it is significantly lower in one direction, this is noted within the tree table at appendix B.

2.9 All of the trees that were inspected during the site visit are detailed on the plan at Appendix A; this plan was produced in colour and **MUST** only be scanned or reproduced in colour. The trees on this plan are categorised and shown in the following format:

COLOUR CODING AND RATING OF TREES:

Category A – Trees of high quality with an estimated remaining life expectancy of at least 40 years. Colour = light green crown outline on plan.

Category B – Trees of moderate quality with an estimated remaining life expectancy of at least 20 years. Colour = mid blue crown outline on plan.

Category C – Trees of low quality with an estimated remaining life expectancy of at least 10 to 20 years, or young trees with a stem diameter below 150mm. Colour = uncoloured crown outline on plan.

Category U – Those in such a condition that they cannot realisitically be retained as living trees in the context of the current land use for longer than 10 years. Colour = red crown outline on plan.

All references to tree rating are made in accordance with BS 5837: 2012 – Trees in relation to design, demolition and construction – recommendations', Table 1.

The Site

3.1 The site is located on Copse Wood Way, a residential through road located to the south of Northwood.

3.2 A good tree cover is present on the site itself as well as adjacent sites, with many semi-mature and mature trees of both native and exotic origin characterising the local area.

3.3 Access to the property is currently gained via a driveway to the front (west) of the site.

The Subject Trees

4.1 The details of the subject trees are set out in the Schedule at Appendix B.

4.2 The overall quality of the trees is good.

4.3 Of the twelve individual trees, and groups of trees surveyed, six have been assessed as BS 5837 category B, with the remaining two trees being assessed as BS 5837 category C.

The Proposal

5.1 The proposal for the site is to demolish the existing house and then construct new detached dwelling on a similar footprint.

5.2 The existing access will be reused for the new development.

5.3 The proposed location of the above structures can be seen on the appended plan.

Arboricultural Impact Assessment

PROPOSED TREE REMOVAL / RETENTION:

6.1 The following trees are proposed for removal as part of the new development, as these specimens could not be effectively retained as they are located within the outline of the new structures, or located too close to make their retention feasible / sustainable.

G2, G3, a section of G4, G5 and a section of G6

6.2 All of the trees to be removed have been given a C category grading in accordance with BS 5837. It is therefore felt that these trees should not act as a limitation on the effective use of the site, or impose any significant constraints on the layout (see table 1 BS5837).

6.3 The assessed grading (as per BS5837 table 1) of each of the trees to be removed, as well as any relevant comments on their condition can be seen in the tree table at appendix B.

TREE PRUNING TO ACCOMODATE THE PROPOSAL OR ACCESS TO THE SITE

6.4 The following trees will be pruned to improve clearances from the proposed new structure. A full specification for the proposed pruning to each tree can be seen in the tree table at appendix B:

G6 and T7

6.5 The implementation of the proposal does not lead to the requirement to prune any of the other retained trees, or shrubs.

ASSESSMENT OF RETAINED TREES ROOT PROTECTION AREAS

6.6 Section 4.6.3 of BS 5837: 2012 states that the Root Protection Area (RPA) of each tree should be assessed by an arboriculturalist considering the likely morphology and disposition of the roots, when known to be influenced by past or existing site conditions.

6.7 The assessed RPAs (excluding the RPAs of U category trees and those trees which are proposed for removal) can be seen on the appended plan.

6.8 Some RPAs have been amended to take account of the existing roads as can be seen on appended plan.

6.9 The other RPAs have been drawn as notional circles, as there are no structures within their RPAs that have been assessed to significantly impact the root layout.

6.10 The proposed new building(s) are situated outside of the assessed RPA's of all of the trees proposed for retention, therefore these trees pose no below ground constraints on the new buildings or vice versa.

Post Development Pressure

FUTURE TREE AND STRUCTURE RELATIONSHIPS

7.1 The retained trees are at a satisfactory distance from the proposed new building and highly unlikely to give rise to any inconvenience.

7.2 Some minor lateral pruning of the retained trees and shrubs may be required in the medium term; however, any such work would not have a significant impact on the health or amenity value of these trees.

7.3 The larger trees on site are protected by Tree Preservation Orders (TPOs) These designations will ensure that the local planning authority retain full control over all future works to these trees, ensuring any future occupants are unable to undertake any inappropriate works to these trees.

7.4 The BS3998: 2010 – Recommendations for Tree Work discusses and endorses various methods of pruning that can alleviate the minor inconveniences trees can cause, whilst retaining them in a healthy condition. Methods such as crown reductions (section 13.4) partial or whole, crown lifting (section 13.5) and crown thinning (section 13.6) can be used to both increase light to properties, as well as improve clearances from buildings. Trees in towns are often sited in close proximity to buildings; however residents concerns can be readily appeased with the implementation of regular, well-planned, sensitive pruning.

7.5 Regular inspections of the retained trees by a suitably qualified Arboriculturalist and subsequent remedial works will ensure that the trees are maintained in a suitable manner, to exist in harmony with the new structures and its occupants for many years to come.

REMEDIATION / REPLACEMENT PLANTING AND SOFT / HARD LANDSCAPING

7.6 Any new trees that are planted should be selected to ensure they do not become a nuisance and that the level of routine maintenance is low.

7.7 The soil type may require the guidance of NHBC as far the building foundations are concerned. Clearly the planting schedule must be available to assist with foundation design, but any potential for subsidence damage in the future will be designed out.

7.8 All new pathways and soft landscaping areas within the Root Protection Areas (RPAs) of the retained trees should be designed using no-dig, up and over construction and in close co-ordination with the retained Arboriculturalist using porous materials.

Tree Protection Measures and Preliminary Method Statement for Development Works

8.1 TREE WORK

A list of all tree works that are required (including trees to be removed) is included in the tree table at Appendix B. Where any tree work is needed, this work **MUST** be in accordance with British Standard 3998 – 2010 (Tree Work - Recommendations).

8.2 TREE PROTECTION BARRIERS

It is essential for the future health of the trees to be retained on site, that all development activity is undertaken outside the root protection zone of these trees. The position of the proposed protective fencing for the site is shown on the plan at Appendix A by a **pink** line. The position of the fence **MUST** be marked out with biodegradable marker paint on site and agreed with appropriate representatives from the LPA and contractor. The fencing **MUST** be erected **prior** to any works in the vicinity of the trees and removed only when all development activity is complete. The protective fencing **MUST** be as that shown in BS 5837 (see Appendix C). The herras panels **MUST** be joined together using a minimum of two anti-tamper couplers which **MUST** be installed so they can only be removed from the inside of the fence. The panels **MUST** supported by stabilizer struts, which **MUST** be installed on the inside and secured to the ground using pins or appropriate weights.

The Fence must be marked with a clear sign reading:

"Construction Exclusion Zone – No Access"

8.3 GROUND PROTECTION – LIGHTWEIGHT ACCESS ONLY

An area of the site will require ground protection to ensure that soil erosion or excessive compaction does not occur. The areas where this protection is required are outlined in **orange** hatching on the appended plan. This area **MUST** be covered with a permeable membrane, with 150mm layer of compressible woodchip overlaying it; an 18mm marine ply boards will then be secured on top of the woodchip to allow a 1.5tonne mini-digger to access the area without causing major compaction or soil erosion.

8.4 REMOVAL / DEMOLITION OF THE EXISTING STRUCTURES

Some existing structures located within the RPAs of retained trees will need to be removed.

METHODOLOGY:

- If the fencing detailed in section 8.2 requires relocation, this **MUST** be moved to the edge of the structures which are to be removed, in order to protect the adjacent trees and their surrounding soil. This must be consulted with the retained arboriculturalist.

- The above ground parts of the structure **MUST** be removed by hand, using hand tools only (to include hand held pneumatic drill assuming compressor is positioned outside RPAs).

- The removed material **MUST** be moved to and stored outside of the RPA of all of the retained trees. This can either be done by transporting small pieces by hand or using a machine to lift this material; any such machine **MUST** be parked outside the RPA of on appropriate ground protection.

- The sub bases **MUST** be broken up using a small, lightweight "kango" drill into pieces that can be lifted by hand and removed.

- If during the work, any roots from the retained trees are discovered in excess of 25mm, the retained arboriculturalist **MUST** be contacted immediately to assess the roots and arrange subsequent working methods that will cause no damage to the tree(s).

- Care **MUST** be taken to avoid damage to the soil beneath these structures. If any roots are exposed, these should be covered immediately and the retained arboriculturalist **MUST** be contacted immediately to assess the roots and arrange subsequent working methods that will cause no damage to the tree(s).

8.5 SITE HUTS, WELFARE FACILITIES AND STORAGE OF EQUIPMENT, MATERIALS AND CHEMICALS

All site huts **MUST** be positioned outside of the retained trees RPA's.

8.6 MIXING OF CONCRETE

All mixing of cement / concrete **MUST** be undertaken outside of the RPA of all of the retained trees.

8.7 USE CRANES, RIGS AND BOOMS

Precautionary measures **MUST** be observed to avoid contact of any retained trees when manoeuvring cranes rigs or booms into position.

8.8 INCOMING SERVICES, DRAINAGE AND SOAKAWAYS

Any new underground services which are to be located within (any portion of) the RPAs of any trees which are to be retained **MUST** be installed in accord with the guidance given in BS5837 together with the National Joint Utilities Group Booklet 4: 2007 Guidelines for the planning, installation and maintenance of utility services in proximity to trees (NJUG4). Service installation layouts **MUST** be planned to keep apparatus together in common ducts, in order to minimise the need for excavations. Service trench excavation within the RPAs **MUST NOT** be undertaken with the use of any mechanised machinery (minidiggers, JCBs or alike).

8.9 ON SITE SUPERVISION

Regular site supervision is essential to ensure all potentially damaging activities near to trees are correctly supervised. A pre start meeting will occur to ensure all parties are aware of their responsibilities relating to tree protection on site; this will include a site induction for key personnel. It is deemed necessary for the retained arboriculturalist to visit the site at the following critical points.

- Prior to tree pruning / removal to ensure work is correctly identified. **Date and time yet to be agreed, however once confirmed, these dates will be sent to the Local Planning Authorities Arboricultural Officer in order that he / she can attend if required.**

- Following completion of tree pruning / removal to ensure work is completed to the correct specification. **Date and time yet to be agreed, however once confirmed, these dates will be sent to the Local Planning Authorities Arboricultural Officer in order that he / she can attend if required.**

- Prior to erection of protective fencing to ensure it is located in the correct locations. **Date and time yet to be agreed, however once confirmed, these dates will be sent to the Local Planning Authorities Arboricultural Officer in order that he / she can attend if required.**

- Following completion of the erection of protective fencing to ensure it is constructed to the correct specification at the required proximity to ensure the healthy retention of the trees. **Date and time yet to be agreed, however once confirmed, these dates will be sent to the Local Planning Authorities Arboricultural Officer in order that he / she can attend if required.**

- Installation of the ground protection to ensure it is constructed to the correct specification at the required proximity. **Date and time yet to be agreed, however once confirmed, these dates will be sent to the Local Planning Authorities Arboricultural Officer in order that he / she can attend if required.**

- Pre start and periodically during demolition of the existing building(s) to ensure no damage occurs to the retained trees. **Date and time yet to be agreed, however once confirmed, these dates will be sent to the Local Planning Authorities Arboricultural Officer in order that he / she can attend if required.**

8.10 OTHER TREE PROTECTION PRECAUTIONS

- **NO** fires lit on site within 20 metres of any tree to be retained.
- **NO** fuels, oils or substances with will be damaging to the tree shall be spilled or poured on site.
- **NO** storage of any materials within the root protections zone.

8.11 HARD / SOFT LANDSCAPING NEAR RETAINED TREES

All new pathways and hard landscaping areas within the Root Protection Areas (RPA's) of the retained trees **MUST** be designed using no-dig, up and over construction techniques, and be specified in close co-ordination with the retained Arboriculturalist. Porous materials **MUST** also be used when surfacing near the trees. No machinery will be used for this work, which **MUST** all be done by hand.

8.12 DISMANTLING PROTECTIVE BARRIERS

Protective barriers must only be completely removed when all machinery, and equipment has left site.

Conclusion

9.1 In conclusion, the principal arboricultural features within the site can be retained and adequately protected during development activities.

9.2 Subject to precautionary measures as detailed above, the proposal will not be injurious to trees to be retained.

9.3 There will be no appreciable post development pressure, and certainly none that would oblige the council to give consent to inappropriate tree works.

Recommendations

10.1 Site supervision – An individual e.g. the Site Agent, must be nominated to be responsible for all arboricultural matters on site. This person must:

a. Be present on the site the majority of the time.
b. Be aware of the arboricultural responsibilities.
c. Have the authority to stop any work that is, or has the potential to cause harm to any tree.
d. Be responsible for ensuring that all site personnel are aware of their responsibilities towards trees on site and the consequences of the failure to observe those responsibilities.
e. Make immediate contact with the local authority and / or retained arboriculturalist in the event of any related tree problems occurring whether actual or potential.

10.2 It is recommended, that to ensure a commitment from all parties to the healthy retention of the trees, that details are passed by the architect or agent to any contractors working on site, so that the practical aspects of the above precautions are included in their method statements, and financial provision made for these.

25th April 2022
Signed:

Glen Harding MICFor, MSc (Forestry), MArborA
For and on behalf of GHA Trees

Appendix A
TREE PLAN
(see separate PDF)

Appendix B
TREE TABLE

Tree Number	Tree Name (species)	Ht (m)	Calculated Stem Diameter (mm)	Number of Stems	Root Protection Area (Radius, m)	N (m)	E (m)	S (m)	W (m)	Age Class	Clearance (m)	Estimated life expectancy	BS Category	Comments / Recommendations
T1	Oak	18	750	1	9.00	6.5	7	9	9	M	5	20-40	B1	Poor overall crown form.
G2	Mixed cypress	11	200	1	2.40	3	2	2	2	M	2	10-20	C2	Small trees of little present or future value. Recommend: to be removed.
G3	Mixed cypress	8	200	1	2.40	2	2	2	2	M	2	10-20	C2	Small trees of little present or future value. Recommend: to be removed.
G4	Laurel, cypress, holly	3 to 6	120	1	1.44	1.8	1.8	1.8	1.8	MA	0	10-20	C2	Small trees and shrubs of little present or future value. Recommend: section to be removed.
G5	Cypress, holly, beech, lilac and mixed shrubs	3 to 6	80	1	0.96	1.8	1.8	1.8	1.8	MA	0.5	10-20	C2	Small trees and shrubs of little present or future value. Recommend: to be removed.
G6	Hornbeam and beech	14	210	1	2.52	4	4	4	4	MA	3 (south)	10-20	C2	Off site trees. Recommend: section to be removed. Prune remaining trees back to ensure 2m crown clearance from new house.

Tree Number	Tree Name (species)	Ht (m)	Calculated Stem Diameter (mm)	Number of Stems	Root Protection Area (Radius, m)	N (m)	E (m)	S (m)	W (m)	Age Class	Clearance (m)	Estimated life expectancy	BS Category	Comments / Recommendations
T7	Oak	19	670	1	8.04	8	7	8	7	M	6 (west)	20-40	B1	No notable defects recorded during inspection. Recommend: prune laterally on western side by 3m.
T8	Oak	15	500	1	6.00	2	2	8	7	M	7	10-20	C1	Poor overall crown form, suppressed by T9.
T9	Oak	20	690	1	8.28	5	7	9	7	M	8	20-40	B2	No notable defects recorded during inspection.
G10	Hornbeam	20	280	1	3.36	5	5	5	5	M	2.5	20-40	B2	No notable defects recorded during inspection.
T11	Oak	17	340	1	4.08	3	3	6	5	M	8	20-40	B2	No notable defects recorded during inspection.
T12	Oak	20	640	1	7.68	3	8	8	5	M	3 (east)	20-40	B2	No notable defects recorded during inspection.

KEY :

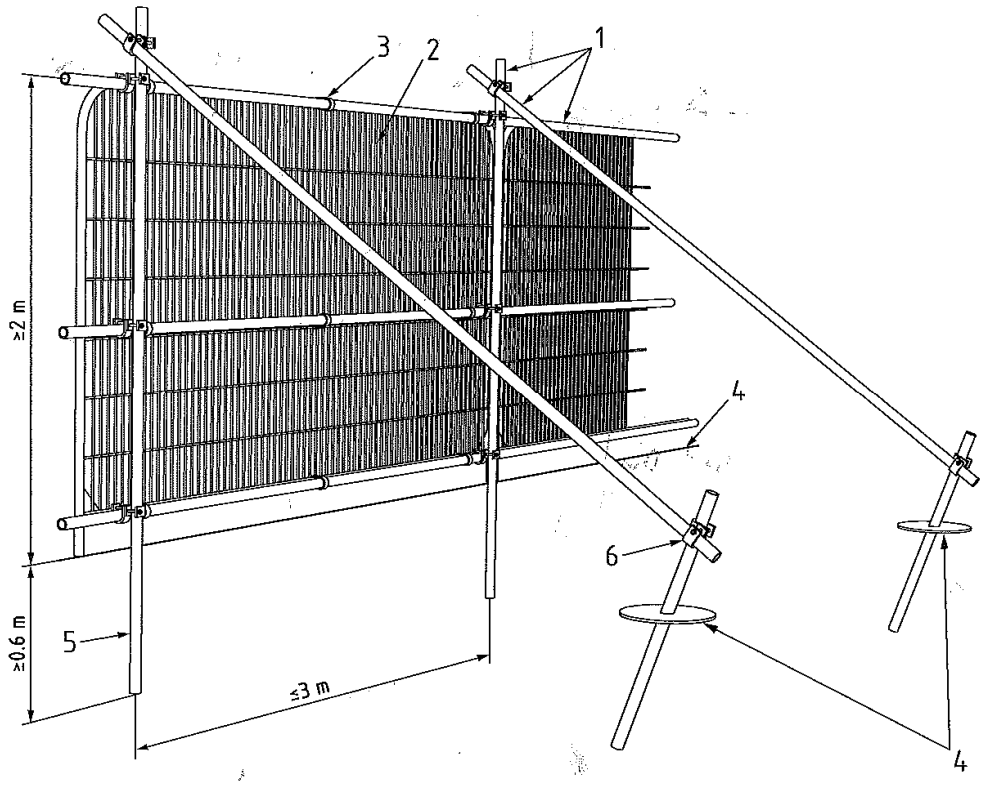
Tree No: (T= individual tree, G= group of trees, W= woodland)

Age class: Young (Y), Middle aged (MA), Mature (M), Over mature (OM), Veteran (V)

Height (Ht): Measured in metres +/- 1m

Appendix C
TREE FENCING DETAIL

Figure 2 **Default specification for protective barrier**



Key

1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps