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**BS5837:2012 TREE SURVEY AND  
ARBORICULTURAL IMPACT ASSESSMENT:  
3 Nicholas Way, Northwood, Middlesex**

Dated: 25<sup>th</sup> September 2023

Our reference: GHA/DS/160444:23

## CONTENTS

Section	Subject	Page
	Instructions	3
	Executive Summary	3
	Documents Supplied	4
	Scope of Survey	4
	Survey Method	5
	The Site	6
	Subject Trees	6
	The Proposal	6
	Arboricultural Impact Assessment	6
	Post Development Pressure	8
	Tree Protection Measures and Preliminary Method Statement for Development Works	8
	Conclusion	9
	Recommendations	10
Appendix A	Site Plan / Arboricultural Impact Plan (Attached as a separate PDF file to maintain its integrity / accuracy)	
Appendix B	Tree Table	
Appendix C	Extract from BS5837:2012 – Protective Fencing	

# Arboricultural Impact Assessment

Location: 3 Nicholas Way, Northwood, Middlesex

Our reference: GHA/DS/160444:23

Client: DDA

Dated: 25<sup>th</sup> September 2023

Prepared by: Glen Harding MICFor, MSc (Forestry), MARborA

Date of Inspection: 25<sup>th</sup> July 2023

## **Instructions**

### **Issued by – DDA**

**TERMS OF REFERENCE – GHA Trees were instructed to survey the subject trees within and adjacent to 3 Nicholas Way, Northwood, Middlesex, 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.**

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## **Executive Summary**

The proposal for the site is to renovate and extend the existing house. The existing detached garage will be removed and replaced with a new outbuilding. The proposed scheme requires the removal of one relatively insignificant (C category) tree. A small number of relatively insignificant (C category) shrubs will also be removed, 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:

- Topographical survey
- 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 Underground services near to trees will need to be installed in accord with the guidance given in BS5837.
- 1.10 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 realistically 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 Nicholas 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 Of the twenty-two individual trees, and groups of trees surveyed, three have been assessed as BS 5837 category A, three have been assessed as BS category B, fourteen have been assessed as BS category C with the remaining two trees being assessed as BS 5837 category U.

Category A	3 trees
Category B	3 trees / groups
Category C	1 trees
Category U	2 trees

## **The Proposal**

- 5.1 The proposal for the site is to renovate and extend the existing house.
- 5.2 The existing detached garage will be removed and replaced with a new outbuilding.
- 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 T13 is proposed for removal as part of the new development, as this tree could not be effectively retained as it is located too close to the new side extension to make its retention feasible / sustainable. This tree has been given a C category grading in accordance with BS 5837 and therefore 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).

6.2 A small number of relatively insignificant (C category) shrubs will also be removed, which will not significantly impact the local or wider landscape.

#### TREE PRUNING TO ACCOMODATE THE PROPOSAL OR ACCESS TO THE SITE

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

6.4 There is a slight overhang of the new outbuilding from the crowns of T19 and T20. The defining branch structure of these trees is however well clear of the proposed upper building line and therefore building works can progress safely without the need for any facilitation pruning.

#### ASSESSMENT OF RETAINED TREES ROOT PROTECTION AREAS

6.5 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.

6.6 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.

6.7 Nicholas Way to the west is not assessed to be sufficiently engineered to have restricted any root growth in this direction.

6.8 The RPAs of several trees have however been amended to take account of the existing buildings; these adjustments can be seen on the appended plan.

#### ASSESSED IMPACT ON RPAS BY PROPOSED STRUCTURES

6.9 There are small encroachments into the RPAs of G8 (encroachment = 4%), T18 (encroachment = 5%), T19 (encroachment = 1%) and T21 (encroachment = 2.5%) as shown on the appended plan. These encroachments are all assessed to be within acceptable levels and it is considered that all of the affected trees will tolerate this small amount of root loss and recover quickly.

6.10 It is also of note that the much of the area where the new outbuilding will sit currently exists as hard surfacing and is a well-engineered structure.

6.11 The proposed new structures are situated outside of the assessed RPAs of all of the other trees proposed for retention, therefore these trees pose no below ground constraints on the new structures or vice versa.

#### ACCESS TO THE NEW DEVELOPMENT

6.12 The existing driveway and parking areas will be retained and there are no plans to extend these areas as part of the proposed site works.

## INSTALLATION OF SERVICES

- 6.13 The full details of existing and proposed new services have not been made available at the time of writing.
- 6.14 From an assessment of the subject site, undertaken in conjunction with the project architect, the existing drainage system has been assessed as suitable for re-use and it is assumed that the electric and gas cabling is also satisfactory. Therefore, there is no reason to assume that any new service installations will be required within the RPAs of any trees.
- 6.15 New services to the new outbuilding must be routed to avoid all RPAs of retained trees on site and within nearby sites. From an assessment of the subject site, undertaken in conjunction with the project architect, there is no reason to assume this isn't possible. Inspection chambers must also be sited outside the RPAs of any nearby trees.

## **Post Development Pressure**

### FUTURE TREE AND STRUCTURE RELATIONSHIPS

- 7.1 The retained trees are at a satisfactory distance from the proposed new building outline and highly unlikely to give rise to any inconvenience.
- 7.2 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.

## **Tree Protection Measures and Preliminary Method Statement for Development Works**

### 8.1 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 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** be 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"**

**8.2 GROUND PROTECTION – LIGHTWEIGHT ACCESS ONLY**

Where any additional ground protection is required, these areas **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.

**8.3 SITE HUTS, WELFARE FACILITIES AND STORAGE OF EQUIPMENT, MATERIALS AND CHEMICALS**

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

**8.4 MIXING OF CONCRETE**

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

**8.5 ON SITE SUPERVISION**

**Regular site supervision is essential to ensure all potentially damaging activities near to trees are properly supervised.** A pre start site meeting **MUST** occur to ensure all parties are aware of their responsibilities relating to tree protection on site; this **MUST** include a site induction for key personnel.

**8.6 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.

**8.7 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.

**8.8 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** No significant or important trees will be lost to facilitate the proposed scheme.

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

## **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.

25<sup>th</sup> September 2023

Signed:

A handwritten signature in blue ink, appearing to read "Glen Harding".

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	Lawson cypress	18	430	1	5.16	2	2	2	2	OM	2 north	Less than 10	U	Sparse and declining crown. ~ 50% of 'normal' crown vitality noted.
T2	Cedar	23	710	1	8.52	4	3.5	4	6.5	M	7 east	40+	A1	Minor deadwood in crown. Recommend: removed deadwood.
T3	Lawson cypress	17	320	1	3.84	2	2	2	2	OM	9	Less than 10	U	Suppressed tree of poor form. Crown in decline.
T4	Purple leaf plum	8	384	2	4.61	6.5	3	4	6.5	M	2	10-20	C1	Unremarkable tree of limited value in the wider landscape.
T5	Cedar	23	830	1	9.96	8	6	4	6.5	M	6 east	40+	A1	Minor deadwood in crown. Recommend: removed deadwood.
T6	Purple leaf plum	8	297	2	3.57	2	3	3	2	M	2	10-20	C1	Unremarkable tree of limited value in the wider landscape.
T7	Lawson cypress	17	380	1	4.56	2	2	2	2	OM	6	Less than 10	U	Sparse and declining crown. ~ 50% of 'normal' crown vitality noted.
G8	Thuja plicata	16 to 23	600	1	7.20	4	4	4	4	M	0	10-20	C2	Lapsed hedge. Sparse crown. ~ 70 - 80% of 'normal' crown vitality noted.
T9	Hawthorn	6	347	2	4.16	3	3	3	3	OM	2	Less than 10	U	Suppressed tree of poor form. Crown in decline.
T10	Holly	6	200	1	2.40	1	1	3	1	M	2	10-20	C1	Poor fork noted at 1.5m. Suppressed tree.

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
T11	Lawson cypress	16	380	1	4.56	2	2	2	2	M	4	Less than 10	U	Sparse and declining crown. ~ 60% of 'normal' crown vitality noted.
T12	Thuja plicata	21	840	1	10.08	5	5	5	5	M	4 north	10-20	C1	Unremarkable tree of limited value in the wider landscape. Poor union noted at 5m.
T13	Lawson cypress	20	550	1	6.60	3	3	3	3	M	3	10-20	C1	Unremarkable tree of limited value in the wider landscape. Poor stem union noted at 10m. Recommend: to be removed.
T14	Magnolia	4	80	1	0.96	1.5	1.5	1.5	1.5	M	1	10-20	C1	Small tree of limited value in the wider landscape.
T15	Ash	27	570	1	6.84	4	7	7	5	M	8	10-20	C1	Early signs of Ash dieback noted.
G16	Hornbeam, cypress, spruce	10 to 24	420	1	5.04	5	5	5	5	M	2 over site	20-40	B2	Woodland group.
T17	Oak	20	900	1	10.80	11	10	9	9	M	2 over site, first branch 8	40+	A1	Off site - full inspection not possible. Some measurements estimated.
T18	Leyland cypress	22	700	1	8.40	3.5	3.5	3.5	3.5	M	5 over site	10-20	C1	Off site - full inspection not possible. Some measurements estimated. Poor fork noted at 2m.
T19	Spruce	18	300	1	3.60	3.5	3.5	3.5	3.5	M	4 south	20-40	B1	Off site - full inspection not possible. Some measurements estimated.

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
T20	Leyland cypress	16	260	1	3.12	2.6	2.6	2.6	2.6	M	5 over site	10-20	C1	Off site - full inspection not possible. Some measurements estimated.
T21	Pine	22	700	1	8.40	6	6	3	3	M	8	20-40	B1	Off site - full inspection not possible. Some measurements estimated. Poor stem union noted at 4m.
T22	Thuja plicata	13	500	1	6.00	4.5	4.5	4.5	4.5	M	2	10-20	C1	Off site - full inspection not possible. Some measurements estimated.

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 3 Examples of above-ground stabilizing systems



