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Arboricultural and Planning Integration Report: 10a Bracknell Gardens, London, NW3 7EB

16th July 2020

Ref: GHA/DS/122160:20

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	11
	Recommendations	11
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 Report

Location: 10a Bracknell Gardens, London, NW3 7EB
Ref: GHA/DS/122160:20
Client: N Raibin
Date: 16th July 2020
Prepared by: Glen Harding MICFor, MSc (Forestry), MArborA
Date of Inspection: 13th July 2020

Please note that abbreviations introduced in (brackets) may be used throughout the report.

Instructions

Issued by – N Raibin

TERMS OF REFERENCE – GHA Trees were instructed to survey the subject trees within and adjacent to 10a Bracknell Gardens, London, in order to assess their general condition and to provide a planning integration statement for the indicative proposed development that safeguards the long term well being of the retained trees in a sustainable manner.

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Executive Summary

The proposal for the site is to construct a new rear basement extension within an existing sunken courtyard. A new garden / studio will also be constructed in the rear garden. 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:

1. Existing layout plans
2. 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 Pruning 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 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).
- 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 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 Bracknell Gardens, a residential through road located in the Hampstead area of north west London.

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 eleven individual trees, and groups of trees surveyed, eight have been assessed as BS 5837 category B, with the remaining trees being assessed as BS 5837 category C.

Category B	8 trees
Category C	3 trees / groups

The Proposal

- 5.1 The proposal for the site is to construct a new rear basement extension within an existing sunken courtyard.
- 5.2 A new garden / studio will also be constructed in the rear garden.
- 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 G8 and some small existing shrubs 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. These have all 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).

TREE PRUNING TO ACCOMODATE THE PROPOSAL OR ACCESS TO THE SITE

- 6.2 The implementation of the proposal does not lead to the requirement to prune any of the retained trees, or shrubs.
- 6.3 Building works can progress safely without the need for any facilitation pruning.

ASSESSMENT OF RETAINED TREES ROOT PROTECTION AREAS

- 6.4 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.
- 6.5 The RPAs of T1 and T2 have been amended to take account of the existing retaining wall / sunken courtyard; these adjustments can be seen on the appended plan.
- 6.6 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.
- 6.7 The new rear extension / basement will be within the outline of the existing retaining walls as described in section 6.14. The presence of these existing structures will mean no excavations will be required to implement the proposal; therefore, these trees will be unharmed by the proposal.
- 6.8 The proposed new out building / studio to the rear would be situated within a small section of the assessed Root Protection Areas of some off-site trees to the rear, as can be seen on the appended plan. The construction design process has shown consideration of this issue (of working within the RPA) by specifying the use of specialised footings; these footings will ensure minimal root disturbance occurs near these trees.
- 6.9 **In order to arrive at a suitable foundation design (which minimises root disturbance within the RPAs of nearby retained trees), site specific and specialist advice regarding footings should be sought from an Engineer, in close discussion with the projects Arboriculturalist.**
- 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.

INSTALLATION OF SERVICES

- 6.11 The installation of underground apparatus and drainage systems with the use of mechanical excavators will undoubtedly sever any roots that may be present and can change the hydrology and structure of the nearby soil in a way that will adversely affect the health of any nearby trees. Particular care should therefore be taken when assessing the layout of new services and consideration **MUST** be given to the methods of installation of **ALL** underground apparatus.

- 6.12 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 (in relation to the house and rear extension) 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.

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 There will be a slight overhang of the new building, from the crown of T1 and T2. These trees have been reduced in the past, a practice that will no doubt continue to be undertaken in the future. Such pruning would mean that this overhang will not be an ongoing issue, as satisfactory clearance will always be retained.
- 7.3 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 PRUNING / REMOVAL

A list of all tree works that are required (including trees to be removed) is included in the tree table at Appendix B. Pruning / removal has only been specified for the following reasons:

- Where work is necessary to implement the proposed scheme.
- Where works are required for safety reasons.
- Where work is required to improve tree form, or improve the appearance of overgrown areas of the site.

Where any tree work is needed, this work will 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 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

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.

8.4 IMPLEMENTATION OF THE NEW BUILDING IN THE REAR GARDEN ON A “RAFT STYLE” FOUNDATION WITH ASSOCIATED PADS

- **NOTE: any excavations in the RPAS with the use of mechanical excavators will undoubtedly sever any roots that may be present and can change the hydrology and structure of the nearby soil in a way that will adversely affect the health of any nearby trees.**
- The locations of the supporting pads is easily changeable, and the exact locations for them will be confirmed following hand excavated, trial digs of the top 1000mm of each potential hole (this is where the majority of roots exist).
- Hand tool excavations will only be undertaken by fully briefed site personnel. This operation will be done slowly and carefully to ensure the retention and protection of any roots that are discovered that are in excess of 25mm. These roots **MUST** then be covered and protected using damp hessian whilst further excavation commences; hessian must be left in situ until backfilling commences and re-wetted if needed to avoid root desiccation. **NOTE: OPERATIVES MUST CHECK FOR THE PRESENCE OF ANY EXISTING UNDERGROUND SERVICES PRIOR TO THE COMMENCEMENT OF SUCH WORK.**
- Any roots discovered in these trial pits in excess of 25mm diameter will immediately signal the requirement for a change of pit location.
- These trial digs will be attended by the retained arboriculturalist and site manager who will agree the final locations of the pads.
- Ground protection as that detailed above should be placed over the working area whilst the excavation of the final locations commences, with the use of a hand tools. This will alleviate the possibility of excessive compaction or erosion within the RPA’s.
- Once the trial holes are excavated to the correct depth, care must then be taken to ensure the new pads are installed so as to avoid any roots present. **Any roots that require pruning (those less than 25mm diameter)**

should be cut using sharp tools to leave a 'clean' cut, in order to minimise the risk of infection by decay pathogens.

- Once the pads are installed, the excavated holes must then be backfilled and the soil compacted using hand tools only, to ensure not air pockets are left as these can be damaging to tree roots.

8.5 BOUNDARY TREATMENTS

No upgrades to the existing fencing are proposed as part of the scheme.

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

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

8.7 MIXING OF CONCRETE

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

8.8 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.

8.9 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).

8.10 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.

8.11 OTHER TREE PROTECTION PRECAUTIONS

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

8.12 HARD / SOFT LANDSCAPING NEAR RETAINED TREES

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

Conclusion

- 9.1 In conclusion, no significant or important trees will be lost to facilitate the proposed scheme.
- 9.2 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.

15th July 2020

Signed:



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

Appendix A

Appendix B

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	Sycamore	12	500	1	6.00	4	4	4	4	M	6 plus epicormic	20-40	B1	Pruned in past.
T2	Viburnum	4	240	4	2.88	3	1	3	3	M	2 south	10-20	C1	Small tree of little value.
T3	London plane	16	470	1	5.64	0	1	6	3	M	4 south	20-40	B1	off site - full inspection not possible.
T4	Lime	22	600	1	7.20	2	2	2	2	M	10 plus epicormic	20-40	B1	off site - full inspection not possible.
T5	London plane	16	800	1	9.60	5	5	5	5	M	6	20-40	B1	off site - full inspection not possible.
T6	Lime	24	700	1	8.40	5	5	3	4	M	6	20-40	B1	off site - full inspection not possible.
T7	Lime	14	500	1	6.00	5	5	5	5	M	3	20-40	B1	off site - full inspection not possible.
G8	Holly	7	150	1	1.80	2	2	2	2	M	2	10-20	C2	Small trees of little value. Recommend: to be removed.
T9	Oak	17	680	1	8.16	3	5	5	5	M	8.5	20-40	B1	Pruned in past.
T10	Holly	6	100	1	1.20	2	2	2	2	M	3	10-20	C1	off site - full inspection not possible.
T11	London plane	20	400	1	4.80	2	6	6	6	M	7	20-40	B1	off site - full inspection not possible.

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

Figure 3 Examples of above-ground stabilizing systems



