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TREE SURVEY AND ARBORICULTURAL METHOD STATEMENT 46 Hollycroft Avenue, London, NW3 7QN

A report to accompany a Planning Application for development
at 46 Hollycroft Avenue, London, NW3 7QN

Report by Dr Martin Dobson

24 September 2009

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1. Tree Survey

- 1.1 On 21 September 2009 Martin Dobson Associates carried out a survey of trees in, and adjacent to, the garden of 46 Hollycroft Avenue, London, NW8 as instructed by Alan Higgs Architects. The survey was carried out in line with British Standard 5837: 2005 *Trees in Relation to Construction - Recommendations*. Appended at **MD1** is a copy of the tree survey schedule, which lists eight trees present in or near to the property. Details of tree dimensions and condition are given along with an appraisal of the suitability of the trees for retention within the proposed development which is the subject of this report. The explanation of abbreviations used in the schedule is given at the end of the table.
- 1.2 The site survey drawing appended at **MD2** shows the positions of the trees surveyed and gives a reasonable indication of the comparative branch spreads of the trees. The drawing has been colour coded as follows:
- | | |
|--|-------------|
| A trees (high quality and value, minimum 40 years useful life) | LIGHT GREEN |
| B trees (moderate quality and value, minimum 20 years useful life) | MID BLUE |
| C trees (low quality and value, minimum 10 years useful life) | GREY |
| R trees (unsuitable or dead/dying/dangerous, less than 10 years useful life) | RED |
- 1.3 It should be understood that no individual safety inspection has been carried out on any tree. Similarly, any suggestions for tree work should not be taken as a specification for tree works.
- 1.4 The reason for this survey is that it is proposed to redevelop the site by partial demolition of the existing building together with extension of it and the installation of a new basement under part of the building.

2. Landscape Appraisal of the Site

- 2.1 The site comprises a two to three storey detached house with an ample garden set within the leafy London suburb of Hampstead. The local area is characterised by large street trees, predominantly London planes, and further substantial privately owned trees and shrub cover in front and back gardens.
- 2.2 I have been led to believe that the property lies within a Conservation Area and that one or more of the trees may be protected by a Tree Preservation Order (TPO). I have not been able to establish whether this is true or not. But if it is then any tree protected by a TPO cannot be pruned, felled or uprooted without the express consent of the Council. Likewise, all trees within a Conservation Area having trunk diameters larger than 75 mm may not be pruned or removed without first giving the Council six weeks notice.
- 2.3 The rear garden of 46 Hollycroft Avenue is enclosed on all three sides by trees and shrubs providing privacy and an attractive setting for the house. On the right hand side of the garden there is a young Ginkgo (T1) growing very close to the house and having branches which reach the rear wall and cause significant shading to the existing rear windows (Photograph 1). The tree has grown substantially within the canopy of the older and larger Pear tree (T2) which grows adjacent to it. The position of the Ginkgo is far from ideal and it is likely that its growth will continue to be suppressed by the Pear so that it will never form a good specimen tree – particularly since it is also likely to require pruning back from the house to avoid undue shading and possible minor structural damage. It is for these reasons, together with its young age and significant potential for further growth inappropriate to its setting, that I consider the Ginkgo unsuitable for retention within the proposed development and recommend that it

should be removed. The tree has been given a C grading and the British Standard recommends that 'C category trees will usually not be retained where they could impose a significant constraint on development'. There is ample space to the rear of the Pear tree (T2) for a replacement tree to be planted.

Photograph 1. Rear of 46 Hollycroft Avenue showing the proximity of the Ginkgo to the rear wall.



- 2.4 The Pear tree (T2) is a large tree of good form with a balanced canopy that enhances the amenities of the garden. It is not visible from the road and therefore it does not have any significant public amenity benefit therefore it has been given a B rating.
- 2.5 There are two young Eucalyptus trees (T3 and T4) adjacent to the left hand boundary in the rear garden.

Photograph 2. Eucalyptus trees T3 and T4 (the tall slender trees on right of picture)



- 2.6 Eucalyptus is a fast growing exotic species which can reach heights of 25 m or so with a large crown spread. Whilst there is no reason at this point in time to recommend removal of these trees it should be borne in mind that they have the potential to dominate the garden in the foreseeable future and therefore some consideration may need to be given to replacing them in the longer term. The trees have been given a C rating because they are young and could easily be replaced if needs be.
- 2.7 T5 is an Almond which is reaching maturity. It plays no major role in the landscape although it will have attractive pink blossom in the spring. It has been given a C rating. Likewise the Hawthorn (T6) is a mature tree with a limited future life and has been given a C rating.
- 2.8 The large Plane (T7) in the pavement is a significant landscape tree and has been given an A rating due to its prominence and size. It tends to block views of the other trees in the garden (particularly T5 and T6) reducing their importance within the wider landscape. The Hornbeam (T8) is a recently planted street tree which has not yet attained any significant amenity value. It has been given a C rating.

Photograph 3. The London plane (T7) on the left of the picture dominates the street scene and lessens the importance of other trees.



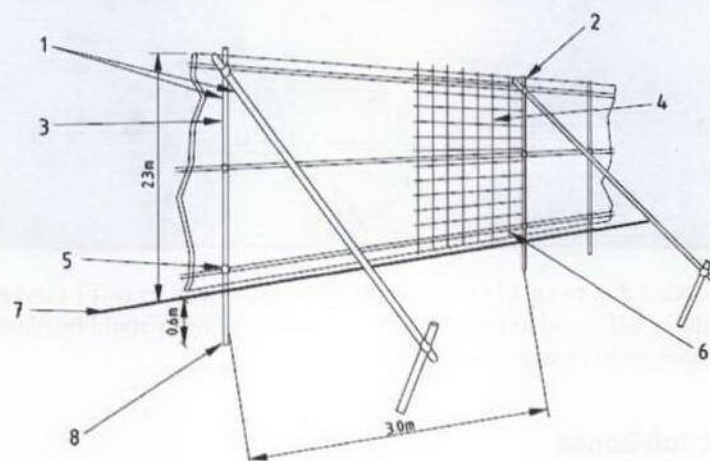
- 2.9 It is recommended that to enable the development to proceed trees T1 Ginkgo, T5 Almond and T6 Hawthorn will need to be removed. Replacement trees could be planted as part of a landscaping scheme to be agreed with the Council.

3. Tree Protection Zones

- 3.1 Trees can very easily be damaged during construction activities through their branches being broken by traffic passing close to the canopy or by root severance during the digging of foundations or service trenches. The majority of roots are to be found in the upper 600 mm of soil and so even relatively shallow trenches can sever a large proportion of roots growing in the direction of the trench. Similarly, the diameter of roots tapers sharply within a few metres of the trunk of a tree, so that what might seem to an uninitiated site worker to be an insignificant root (perhaps only a couple of centimetres in diameter) may actually be highly important.

- 3.2 Tree roots can also be damaged indirectly, often inadvertently, through soil compaction, which disrupts soil structure and can lead to root death through the development of anaerobic soil conditions. Spillage of toxic materials (e.g. oil or diesel) can also result in root damage and ultimately the death of a tree.
- 3.3 Adequate protection, both above and below ground, is therefore essential for trees that are to be retained as part of a development. The British Standard BS5837: 2005 *Trees in Relation to Construction - Recommendations* gives advice for ensuring that the negative impacts of development on trees are minimised.
- 3.4 Essentially the guidance recommends that there should be a root protection area (RPA) around trees which is kept free of all construction activities by means of an exclusion zone enforced through protective fencing or ground protection. The RPA is calculated as the area equivalent to a circle with a radius of 12 times the trunk diameter at a height of 1.5 m above ground level (MD4). However, the purpose of specifying an area around the trunk to be protected as opposed to a distance from the trunk means that the shape of the root protection area can be tailored to the specific circumstances of a site. For example, in most circumstances a root protection area with straight sides is more practical to implement than one with a circular perimeter. I have chosen to represent the root protection area as a square in all cases except for the Plane T7 where it is represented as a rectangle. The guidance recommends that the root protection area should be protected by means of fencing and/or ground protection.
- 3.5 The proposed root protection zones have been based on the values calculated for root protection area and are illustrated on the plans at MD3 with pink lines to denote the positions of protective fencing. As indicated above the root protection zone for T7 is shown as a rectangle encompassing the necessary area. The protection zone of Pear T2 has been offset by 20% (along its diagonal axis) as allowed by the British Standard in the case of 'open-grown' trees, i.e. trees that are growing in open ground. This is considered reasonable since there is no existing hard landscape within its re-defined root protection area.

Figure 1. Diagram to illustrate design of protective fencing



- | | |
|--|---------------------------------------|
| 1 Scaffold poles | 5 Clamp |
| 2 Uprights, to be driven into ground | 6 Wire, twisted and secured |
| 3 Panels, secured to uprights with wire ties and where necessary scaffold clamps | 7 Ground level |
| 4 Weldmesh, wired to the uprights and horizontals | 8 Approx 0.6 m driven into the ground |

- 3.6 The barrier will remain in place throughout the demolition and succeeding construction phase and will not be removed without written permission from the Council under any circumstances until construction is completed.
- 3.7 Fencing will consist of a scaffold framework (not wooden posts), well braced to resist impacts, with vertical tubes spaced at a maximum interval of 3 m (Figure 1). Onto this, weld mesh panels or 2 m high shuttering board will be securely fixed with wire or scaffold clamps. Weld mesh panels on rubber or concrete feet will not be used as these are not resistant to impact and are too easily removed by site operatives.
- 3.8 High visibility all weather notices will be securely attached to the barriers around protection zones with the words 'Tree Protection Zone. No Construction or Storage of Materials Allowed – Keep Out'. Where long lengths of barrier are erected a sign will be attached at intervals of no less than 6 m.
- 3.9 No fires at all will be lit on site as the heat rising from the fire may damage the branches of the trees.
- 3.10 No toxic materials will be stored within the root protection zone (e.g. oil, diesel) and no mixing of potentially toxic materials (e.g. cement) will be carried out within the protection zone.
- 3.11 All service runs will be routed outside root protection zones.
- 3.12 Only after all operations on site have been completed will fencing and ground protection be removed in order to allow final landscaping.

4. Method Statement

- 4.1 *This report should be made available to and read by contractors tendering for the proposed works, structural engineers designing aspects of the building and any site manager(s) appointed to oversee construction. Before any work commences (including stripping out of the building and demolition) the contents of the report should be made known to site operatives by the site manager so that they understand the purpose of tree protection measures.*
- 4.2 The sequence of events on site is described below and methods necessary to avoid damage to tree roots and/or branches are detailed.
- 4.3 Before works of any kind commence on site, including removal of internal fitting prior to demolition, fencing will be installed in the positions shown at **MD3**. This must be checked and approved by Martin Dobson Associates or another competent arboricultural consultant registered with the Arboricultural Association or with a Level 6 arboricultural qualification (e.g. Professional Diploma in Arboriculture).
- 4.4 Once tree protection is in place then demolition, excavation and construction can begin. **Fencing should not be taken down under any circumstances** during construction unless with the express approval of the Council.
- 4.5 No materials will be stored within root protection zones at any time nor will any trenches be dug. No raising or lowering of levels or excavation of any kind will be carried out within root protection zones.
- 4.6 Any arboricultural issues or questions during the works should be addressed to the nominated arboriculturist.

- 4.7 Once all construction work has demonstrably finished to the satisfaction of a suitably qualified arboriculturist then fencing may be removed starting at the rear of the building and working towards the front.
- 4.8 Care must be taken during subsequent landscaping works to ensure that roots are not damaged. Thus any hard landscaping, i.e. the stone paving at the rear of the building within the root protection zone of T2 and the circular stone terrace also within the root protection zone of T2 must be constructed above existing ground level. That is there must be no excavation to install a sub-base. Rather the sub-base should be formed above ground in a shuttered enclosure after having removed vegetation and the upper organic layer of soil (no more than 100 mm). Concrete would be a suitable bearing substrate or alternatively or granular material.

Conclusions

- 5.1 A survey of trees in the garden of and adjacent to 46 Hollycroft Avenue has been carried out. Eight trees were surveyed and three (T1 Ginkgo, T5 Almond and T6 Hawthorn) were considered unsuitable for retention due to their close proximity to the proposed new structure. It is proposed to plant replacement trees in positions and of a type to be agreed with the Council.
- 5.2 Methods for ensuring the protection of the five trees to be retained have been described.
- 5.3 It is considered that the proposed development should pose no threat to trees to be retained and is sympathetic to the sylvan character of the area.

Dr Martin Dobson
24 September 2009

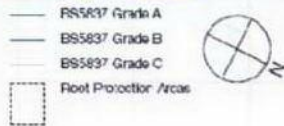
APPENDIX MD1
Tree survey schedule (BS5837: 2005) for 46 Hollycroft Avenue

Tree No.	Species	Height (m)	Trunk diameter (mm)	Crown spread (m)	Height of crown clearance (m)	Age class ¹	Physiological condition	Structural condition	Useful life (y)	Management notes	BS5837 Grade
T1	Ginkgo	12.5	270	N 3.0 S 4.0 E 3.0 W 3.0	3.0	Y	Good	Acute fork in trunk at 3 m	20 - 40		B/C
T2	Pear	13.0	600	N 6.0 S 3.0 E 5.0 W 3.0	3.0	MA	Good	Good. Decay in low pruning wound	20 - 40		B
T3	Eucalyptus	12.0	160	N 1.5 S 1.5 E 1.5 W 1.5	4.0	Y	Good	Good	40+		C
T4	Eucalyptus	12.0	150	N 1.5 S 1.5 E 2.0 W 1.5	3.0	Y	Good	Good	40+		C
T5	Almond	7.0	170	N 3.0 S 3.0 E 2.0 W 1.5	3.0	MA	Good	Good. Leaning trunk	20 - 40		C
T6	Hawthorn	8.0	250	N 3.0 S 3.0 E 3.0 W 4.0	3.0	M	Good	Good	20 - 40		C
T7	Plane	22.0	770	N 6.0 S 7.0 E 4.0 W 7.0	6.0	MA	Good	Good	40+		A
T8	Hornbeam	8.0	100	N 2.0 S 2.0 E 2.0 W 2.0	2.0	Y	Good	Good	40+		C

¹ Y = Young (<1/3 life expectancy), MA = Mid aged (1/3 - 2/3 life expectancy), M = Mature (>2/3 life expectancy), OM = Over mature (reaching end of safe useful life)

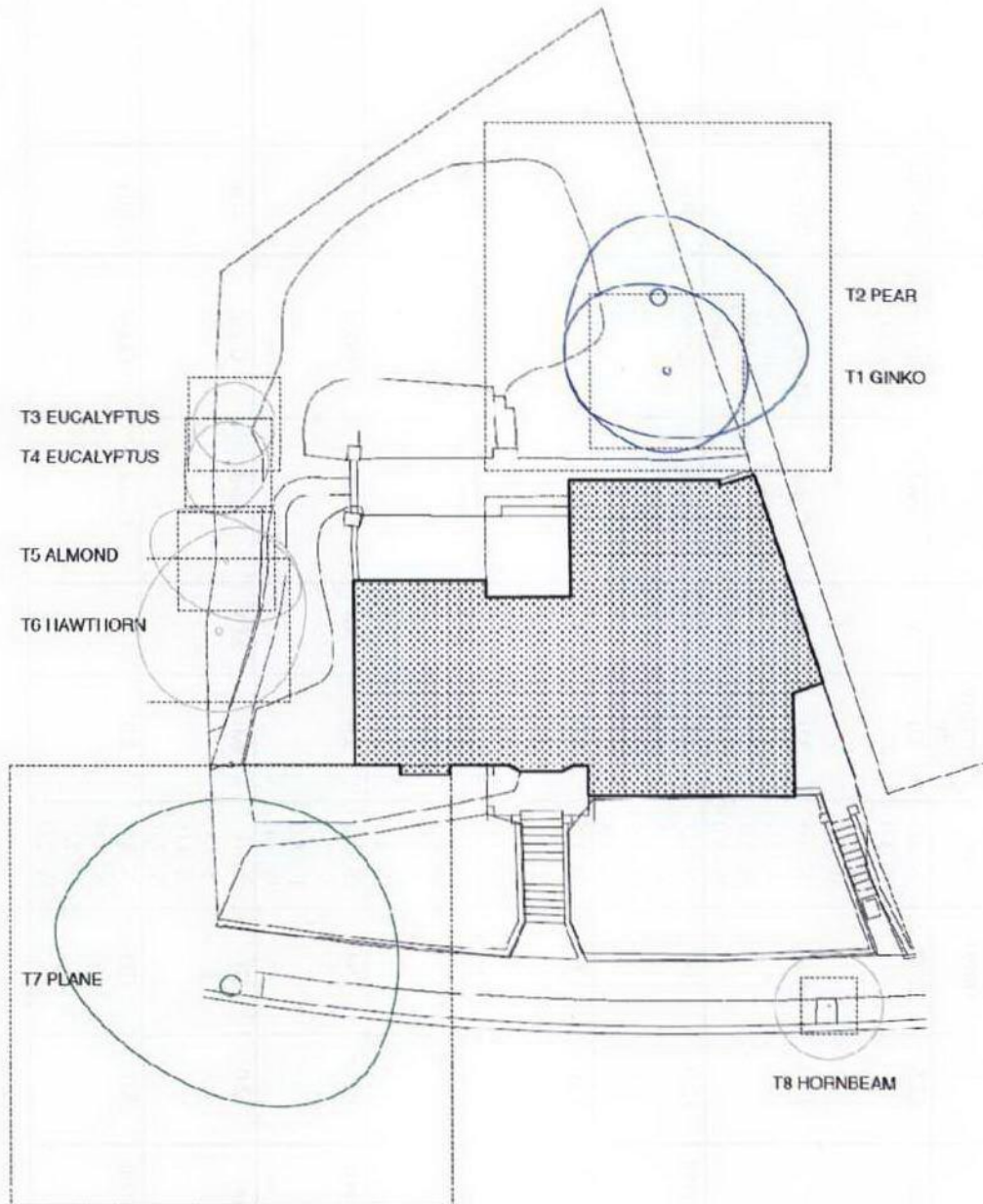
APPENDIX MD2

Site survey drawing showing existing plot layout, BS5837 colour codes (A – Green, B – Blue, C – Grey, R – Red) and root protection zones (dashed lines)



DO NOT SCALE THIS DRAWING
DO NOT SCALE THIS DRAWING
ALL DIMENSIONS TO BE CHECKED ON SITE
NOT TO BE USED FOR ANY OTHER PURPOSE
WITHOUT APPROVAL

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46 HOLLYCROFT AVENUE
for Robert Feuer and Judit Lang

Revision Date Description

Existing Trees Survey

Scale 1:1000 Date 03/09 Drawn CHP Checked

234
PD014

Location of tree protection zones and protective fencing (pink lines)

-

- SENIOR RESISTANCE TRAINING
- WARRIOR TO YOURSELF CHALLENGE ONLY
- ALL CHALLENGES TO BE CHARGED IN 2RS
- ANY CHALLENGES TO BE BRILLIANT TO THE ATTORNEY ON THE ARCHERY

10,760



APPENDIX MD4
BS5837 schedule of protection zones

Tree No.	Species	Trunk diameter (mm)	BS5837: 2005 Root protection area, RPA, (m²)	BS5837: 2005 Radial protection distance (m)	BS5837: 2005 Length of side of RPA if represented as a square (m)
T1	Ginkgo	270	33.0	3.2	5.7
T2	Pear	600	162.9	7.2	12.8
T3	Eucalyptus	160	11.6	1.9	3.4
T4	Eucalyptus	150	10.2	1.8	3.2
T5	Almond	170	13.1	2.0	3.6
T6	Hawthorn	250	28.3	3.0	5.3
T7	Plane	770	268.3	9.2	16.4
T8	Hornbeam	100	4.5	1.2	2.1

APPENDIX MD5

Qualifications and Experience

Dr Martin Dobson has been engaged in research and advisory work on trees since graduating in 1986 with a BSc (Hons) Degree in Biology. Subsequent postgraduate research led to the award of a Doctor of Philosophy (DPhil) Degree in Tree Physiology in 1990.

Postgraduate studies began in 1986 at the University of Ulster and continued in 1987 at the Forestry Commission's Research Station in Hampshire and focussed on the influence of air pollution on trees. Upon completion of this research in 1989 Dr Dobson was employed by the Forestry Commission and worked in both the Tree Pathology and Environmental Research Branches. During the next six years he was responsible for Department of Environment research contracts focussing on air pollution, climate change, de-icing salt damage to trees, woodland establishment on landfills and tree root research. He has authored two books: *De-icing Salt Damage to Trees and Shrubs* and *The Potential for Woodland Establishment on Landfill Sites*. He concluded his time at the Forestry Commission as Project Manager for research into the interaction between trees, roots and clay soils which included laboratory investigations, testing of root barriers and a three-year field-scale monitoring programme investigating the influence of woodland and grassland on the moisture status of clay soils.

In 1995 he joined the Arboricultural Advisory and Information Service as a senior Arboricultural Advisor. The AAIS advised the (then) Department of the Environment on policy matters and is the principal source of technical advice and information to the arboricultural profession as well as landscape architects, engineers, the horticultural industry and private individuals. A large proportion of advisory work focuses on issues relating to trees and buildings.

In 1997 he started an arboricultural consultancy practice specialising in subsidence and tree root claims, planning and development, tree safety issues and disease diagnosis. He has been a local authority retained consultant providing expertise on tree protection practice and legislation for seven years and has dealt with several thousand Tree Preservation Order and Conservation Area applications.

He has extensive experience as an Expert Witness in the High Court, County Court and Magistrates Court.

He is a lead examiner for the Professional Diploma in Arboriculture for the Royal Forestry Society and has been a part-time lecturer for the Middlesex University Countryside Management MSC course. He has further significant experience lecturing at technical conferences and seminars.

In addition to over 30 publications in scientific and technical journals he is the author of Arboriculture Research and Information Note 130/95/ARB *Tree Root Systems*, and leading author of:

Driveways Close to Trees. Arboricultural Practice Note 1. AAIS, Farnham.

Trees in Dispute. Arboricultural Practice Note 3. AAIS, Farnham.

Root Barriers and Building Subsidence. Arboricultural Practice Note 4. AAIS, Farnham.

He is a Fellow of the Arboricultural Association.