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Arboricultural Development Report

12 August 2011

6 Fitzroy Park, London N6 6HP

ARBTECH

ENVIRONMENTAL SERVICES

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This report has been released electronically and the appendices referred to herein can be found in the annexed zip folder/s as .pdf files. If this report is released in hard copy the appendices will be bound into the back of this report.

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Executive Summary

This report describes the extent and effect of the proposed development at 6 Fitzroy Park, London on individual trees and groups of trees within and adjacent to the site.

Trees within and adjacent to the site have been surveyed by Arbtech Consulting Ltd using a methodology guided by British Standard 5837:2005 'Trees in relation to construction – Recommendations' ("BS5837").

Subsequently, this report has been produced, balancing the layout of the proposed development against the competing needs of individual trees and groups of trees within and adjacent to the site. This report comprises all of the requisite elements of an arboricultural implications assessment, method statement and supporting plans.

Checklist for Submission to Local Planning Authority

Tree survey	☒
Tree constraints plan	☒
Arboricultural implications assessment	☒
Arboricultural method statement	☒
Tree protection plan	☒

This report and its appendices follow precisely the strategy for arboricultural appraisal intended to provide local planning authorities with evidence that trees have been properly considered throughout the development process.

It is the conclusion of this report that the overall quality and longevity of the amenity contribution provided for by the trees and groups of trees within and adjacent to the site will not be adversely affected as a result of the local planning authority consenting to the proposed development. Furthermore, any matters arising as a result of this report or beyond the scope of it can be addressed with planning conditions.

General Information

Client: Leigh and Brian Message

Site: 6 Fitzroy Park.

Agent (if applicable): BB Partnership

Brief proposal description: Demolition of existing extension and construction of new extension with basement.

Planning application reference: N/A

Documents referred to:

Document	Reference
Topographical survey drawing	4920/T
Proposed layout drawing	ESW_200
Landscape master plan drawing	N/A
LPA pre-app comments	N/A
British Standard 5837:2005	"BS5837"

Tree Survey

Survey: Daniel Simpson is an arboricultural surveyor for Arbtech Consulting Ltd. On 26/04/2011 he undertook a BS5837 survey of all trees within impacting distance of the site.

Limitations: The survey was made at ground level using visual observation only. Detailed examinations, such as climbing inspections and decay detection equipment were not employed, though may form part of the survey's management recommendations. Measurements were taken using specialist tapes, laser and digital clinometer. Where this was not possible, measurements are estimated.

Scope: Pre-development tree surveys make arboricultural management recommendations based exclusively upon the individual tree or group of trees condition relative to their present context (*i.e. not in relation to the proposed development*).

Land use: The site is occupied by a single residential dwelling with garden.

Topography: The levels of the site alter dramatically at the front of the property, which is a few metres lower than the rest of the site.

Locality: The tree cover is of key importance to the street scene and local landscape character.

Relative amenity value: The trees surveyed generally contribute to a significant degree to the landscape amenity of the site and the Fitzroy Park estate.

Condition, age and species diversity: The general condition of the trees was good, with a few trees in fair condition. There is a mix of native and exotic species with ages ranging from early mature to mature.

Status: No statutory protection check has been performed.

Further information: A full schedule including the survey data of all individual trees and groups of trees surveyed can be found at Appendix I.

Arboricultural Implications Assessment

There are a number of issues to be addressed in an arboricultural implications assessment, and broadly these are as follows –

- The effect and extent of the proposed development within root protection areas of retained trees;
- The potential conflicts of the proposed development with canopies of retained trees; and
- The likelihood and reasonableness of any future remedial works to retained trees, beyond that which would have been scheduled in the course of ordinary management.

Development Background

The site is a substantial detached property in a private, gated community in North London. There is an existing paved driveway entrance with large metal gates. Stairs lead up from there to the house and garden.

Special Note: One of the three exemptions of a tree preservation order is detailed planning consent. Further, BS5837 does not take account of statutory protection in its survey criteria weighting. For these reasons, no distinction will be drawn between trees with and/or without statutory protection.

Development Footprint & Below Ground Constraints

Category C Trees and Groups

T3, T4, T5, T9, T10

T4 shall be removed to facilitate the development. The tree is a small specimen of little consequence to the street scene or wider locality.

Although BS 5837 does not require retention of Category C trees, the others in this category will be retained and protected where necessary by protective barrier fencing and ground protection.

Category B Trees and Groups

T2, T6, T7, T8, G1

These trees will be retained and protected as part of this the development.

T2 is not considered to need protection due to the existing site features and likelihood that the driveway is already compacted ground. T8 will be protected completely by barrier fencing.

T6 and T7 are at the greatest risk from the proposal, which requires development within a relatively small portion of their root protection areas. The agent, the local Tree Officer and I have discussed an approach to their protection on site. We have been able to meet and / or exceed the requirements of the tree officer, and a methodology and design for specially engineered foundations is provided. It is not possible to fence off the remaining root protection areas of these trees entirely, as access is required to facilitate construction. Therefore, ground protection will be required for any part of the tree root protection areas that extend beyond protective fencing.

No significant trees or other vegetation within G1 shall be harmed by the proposal.

Category A Trees and Groups

T1, T12

These will be retained as part of this the development and protected for the duration. T1 does not require any tree protective fencing or ground protection due to the existing site features and location of the tree in relation to the proposal. The area of the site in which T1 is situated is to be a construction exclusion zone. T12 will be protected completely with tree protective fencing.

Justification. Due to their age, dominance and exceptional quality they are able to provide a significant amenity contribution into the long term and must be retained and protected within the proposed development.

Development Footprint & Above Ground Constraints

No trees shall be pruned in order to facilitate construction.

Development Footprint & Future Tree Works

No issues greater than the current situation arise in relation to light/shading of the site as a consequence of the development.

Arboricultural Method Statement

Tree Works

For reasons of public safety, all tree works referred to herein must be carried out prior to any site personnel commencing works or any building materials being delivered.

All tree works should be carried out in accordance with BS 3998:2010 by qualified and experienced tree work contractors.

Summary of Tree Works

Tree or Group Reference #	Remove	Canopy	Other
T4	Remove to ground level.		

Specification for Protective Barrier Fencing

Protective barrier fencing is to be installed immediately following the completion of the tree works, sited and aligned in accordance with the tree protection plan. Protective barrier fencing is to remain in situ for the entire duration of the development unless otherwise agreed in writing by the council.

Protective barrier fencing should be appropriate for the intensity and proximity of the development to protect trees where development activity is in close proximity. BS5837 defines protective barrier fencing to be *"a scaffold vertical and horizontal framework, well braced to resist impact with the vertical tubes spaced at a maximum of 3.0m. Onto this, weld mesh panels should be securely fixed with wire or scaffold clamps. Weld mesh panels on rubber or concrete feet are not resistant to impact and should not be used."* Signage denoting the words *"tree protection area"* at 5.0m intervals should be fixed to the protective barrier fencing.

Prohibition

- Mechanical digging or scraping is not permitted within a defined root protection area or within areas cordoned off by protective barrier fencing.

- Fires are not permitted within ten metres of any vegetation.
- Machinery, plant and vehicles are not permitted to be washed down within five metres of vegetation.
- Leaning objects against or attaching of objects to a tree is not permitted.
- Chemicals and materials are not to be transported, stored, used or mixed within a root protection area or within areas cordoned off by protective barrier fencing.

Boom & Crane Operation

Where cranes and other vehicles or equipment with a boom such as a concrete pump are operated near the canopy of any retained tree:

- The operator shall take great care and avoid any collision with the tree;
- The works shall be supervised e.g. by the site manager, who will provide constant feedback as required to assist the operator.

Any incidents of damage to retained trees or other breach of tree protection measures shall reported to the Council's Tree Officer and (if retained throughout development) Arbtech Consulting Ltd. Works must cease until the Council have had an opportunity to inspect the damage and where appropriate, agree a mitigation plan.

Construction Exclusion Zone

The responsibility for enforcing this zone is the site manager. Access is not completely restricted in case any site users require access to that area of the grounds. However, this does not extend to those onsite in connection with the development. The zone is to be maintained at all times from after the initial tree works are completed and before demolition or any development commences, until all development has ceased. The zone may not be accessed by staff, contractors, equipment, plant or materials.

Ground Protection & Special Surfaces

Where root protection areas extend outside of protective barrier fencing, the ground shall be protected temporarily to avoid harm to retained trees. Where hard surfacing is required within a root protection area, permanent ground protection must be used as a sub-base for a finished

surface is required and this may have an impact on finished levels. At no time during construction shall any area outside of a Root Protection Area not be covered with ground protection.

For the existing driveways, these may be retained as ground protection as required, but should it be lifted at any time; this will be done by breaking it up with hand tools. The resulting spoil will be removed by hand in wheelbarrows. Ground protection will then be deployed within exposed Root Protection Areas immediately, and construction activity in the vicinity must cease until this is done.

Ground protection shall be laid out in accordance with the Tree Protection Plan appended to this report before construction begins. Where there is an existing hard surface, this will be acceptable as ground protection in the first instance. However, as soon as that surface is removed (leaving the sub-base intact and undisturbed), ground protection shall be deployed.

The ground protection must be designed to perform as follows:

- Will be permeable and allow liquid infiltration and gaseous exchange to tree roots.
- Will prevent any soil compaction or loss of soil structure.
- Will be installed above the existing ground level without disrupting the soil structure in tree root protection areas. (excluding the existing hard surface)

Where only pedestrian access is required the area will be protected from pedestrian movements by scaffold boards atop a compressible layer (e.g. wood chips to a depth of around ten centimetres) laid onto a geotextile membrane.

For heavier use cellular confinement system products such as Cellweb may be suitable. However it is recommended that engineering advice is sought to formulate a design that meets the above specification and vehicles, equipment, plant entering the root protection area.

Communication

All site personnel are to be provided with a copy of this document including the appendices.

Specially engineered foundations

The detail of the design is included in the Structural Methodology appended. In addition to this I would add that the piling rig must be small enough to access the site without any tree pruning. This document was put together following a site meeting with the engineers who have referenced our tree survey in the report.

Document Production, Approval and Distribution Record

Project reference number **0314**

Status	Issue #	Editor	Position	Date
Draft	1.0	Daniel Simpson	Arboricultural Consultant	12/08/2011
Final	2.0	Nicholas Watkins	Project Manger	12/08/2011

Limitations

Arbtech Consulting Ltd has prepared this Report for the sole use of the above named Client/Agent in accordance with our terms of business, under which our services were performed. No other warranty, expressed or implied, is made as to the professional advice included in this Report or any other services provided by us. This Report may not be relied upon by any other party without the prior and express written agreement of Arbtech Consulting Ltd. The assessments made assume that the sites and facilities will continue to be used for their current purpose without significant change. The conclusions and recommendations contained in this Report are based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested. Information obtained from third parties has not been independently verified by Arbtech Consulting Ltd.

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Leigh and Brian Message
6 Fitzroy Park
London
N6 6HP

29/04/11

6 Fitzroy Park, London, N6 6HP [0314]

You recently appointed us to undertake a BS5837 Tree Survey and Tree Constraints Plan at your site(s). Our arboricultural consultant, Mr. D. Simpson undertook the survey on 26/04/2011 and subsequently we have produced this summary of our findings. Mr. Simpson HND (For) NDip (Arb) MArborA is a professional member of the Arboricultural Association and has over 10 years experience in both local authority and private practice environments.

The advice below and appended is underwritten by our Professional Indemnity insurance for the business practice of Arboricultural Consultancy in the sum of two million Pounds Sterling in each and every claim.

Tree Survey Executive Summary

Generally the tree stock on site is early-mature to mature, and consists of low to high quality trees (category C, B and A). There are management recommendations for two trees. All trees and groups of trees within the property have been surveyed using techniques demanded by BS5837. Individual notes on each tree's structural and physiological condition are found in the Notes section of the survey schedule.

The proposed development is to demolish an existing single storey extension and build a new part single-storey and part two-storey extension with basement.

BS5837 Scope

This standard recognizes that there can be problems of development close to existing trees which are to be retained, and of planting trees close to existing structures. This standard sets out to assist those concerned with trees in relation to construction to form balanced judgements. It does not set out to put arguments for or against development, or for the removal or retention of trees. Where development,

including demolition, is to occur, the standard provides guidance on how to decide which trees are appropriate for retention, on the means of protecting these trees during development, including demolition and construction work, and on the means of incorporating trees into the developed landscape.

Definitions

Arboriculturist

An arboriculturist (or arboricultural consultant) is a person who has, through relevant education, training and experience, gained recognized qualifications and expertise in the field of trees in relation to construction.

Tree Survey

A tree survey should be undertaken by an arboriculturist and should record information about the trees on a site independently of and prior to any specific design for development. As a subsequent task, and with reference to a design or potential design, the results of the survey should be included in the preparation of a tree constraints plan, which should be used to assist with site layout design.

Tree Constraints Plan

A TCP is plan, typically delivered as an AutoCAD drawing (.dwg file format), prepared by an arboriculturist for the purposes of layout design showing the root protection area and representing the effect that the mature height and spread of retained trees will have on layouts through shade, dominance, etc.

Root Protection Area

An RPA is a layout design tool indicating the area surrounding a tree that contains sufficient rooting volume to ensure the survival of the tree, shown in plan form in m^2.

Construction Exclusion Zone (*also termed* Tree Protection Zone)

A construction exclusion or tree protection zone is an area based on the RPA (in m^2), identified by an arboriculturist, to be protected during development, including demolition and construction work, by the use of barriers and/or ground protection fit for purpose to ensure the successful long-term retention of a tree.

Tree Protection Plan

A TCP is plan, typically delivered as an AutoCAD drawing (.dwg file format), prepared by an arboriculturist showing the finalized layout proposals, tree retention and tree and landscape protection measures detailed within the arboricultural method statement, which can be shown graphically.

Arboricultural Impact Assessment

This is a study, undertaken by an arboriculturist, to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees that may arise as a result of the implementation of any site layout proposal.

Arboricultural Method Statement

This is a methodology for the implementation of any aspect of development that has the potential to result in loss of or damage to a tree. The AMS is likely to include details of an on-site tree protection monitoring regime.

Methodology

The methodology used to assess the trees was the British Standard 5837:2005 'Trees in Relation to Construction' tree survey method. The aim of the survey is to establish which trees are moderate and good quality; suitable for retention and justifying protection. And, which trees are low or poor quality; either undesirable or unsuitable to retain and protect.

The tree survey categorises trees or groups of trees, including woodlands for their quality and value within the existing context, in a transparent, understandable and systematic way.

Whilst master plan proposals for the development of the site might be available, the trees have been surveyed without taking these into consideration. All detailed design work on site layout should take into consideration the results of the tree survey (and the TCP).

Trees forming groups and areas of woodland (including orchards, wood pasture and historic parkland) are identified and considered as groups where the arboriculturist has determined that this is appropriate, particularly where they contain a variety of species and age classes that could aid long-term management. It is often expedient

to assess the quality and value of such groups of trees as a whole, rather than as individuals. However, an assessment of individuals within any group has been undertaken if they are open-grown or if there is a need to differentiate between them.

The quality and value of each tree or group of trees has been recorded by allocating it to one of the four categories; A, B, C, or R (highest to lowest quality respectively). The categories are differentiated on the tree survey plan by colour, or by suffixing the category adjacent to the tree identification number on the TCP.

The survey schedule lists all the trees or groups of trees. The following information is also provided:

I. reference number (to be recorded on the tree survey plan);
II. species (common or scientific names);
III. height in metres;
IV. stem diameter in millimetres at 1.5 m above adjacent ground level or immediately above the root flare for multi-stemmed trees;
V. branch spread in metres taken at the four cardinal compass points;
VI. height in metres of crown clearance above adjacent ground level;
VII. age class (young, middle aged, mature, over-mature, veteran);
VIII. physiological condition (e.g. good, fair, poor, dead);
IX. structural condition, e.g. collapsing, the presence of any decay and physical defect;
X. preliminary management recommendations, including further investigation of suspected defects that require more detailed assessment and potential for wildlife habitat; and
XI. category grading to be recorded in plan on the tree survey plan.

Limitations

Trees were inspected from using visual observation from ground level only. Trees were not climbed or inspected below ground level. Inaccessible trees will have best estimates made about the location, physical dimensions and characteristics. Trees have been grouped where BS5837 guides us that it is expedient to do so. Trees have been excluded from the survey if they are found by us to be sufficiently far away from the proposed developable area or if they are outside of the red line boundary plan showing the expectations of our Client for the extent of the survey. BS5837 does not draw any distinction between trees subject to statutory protection, such as a Tree Preservation Order ("TPO"), and those trees without. This is

principally because a detailed planning consent overrides any TPO protection. Consequently, we do not seek to offer any comparison between or infer any difference in the quality or importance of TPO trees and other trees.

Recommendations

It is the recommendation of this report that the impact of the proposal is assessed; and where necessary the trees are protected in accordance with BS 5837. For this we recommend that an arboricultural impact assessment and method statement report (inc. a tree protection plan) is produced. In our opinion, based on our experience of the local planning authority, this may be required to validate and determine a planning application at this site.

Appendices

The following documents were released to the Client as appendices to this report:

- Survey Schedule (PDF)
- Survey Schedule key (PDF)
- Tree Constraints Plan drawing (PDF)

If you require clarification of information contained herein, please do not hesitate to contact us via 08450 176950.

Checked and approved by NW 29/04/2011 4:00pm

Arbtech Consulting Ltd		**Date**	26/04/2011
BS5837:2005 Trees in relation to construction		**Surveyor**	Daniel Simpson
Tree Survey Schedule		**Site address**	6 Fitzroy Park, London, N6 6HP

Key

Item reference	*A unique number or reference to identify trees or groups (T/G) using the Tree Constraints Plan.*
Species	*Common and taxonomic names.*
Age	*Age classification; Young (Y), Early-mature (EM), Mature (M), Late Mature (LM).*
Vitality	*The general physiological condition of the tree; Dead, Poor or Normal.*
BS5837 retention category	*The retention category referring to useful contribution in years; R=<10yrs, C=10-20yrs, B=20-40yrs or A=>40yrs.*
	The retention sub-category referring to the type of amenity; 1=Individual, 2=Landscape/Group or 3=Biodiversity/Cultural.
Ground clearance	*The height of ground clearance in metres.*
Height	*The height of the tree in metres.*
Diameter	*The stem diameter in milli-metres at height; 1.5m for single stemmed trees; or 0m for multi-stemmed trees.*
Canopy spread NSEW	*The extent of the canopy in the principal compass points in metres; north (N), south (S), east (E), west (W).*
Notes	*Notes and general comments on the structural condition of the tree, or its environment.*
Recommendations	*Preliminary management recommendations. Note; in accordance with BS5837 guidance recommendations do* **not** *refer to your development layout.*

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Item	Species	Age	Vitality	BS Cat	BS Cat	Clr	Height	Diameter	N	S	E	W	Notes	Mgt reco's
T1	English Oak, *Quercus robur*	M	Good	A	1 / 2	2.5	25	1340	8.0	8.0	8.0	8.0	No significant defects observed	None
T2	English Oak, *Quercus robur*	M	Good	B	1	2	15.5	300	5.0	3.0	3.0	3.0	Stem covered in ivy, obscuring inspection.	None
T3	Holm Oak, *Quercus ilex*	EM	Fair	C	1	2.5	13.1	250	1.0	3.0	2.0	3.0	No significant defects observed	None
T4	Lawson Cypress, *Chamaecyparis lawsonia*	EM	Good	C	1	2	9.4	200 MS	2.0	2.0	2.0	2.0	No significant defects observed	None
T5	Holly, *Ilex aquifolium*	EM	Good	C	1	2.5	9.1	300 MS	3.0	3.0	3.0	3.0	No significant defects observed	None
T6	Holm Oak, *Quercus ilex*	M	Good	B	2	3	18.9	560	4.0	7.0	3.0	7.0	This tree is of poor form compared to the model tree, but nonetheless is attractive and contributes to local amenity.	Monitor
T7	Holm Oak, *Quercus ilex*	M	Good	B	2	3	18.9	880	7.0	8.5	0.0	8.0	This tree is of poor form compared to the model tree, but nonetheless is attractive and contributes to local amenity.	Monitor
T8	Eucalyptus, *Eucalyptus spp.*	M	Good	B	2	3	20	450	6.0	6.0	3.0	6.0	There us garden waste piled up around the base of this tree.	Remove debris from base
T9	Flowering Cherry, *Prunus spp.*	M	Fair	C	1	2	10	220	4.0	5.0	5.0	3.0	Onset of epicormic growth noted, indicating the tree is stressed.	None
T10	Flowering Cherry, *Prunus spp.*	M	Fair	C	1	2	10	220	3.0	3.0	3.0	3.0	Onset of epicormic growth noted, indicating the tree is stressed.	None
T11	Golden Leyland Cypresss, Cupressocyparis spp.	EM	Good	C	1	0	10.7	210	2.0	2.0	2.0	2.0	No significant defects observed	None
T12	Common Beech, *Fagus sylvatica*	M	Good	A	1 / 2	2	26.2	880	11.0	5.0	9.0	7.0	No significant defects observed	None

G1	Holly, *Ilex aquifolium;* Elm, *Ulmus glabra;* Ash, *Fraxinus excelsior;* Sycamore, *Acer pseudoplatanus* ; Elder, *Sambucus nigra*	M	Good	B	2	0	Up to 12	Average 150	0.0	0.0	0.0	0.0	Provides useful screening of the property from the road and overlooking developments	None