TREE SURVEY IN CONTEMPLATION OF DEVELOPMENT

BS5837:2005

Title:	**Arboricultural Tree Report**
Instructed by:	**Mr Alessandro Celli** **Providence Equity** **28 St George Street** **London** **W1S 2FA**
Site Address:	**20 Rosecroft Avenue, London, NW3 7QB**
Date of Site Visit:	**16th May 2011**
Prepared by:	**Andrew Phelps** Professional Member of the 'Consulting Arborist Society'.
Ref:	**PA S616**
Date	**25th May 2011**

2nd Floor Suite, 1 Church Street
Epsom, Surrey
KT17 4PF
Email: info@treeconsult.co.uk

www.treeconsult.co.uk

Report Contents

BRIEF

A Detailed tree survey of all standing trees on the site to the following specification

- Species name, Estimated height, Age Class, Condition key, General arboricultural comments and recommendations
- Comments relating to the retention value of individual trees and tree groups within the delineated area to allow an assessment of development constraints
- All information is to comply with BS 5837 – A guide to trees in relation to construction and BS 3998 – Tree works

B Production of an accompanying tree constraints plan in PDF format / AutoCad (on supplied topographical drawing) detailing; tree numbers, protected areas, special measure areas and protective fencing requirements, in order to allow an assessment of relevant constraints.

C Consideration of the quality of the tree stock, their contribution to public amenity and the suitability of the trees in the context of proposed development.

1 Scope of the Report / Instructions

1.1 My name is Andrew Phelps. I am an associate consultant with Phelps Associates, Arboricultural Consultants, 2nd Floor Suite, 1 Church street, Epsom, Surrey, KT20 6HJ. I am instructed by Mr Alessandro Celli to determine a tree survey in contemplation of development of the site at 9 Down Side, Cheam, Surrey.

1.2 The main concerns of this report are to assess the trees in accordance with BS 5837:2005 'Trees in relation to construction-Recommendations. To establish tree conditions and suitability to the site and landscape. Both general and specific tree management requirements are presented along with a tree/construction works specification. I am also asked to assess the likely impact of the proposed development on the surrounding trees, and have included details of the working methods to be employed before and during construction, therefore developing a tree protection strategy (if required) for the duration of the construction including any demolition works. The definitions of the four categories used in the British Standard are at Para 1.9.

1.3 The site was visited on Monday 16th May 2011 and a total of 6 trees and groups of trees (11 trees) on and off site were assessed visually in accordance with Visual Tree Assessment (VTA) and compiled in the following survey sheets as numbered individuals and groups. Trees have been inspected from ground level only, and no decay detection equipment has been used.

1.4 No tissue samples were taken nor was any internal investigations of the subject trees undertaken.

1.5 No soil samples were taken. The crown spreads were estimated by pacing.

1.6 Each individual tree has been assessed with general regard to condition, health and amenity, development context, retention value and commented upon in the following manner:

- Tree Number
- Tree Species
- Estimated height
- Estimated crown spread
- Diameter at breast height
- Vigour
- Retention value
- Arboricultural condition and recommendations for remedial works

1.7 Comments relate to species content, retention and amenity value, and have been provided with recommendations.

1.8 The trees have been classified according to their "desirability to retain". This rates the amenity conferred by each tree and is based on the assumption that development will occur on the site and having given consideration to the recommendations of this report and BS 5837: 2005 – Table One.
For clarification – the grading system can be summarised as follows:
A – high quality & value, effective for more than 40 years
B – moderate quality & value, effective for more than 20 years
C – low quality & value , effective for 10 years
R – trees for removal (effective for less than 10 years)

1.9 To ascertain the overall condition of a given tree, the survey sheets should be used in conjunction with the condition key (4.1)

1.10 To ascertain the age class of a given tree, the survey sheets should be used in conjunction with the age class key (4.2)

1.11 The trees on the site are subject to a general re-inspection schedule of six months from which a requirement for further monitoring or assessments will be judged.

1.12 Any specified remedial work recommendation is regardless of development plans and is based on current tree condition. Therefore the start date for the implementation of remedial works is as specified and from the date of survey.

2 Tree Works

2.1 All tree pruning and felling identified within the pruning regime shall be carried out in accordance with BS 3998 Recommendations for tree work and The International Society of Arboriculture Tree Pruning Guideline 1995.

2.2 All tree work should be undertaken by a suitably qualified Arboricultural Contractor. No works shall be carried out until permission has been granted by the relevant Local Planning Authority. The Forestry Authority should be contacted to check as to whether a Felling License is required.

3 Limitations

3.1 No assessment has been made of soil conditions/implications of soil conditions and root extent is indeterminate from this survey. We would urge that soil type is ascertained and tree related implications are assessed such as foundation type/depth in accordance with N.H.B.C. guidelines.

3.2 No information is available to assess any tree implications of service lines; we would recommend this information is assessed for tree significance.

3.3 The survey boundaries have been taken from the supplied drawing. Boundary clarification may be required at various locations as recommended by this report.

3.4 The site is privately owned and is not known to be part of a 'Conservation Area'. There are no trees covered with a tree preservation order.

3.5 No liability can be assumed to rest with 'Phelps Associates' should conditions alter following our inspection of the site. Therefore we must be informed immediately of any alterations to plans upon which our assessments and conclusions/recommendations have been based.

4 CONDITION, AGE, VIGOUR, AMENITY & RETENTION VALUE KEYS

Condition Key

4.1 For the purposes of ascertaining the general overall arboricultural condition of the trees / compartments referred to in the survey sheets the following key should be used.

Good	Generally classed as having good overall structural and physiological condition. Specimens in good/excellent condition. They generally have few and less significant arboricultural defects than those trees classed as "B" or "C". Usually contribute significantly to the local or site amenity.
Moderate	Generally classed as having reasonable structural and physiological condition. They may contain smaller areas of included bark within either major or minor fork junctions. They may be subject to single or multiple fungal invasions, bacteria or virus. In the case of fungal invasion or bacteria the Latin name of the species has been stated. They may be subject to minor crown dieback, unusually pale or smaller foliage or have been subjected to outside influences such as restriction of rooting spread, vandalism or mechanical damage, but should be viewed as in generally good overall condition.
Poor	Generally classed as having poor overall structural or physiological condition. They may contain large areas of included bark either within major or minor fork junctions. They may be subject to single or multiple fungal invasions, bacteria or virus. In the case of fungal invasion or bacteria the Latin name has been stated. They may contain splits or cracks throughout the branching structure. They may be subject to significant crown dieback or exhibit unusually pale or small foliage, be defoliated or dead. They may be subject to outside influences such as restriction of rooting spread, vandalism or mechanical damage and costly to retain.

4.2 Age Class Key

NP	Newly planted
Y	Young - Tree/shrub in first third of life expectancy
MM	Middle Mature – Tree in 2nd third of life expectancy
M	Mature - In final third of life expectancy
OM	Over Mature – Declining in physiological functions

4.3 Amenity Value Classifications

High (`A`)	Significant contribution to either local landscape, landscape within site or both. Tree cover in this category should be carefully managed to ensure that the contribution played by the tree within the landscape is not compromised.
Moderate (`B`)	Indicates that the tree provides some contribution to the local landscape or landscape within site. Consideration should be given to enhancing the landscape with planting if required and management should aim to further enhance the local landscape.
Low (`C`)	Indicates little, no or a negative contribution to the local landscape.

4.4 Growth Vitality Key

N	Normal
M	Moderate (below normal)
P	Poor (sparse, weak)
D	Dead

4.5 **Retention Value Key**

The trees have been classified according to a desirability to retain. This rates the amenity conferred on each tree / tree group and is based on the assumption that development will occur and given consideration to the main report findings. The categories are contained in the table - Table 1: Retention Value Key found in Appendix 3 of this report.

5 Site / Description of Proposed Development

5.1 A privately owned site located to the rear of 20 Rosecroft Avenue in NW3. It is proposed to retain the existing building and build new patio areas and steps within the rear garden as shown on the 'Tree Protection Plan' at Appendix 2.

6 Arboricultural Survey – Tree Details & Observations

6.1 The attached Tree Survey Schedule (see Appendix 1) details the significant trees in respect of their dimensions and quality in accordance with the methodology set out in the British Standard BS 5837:2005 'Trees in relation to Construction. Recommendations'. Appropriate and relevant comments are also provided. The removal of dead, dying and dangerous trees is considered to be appropriate tree management irrespective of development. The proposed tree works are to be considered in conjunction with the development application.

6.2 In the following paragraphs I have provided further information relating to specific trees and their management in the context of any proposed development.

6.3 T.1 Fruit Tree. Standing at approximately 10m in height with a crown spread of 4m, and a trunk diameter of approximately 320mm. This tree has been recorded as being a Category 'C' tree, that of low quality and value. It cannot easily be seen from outside the site. The tree is of normal vitality and currently in good health, with no evidence of any structural or physiological defects which would forseeably reduce its normal life expectancy or pose any unacceptable risks to safety.

6.4 T.2 Various small trees and shrubs. All regarded as being Category 'C' of low quality and value.

6.5 T.3G Sycamores x 2. (Acer pseudoplatanus) Growing within the garden of the neighbouring property and reaching heights of about 18m with crown spreads of up to 7m. These trees provide good screening benefits and have been recorded as being Category 'A' trees of high quality and value.

6.6 T.4 Robinia. (Robinia pseudoacacia) Recorded as being a Category 'B' tree of moderate quality and value.

6.7 T.5G Sycamores x 4. Recorded as being Category 'B' trees of moderate quality and value.

6.8 T.6 Oak (Quercus robur) Recorded as being a Category 'A' tree of high quality and value.

7 Assessment of Proposed Development – Implications for Roots.

7.1 The British standard recommends a minimum area around retained trees which should be protected from disturbance "in order to avoid damage to the roots or rooting environment." This 'Root Protection Area' (RPA) is calculated, using Table 2 of the British Standard, as an area equivalent to that of a circle with a radius 12 times the stem diameter for single-stemmed trees, and 10 times the basal diameter for trees with more than one stem arising below 1.5m above ground level.

7.2 Paragraph 5.2.4 of the British Standard states that the RPA for each tree should be assessed taking account of factors such as the likely tolerance of a tree to root disturbance or damage, the morphology and disposition of roots when these are known to be influenced by existing site conditions, including the presence of existing roads or structures, as well as soil type, topography and drainage. The shape of the RPA (although not its area) may be manoeuvred around the tree to a tolerance of 20% on one side only where considered appropriate and where the overall RPA is not reduced and sufficient rooting environment is available in other directions.

7.3 The attached Tree Survey Schedule (see Appendix 1) details the significant trees in respect of their dimensions and quality in accordance with the methodology set out in the British Standard BS 5837:2005 'Trees in relation to Construction. Recommendations'. Appropriate and relevant comments are also provided. The removal of dead, dying and dangerous trees is considered to be appropriate tree management irrespective of development.

7.4 Prior to any works taking place on site protective barrier/fencing will be erected outside all root protection areas of trees and this can be seen on the 'Tree Protection Plan' at Appendix 2. The fencing specification can be found at Appendix 3 for 'High Intensity Fencing'. No materials shall be delivered, or demolition or construction staff to be allowed on site until the fencing is in place.

7.5 The protective fencing will remain in situ for the entire demolition and construction phase unless otherwise agreed with the Local Borough Council in writing.

7.6 Type 1 Fencing will be suitable for areas near protected trees as shown on the TPP.

Construction Implications

7.7 The plan shows us that it is possible to erect fencing outside the root protection areas of all trees growing on and off site.

8 Assessment of proposed development – Implications for Crowns

8.1 If construction works are carried out within the 'Development Area' there is sufficient crown clearance between crown and building to prevent the growth of branches coming into conflict with the proposed development.

9 Underground Services

9.1 The proposed Scheme will make use of existing services and there will be no requirement for new excavations in the vicinity of retained trees.

10 Recommended Schedule of Tree works

10.1 It is recommended that a small dead tree is removed as shown on the 'Tree Protection Plan' at Appendix 2.

11 General Arboricultural Method Statement

11.1 This document sets out the methodology for all proposed works that affect trees on and adjacent to the site.

11.2 Compliance with this method statement will be a requirement of all relevant contracts associated with the development including initial groundwork's and landscaping.

11.3 Before construction work begins and in order to ensure that all protective measures are enforced, a pre-construction site meeting with the design team and the LPA is usually required to achieve this. The following issues should be addressed:

Issue	*Details required for Method Statement*
Access	Protection of all trees and timing of works
Fencing	Erection of protective fencing during demolition and construction phases
Felling & pruning	Schedule and methods
Landscape	Provision of a landscape planting plan and schedule of works
General	Phasing/Timing of works
Services	Review of proposal

Protective Fencing

11.4 Before materials or machinery are brought onto site and before any development, demolition, soil stripping or other site work commences(other than those set out in the schedule of tree works set out in this document), vertical barriers and ground protection will be installed in the positions and to the specification set out in Appendix 2. The local planning authority should be notified when the fencing is in position.

11.5 The fencing will comprise a 1.5 metre high chestnut paling fence on scaffold or on a wooden supporting frame. The fencing will remain in place until completion of the main construction phase and then only removed with the consent of the local planning authority to permit completion of the scheme.

General Precautions

11.6 Other than works detailed within this method statement or approved in writing by the local authority, no works including storage or dumping of materials shall take place within the exclusion zones defined in the tree protection plan.

11.7 All materials for construction purposes, such as oil, bitumen, cement or petrol, should be carefully stored outside of the tree protection areas. All toxic substances such as oils, bitumen's and residues from concrete mixing should be retained by effective catchment areas such as the use of 'walk-in' refuse containers. These areas should be at least 10m from any tree trunk. No fires will be lit within 10m of the trunk of any tree that is to be retained.

11.8 The mixing of substances such as concrete will be carried out on the existing hard surface driveway only.

If a portable toilet is required it should be located in an agreed position outside all root protection areas.

11.9 All relevant construction and development personnel should be informed with respect to the Arboricultural Method Statement and the information contained therein made available to them.

11.10 Site supervision should be carried out by both site agent and/or Arboriculturalist to ensure that protective measures are used and protective distances are strictly enforced. A reporting procedure should also be implemented and agreed.

11.11 All landscaping works should avoid soil re-grading and disturbance within the tree protective areas. If cultivation of the soil within the protective distances set out in the Tree Survey Schedule is unavoidable as part of any landscaping proposal, cultivation should not exceed 100mm depth. All landscaping works, soft and hard, should be carried out as the last process of development.

12 Conclusions

12.1 It is recommended that a dead tree growing at the end of the garden is removed for reasons of sound Arboricultural management.

12.2 Fencing can be erected outside the root protection areas of all retained trees to ensure that no damage occurs throughout all construction works.

12.3 All protective fences must be erected before the delivery of ground works equipment and machinery in order to provide effective tree protection. No works should begin on site, particularly in relation to groundwork or site preparation unless the approved protective fencing has been erected.

12.4 Tree protective fencing should remain standing throughout demolition and the development phase and only removed on successful completion of building works.

12.5 The recommended tree root protection areas marked on the tree protection plan should be seen as the broad limiting factors to the use of the site.

12.6 The design of the scheme accords with the relevant BS for trees and development (5837:2005) and for the vast bulk of the proposal exceeds the guidelines produced in this document.

12.7 The proposed scheme has been designed to limit the impact of development on the existing landscape by retaining the boundary trees, allowing adequate protection to enable these trees to survive the construction process.

12.8 Subject to proper and normal tree protection measures, the proposed development will not impinge adversely on the effects of the trees in the landscape.

12.9 TPF Type 1 (Tree Protective Fencing) suitable for high intensity development should be erected as shown on the tree protection plan, and shall comprise of Heras panels, well braced to resist impacts by attachment to a scaffold framework that has been set firmly into the ground. The scaffold framework shall comprise top and bottom horizontal bars, with uprights set into the ground at no less interval than one per panel. Sloping bars as braces, perpendicular to the line of the fence, shall be fixed to the top rail and set into the ground; these shall be spaced at no less an interval than one brace per two panels. (Appendix 3). This fencing should be erected immediately prior to any of the following taking place:

- Plant and materials delivery
- Soil stripping
- Construction works
- Utility instillation

I hope that you find this report satisfactory, please do not hesitate to contact me if I can be of further assistance.

Signed …  ……. Date……03/06/2011…

Appendix 1 – Tree Survey Schedule

4.1 Tree Survey Schedule

Site:	20 Rosecroft Avenue, NW3 7QB	Surveyor:	Andrew Phelps
Date of Survey:	25th May 2011	Ref:	PA S616

Tree No	English Name	Height	Crown Spread	Ground Clearance	Age Class	Stem Diameter (mm)	Protection Multiplier	Protection Radius (Metres)	Vigour (Growth Vitality)	Structural Condition	Amenity Landscape Contribution	B.S Cat Ret Value	Sub Cat	Useful Life	Structural Condition/Observations
T.1	Fruit Tree	10	3	2	Mature	320	12	3.8	Normal	Good	Medium	C	1/2	<40	No visible defects
T.2G	Various Small Trees & Shrubs	6	3	2	Mature	Less 150	10	-	Normal	Good	Low	C	1	20	Low value trees
T.3G	Sycamores x 2	18	7	8	Mature	500 & 620	12	6.0	Normal	Good	High	A	1/2	40	High value trees, no visible defects
T.4	Robinia	10	4	3	Mature	320	12	3.6	Normal	Good	Medium	B	1/2	40	No visible defects
T.5G	Sycamores x 3	12	4	2	Mature	300	12	3.6	Normal	Good	High	B	1/2	<40	No visible defects
T.6	Oak	18	5	10	Mature	650	12	7.8	Normal	Good	High	A	1/2	40	Good example of its species, somewhat hidden away.

Notes:

1. Height describes the approx. height of the tree in metres from ground level.
2. Crown spread refers to the crown radius in metres from the stem centre and is expressed as an average of NESW if symmetrical
3. Ground Clearance is the height in metres of crown clearance above adjacent ground level.
4. Diameter Breast Height (DBH) is the diameter of the stem measured in mm at 1.5m from ground level for single stemmed trees or at ground level for multi-stemmed trees. DBH may be estimated where access is restricted.
5. Age Class is the tree's relative age to its species and is expressed as Newly planted (NP) Young (Y), Middle Mature (MM), Mature (M) and Over Mature (OM).
6. Protection Multiplier is 12 for single stemmed and 10 for multi-stemmed trees and is the number used to calculate the trees protection radius and area.
7. Protection Radius is a radial distance in metres measured from the trunk centre.
8. Growth Vitality - Normal ; Moderate (below normal); Poor (sparse, weak); Dead (dead or dying tree)
9. Structural/Arboricultural Condition – Good (no or only minor defects); Moderate (remediable defects); Poor (major defects present). See Condition Key (4.1) for detail
10. Landscape Contribution – High (prominent landscape feature); Medium (visible in landscape); Low (secluded/among other trees)
11. B.S Cat refers to (BS 5837:2005 Table 1) and refers to tree/group quality and value; 'A' – High; 'B' – Moderate; 'C' – Low; 'R' – Remove. **See Table 1 - Retention Value Key**
12. Sub Cat refers to the retention criteria values where 1 is arboricultural, 2 is landscape and 3 is cultural including conservational, historic and commemorative.
13. Useful Life is the tree's estimated remaining contribution in years.

Appendix 2 – Tree Protection Plan

Appendix 3 – Protective Fencing

Appendix 4 – Retention Value Key

TREES FOR REMOVAL				
Category and definition	**Criteria**			**Identification on Plan**
Category R Those I such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other R category trees (i.e. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees nearby (e.g. Dutch Elm Disease) or very low quality trees suppressing adjacent trees of better quality **NOTE:** Habitat reinstatement may be appropriate (e.g. R category tree used as a bat roost: installation of bat box in nearby tree).			**Dark Red** 1
TREES TO BE CONSIDERED FOR RETENTION				
	Criteria – Subcategories			
Category and definition	**1. Mainly arboricultural values**	**2. Mainly landscape values**	**3. Mainly cultural values (including conservation)**	
Category A **Those of high quality and value:** in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested)	Trees that are particularly good examples of their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands which provide a definite screening or softening effect to the locality in relation to views into or out of the site, or those of particular visual importance (e.g. avenues or other arboricultural features assessed as groups)	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	**Light Green** **3**
Category B **Those of moderate quality and value:** those in such a condition as to make a significant contribution (a minimum of 20 years is suggested)	Trees that might be included in the high category, but are downgraded because of impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage)	Trees present in numbers, usually as groups or woodlands, such that they form distinct landscape features, thereby attracting a higher collective rating than they might as individuals but which are not, individually, essential components of formal or semi-formal arboricultural features (e.g. trees of moderate quality within an avenue that includes better, A category specimens) or trees situated mainly internally to the site, therefore individually having little visual impact on the wider locality	Trees with clearly identifiable conservation or other cultural benefits	**Mid Blue** **5** Including groups
Category C **Those of low quality and value:** currently in adequate condition to remain until new planting could be established (a minimum of 10 years is suggested) or young trees with a stem diameter below 150mm	Trees not qualifying in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value and/or trees offering low or only temporary screening benefit	Trees with very limited conservation or other cultural benefits	**Grey** 2 Including groups
	NOTE: Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150mm should be considered for relocation			

Appendix 5 – Tree Protection Induction Form

TREE PROTECTION INDUCTION FORM

NAME: .....

COMPANY: .....

The trees growing on site at 20 Rosecroft Avenue, NW3 are important features of the property, providing amenity to the surrounding area. To protect the trees, fencing has been constructed and this needs to remain in good condition and in situ until the construction is completed.

To reduce the chances of damaging trees on the site, please observe the following:

- **DO NOT** **use trees as a support for electricity wires, telephone lines or signs**
- **DO NOT** **use the area within the protective fencing to store or mix materials**
- **DO NOT** **light bonfires anywhere near trees – use a designated bonfire area**
- **DO NOT** **attempt any excavation works within the protective area (Except where works approved by LPA)**

If any trees or the protective fencing become damaged during construction, please report this immediately to the Site Manager.

I have read and understand the above:

.....	.....	.....
(Print)	(Signed)	(Date)

TREE DAMAGE PROCEDURE

CONSTRUCTION MATERIAL SPILLAGE	DIRECT DAMAGE TO TREES	ROOT DAMAGE TO TREES
• Materials include fuel, Chemicals, paint, Cement, etc. • Contain spillage Immediately. • Remove top layer of Contaminated soil if possible without damaging the rooting system. • Contact LPA Tree Officer and seek Further advice.	**Bark Damage:** • Replace area of damaged bark and cover with polythene • Contact LPA Tree Officer and seek further advice **Branch Damage:** • Remove damaged section of branch using a clean sharp pruning saw if it is safe to do so. • Contact LPA Tree Officer and seek further advice.	• Backfill damaged area using good quality topsoil. • Applywoodchip to a depth of approximately 150 millimetres to retain soil moisture. • Contact LPA Tree Officer and seek further advice.

Any queries regarding this Method Statement should be addressed, in the first instance, to **Phelps Associates Arboricultural Consultancy**:

- Telephone: 07877 822976
- E-mail: info@treeconsult.co.uk

Appendix 6 – Keep Out Sign