Ashley Tree Surveys

BS 5837:2012 Tree Survey
Arboricultural Impact Assessment

Commissioned by Elliot & Anne-Eva Graff

20A Ferncroft Avenue, Hampstead, London, NW3 7PH

November 2019

Planning Application Checklist	
BS 5837:2012 Tree Survey	✓
Tree Constraints Plan (TCP)	✓
Arboricultural Impact Assessment (AIA) Tree Protection Plan (TPP)	✓ ✓
Arboricultural Method Statement (AMS)	

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Appendix

1.0 Contact Details

Client:	Mr & Mrs Elliot & Anne-Eva Graff
Architect:	Mr Giles Lovegrove, Coupdeville Architects
Site Details:	20A Ferncroft Avenue, Hampstead, London, NW3 7PH
Date of Site Inspection:	12th November 2019
Arboriculturist:	Kate Ashley Dip Arb L4 ABC Tech. Arbor. A. Ashley Tree Surveys email: kateashley8@yahoo.co.uk 07967 013187
Proposal:	Demolition of existing rear extension and basement proposal, plus rear extension.

2.0 Executive Summary

2.1 Four trees were surveyed at 20A Ferncroft Avenue, Hampstead on 12th November 2019. All the trees are located towards the rear of the property and lie in the gardens of 20A and the neighbouring gardens of 20 and 22 Ferncroft Avenue.

2.2 The trees at this site are not protected by any individual Tree Preservation Order. This site lies within the London Borough of Camden Conservation Area.

2.3 The development proposals involve the demolition of the existing rear extension and the creation of a new basement to the property and a new rear extension with a green roof.

2.4 It was observed that there were 3 trees which are close to the intended development, all these 3 trees are Category 'C'. One tree (T1) will require removal and this tree (T1-Cherry), lies in the gardens of 20A Ferncroft Avenue, Hampstead. T1 exhibits poor form and its roots lie within the area intended for the new basement. It is proposed that this tree be removed and for a replacement tree to be planted further down the garden

2.5 The other 3 trees will not be affected as demonstrated in the enclosed TCP (Appendix 3). It should be particularly noted that the neighbours Category 'B' multi-stem mature sycamore (T4) which has a canopy extending into the garden, is well away from the construction zone.

3.0 Instruction & Purpose of the Report

3.1 This report was commissioned by Mr & Mrs Elliot and Anne-Eva Graff to assist with the proposed development (describe) at 20A Ferncroft Avenue, Hampstead, London, NW3 7PH. I have been asked to prepare the following surveys and assessments:

3.2 **Tree Condition Survey** - limited to trees that are located on or immediately adjacent to areas where the development is being proposed. The Tree Condition Survey consists of a visit to the site to undertake a detailed inspection of the tree's health and structure to determine their safe useful life expectancy (SULE), and then to categorise them in accordance to *"BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations"*. The results of the tree condition survey are provided in **Appendix 2**

3.3 **Arboricultural Impact Assessment (AIA**) – to include all trees in the gardens of Fairfield, as well as trees in the neighbouring gardens where appropriate. Data from the Tree Condition Survey has been used to prepare a Tree Constraints Plan (TCP)- see **Appendix 3**. The Tree Constraints Plan also shows the impact of this development and the mitigating measures used to assist the proposal, indicating the location of protective fencing

4.0 Scope of the Report – Methodology & Limitations

4.1 The tree survey comprised of a ground-based visual tree inspection only and where a further more detailed or aerial inspection is required this is indicated with the recommendations.

4.2 The report details all trees over 85mm at 1.5m above ground level. Tree stem diameters are measured (or where inaccessible estimated), to the nearest 50mm. For this survey, it was not possible to obtain direct access to all the tree stems so best estimates have been used in these cases.

4.3 Tree heights were measured using a Suunto clinometer, but where it has not been possible to accurately measure, it is estimated to the nearest 1m. Tree canopies have been measured or estimated if access was not possible or un-necessary.

4.4 The position of the trees stems is shown in the submitted Tree Constraints Plan (TCP) – **Appendix 3** - which provides information concerning the condition and quality of the tree stock via colour coding, as well as showing the extent of the Root Protection Areas (RPA's) and also indicates the extent of the tree canopies. The TCP should assist the planning process by demonstrating the impact of the proposals on the existing tree stock.

4.5 The soil type was not assessed during this visit. No tissue samples were taken nor any other internal investigation of the trees were undertaken during this tree survey.

4.6 This is not a Duty of Care Survey and will not assess a tree's safety. If concerns for tree safety exist, necessary further more detailed inspections should be carried out by an arboricultural professional.

5.0 Site Description & Location of Trees at Site

5.1 The survey site is comprised of the rear gardens of 20A Ferncroft Avenue, Hampstead, London NW3 7PH. The house is in a residential street in Hampstead and in the London Borough of Camden.

5.2 The report details all trees over 85mm at 1.5m above ground level. For this survey, it was not possible to obtain direct access to all the tree stems as 2 of the trees were in the gardens of neighbours and so good estimates to the DBH have been provided.

5.3 It was noted that there were a total of 4 trees which have been numbered and with their data recorded in the Tree Condition Survey – See **Appendix 2**
The trees are shown in TCP – **Appendix 3**

5.5 This garden is noted for being fairly narrow however extending to the North and there are some nearby trees which provide useful screening and interest. A valuable tree for the garden is the T2 silver birch which although having a slightly leaning stem, measures 15m and has a good tree canopy.

5.6 The Category 'B' sycamore T4 is also a neighbours tree and this large multi-stem tree has a canopy which extends into the garden by some 4m and an RPA which extends into the garden by some 6.3m. The tree has an extensive canopy but has been subject to regular tree work which now affects its form.

6.0 Tree Quality Assessment

6.1 The table of data in **Appendix 2** along with the Tree Constraints Plan submitted plan show the condition of the trees according *to "BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations".*

4 individual trees on this site have been surveyed for planning purposes & categorized according to BS 5837:2012. It was found that there were:

1 Category 'B' Trees
3 Category ' C' Trees

6.2 **CATEGORY 'B' TREE** (Trees of low medium quality with an estimated remaining life expectancy of at least 20 years **(T4)**

The only medium quality tree in the survey is the mature sycamore at the rear of the garden, this tree is multi-stem and has an extensive canopy but has been subject to tree work in the past. This tree is not located near the construction and will not be impacted.

T4 sycamore – located in neighbours garden with extensive canopy

T4 tree is a large multi-stem mature tree which has been subject to tree work

6.3 **CATEGORY 'C' TREE** (Trees of low quality with an estimated remaining life expectancy of at least 10 years **(T1, T2, T3)**

T1 Cherry with pronounced leaning stem due to proximity to T2 birch

T1 Cherry is positioned close to fence and between 2 garden storage sheds

This Category 'C' cherry (T1) is the owners tree, it suffers from having both a constricted canopy and also from its compromised planting position. The tree is out-competed by the adjacent and dominant T2 silver birch which has an extensive canopy. T1 can be shown to be leaning to the south to gain canopy space. The stem of T1 is also positioned between 2 storage sheds meaning that its planting area and drainage is not ideal. This tree is to be removed and a replacement tree further down the garden is proposed.

T2 Silver birch with extensive canopy – this is the neighbours tree (No. 20 Ferncroft)

T2 Silver birch with slightly leaning stem and additional leader now developing

The above Category 'C' T2 silver birch is the neighbours tree (20 Ferncroft) and this tree was noted to have a slightly leaning form stem until 2m which then straightens. The stem has also developed a new small "leader" which is gaining dominance and is growing a new secondary canopy from this leader. T2 has an extensive canopy and provides good screening, privacy and seasonal interest.

T3 Cherry is a small decorative tree located close to opposite fence – the tree has slight leaning form – leans to north.

7.0 Arboricultural Impact Assessment (AIA)

7.1 The Arboricultural Impact Assessment (AIA) considers how the proposed development is likely to affect the treescape at 20A Ferncroft Avenue, Hampstead, from both an environmental and also an amenity viewpoint

7.2 There are a wide range of construction activities which have the ability to cause some "Potential Development Impact", which can include:

- *Demolition of the existing dwelling and buildings*
- *Construction of the new proposed dwelling and footprints relative to RPA's*
- *Amendments and upgrades to areas of hard-standing (driveways, turning areas)*
- *Installation of services*
- *Landscaping*

7.3 The proposed extension demolition and basement proposal has been designed with efforts taken to ensure the safe retention of the high quality trees on the site, with protective measures being proposed around all the retained trees. The Tree Constraints Plan (TCP) – **Appendix 3** shows the extent of the RPA's of all the trees. Ideally there should be no encroachment into the RPA's of retained trees unless it is unfeasible to avoid. In such instances, specialist ground protection and installation will be adopted.

7.4 Adoption of a Tree Protection Plan (TPP) s critical to ensuring the protection of retained trees. Tree protection measures and fencing, should be retained throughout the entire project. Location of fencing are shown in **Appendix 3** and consists of both permanent fencing.

7.5 The proposed basement will extend further into the garden and will directly affect the T1 Cherry as its canopy and RPA are inside the intended basement area. It has been noted however that this tree is poorly positioned and struggles for canopy space as it being out competed by the nearby T2 birch. It is proposed that this tree be removed and for a replacement tree to be planted towards the rear of the garden.

7.6 The T2 silver birch is owned by neighbours of 20 Ferncroft and as demonstrated in **Appendix 3**, there will be no disturbance to its RPA through the demolition, excavation or new basement construction. There is a risk soil compaction to RPA of T2 however this is being addressed by the installation of tree protection fencing. T3 and T4 will similarly be set behind tree protection fencing to avoid root damage and soil compaction.

8.0 Tree Protection Plan

8.1 The tree protection fences are designed to be a substantial protective barrier, which once installed will be difficult to move. The fencing guards against impact damage to tree stems and branches of any trees which are being retained, as well as protecting the rooting environment from soil compaction. These measures are to ensure that the soil structure does not become compromised during construction operations. The specification on fencing is provided below.

8.2 It is important that the Tree protection fencing is installed before any construction activity is started and before any materials arrive on-site. Once erected the fencing should not be altered or moved without prior consent from the arborist or by approval from the Local Authority.

8.3 Care should be taken on the site to ensure that no materials, machinery, chemicals or fuel are stored inside CEZ's for the duration of the development. Areas must be allocated for materials storage, minimizing the need for on-site storage by having phased deliveries throughout the project.

8.4 Materials which might contaminate the soil should be carried out 15m away from RPA's, the effect of gradient on the movement of potentially harmful liquid spillages towards RPA's should also be considered. Materials mixing should only take place on a bund with an impermeable membrane on a scraped base to ensure that there is no possibility of materials escaping the bunded area.

9.0 Specifications for protective fencing and signage

BS 5837:2012 states that all *"Barriers should be fit for the purpose of excluding construction activity and should be appropriate to the degree of proximity of work taking place around the retained tree(s)"*

There is a default specification of barriers (Fig1) which is recommended and these are designed to be permanent barriers and positioned as per the TPP. In most instances this takes the form of welded 'Heras' panels, secured onto a scaffolding framework, which is then braced and secured into the ground. The panels should should be difficult to move and should form permanent rigid structures. Should site conditions mean this default fencing is impossible to install, then an alterative fencing can be suggested by the retained arboriculturist, to be approved by the local planning authority.

The protective fencing should also be accompanied by clear all-weather signage fixed securely to the barriers, examples of which are shown in Fig 2.

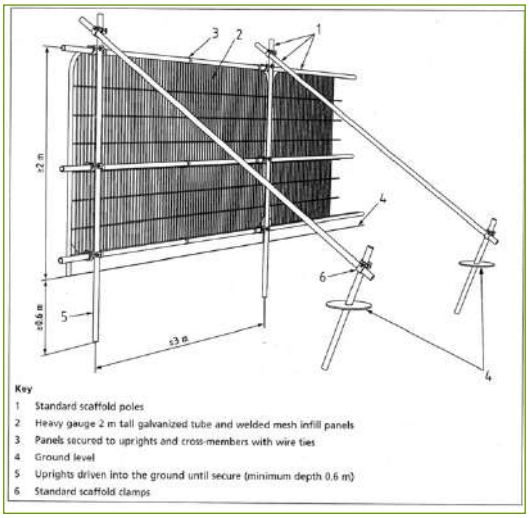

Fig 1 Shows the default specification of protective barriers (taken from BS 5837)

Fig 2 Shows examples of the all-weather signage to be attached to protective barriers.

10.0 Legal Constraints

10.1 There are no trees at this site which are are subject to specific statutory controls

10.2 The trees in the survey site are not protected by any individual Tree Preservation Orders however site lies in the London Borough of Camden Conservation Area.

10.3 Statutory Wildlife Obligations: The Wildlife & Countryside Act 1981 (Amended) provides statutory protection to birds, bats and other species that inhabit trees. All tree work operations are covered by these provisions and advice from an ecologist should be obtained before undertaking any works that might constitute an offence.

11.0 Conclusions

11.1 The survey site is comprised of the rear gardens of 20A Ferncroft Avenue, Hampstead, London NW3 7PH. The house is in a residential street in Hampstead and in the London Borough of Camden.

11.2 4 trees on this site have been surveyed and it was found that there were:
1 Category 'B' Trees - sycamore
3 Category ' C' Trees – silver birch and cherry

11.3 The proposed basement will extend further into the garden and will directly affect the T1 Category 'C' Cherry as its canopy and RPA are inside the intended basement area, but the tree is low quality and canopy constricted. This tree is to be removed and replaced with a new tree further away from the basement area.

11.4 There will be no impact on the Category 'B' sycamore at this site and all other retained trees are to be protected with tree protection fencing. This fencing should be installed prior to any work commencing.

APPENDIX

APPENDIX 1 - KEY TO BS 5837 TREE SURVEY DATA

APPENDIX 2 - ARBORICULTURAL TREE SURVEY DATA

APPENDIX 3 - TREE CONSTRAINTS PLAN (TCP) & TP FENCING

APPENDIX 4 - ADDITIONAL TREE IMAGES

APPENDIX 1 – KEY TO BS 5837:2012 TREE SURVEY

T / G	Tree or Group numbers which follow on the enclosed plan
Species	Common name followed by botanical name (Latin) in brackets
DBH:	The Diameter at Breast Height which measures the girth of the stem (in mm) measured at 1.5m from ground level
Height (H):	Approximate height of tree canopy, measured in meters
First Branch (FB):	Approximate height of the first significant branch and its cardinal directional
Canopy Spread (CS):	Approximate Canopy spread measured in metres, shown as compass points N,E,S,W
AGE CLASS:	Y : Young (less than 15 years old and 1/3 fully grown) SM : Semi-mature tree (1/3 to 2/3 full height tree) EM : Early Mature (2/3 to virtually full height tree) M : Mature – fully grown tree LM : Late Mature – fully grown tree possibly with declining vigor OM : Over mature – fully grown tree with declining vigor, but having historical or ecological value VET : Veteran tree, usually very old and having significant biological, cultural or aesthetic value
SULE:	Refers to the remaining **Safe Useful Life Expectancy** and is the estimated number of years the tree will continue to make a safe and useful contribution to its environment. SULE is recorded as <10 years, 10+, 20+ or 40+ years
RPA:	The **Root Protection Area**, the radius measured in metres, and area in metres squared. The RPA of a single tree tree is equal to a circle with a radius of 12 x stem diameter and is used to accurately site specialist protective fencing.

Key to BS Tree Categories:

Category A: High quality trees – with estimated remaining life expectancy of at least 40 years

Category B: Moderate quality trees – with estimated remaining life expectancy of at least 20 years

Category C: Low quality trees – with estimated remaining life expectancy of at least 10 years or stem diameter below 150mm

Category U: Dead or dying trees, (infected by pathogens), or trees which are actively suppressing superior quality

APPENDIX 2 –ARBORICULTURAL TREE SURVEY DATA

(SEE TABLE BELOW)

TREE or Group or Hedge	**Species Common Name** If tree offsite, record estimated measurements using '#'	**DBH at 1.5m** recorded in mm	Canopy **HEIGHT** in metres + **FIRST BRANCH** in m from ground level with cardinal direction	**Branch Spread** **N E S W** Recorded in m	**Age** **Y SM EM M LM OM Vet**	**SULE** **<10 10+ 20+ 40+**	**General Observations**	**Structural Form** **Good Fair Poor Dead**	**Physiological Form** **Good Fair Poor Dead**	**BS 5837 RC** **A B C U**	**BS 5837 RPA Radius** recorded in m and m²	**Recommended Works**
T1	Japanese Flowering Cherry	235	H 8m FB 1.5/N	N 2.2 E 2.0 S 4.0 W 2.0	EM	10+	*5.3m from rear of house* 0.25 from boundary fence Tree has developed pronounced lean, leans heavily to South due to competition from dominant T2 silver birch. New minor "leader" has developed and included bark observed at union Cherry has restricted rooting and compromised drainage due to proximity to garden sheds on either side of stem.	POOR	FAIR	C	R = 2.70	Recommend removal and replacement planting

TREE or Group or Hedge	**Species Common Name** If tree offsite, record estimated measurements using '#'	**DBH at 1.5m** recorded in mm	Canopy **HEIGHT** in metres + **FIRST BRANCH** in m from ground level with cardinal direction	**Branch Spread** **N E S W** Recorded in m	**Age** **Y SM EM M LM OM Vet**	**SULE** **<10 10+ 20+ 40+**	**General Observations**	**Structural Form** **Good Fair Poor Dead**	**Physiological Form** **Good Fair Poor Dead**	**BS 5837 RC** **A B C U**	**BS 5837 RPA Radius** recorded in m and m²	**Recommended Works**
T2	Silver Birch	280	H 15m 1m/N	N 4.5 E 4.0 S 4.0 W 3.0	EM	20+	*9.8m from rear of house* 1.0 from boundary fence Tree has developed a pronounced lean, leans to South to gain light, however has well balanced canopy. Birch has also developed new additional leader at 1m to create a co-dominant tree.	FAIR	GOOD	C	R = 3.30	NEIGHBOURS BOUNDARY TREE
T3	Japanese Flowering Cherry	95	H 3.5m 1.0m/S	N 1.5 E 1.5 S 1.5 W 1.5	SM	10+	*9.8m from rear of house* 1.0 from RHS boundary fence Small ornamental cherry with leaning form.	POOR	FAIR	C	R = 1.20	
T4	Sycamore	5x stems	H 18m FB 2m/S	N 4.0 E 4.0 S 4.0 W 4.0	EM	40+	*9.8m from rear of house* 1.0 from RHS boundary fence Mature multi-stem tree which offers amenity value and located at the rear right hand corner of the garden. Canopy extends into garden of 20A by approx. 4m. Evidence of tree work to maintain canopy, canopy has now regrown	FAIR	FAIR	B	R = 6.30	NEIGHBOURS MATURE TREE

APPENDIX 3 – TREE CONTRAINTS PLAN (TCP)

SEE ATTACHED PDF SHOWING TREE CONSTRAINTS PLAN (TCP) SHOWING LOCATION OF TREE PROTECTION FENCING

APPENDIX 4 – ADDITIONAL SITE IMAGES