Marcus Foster
Arboricultural Design & Consultancy

BA (Hons) | NDArb | AATechcert (ArborA) | EGS.Dip

Arboricultural Survey (BS5837:2012) & Impact Assessment Report

Site details:

26 Dartmouth Park Avenue
London
NW5 1JN

Client details:

MRE Building Contractors Ltd
26 Dartmouth Park Avenue
London
NW5 1JN

Date of Report:

16th November 2015

Report Prepared by:

Marcus Foster
BA (Hons) NDArb. TechCert (ArborA) EGS.Dip

Marcus Foster
Arboricultural Design & Consultancy
Tel: + 44 (0) 7812 024 070
Email: marcus@mfdesignconsultancy.com
www.mfdesignconsultancy.com

Contents

1. Introduction

1.1 This report has been commissioned by Yoram Amsalem on behalf of MRE Building Contractors Ltd to survey, assess and provide arboricultural recommendations and an impact assessment for the trees within and in close proximity to the proposed development at 26 Dartmouth Park Avenue, London, NW5 1JN.

1.2 A site visit was conducted on Wednesday 10th November 2015 to survey and assess the trees. The weather at the time of inspection was dry and overcast with mild temperatures.

1.3 A tree survey, report and recommendations have been compiled for 3 trees (T1-T3) surveyed within 26 Dartmouth Park Avenue, London, NW5 1JN.

1.4 The details of the subject trees are set out in the tree survey table in *Appendix A*. The trees were surveyed on the date and time shown above and the tree survey assessment information for the trees describing size, condition and surroundings are found within this appendix.

1.5 The trees located within the site and included in the survey are shown in site plan, *Appendix B.1 - B.2*, and these correspond to the tree survey results table, *Appendix A*.

1.6 Photographs of the trees can also be found in *Appendix C*.

1.7 This report and the opinions within it have been produced by Marcus Foster, a qualified Arboriculturist holding a National Diploma in Arboriculture, and the Arboricultural Association's Technicians Certificate as well as a degree in History and Society. Work experience within the industry includes work as a Contracts Manager for an Arboricultural Association Approved Company, a Local Authority Tree Preservation Officer and an independent Arboricultural Consultant.

1.8 No additional documentation has been referred to relating to the tree or the building at this property for the compilation of this report.

2. Survey Details and Scope

2.1 The site survey included the 3 trees (trees T1-T3) as shown in the survey, *Appendix A,* and also highlighted on the site plans*, Appendix B.1.*

2.2 The trees were surveyed from ground level from within 26 Dartmouth Park Avenue, London, NW5 1JN. The diameter of the trunks have been measured using a Diameter at Breast Height tape. The height of the trees have been estimated due to the topography of the site.

2.3 The following information was recorded for each tree and is shown in the Tree Schedule included in *Appendix A*:

- Number: an identity number which cross-references locations shown on the plan in Appendix A with the schedule in Appendix B.
- Species: listed by common names
- Tree Height: height in metres (m)
- Tree Spread: spread in metres (m)
- Stem diameter: measured in millimetres (mm) and taken at 1.5m above ground level
- Age Class: Y (young); EM (early-mature); M (mature); OM (over-mature)
- Vigour: G (good); F (fair); P (poor); D (dead)
- Physiological Condition: G (good); F (fair); P (poor); D (dead)
- Structural conditions: Specific comments relating to each tree
- Preliminary Management Recommendations
- Estimated Remaining Contribution (years)
- BS5837 Category Grading
- Protection Distance (if applicable – BS5827: 2012)

2.4 The information contained within the report reflects the condition of the specimens examined at the time of the inspection. As the inspection was only visual no guarantee can be given concerning the condition of the wood at present in any of the trees inspected and furthermore that no future problems or deficiencies may arise.

2.5 Information recorded in the tree survey, *Appendix A* is expanded in the report findings and recommendations have been made in *Section 5*.

Tree Survey Summary

2.6 All trees have been survey in accordance with BS5837: 2012 'Recommendations for trees in relation to construction' (BS5837: 2012) and have been rated as follows:

Category 'A' trees

Trees of high quality with an estimated remaining life expectancy of at least 40 years. Trees have been categorised as 'A' trees for one of the following reasons:

- Mainly arboricultural qualities
- Mainly landscape qualities
- Mainly cultural values including conservation

Within the Site Plan (Appendix B) those trees rated as 'A' category trees have a green outline as denoted within the site plan key.

Category 'B' trees

Trees of moderate quality with an estimated remaining life expectancy of at least 20 years. Trees have been categorised as 'B' trees for one of the following reasons

- Mainly arboricultural qualities
- Mainly landscape qualities
- Mainly cultural values including conservation

Within the Site Plan (Appendix B) those trees rated as 'B' category trees have a blue outline as denoted within the site plan key.

Category 'C' trees

Trees of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm. Trees have been categorised as 'C' trees for one of the following reasons

- Arboricultural qualities - unremarkable trees of very limited merit
- Mainly landscape qualities
- Trees with no material conservation or cultural value

Within the Site Plan (Appendix B) those trees rated as 'C' category trees have a grey outline as denoted within the site plan key.

Category 'U' trees

Trees in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

Within the Site Plan (Appendix B) those trees rated as 'U' category trees have a red outline as denoted within the site plan key.

3. Survey Limitations

3.1 No soil excavations have been carried out.

3.2 This report only considers the trees and conditions at the time of inspection.

3.3 No invasive tools were used during this site survey.

3.4 This report is preliminary and further investigations may be required in order to reach firm conclusions and/or further recommendations for action.

4. Findings and Discussion

Site Overview

4.1 There are 3 trees located within the rear garden of the property and within relative close proximity of the proposed construction works which incorporate development works to the rear of the existing property. Trees T1 - T3 have been surveyed and numbered as is depicted within the site plan (*Appendix B.1 - B.3* - also within the Tree Protection Plan *Appendix B.4*).

4.2 The trees surveyed are located within the London Borough of Camden; they are also located within the Dartmouth Park Conservation Area and are therefore protected by this status.

4.3 The proposed development has the potential to affect the trees in the following ways:

- **Potential excavations required for rear basement extension / development works in close proximity to the trees have the potential to cause damage**

- **Associated construction site activities which have the potential to cause long term damage to the trees and surrounding vegetation**

- **Compaction of the ground surrounding the trees during construction works**

- **The use of and storage of materials and chemicals on site during the construction process**

4.4 The trees have been surveyed taking into account the condition, general health and form. In addition they have been surveyed taking into account the amenity value that is offered in relation to both the landscape and surrounding buildings. This report outlines the impact that the proposed development will have on the treescape and landscape; it provides recommendations to ensure that long-term amenity value for the area is both retained and enhanced.

4.5 The report has been written with close reference to the British Standard Guidance, British Standard 5837: 2012 ‘Recommendations for trees in relation to construction’ (BS5837: 2012), which addresses the juxtaposition between trees and structures.

Development proposal in relation to trees within close proximity

4.6 The proposed development works are to incorporate the retention of all trees that have been surveyed and rated category 'C.1' and above. This report will outline the condition of the trees and necessary requirements during the construction process in order to ensure their long term health, and the retention of the amenity value they provide for the long term.

4.7 The proposed construction works are to incorporate a rear basement extension which will extend towards tree T1 in particular within the garden area. The development is achievable without causing damage to the trees being retained providing precautionary and protection measures are adhered to within this report, particularly as recommended tree protection distances (BS5837:2012) can be largely adhered to at all times.

4.8 Therefore by implementing the proposed protection measures, damage from the following activities will be avoided during the construction process:

4.8.1 Potential damage to the root plate of trees within close proximity of construction site activities where excavations may occur, potentially causing damage to the health and/or structural integrity of the trees.

4.8.2 Potential damage from compaction of the root plates of all trees where construction activities will require working methods with heavy machinery and storage of materials.

4.8.3 Potential direct damage to the canopy of trees within the site from construction site activities.

4.9 The aim of this report is to address these issues and highlight the solutions required in order for the implementation of the development to be carried out without detrimentally affecting the structural integrity of the trees.

Tree Survey Notes - Trees T1 - T3 in relation to construction method

Tree T1

4.10 Tree T1 is a mature Whitebeam (*Sorbus aria*) tree located within a raised border on the northern boundary which has good form and is showing good vigour. The tree is generally structurally sound with good root flare compensating for a slight lean to the south and a sound main union at 1.5m . With a relatively light pruning history the tree has a balanced mid and upper canopy lightly encroaching towards the property and neighbouring building to the south. The tree is rated as a 'C.1' category tree (BS5837: 2012) offering some amenity value and is therefore proposed for retention.

4.11 The tree's location within very close proximity of the proposed extended basement area means that the tree will require protection during the construction process. Whilst the rootplate to the north, east and west will be afforded the full 3.7 metre protection distance as recommended within BS5837:2012, some encroachment within the the western root plate will be required to implement the proposed development. However the existing site topography and hard landscape features mean that this will be achievable as the root system will already likely be retained within the raised border area where the tree is sited.

4.12 The upward sloping topography of this rear garden means, as described above, that tree T1 is sited in a raised garden area which likely contains the majority of the tree roots. This raised retaining wall currently exists with a height of 800mm and is at the closest point 1.4m from the centre of tree T1 extending to 2.0m at the most westerly point. The excavations for the basement will be required within close proximity of this raised retaining wall and in the case of this being dismantled close adherence to the tree protection guidelines - *Section 4.21* should be made at all times.

4.13 The tree protection specified will ensure that the tree is protected with the initial root plate to the west and south receiving protection to a point 1.8m from the main stem - for the remainder of the root plate the full protection distances will be adhered to with the fencing extending across the full width of the garden therefore providing a full Construction Exclusion Zone (CEZ). When implementing this protection fencing the area surrounding tree T1 specifically should be to a standard as illustrated in *Appendix F* - basal shuttering to provide comprehensive protection. This can be extended for the remainder of the garden or a reversion to that specified within *Appendix E* (BS5837:2012).

4.14 Due to the nature of the development, largely taking place below ground level, the canopy of tree T1 will not be affected by the proposed development, including associated construction activities and therefore no tree works have been recommended at present. Should the canopy of the tree encroach upon the construction site or likely be affected by the development site activities, remedial tree works should be carried out, but not without prior notification via a Section 211 notification for tree works within a Conservation Area.

Tree T2

4.15 Tree T3 is a mature Birch tree (*Betula pendula*) which is also located on the northern boundary alongside tree T1. The tree provides good ornamental value with some amenity value to this area and is generally structurally sound. The tree is rated as 'C.1' (BS5837:2012) taking into account the above factors and limited visibility within the overall streetscape.

4.16 This tree is at its closest point is sited in excess of 11.5 metres from the proposed development and taking into account its recommended root protection distance of 2.3m, its comprehensive protection is fully achievable. The protection fencing is specified a very significant distance from the main stem of this tree and incorporates all 3 trees providing a Construction Exclusion Zone (CEZ)

Tree T3

4.17 Tree T3 is a mature Plum tree (*Prunus cerassifera*) which is located on the eastern boundary to the very rear of the garden and provides good ornamental value to this area. The tree is generally structurally sound although has fair vigour only with some deadwood throughout. The tree is rated as 'C.1' (BS5837:2012) taking into account the rear garden location and mainly ornamental value provided. This tree is at its closest point is sited in excess of 16 metres from the proposed development and taking into account its recommended root protection distance of 2.7m, its comprehensive protection is fully achievable; the protection fencing is specified a very significant distance from the main stem of this tree.

4.18 The protection fencing that is specified for trees T2 and T3 is therefore recommended to extend across the width of the garden (see *Appendix B.3*) ensuring that full protection is provided for the entire rear garden area for this development site.

Mixed shrubs / remaining vegetation within rear of garden

4.19 It is important to note that the soft landscaping including mixed shrubs on the northern, eastern and southern boundary that offer an informal and ornamental low screen and provide a mature garden will also remain protected from the construction process by virtue of the protection fencing that is proposed to be implemented to provide full protection of trees T1-T3. This will ensure that the character and landscape of the garden as a whole is retained throughout the development process.

Tree Protection Specifications

4.20 With the nature of development works and associated construction site activities potentially encroaching within the garden at the rear of the property it is important that the tree protection guidelines are adhered to in order to afford the full protection for the tree's surveyed. The implementation of the proposed development can be achieved whilst retaining all trees (with the exception of T1) within the area for the long term by taking into account all the above points within *Section 4* and in addition to the following which must be adhered to AT ALL TIMES:

- **The tree protection fencing / root protection area to be constructed as outlined with *Appendix B.3* of this report and to the specifications provided within *Appendix E* and *Appendix F***

- **All construction activities must adhere to the tree protection guidelines as explained throughout the report and as outlined below – these should remain for the entire construction process in order to provide comprehensive protection from the trees.**

- **No building materials or chemicals are stored within the Root Protection Areas - the boundaries of which will be clearly marked with the TREE PROTECTION NOTICES.**

- **There should be no mixing of concrete or chemicals within the tree protection areas during the construction process.**

- **There should be no fires within the site**

4.21 In the case of tree roots being encountered for tree T1 if the existing retaining wall requires dismantling and excavations are required to be carried out the following should apply:

- **Excavations should firstly be applied with close adherence to the *Excavations and Root Severance Guidanc*e below (Section 4.23)**

- **Any exposed tree roots which are left exposed for any period of time greater than 1 day (during the dormant season) / 1 hour (during the growing season) should be covered with hessian sacks and kept moist at all times to avoid dessication**

4.22 The site notice as included in *Appendix D* summarising the above information should be visible at all times for employees working within the site.

Excavations & Root Severance Guidance

4.23 When implementing the dismantling of hard and soft landscapes within the rear garden area in close proximity of tree T1 and the construction of the proposed development, it should be noted that in the case of major roots being encountered the following points should be closely adhered to:

- **Any excavations which are required within the recommended ROOT PROTECTION AREA must be hand dug for the first 500mm below the existing ground floor level / paved garden level at the base of the garden retaining wall with close adherence to the specifications as highlighted below.**

- **The severance of any tree roots encountered larger than 25mm in diameter MUST NOT occur without prior consultation with the Local Authority Tree Officer or appointed Arboricultural Consultant.**

- **If at any point it is deemed not possible to continue with excavations without having to damage very significant tree roots, the Local Authority Tree Officer and / or the appointed Arboricultural Consultant must be contacted**.

Arboricultural Supervision

4.24 It is recommended that an Arboricultural Supervision Scheme is implemented to ensure that significant tree root damage or compaction of tree roots does not occur. The following is recommended:

Before & During Land Preparation:
- Approval of any utility service routes approved that infringe within the RPA
- Approval of Site Storage Area
- Approval of Root Protection Areas (where fencing not implemented)
- Approval of Tree Protection Fencing positioning

Ongoing throughout development process:
- Monitoring of tree protection / condition
- Monitoring construction methods and storage areas in relation to trees

Summary

4.25 With close adherence to the above points and to the following:

- **Full implementation of Tree Protection Specifications**
- **Full adherence to Tree Protection Area**
- **Comprehensive use of the Tree Protection Notice**

all trees surveyed and proposed for retention, will remain protected from the construction process and can continue to provide amenity value in this area for the long term.

5. Recommended Tree Management Plan

5.1 Any tree work should be carried out to *BS 3998; 2010 'Tree Work – Recommendations*' and to standards set within the Arboricultural Association's 'Standard Form of Contract and Specifications for Tree Work' by a qualified arboriculturist.

5.2 In addition, any permissions for tree work which are required (as specified during the construction process) should be sought prior to the commencement of works from the Local Authority, London Borough of Camden.

5.3 Tree Works Specification

T1 Whitebeam
No action required at present

T2 Birch
No action required at present

T3 Purple plum
No action required at present

6. Appendices

Appendix A

Tree survey (BS5837:2012)

26 Dartmouth Park Avenue
London
NW5 1JN

Colour Key: BS5837: 2012 (see *Section 2.6*)

- Category A
- Category B
- Category C
- Category U

26 Dartmouth Park Avenue, London, NW5 1JN
BS 5837:2012 Tree Schedule – November 2015

Tree No	Species	Ht (m)	DBH (mm)	Sprd (m)	Age	Visual Cond	Vigour	BS5837 Cat. Rating (2012)	Remaining (years)	Comments / Structural Condition	Managem. Recomms	RPA (m)
T1	Whitebeam	9	310	N: 4 E: 4 S: 4 W:4	M	G	G	C.1	10-15 years	Tree is structurally sound at the base - leaning to the south with good buttress roots. Main union is sound, relatively tight at 1.5m - 3 main stems originating at this point. Tree has been cyclically crown thinned / selectively reduced from property and adjacent property	No action required at present	3.7
T2	Birch	10	190	N: 4 E: 2 S: 1 W:2	M	G	G	C.1	10-15 years	Structurally sound specimen growing on northern boundary. Tree has good root flare at base with a straight main stem to crown break at 4m. Even balanced canopy with good vigour throughout.	No action required at present	2.3
T3	Purple plum	8	220	N: 4 E: 3 S: 4 W:3	M	G	G	C.1	10-15 years	Tree is a structurally sound specimen with good root flare at base. Slight lean to the west with the main union at 2m. Compact and balanced crown; cyclically crown thinned and lifted	No action required at present	2.7

Appendix B

Existing & Proposed Site Plan including Tree Protection Plan:

26 Dartmouth Park Avenue
London
NW5 1JN

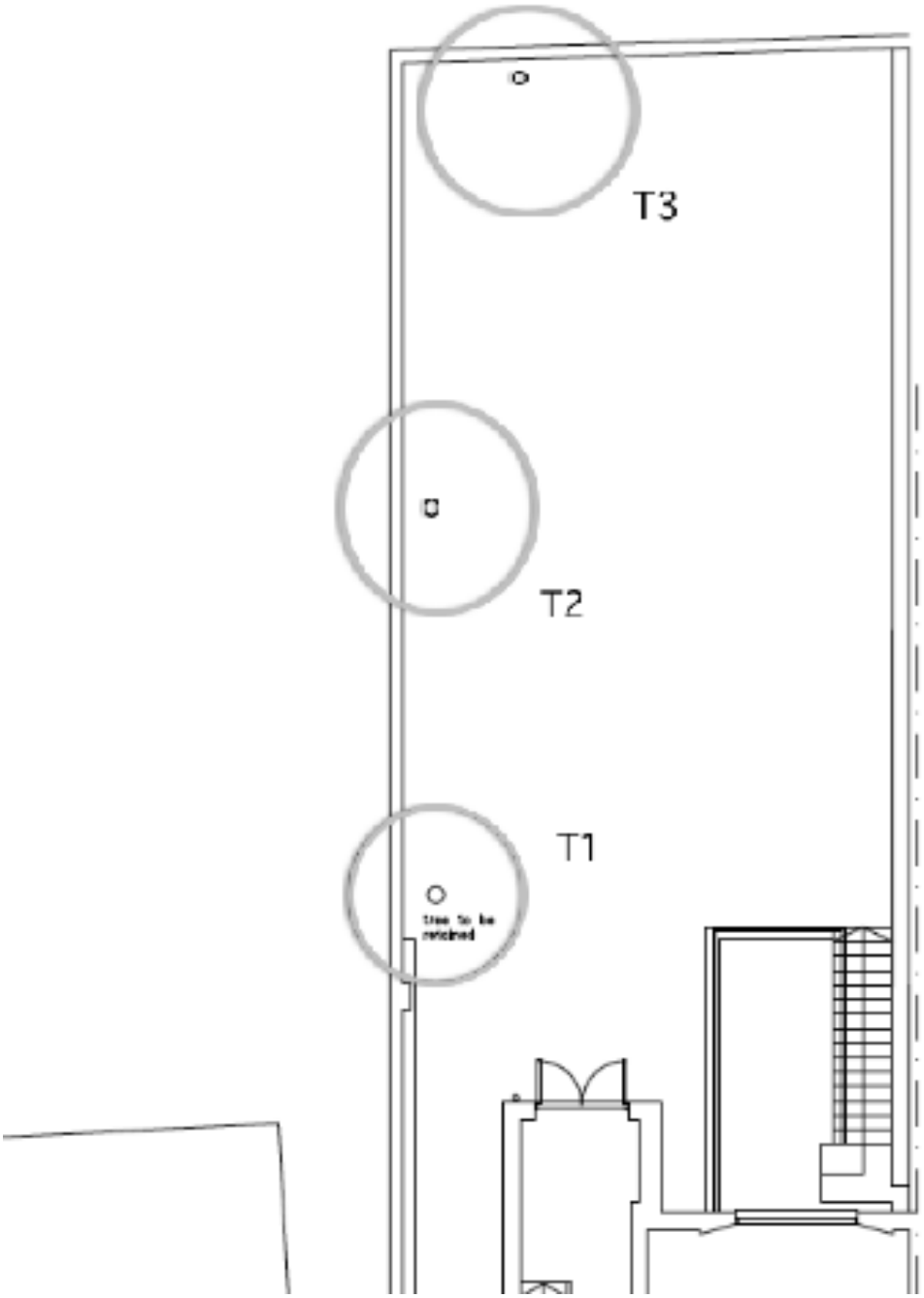
Plans supplied:

Drawing No:
DPA.01.02.C
Date:
27.03.2015

Tree Canopy Colour Key: BS5837: 2012 (see *Section 2.6*)

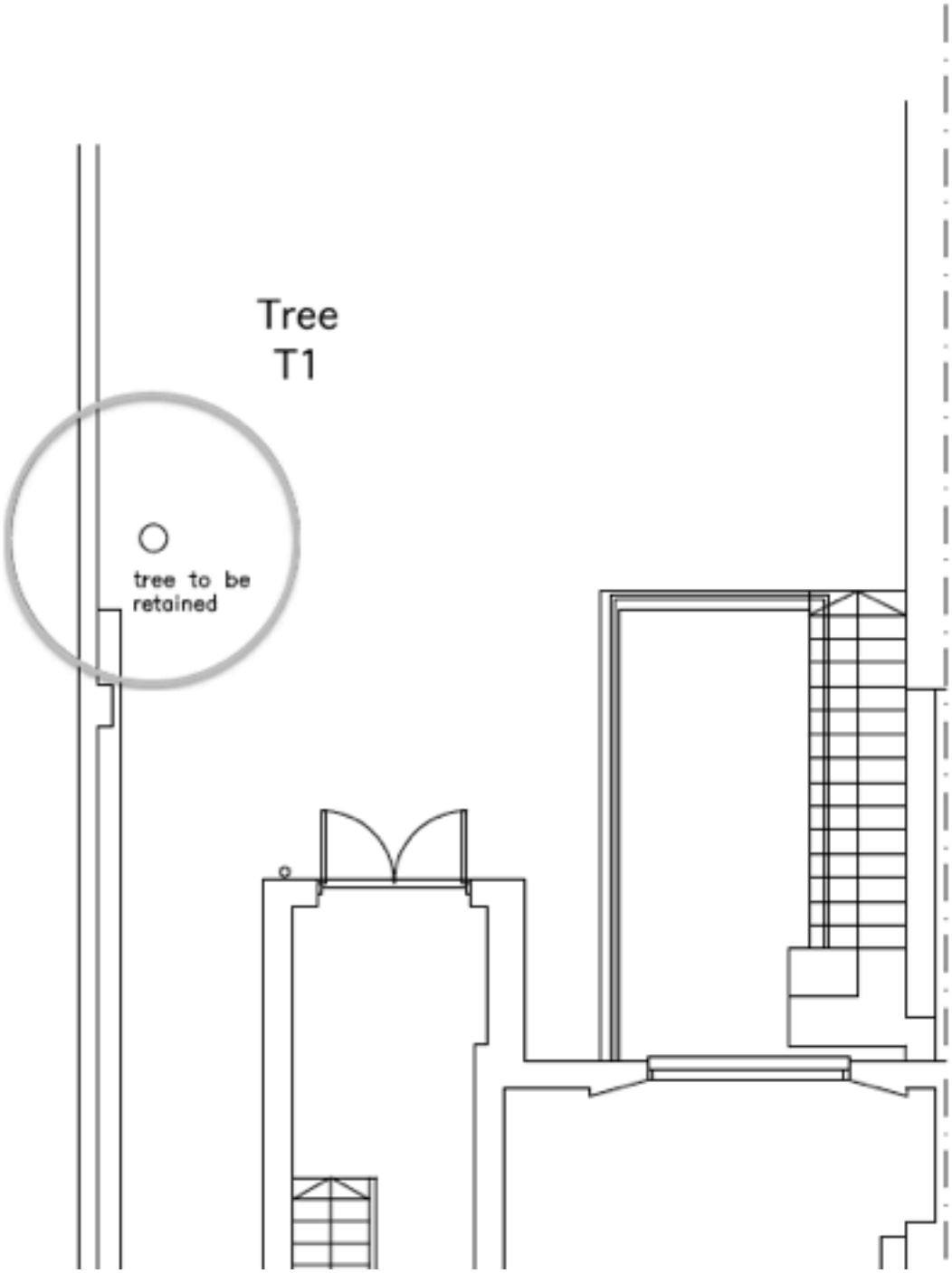
- **Category A**
- **Category B**
- **Category C**
- **Category U**

Appendix B.1 Existing Site Plan:
26 Dartmouth Park Avenue, London, NW5 1JN



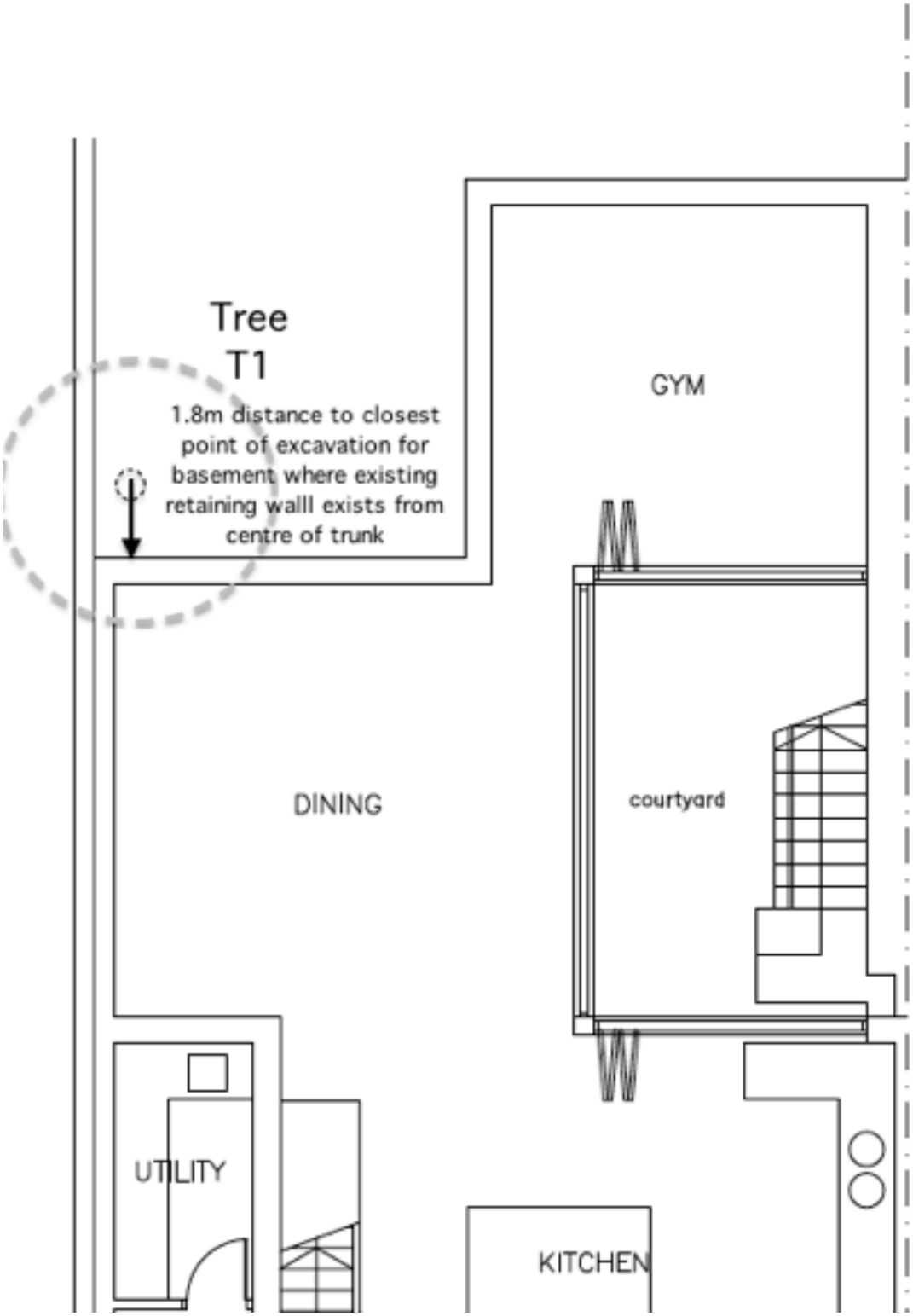
Do not scale from this drawing

Appendix B.2 Proposed Site Plan:
26 Dartmouth Park Avenue, London, NW5 1JN - Ground Floor

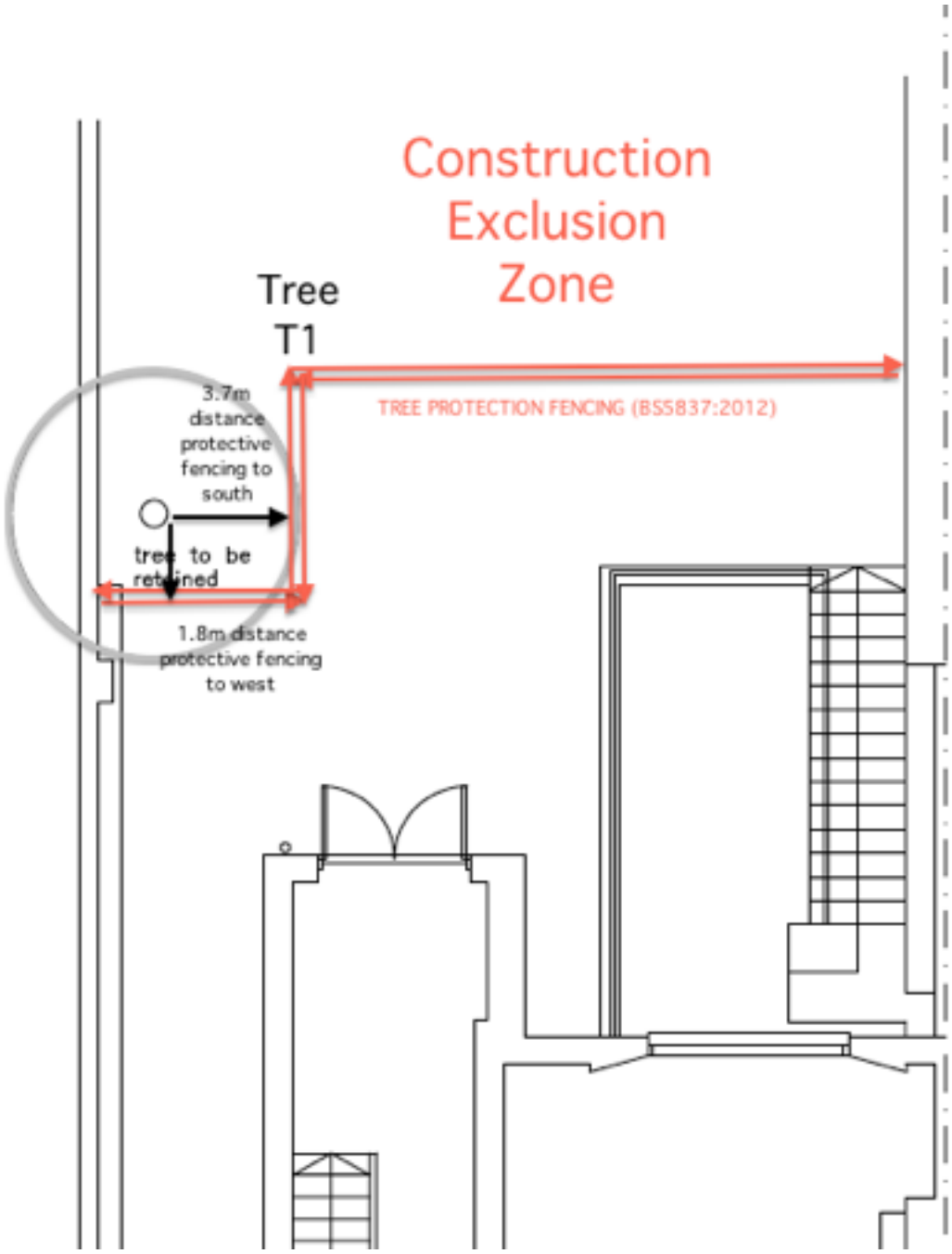


Do not scale from this drawing

Appendix B.3 Proposed Site Plan:
26 Dartmouth Park Avenue, London, NW5 1JN - Basement



Appendix B.4: Site Plan of Tree Protection:
26 Dartmouth Park Avenue, London, NW5 1JN



Do not scale from this drawing

Tree Protection Site Plan Notes / Key:

1. Red line denotes Tree Protection Fencing to offer protection to T1, soft landscaped areas and also incorporating full protection for trees T2 and T3

Appendix C

Site Photographs for:

26 Dartmouth Park Avenue
London
NW5 1JN

Taken 10th November 2015

C.1 Photograph of tree T1 proposed for retention within rear raised border 26 Dartmouth Park Avenue, London, NW5 1JN as viewed in an easterly direction

C.2 Photograph of tree T1 proposed for retention within rear raised border 26 Dartmouth Park Avenue, London, NW5 1JN as viewed in a westerly direction showing the property as exists also

C.3 Photograph of trees T1 -T3 within rear garden - 26 Dartmouth Park Avenue, London, NW5 1JN as viewed in an easterly direction

Appendix D:
Site Tree Protection Notice

Tree Protection Notice
(BS5837: 2012):

26 Dartmouth Park Avenue
London
NW5 1JN

Notice to be clearly shown on site
AT ALL TIMES ON PROTECTIVE FENCING

Guidance for ALL EMPLOYEES working on site in relation to the tree protection required at all times

Site: 26 Dartmouth Park Avenue, London, NW5

- There should be no storage of fuels, chemicals or cement based products within Construction Exclusion Zone (CEZ) of the proposed scheme within close proximity of tree T1

- There should be no storage of materials or mixing of chemicals / concrete within this area at any time. There should also be no fires within the site

- . Notice boards, telephone cables etc should not be attached to any part of any of the trees.

- The severance of any tree roots encountered larger than 2.5 cm in diameter MUST NOT occur without prior consultation with the Local Authority Tree Officer or appointed Arboricultural Consultant.

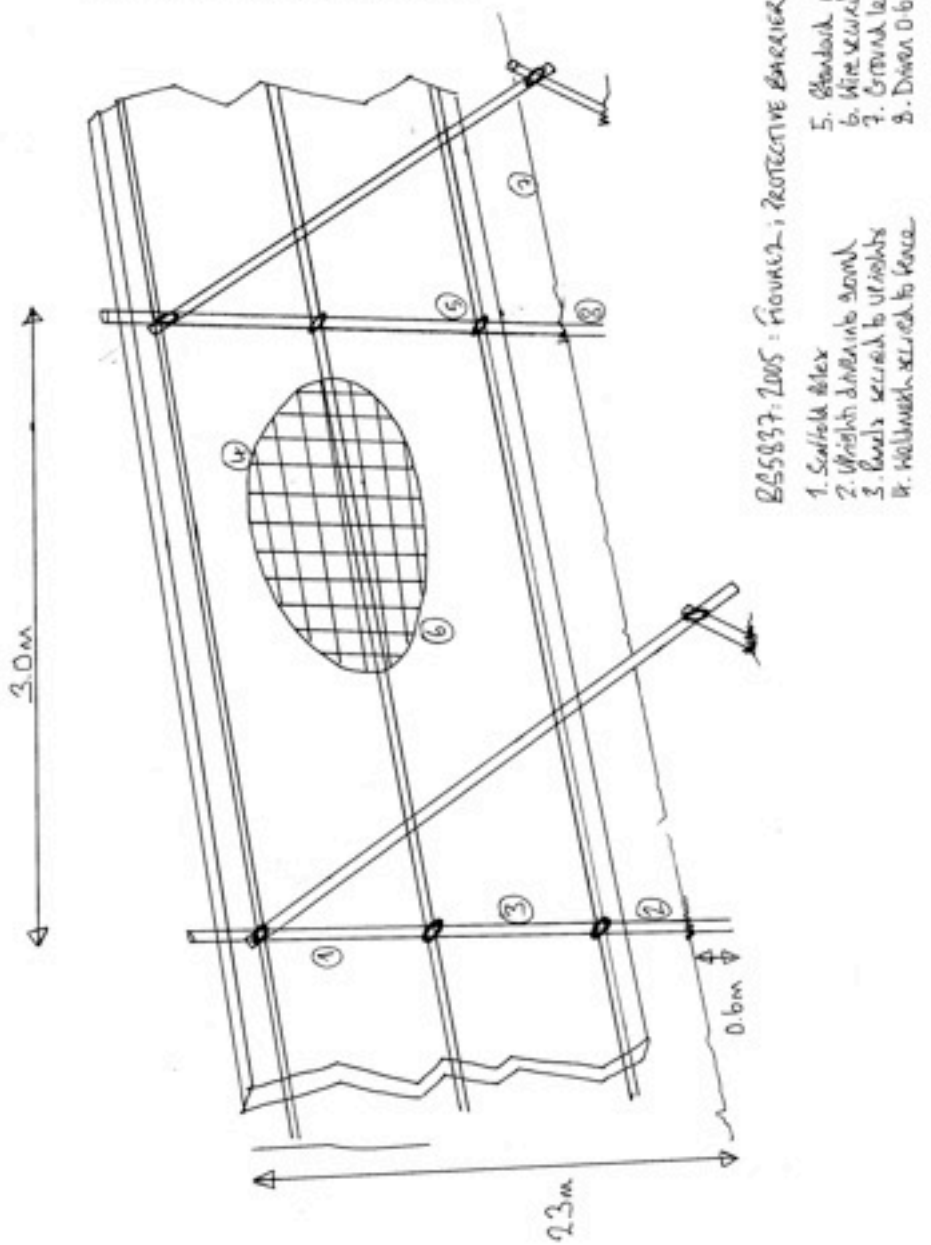
- If excavations do occur within the specified Root Protection Area where hand dug excavations are being undertaken, ANY tree roots encountered over 2.5cm in diameter should be retained where possible. Hand digging is to continue around any such tree roots.

If at any point it is deemed not possible to continue with excavations without having to damage significant tree roots, the Local Authority Tree Officer and / or Arboricultural Consultant must be contacted.

Marcus Foster (Arboricultural Consultant): 0781 202 4070
Local Authority Tree Officer (LB Camden): 020 7364 5009

Appendix E: Tree Protection Fencing as outlined in BS5837 (2012) Specifications

Appendix D: Diagram of Figure 2, Specification for protective fencing, as illustrated in BS5837: 2005



Appendix F: Example of Basal Shuttering

Basal shuttering offers immediate protection for the lower main stem and initial root plate of a tree where exposed with a porous surface. This method of tree protection does not offer protection to the root plate of a tree where surfaces are exposed / development works are being undertaken within the Root Protection Area of a tree. however, it does offer immediate protection to the main stem and provides vital clearance between the tree and construction site activities such as storage of materials, ad hoc toilet usage and compaction of exposed soft landscaped ground (in addition to many other additional construction site activities.

Photograph taken by Marcus Foster within City of Westminster, 2015

Appendix G: References

1. *BS5837: British Standard: Trees in relation to construction - Recommendations*, British Standard (2012)

2. *Principles of Tree Hazard Assessment and Management,* Lonsdale, D. (Department for Transport, Local Government and the Regions, 1999)

3. *The Body Language of Trees*, Mattheck, C. and Breloer, H. (HMSO, 1994)

4. *Trees in Britain,* Philips, R. (Pan Books, 1978).

5. *Diagnosis of Ill Health in Trees,* Strouts, R. and Winter, (TSO, 1994)

6. *NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (Issue 2),* (November 2007)