Marcus Foster
Arboricultural Design & Consultancy

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

Arboricultural Survey (BS5837:2012)
& Impact Assessment

Site

19 Well Road
London
NW3 1LH

Client

Walters Consultancy Ltd

Date of Report:

5th December 2018

Report Reference:

AIA/MF/0108/18

Report Prepared by:

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

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

Contents

1. Introduction

1.1 This report has been commissioned by Walters Consultancy Ltd to survey, assess and provide an Arboricultural Impact Assessment for the 6 x trees sited at and within close proximity of the proposed development and associated construction site activities at 19 Well Road, London, NW3 1LH.

1.2 A site visit was conducted on 31st July 2018 to survey and assess the trees. The weather at the time of inspection was sunny with warm temperatures.

1.3 The tree survey, report and recommendations have been compiled for 6 x trees (T1-T6) surveyed within the site. The details of the subject trees is 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 are shown in site plans T001-T003, Appendix B, 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 The following additional documentation has been referred to relating to the property and proposed development for the compilation of this report.

Eckersley O'Callaghan
Structural Engineers Report - 19 Well Road, Hampstead, London, NW3 1LH
27th November 2018

SoilTechnics
BIA REPORT- STQ4531-BIA01: 19 Well Road, Hampstead, London, NW3 1LH
November 2018

2. Survey Details and Scope

2.1 The site survey included the 6 x trees (T1-T6) as shown in the survey, Appendix A, and also highlighted on the site plans, Appendix B.

2.2 The trees were surveyed from ground level from within the property. The diameter of the trunks have been measured using a DBH tape at 1.5m height. The height of the trees have been estimated due to the topography of the site.

2.3 The following information was recorded for the trees 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)
- Structural Condition: G (good); F (fair); P (poor); D (dead)
- General Condition Specific comments relating to each tree
- Estimated Remaining Contribution (years)
- BS5837 Category Grading
- Protection Distance m2 Area (where applicable – BS5827: 2012)
- Protection Distance Radius (where 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 preliminary recommendations have been made in *Section 5*.

2.6 Findings as shown within *Appendix A* and discussed within *Section 4* are also highlighted within *Appendix B* which also incorporates the Tree Constraints Plan (TCP) which addresses areas where arboricultural solutions are required.

2.7 Tree Survey Summary

The trees have been surveyed 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 / survey.

N/A

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.

T2, T3, T4, T5 & T6

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.

T1

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.

N/A

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 It should be noted that vegetation including shrubs within this / the neighbouring sites have not been included in the survey and report as there are none were deemed of relevance for the purposes of this report.

3.5 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 6 x trees located within close proximity of the proposed development. The trees surveyed are located within London Borough of Camden and the property is located within the Hampstead Conservation Area; no Tree Preservation Order (TPO) protection applies for the site.

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

- Amendment to building footprint with proposed basement development
- Removal of 1 x tree within proposed development footprint with canopy cover loss
- Potential excavations and construction site activities which will require for the protection of retained trees to allow for implementation
- Compaction of the ground surrounding the trees during development and landscape process
- The use of and storage of materials and chemicals on site within close proximity of the trees
- Potential damage to the canopy of tree during the development process due to working methods / site access
- Landscape works within the RPA of retained trees which will require ground preparation and implementation of hard / soft landscape works
- The long-term impact of all associated works of the proposed development on the trees

4.3 The underlying soil to this area is classified as 'clayey to silty loam' within the UK Soil Observatory (www.ukso.org) - a medium to heavy soil mix.

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

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. The Arboricultural Impact Assessment highlights areas where the trees will require protection which are also highlighted within the outline method statement - *Section 5*.

Tree Survey Notes in Relation to Development

General Site Aspect

4.6 The site as it currently exists is a two-storey dwelling plus dormer roof accommodation, and a single level basement with front access via Well Road. The gardens to the property at front and side are laid to formal hard landscape areas with soft landscape including newly planted trees likely installed within the past 3-5 years.

Tree T1- Foxglove Tree

4.7 Tree T1 is a semi-mature Foxglove tree (*Paulownia tomentosa*) sited within 3.0 metres of the north eastern corner of the church building as currently exists. The tree has the following main characteristics:

- Fair form only due to the significant crown thinning / management and deadwood / declining sections of crown likely associated with constrained location within re-landscaped gardens

- Severed anchorage root to south of main stem at 1.5m distance where excessively shallow within re- landscaped

- The tree has lateral form with an asymmetric crown mainly to the east and west along the boundary line location.

- NHBC (Chapter 4.2) categorisation is unknown due to the ornamental species / semi hardy nature of tree only - the species which is not commonly grown throughout the UK. However due to vigorous growth habit combined with tender nature, this should be assumed at Low-Medium.

4.8 The tree is rated as a 'C.1' category specimen (within BS5837:2012) due to limited lifespan estimated at between 10 to 20 years maximum, the obvious structural defects and pruning history including root severance. The tree is required for removal with a 1.95m depth basement footprint within the tree location as currently exists and for the long term replacement canopy cover and ornamental value currently provided should be replaced as outlined within a soft landscape scheme.

4.9 The loss of the tree taking account of shallow rooting nature of this species and likely massing of fibrous roots within relative close proximity of the main stem (within approximately 3m with RPA radius at 2.6m recommended distance) means that implementation of the basement will not be affected by the removal of tree T1.

Trees T2-T6 - Newly planted Heavy Standard Trees x 4

4.10 Trees T2 - T6 comprise 5 x heavy standard trees sited within the main garden area surrounding the proposed basement. The trees have the following main characteristics:

-Trees planted within the past 3-5 years as part of a garden re-landscape scheme

- Species mix of 2 x Cherry (T3 & T6), 1 x Ginkgo (T2) and 2 x Evergreen Oak topiary columns (T4 & T5)

- Trees generally not currently requiring management during to limited canopy growth at present

- Generally in good condition with fair vigour / extension growth only due to relative recent planting

- RPA's representative of likely rooting areas taking account of recent planting of trees with limited anchorage roots at present

4.11 The trees have young to semi-mature and managed form offering good amenity value at the frontage with Well Road. T2 - T6 are rated as 'B' (BS5837:2012) specimens. The Root Protection Area (RPA) for these trees are all sited within the canopy outline of the trees due to recently planted nature. Therefore development works will not affect the RPA of these trees. However protection is recommended as outlined within *Section 5* to ensure the main stems and RPA's are not damaged during the construction process should the construction process, including site storage and installation of utility services occur in this area.

5. Summary & Outline Tree Protection Measures

5.1 The proposed development comprising implementation of basement within the garden area requires tree protection measures for trees T2-T6 - for associated construction site activities only. In summary the arboricultural impact as highlighted within T003 (Tree Constraints Plan) are as follows:

5.1.1 Loss of 1 x 'C' category tree without impact on proposed development of basement. This removal is requiring replacement within final landscape phase of development

5.1.2 Tree protection measures required for protection of retained trees for T2 - T6 during development process

5.2 Therefore the following tree protection and mitigation measures will be required:

5.2.1 MAIN STEM PROTECTION FOR TREES T2-T6

- Tree protection measures to protect the main stems of T2-T6 must be provided to provide a Construction Exclusion Zone (CEZ) where construction site activities are shown to new within the areas of these trees.

- This protection is recommended as Basal Shuttering specified within Appendix E.2

5.2.2 SITE NOTICES

The site notices as included in Appendix D summarising the above information should be visible at all times for employees working within the site within close proximity of the trees.

5.2.3 INSTALLATION OF UTILITY SERVICES

If for any reason installation of utility services within the Root Protection Area of trees T2-T6 the consulting arboriculturist and Local Authority must be notified prior to any ground tree protection / fencing and barrier removal and the following details adhered to:

- Trenching for the installation of underground services severs any tree roots present and can have a detrimental impact on the structural integrity of affected trees. When services are required to pass through a CEZ, detailed plans showing proposed routes should be drawn up in

conjunction with the consulting arboriculturist to avoid long term health and anchorage problems for related trees.

- The preferable method for trenching is to use a 'Air Spade' or similar to remove soil with compressed air, therefore minimising damage to roots in the process

Further reference can be made to National Joint Utilities Group (Volume 4, Issue 2) for guidance but any approach must be approved by both the consulting arboriculturist and Local Authority tree officer.

5.2.4 STORAGE OF MATERIALS, CHEMICALS & MACHINERY

A designated area for storage of materials, machinery and chemicals is recommended outside of the RPA of any trees retained within close proximity of the proposed development. By locating the area for storage of materials within the private residential area no trees are affected by this element of the construction process.

5.2.5 TREE WORKS

Any tree works deemed appropriate for the implementation of the development without damage to the tree/s should be undertaken prior to the commencement of development works.

5.2.5 TREE REPLACEMENT

Replacement planting of 1 x 'Low' or `Medium' NHBC Category / medium sized tree is recommended to the following specifications:

- 14-16cm girth specimen minimum
- Irrigation pipes /suitable staking implemented as part of the scheme
- A weed suppressing bark mulch between 40-60mm thickness applied
- The tree planting should be accompanied with a strict watering programme for the first full season after planting
- Location to be confirmed

NOTE: All replacement planting to be carried out in accordance of BS8545:2014 - Trees: from nursery to independence in the landscape

6. Appendices

Appendix A

Tree survey (BS5837:2012)

19 Well Road
London
NW3 1LH

Colour Key: BS5837: 2012 (see Section 2.6)

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

MARCUS FOSTER TREE SURVEY
19 Well Road, London, NW3
Arboricultural Impact Assessment - Tree Schedule (BS5837:2012)
Date of Survey: JULY 2018

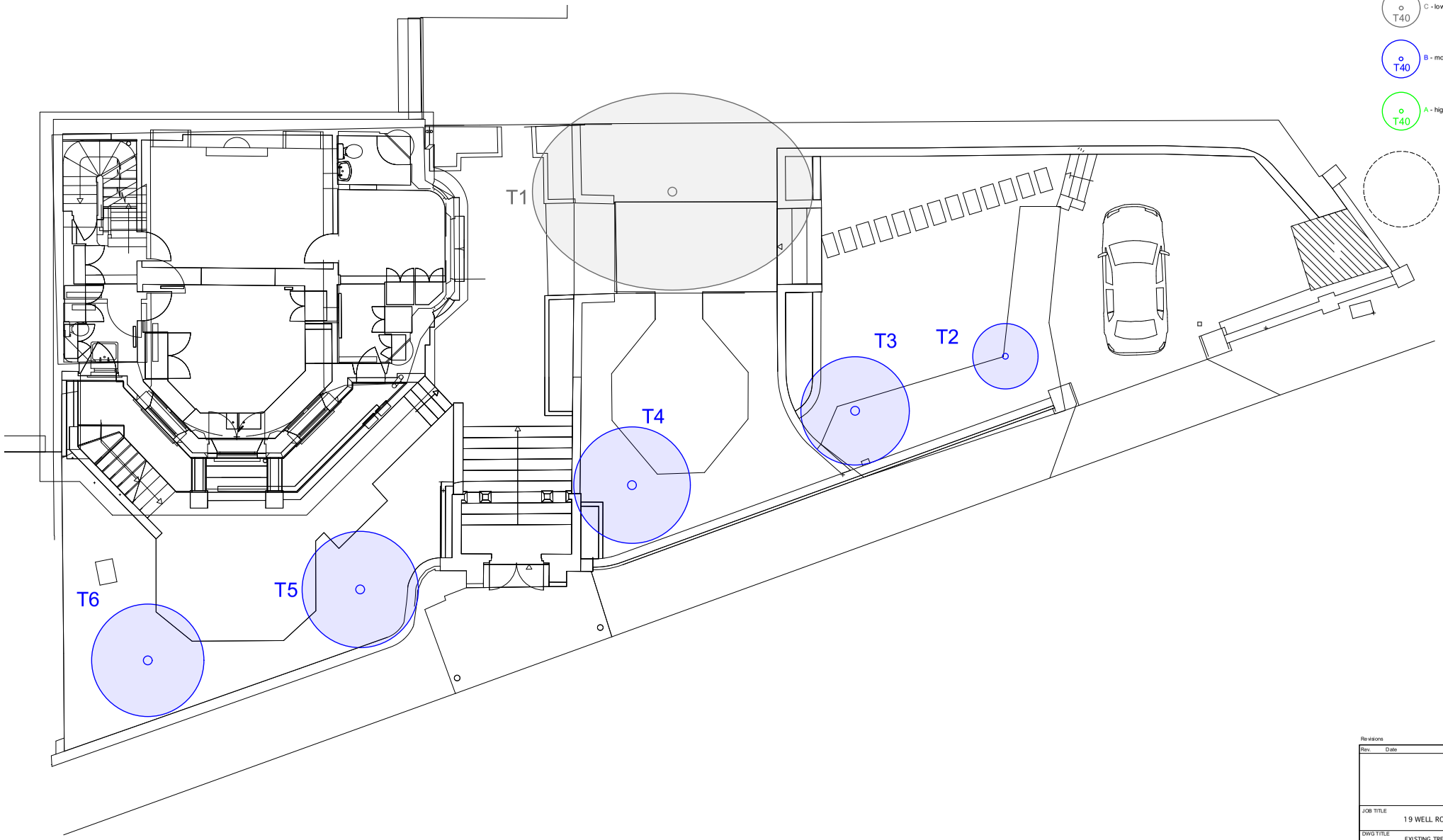
Tree No	Species	Height (m)	DBH (mm)	Spread (m)	Age	Structural Condition	Vigour	BS5837 (2012) Rating	Remaining Contribution (years)	Comments / Structural Condition	Root Protection Area (RPA) m2	Root Protection Area (RPA) Radius
T1	Foxglove Tree	8	220	N: 2 E: 4 S: 3 W:3	SM	F	F	C.1	10-20 years	Tree has reasonable buttress roots at base. Within 1.4 m of the main stem significant root severance in order to implement the paving at the desired level. With 1 x exposed root 120 mm diameter which has been severed 150 mm distance from the paving; it is likely that further root severance on this line has been carried out by these former landscape works. Fair form only due to the significant crown thinning / management and deadwood / declining sections of crown; the tree has lateral form with an asymmetric crown mainly to the east and west along the boundary line location. Limited lifespan in current location, with spreading habit at maturety	21.9	2.6
T2	Ginkgo	6	100	N: 1 E: 1 S: 1 W:1	Y	G	G	B.1	20-40 Years	Newly planted tree within past 2-3 years - columnar form	4.5	1.2
T3	Cherry	6	130	N: 1 E: 1 S: 2 W:2	Y	G	G	B.1	20-40 Years	Newly planted tree within past 2-3 years - developing form	7.7	1.6
T4	Evergreen Oak	5	120	N: 1 E: 1 S: 1 W:1	Y	G	G	B.1	20-40 Years	Newly planted tree within past 2-3 years - topiary specimen pruned to column	6.5	1.4
T5	Evergreen Oak	5	120	N: 1 E: 1 S: 1 W:1	Y	G	G	B.1	20-40 Years	Newly planted tree within past 2-3 years - topiary specimen pruned to column	6.5	1.4
T6	Cherry	7	150	N: 1 E: 1 S: 1 W:1	Y	G	G	B.1	20-40 Years	Newly planted tree within past 2-3 years - developing form	10.2	1.8

Appendix B

Existing & Proposed Plans (T001-T002) Including Tree Constraints Site Plan (T003) (BS5837:2012)

19 Well Road
London
NW3 1LH

T001 Existing Tree Survey
T002 Proposed Tree Survey
T003 Tree Constraints Plan



KEY:

TREE TRUNK & NUMBER
RETENTION CATEGORIES BASED ON BS 5837 TABLE 1

T40 U - trees to be removed (<10yrs life)

T40 C - low quality & value (<10yrs life)

T40 B - moderate quality & value (<20yrs life)

T40 A - high quality & value (<40yrs life)

N

0 2 3 4 5 6 7 8 9 10 M

BS5837 (2012) TREE SURVEY NOTES

1. In accordance with BS5837(2012) this drawing is a colour coded schedule and should not be read in black and white
2. If received electronically it is the recipients responsibility to print this drawing to correct scale. Only written dimensions should be used where not printed to scale.
3. This drawing should be read in conjunction with all other relevant drawings and specifications
4. Marcus Foster Arboricultural Design & Consultancy accepts no liability for any use of this document other than by its client and only for the purposes for which it was prepared and provided

Revisions

Rev.	Date	Checked

JOB TITLE
19 WELL ROAD, HAMPSTEAD

DWG TITLE
EXISTING TREE SURVEY

SCALE
1:100 @ A1

DATE
DEC 2018

JOB NO
MF/108/18

DWG NO.
T001

T: 0781 2024070
marcus@mfdesignconsultancy.com
www.mfdesignconsultancy.com

Marcus Foster
TREE CONSULTANCY

KEY:

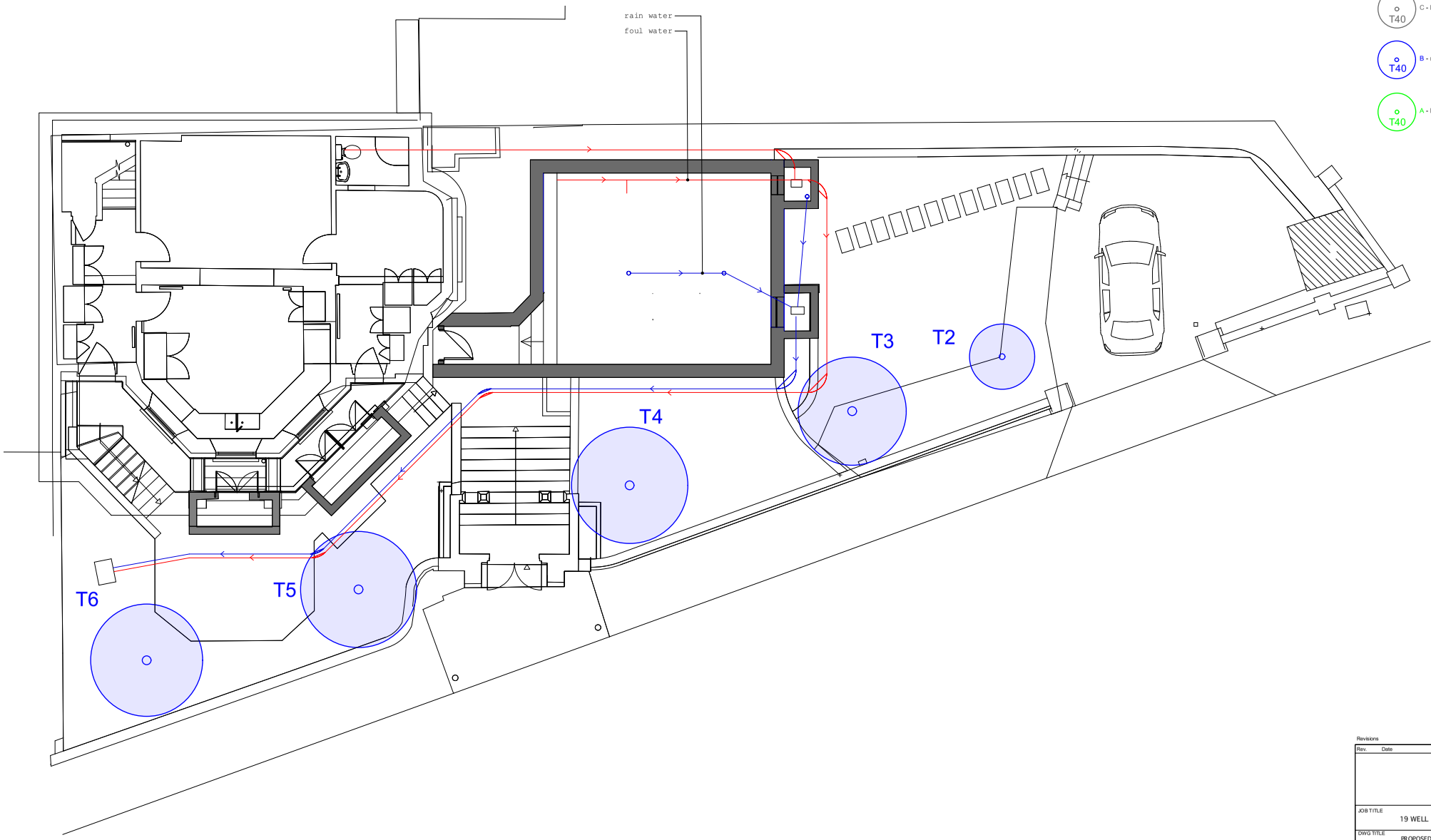
TREE TRUNK & NUMBER
RETENTION CATEGORIES BASED ON BS 5837 TABLE 1

T40 U - trees to be removed (<10yrs life)

T40 C - low quality & value (<10yrs life)

T40 B - moderate quality & value (<20yrs life)

T40 A - high quality & value (<40yrs life)



N

0 2 3 4 5 6 7 8 9 10 M

BS5837 (2012) TREE SURVEY NOTES

1. In accordance with BS5837(2012) this drawing is a colour coded schedule and should not be read in black and white
2. If received electronically it is the recipients responsibility to print this drawing to correct scale. Only written dimensions should be used where not printed to scale.
3. This drawing should be read in conjunction with all other relevant drawings and specifications
4. Marcus Foster Arboricultural Design & Consultancy accepts no liability for any use of this document other than by its client and only for the purposes for which it was prepared and provided

Revisions

Rev.	Date	Checked

JOB TITLE: 19 WELL ROAD, HAMPSTEAD

DWG TITLE: PROPOSED TREE SURVEY

SCALE: 1:100 @ A1

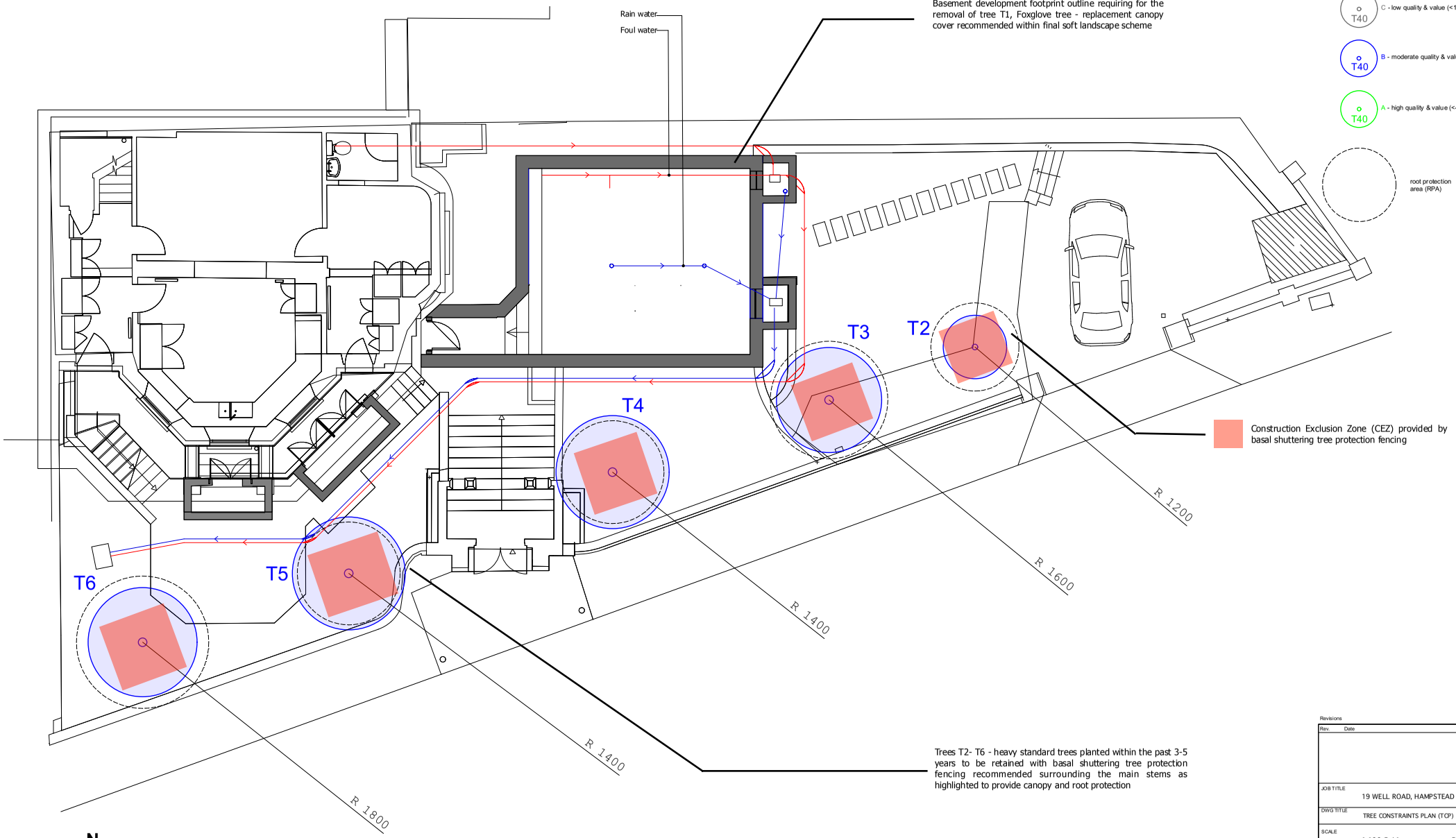
DATE: DEC 2018

JOB NO: MF/108/18

DWG NO.: T002

T: 0781 2 024070
marcus@mfdesignconsultancy.com
www.mfdesignconsultancy.com

Marcus Foster
TREE CONSULTANCY



BS5837 (2012) TREE SURVEY NOTES

1. In accordance with BS5837(2012) this drawing is a colour coded schedule and should not be read in black and white
2. If received electronically it is the recipients responsibility to print this drawing to correct scale. Only written dimensions should be used where not printed to scale.
3. This drawing should be read in conjunction with all other relevant drawings and specifications
4. Marcus Foster Arboricultural Design & Consultancy accepts no liability for any use of this document other than by its client and only for the purposes for which it was prepared and provided

Revisions

Rev.	Date	Checked

JOB TITLE: 19 WELL ROAD, HAMPSTEAD

DWG TITLE: TREE CONSTRAINTS PLAN (TCP)

SCALE: 1:100 @ A1

DATE: DEC 2018

JOB NO: MF/108/18

DWG NO.: T003

T: 0781 2024070
marcus@mfdesignconsultancy.com
www.mfdesignconsultancy.com
Marcus Foster
TREE CONSULTANCY

Appendix C

Site Photographs for:

19 Well Road
London
NW3 1LH

** Taken July 2018 - MFoster*

Tree T1 as viewed in a northerly direction showing proximity to boundary and fair general form

Tree T1 as viewed in a westerly direction showing main stem and initial lower canopy

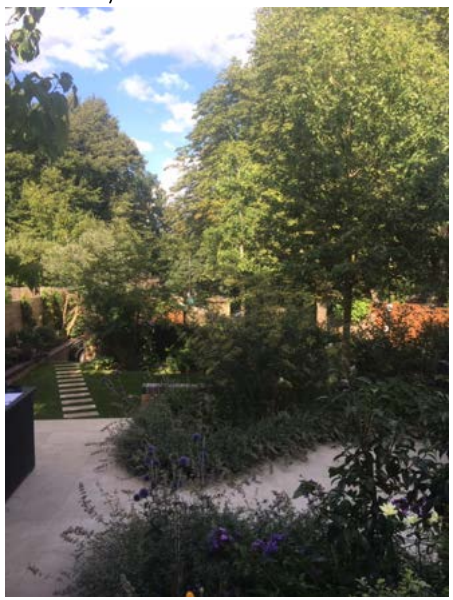
Main stem of tree T1 as viewed in a north westerly direction

Severed anchorage root (150mm diameter) to south of main stem

Ginkgo tree T2 as viewed in an easterly direction

Cherry tree T2 as viewed in an easterly direction

Ginkgo tree T2 and Cherry tree T3 as viewed in an easterly direction



Tree T4, Evergreen Oak, as viewed in a southerly direction

Appendix D

Generic Tree Protection Notice (BS5837:2012)

19 Well Road
London
NW3 1LH

Notice to be shown at all times where tree protection is specified

TREE PROTECTION AREA
KEEP OUT !
(TOWN & COUNTRY PLANNING ACT 1990)
TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A TREE PRESERVATION ORDER.
CONTRAVENTION OF A TREE PRESERVATION ORDER MAY LEAD TO CRIMINAL PROSECUTION
ANY INCURSION INTO THE PROTECTED AREA MUST BE WITH THE WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY

PROTECTIVE FENCING. THIS FENCING MUST BE MAINTAINED IN ACCORDANCE WITH THE APPROVED PLANS AND DRAWINGS FOR THIS DEVELOPMENT.

Appendix E
Tree Protection Fencing Specification (BS5837:2012)

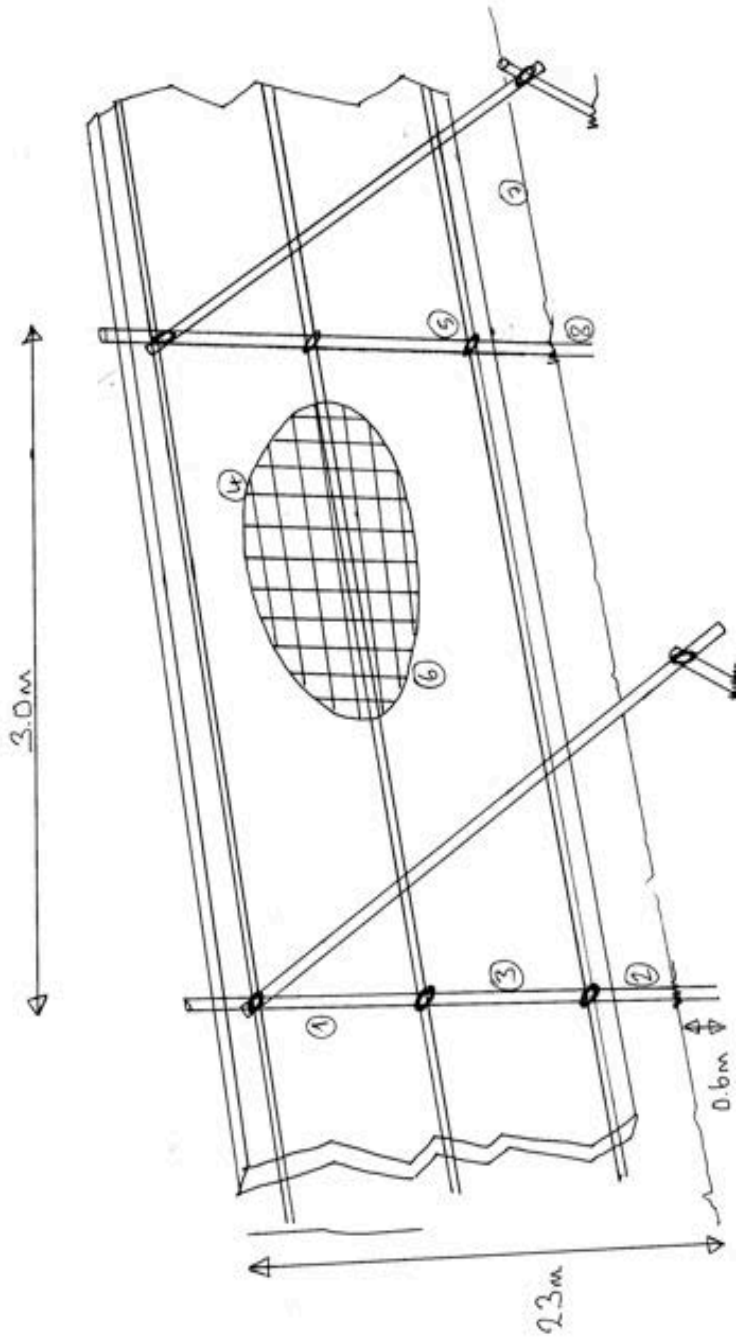
19 Well Road
London
NW3 1LH

Tree Protection Fencing should be implemented by either of the recommended measures as below:

Appendix E.1
Tree Protection Fencing Specification
(BS5837:2012)

Appendix E.1
Tree Protection Fencing:
Basal Shuttering

Appendix E.1
Tree Protection Fencing Specification (BS5837:2012)



1. *Scaffold tubes*
2. *Uprights driven into ground*
3. *Panels secured to uprights*
4. *Weldmesh secured to fence*
5. *Standard clamps*
6. *Wire secured to fence*
7. *Ground level*
8. *Tubes driven 0.6m into ground*

Appendix E.2 Tree Protection Fencing: 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 F: 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)