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Arboricultural Method Statement (BS5837: 2012)

Site details:

Land Adjacent to 23 Carol Street
London
NW1 0HT

Client details:

Lisa Shell Architects

Date of Report:

2nd October 2018

Report Reference

AMS/MF/096/18

Report Prepared by:

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1. Introduction

1.1 This report has been commissioned by Lisa Shell Architects to provide an Arboricultural Method Statement for development works at Land Adjacent to 23 Carol Street London, NW1 0HT.

1.2 Planning consent (LB Camden) requires for the preparation of an Arboricultural Method Statement to provide protection for the trees on the adjacent site - the neighbouring public park, St Martin's Gardens. This report provides this information required to implement arboricultural solutions for the development with principles that are approved and enforced by the local planning authority.

1.3 It should be noted that this is a site specific Arboricultural Method Statement produced solely for the physical protection of those trees identified on the plan (Trees T4-T5-T6) within the report and is not relevant to any other site or situation.

1.4 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. 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.

1.5 The following documentation has been referred to relating to the trees, for the compilation of this report:

- *Land Adjacent to 23 Carol Street - Arboricultural Pre-App Survey & Comments (April 2015)*

- *Land adjoining 23 Carol Street - Trial Trench Report - 280717*

- *Lisa Shell Architects* - CRL / SP / 001 / REVA

- *Lisa Shell Architects* - CRL/DC/D/101/C

- *Lisa Shell Architects* CRL/DC/D/203/B - 10/08/18

1.6 The Arboricultural Method Statement (AMS) must be made available to all contractors and operatives on the site during the construction process so that they fully understand the importance of the measures set out for tree protection.

2. Summary

2.1 This document will give site specific instructions to protect trees T4-T5-T6 within close proximity of the development. The methods are set out in a logical and coherent sequence for ease of understanding and implementation.

2.2 A summary of the works undertaken within the development are the general development of the site including implementation of basement and all utilities with associated landscaping. The operations that are required and will require comprehensive tree protection are:

- Ground works and excavations for basement and building footprint within RPA / close proximity to retained trees T4-T5-T6
- Installation of utility services where within RPA of retained tree
- Site storage / overspill of construction site activities

2.3 The tree protection measures required to ensure the long term retention of the 3 x London Plane trees are in summary as follows:

- Tree Protection Fencing and exclusion signage to BS5837:2012 standard as specified within this report
- General tree care measures and awareness
- Hand dug trenches under arboricultural supervision for installation of utilities within CEZ
- Site monitoring as deemed appropriate

2.4 The Tree Protection Plan T001 (TPP) as included within Appendix B and also separately (PDF format) provides accurate locations of protective barriers and ground protection where applicable.

2.5 This document and the associated TPP must be endorsed by planning conditions, agreement or obligation as appropriate.

3. Sequence of Events

The following sequences are governed by operational constraints and are subject to change. The consulting arboriculturist must be noted of any changes to this schedule prior to implementation where trees / tree protection measures as exiting are likely to be affected.

Prior to commencement of construction site activities

a) Tree protection measures installed as specified within Tree Protection Plan (TPP)

Development Stage

b) Implementation of tree protection measures as outlined within AMS and TPP

c) Arboricultural supervision to be undertaken during the development process as outlined within AMS where required only

d) The local authority arboriculturist will have free access to the site and forward any recommendations directly to the consulting arboriculturist

Final Development Stage

e) For dismantling Tree Protection Fencing a minimum of seven days notice will be given to the Local Authority prior to the works.

f) All final landscape works to the rear area within the RPA of trees T4-T5-T6 should closely adhere to guidelines within this AMS

4. Summary of Construction Site Activities within the Root Protection Area of Trees T4-T5-T6

4.1 Trees T4-T5-T6 are 3 x mature London Plane trees located within the neighbouring public space, St Martin's Gardens. The trees offer high visual amenity and add significantly to the overall landscape particularly taking into account their location within a mature and established avenue of trees.

4.2 The proposed development will encroach upon the recommended root protection area of trees T4-T5-T6 but the following factors make the development achievable with root or canopy damage

4.2.1 The significant boundary wall to the north of trees T4-T5-T6 will have retained a significant amount of the root activity particularly as the trees are on a raised bank of soil within this neighbouring property

4.2.2 The trees have been significantly crown reduced on a cyclical basis providing a managed tree with limited canopy overhanging the site and therefore negating the risk of any damage from piling rigs

4.3 Further to the preparation of a hand dug trial trench on the outer-point of development / excavations (Land adjoining 23 Carol Street - Trial Trench Report - 280717) it was shown that no significant tree roots from the London Plane trees (T4-T5-T6) exist within this area of excavations. Therefore from this line southwards towards the trees and for remaining exposed RPA areas tree protection is required.

4.4 This report provides arboricultural solutions to ensure that damage is not caused to the root plate of trees T4-T5-T6 which would result in a detrimental effect on both the health and structural integrity of the trees. These are as follows:

- *Protection of RPA areas from all development site access until final development / landscape stage*

- *Protection of root plate within RPA from storage of materials / chemicals*

- *Protection of root plate within RPA from installation of utility services*

- *Tree protection guidance within RPA for implementation of final landscaping works*

5. Tree Protection Methodology

The main protective areas / measures highlighted above are clearly specified within the *Tree Protection Plan - T001* (included within Appendix B) and *Section 5* below.

5.1 Tree Removal Works

5.1.1 The removal of trees as specified within *Section* 7 should be carried out prior to the commencement of development works. This includes the removal of the following trees:

T1, T2 & T3

5.2 Protection of RPA for trees T4-T5-T6

5.2.1 Protection of the main stem of trees T4-T5-T6 should be implemented as explained below. These measures should remain for the entire construction process in order to provide a comprehensive barrier from the tree.

- The recommended Construction Exclusion Zone (CEZ) for the trees will exist within the area to the south of the proposed development as highlighted within the TPP.

- When this is removed to enable final landscape works tree protection will require implementation to maintain a CEZ as highlighted within the TPP

- The protective fencing used should be suitable for the purpose of excluding construction activity

- This barrier should remain rigid and complete during the entire construction process.

- Once this Exclusion Zone has been protected by fencing all weather notices as included in *Appendix C* should be put onto the barrier warning that the area is a construction exclusion zone.

5.2.2 Access will be required to the CEZ for construction of scaffolding and installation of utility services. For the installation of utility services the dates and specification of these installations should be provided in writing to the LA Tree Officer and it is recommended that these works are undertaken with arboricultural supervision as highlighted within *Section 6*.

5.2 Protection of canopy from associated construction site activities

5.2.1 No tree works or protection measures are required for the tree in relation to the proposed development for the following reasons

- Previous and historic crown lifting and reduction works have been carried out on a cyclical basis providing clearance to this height

- The plant machinery used within the development site will not impact the canopy of these tree which currently overhangs the site within the CEZ area only and at significant height

5.3 Excavations and ground works within RPA of retained trees beyond building footprint / within CEZ for installation of utility services

5.3.1 For implementation of the utility services within the CEZ 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. The TPP shows proposed routes of utility services within the CEZ, but full method of installation must be confirmed prior to installation 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

5.3.2 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.

5.3.2 Although tree roots will not be damaged during this process in the case of major roots being encountered the following points should be closely adhered to:

· 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.

5.4 Protection of root plate within RPA from storage of materials / chemicals

5.4.1 The storage area for materials, plant machinery, chemicals and aggregates is recommended to be outside of the RPA as recommended within the Tree Protection Plan and therefore trees T4-T5-T6 will not be affected by this factor.

5.4.2 Should storage be required within the RPA of T4-T5-T6 and outside of the area recommended within the TPP this should be notified in writing to the Local Authority Tree Officer / appointed Arboricultural Consultant.

5.5 Building Footprint / Basement Excavation within RPA of trees T4-T5-T6

5.5.1 The following arboricultural methodology will ensure protection which should be highlighted within relevant structural engineering drawings:

- Piling to be constructed on exact line of proposed development with no further excavations beyond this line for general excavations without prior written consent from the Local Authority

- For installation of protection of the ground / roots beyond the line of the piling, the installation of a tanking membrane as specified within drawing CRL/DC/D/101/C will provide ground protection. For reference this drawing should be read in conjunction with CRL/DC/D/203/B and CRL/DC/D/101/C.These structural engineering details will provide necessary protection from leaching of materials / chemicals within the soil

- Addition / backfill of fresh loam / sharp sand topsoil dressing to area with mycorrhizal fungi addition to aid root growth; the addition of this topsoil to BS3882:1984 standard.

5.6 Final Hard landscape works within RPA of retained trees

5.6.1 For final landscaping works the following should apply where carried out within the RPA of trees T4-T6:

- Hand digging for installation of any hard landscape features for an initial 600mm to determine existence and/or location of larger roots

- No reduction in levels of the underlying soil surface will occur during final landscaping works within the RPA of retained trees

- No build up / increase of levels of the underlying soil surface will occur during final landscaping works within the RPA of retained trees

5.7 Final Soft landscape works within RPA of retained trees

5.7.1 For any soft landscaping works where specified within the RPA of trees these T4-T5-T6 should account for the following:

- Hand tools only will be used for any levelling works as this will ensure no direct damage is caused to exposed roots.

- Retention of existing level with addition of only a maximum 10mm layer of fresh loam based topsoil. At no points should the soil level be lowered to the same specifications

- Planting of mainly 9cm or 3 litre pot (10 litre pot) maximum sized plants (perennials and shrubs) and smaller sized rootballs where required to avoid excessive digging and potential root severance for plants which are ultimately likely to fail within the sparse ground conditions.

- Planting of shade and drought tolerant plant species to encourage success of the soft landscape areas within RPA of retained trees

6. Communication, Monitoring and Compliance

6.1 In ensuring that all Tree Protections Specifications as highlighted within this method statement are closely adhered to at all times, it is important to set out for the long term of the development, communication details for key individuals and tasks that require monitoring.

6.2 The key individuals appointed for advising and complying with Tree Protection specifications must adhere to the following at all times:

- Relevant parties / key individuals must be advised of any changes in personnel or contractor during the development process.

- Relevant parties / key individuals must be responsible for relaying information regarding tree protection within work force where deemed applicable / relevant

6.3 Once the Tree Protection Fencing has been installed and for the remainder of the development until the final stage as highlighted in *Section 3: Sequence of Events* above, it must be considered as sacrosanct and should not be removed or altered without prior written consent from the Local Authority tree officer and/or consulting arboriculturist.

6.4 The local authority arboriculturist will have free access to the site and forward any recommendations directly to the consulting arboriculturist.

Arboricultural Supervision Schedule

6.5 The appointment of an arboricultural consultant will be required within the construction management of the development to carry out all arboricultural supervision for the scheme. In addition to attending site, *Site Meeting Notes* will be prepared to provide a summary of site conditions, therefore highlighting any potential problems or solutions required in order to ensure close adherence to the AMS is provided at all times.

6.6 This will ensure that Tree Protection is implemented as specified within this report therefore avoiding significant tree root damage or compaction of tree roots. The following is recommended:

***Before & During Land Preparation**:*
Arboricultural supervision (1 x site visit) undertaken as pre-commencement check to ensure tree protection correctly installed

Development Process
Arboricultural supervision (1 x site visit as appropriate) undertaken during installation of each utility service requiring excavations

6.7 In addition to the implementation of arboricultural supervision as above, the Local Authority Tree Officer will have open site access at any point during the development to undertake inspections as deemed appropriate

7. Tree Works Schedule

7.1 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.

T1 Cherry
Fell to ground level and grind out stump

T2 Snowy Mespil
Fell to ground level and grind out stump

T3 Portuguese Laurel
Fell to ground level and grind out stump

T4 London Plane
*No action required at present**

T5 London Plane
*No action required at present**

T6 London Plane
*No action required at present**

*Any tree works requiring implementation during the development process would require a Conservation Area Application / permission of the owner

8. Appendices

Appendix A

Tree survey
(BS5837:2012)

Land Adjacent to 23 Carol Street
London
NW1 0HT

Arboricultural Pre-App Survey & Comments
(April 2015)

Colour Key: BS5837: 2012

Category A

Category B

Category C

Category U

BS5837:2012 TREE SURVEY
Land Adjacent to 23 Carol Street, London, NW1
April 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	Cherry	7	220	N: 5 E: 5 S: 2 W:4	M	F	G	C.1	10-15 years	Tree is structurally sound at the base, with congested form and some deadwood throughout as is usual with species. Pruned back to boundary with pavement resulting in unbalanced form	Fell to ground level and grind out stump	N/A
T2	Snowy Mespil	5	120	N: 3 E: 2 S: 2 W:3	M	G	G	C.1	10-15 years	Large ornamental shrub / small tree, structurally sound with some deadwood throughout. 1 dominant stem with 4 x smaller stems	Fell to ground level and grind out stump	N/A
T3	Portugal Laurel	5	240	N: 3 E: 3 S: 1 W:3	M	F	G	C.1	10-15 years	Large shrub / small tree leaning to the north and generally structurally sound - crown lifted to 2.5m and has occluded well. Growing close to boundary wall	Fell to ground level and grind out stump	N/A
T4	London Plane	15	840	N: 4 E: 3 S: 3 W:4	M	G	G	B.1	20 years +	Structurally sound at base with significant root flare to extent that head stones are growing within them now but with good compensatory growth. Main union 2.5-3.0m structurally sound and tree reduced to a high pollard at 7-14m within 12 months	No action required at present	10
T5	London Plane	19	580	N: 4 E: 1 S: 6 W:2	M	G	G	B.1	20 years +	Structurally sound at the base with good root flare - straight main stem with columnar form as growing within avenue. Majority of canopy formed to the north, south and west - tree reduced to a high pollard at 7-14m within 12 months	No action required at present	7
T6	London Plane	22	890	N: 2 E: 2 S: 3 W:2	M	G	G	B.1	20 years +	Tree is structurally sound at base despite head stones growing within - good compensatory growth. Main union at 3.0m is sound giving way to 2 larger stems and 1 smaller stem pollarded at 8m. Tree reduced to a high pollard at 10-18m within 12 months	No action required at present	10.7

Appendix B

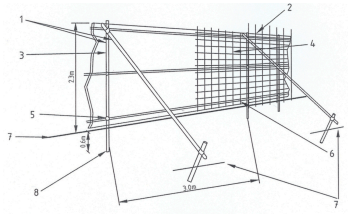
T001 - TREE PROTECTION PLAN

Land Adjacent to 23 Carol Street
London
NW1 0HT

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

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

BS5837:2012 TREE PROTECTION FENCING (DIAGRAM 2)



1 Standard scaffold poles
2 Uprights to be driven into the ground
3 Panels secured to uprights with wire ties and, where necessary, standard scaffold clamps
4 Weldmesh wired to the uprights and horizontals
5 Standard clamps
6 Wire twisted and secured on inside face of fencing to avoid easy dismantling
7 Ground level
8 Approx. 0.6m driven into the ground

NOTE:

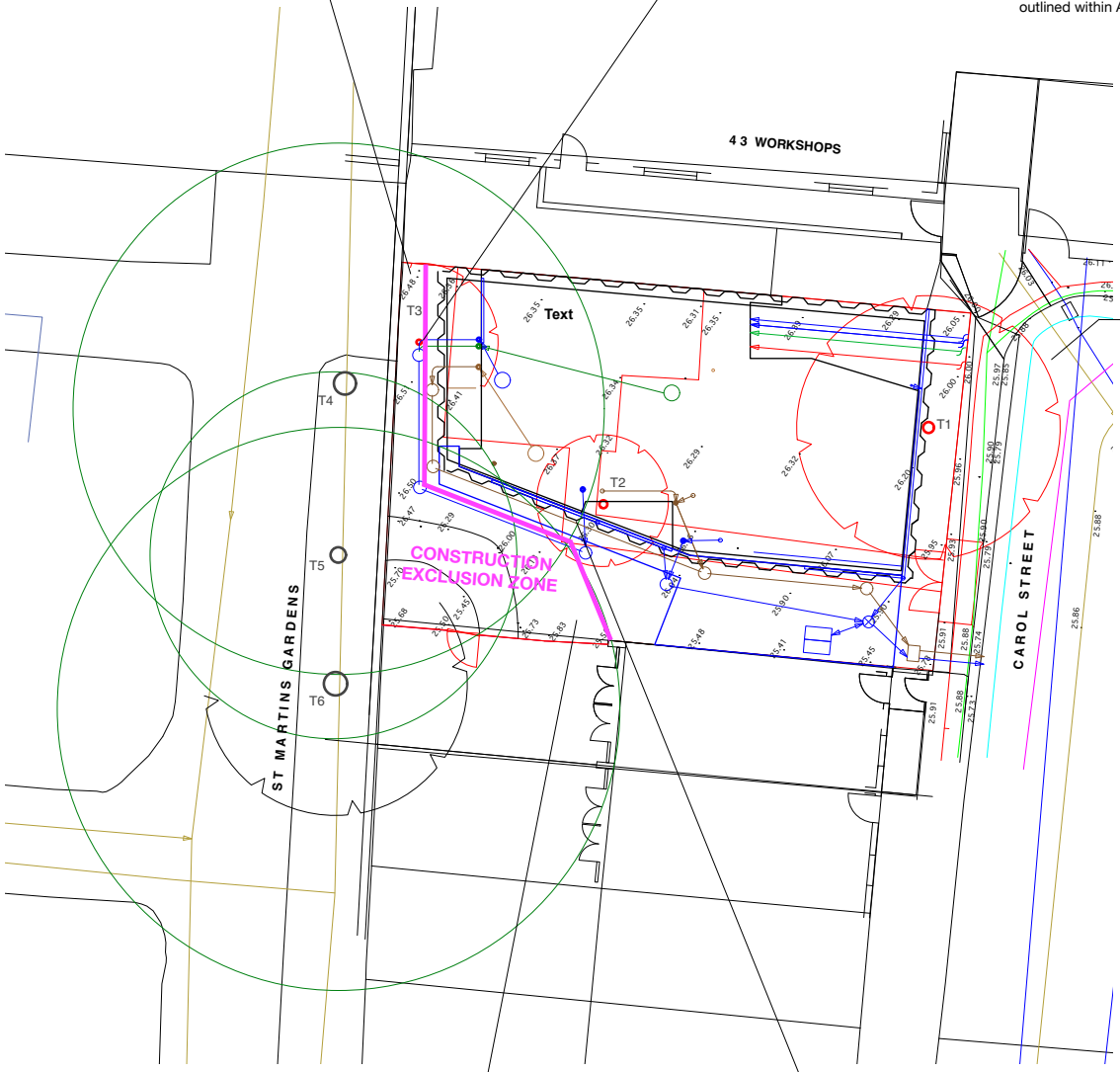
The Construction Exclusion Zone (CEZ) is the area protected by tree protection fencing. Within the CEZ the following exclusions shall apply:

- **No excavation**
- **No storage of materials or equipment**
- **No changes in levels (maximum 50mm)**
- **No installation of services without arboricultural supervision**
- **No access without prior notification**

The fencing shall be maintained in a condition fit for purpose throughout the construction process

CONSTRUCTION EXCLUSION ZONE (CEZ) Area for CEZ to allow for access to enable:
1. Erection of scaffold (plywood boards over scaffolds where overhanging CEZ to ensure debris from development process not falling within area
2. Installation of utility services - specification and dates to be agreed with Local Authority to enable arboricultural supervision

INSTALLATION OF UTILITY SERVICES WITHIN CEZ
Installation of water and electrical mains required within the CEZ. All should be carried out via non invasive methods as outlined within AMS and under arboricultural supervision



TREE REMOVAL
All tree removal should be undertaken prior to the commencement of main development works to BS3998 (2010)

TREE PROTECTION KEY

TREE PROTECTION FENCING

DRAWING KEY

- SITE BOUNDARY
- BUILDING OUTLINE
- STRIP OUT/REMOVAL
- EXISTING TREE RPA
- WATER
- ELECTRIC
- COMBINED SEWER
- RAINWATER DRAINAGE
- FOUL DRAINAGE
- FOUL/ SVP
- RWP
- BOREHOLE
- WATER MAINS
- ELECTRICAL MAINS

N

0 3 4 5 6 7 8 M

TREE PROTECTION FENCING
Tree protection fencing line to follow line of development / excavations and to be constructed to specifications as outlined within AMS and TPP (above)

GROUND PROTECTION ON PILING LINE WITHIN RPA of trees T4-T6
For protection of the ground / roots beyond the line of the piling, the tanking membrane as specified within CRL/DC/D/203/B will provide protection for leaching of concrete within RPA / soil

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: LAND ADJOINING 23 CAROL STREET, LONDON, NW1
DWG TITLE: TREE PROTECTION PLAN (TPP)
SCALE: 1:100 @ A1
DATE: OCTOBER 18
JOB NO: AMS/MF/096/18
DWG NO.: T001

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Appendix C:
Tree Protection Notice

Tree Protection Notice (BS5837: 2012):

Land Adjacent to 23 Carol Street
London
NW1 0HT

Notice to be clearly shown on tree protection fencing AT ALL TIMES

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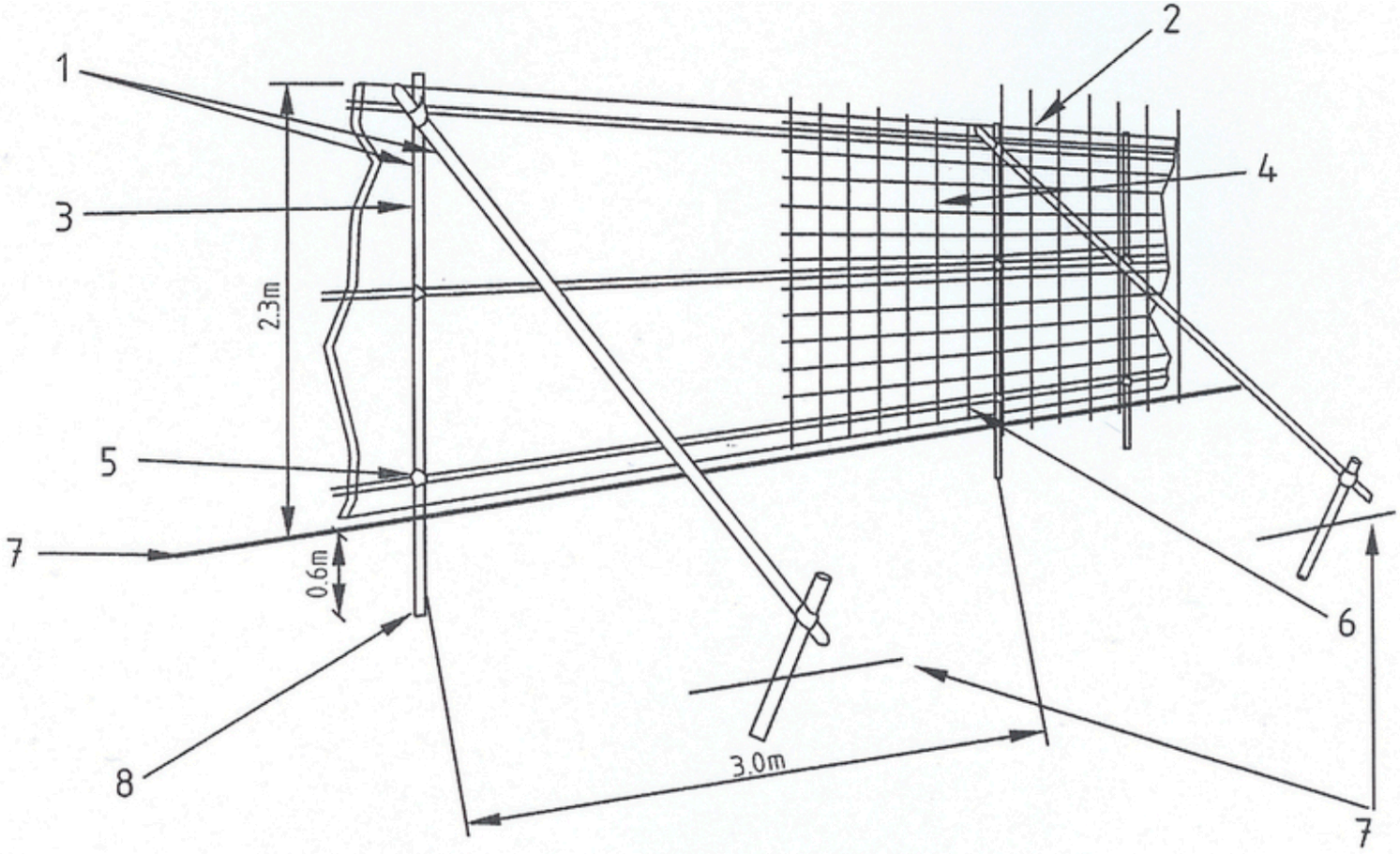
Appendix D.2 Tree Protection Fencing: BS5837:2012 (Diagram 2)



1 Standard scaffold poles

2 Uprights to be driven into the ground

3 Panels secured to uprights with wire ties and, where necessary, standard scaffold clamps

4 Weldmesh wired to the uprights and horizontals

5 Standard clamps

6 Wire twisted and secured on inside face of fencing to avoid easy dismantling

7 Ground level

8 Approx. 0.6m driven into the ground

Appendix E: References

1. *Arboricultural Practice Note 12: Driveways Close to Trees (APN12)* as provided by the Arboricultural Advisory and Information Service (2007)

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

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

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

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

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

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