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Arboricultural Report

**BS 5837:2012 Tree Survey, Arboricultural Impact Assessment and
Method Statement**

Land at:

178A West Street, Bedhampton, Havant

Prepared by: Andrew Southcott

Date: 18th May 2020

Ref: AS/MS/0520

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Validation Statement for Local Planning Authority (LPA) Registration

This report is intended to be submitted to Havant Borough Council in support of a planning application. For LPA validation purposes, this report contains the following information:

- A tree survey compliant to the requirements of BS5837:2012 "Trees in relation to design, demolition and construction - Recommendations", undertaken by a competent and qualified arboriculturist.
- A suitably scaled plan with north point showing the site boundaries and the tree survey information.
- An assessment of the impacts of the proposed works on the existing trees, including recommendations of which trees should be removed/retained.
- An Arboricultural Method Statement and Tree Protection Plan showing the measures to be taken to ensure the retained trees are fully accounted for in the planning and execution of the proposed works.

1. INTRODUCTION

1.1 **Instruction:** I am instructed by PDP Architecture LLP to survey trees that could affect or be affected by the proposed development on land at 178A West Street, Bedhampton. This report, in compliance with BS5837:2012 "Trees in relation to design, demolition and construction - Recommendations" (herein referred to as BS5837) is required to accompany the submission of a planning application for residential development within the site. My instruction is to prepare the following:

- A schedule of the relevant trees and all tree data as required by BS5837.
- A Tree Constraints & Protection Plan (TCPP)
- An Arboricultural Impact Assessment (AIA) and Method Statement (AMS)

1.2 **Information provided:** Drawing AS/MS/0520 TCPP is derived from the following drawing as supplied to me via PDP Architecture LLP:

- *SOR016144.01* (topographic survey) in DWG & PDF formats.

1.3 **Purpose and scope of this advice:** The tree survey and report have been produced both to assist the design & construction process and to support the planning application process. It is intended to demonstrate the site's arboricultural constraints and to make recommendations regarding the impact of the proposal on the trees and vice versa. It focuses on all trees that may affect or be affected by the proposal, whether within the site boundary or off-site.

1.4 Limitations:

1.4.1 The assessment has been made solely for the purposes of the planning process, and the report is not a condition survey or safety inspection. Due to current travel restrictions no site visit was undertaken, however measurements relating to the arboricultural constraints have been provided in order to complete this assessment.

1.4.2 The findings are valid for a period of 12 months from the date of report providing the site remains as it stands at present. Any significant changes to the site which may affect the trees (such as building works, changes in levels, hydrology etc.) would require a re-assessment of the trees.

1.4.3 The report is for use by the client and their agent, and not for the benefit of any third party. Any person not directly involved with this site shall not have any rights under or in connection with it. All rights in this report are reserved. No part may be reproduced in any form without the written consent of Woodside Tree Consultancy.

1.5 **Ecological Constraints:** The Wildlife and Countryside Act 1981 and amendments made within and subsequent to the Countryside and Rights of Way Act 2000 provides statutory protection to bats, birds and other species that inhabit or use trees. The protection afforded to such species could impose significant constraints on the use of a particular site, as well as restrict the timing of any works that may be necessary. Any such restrictions would be in addition to arboricultural constraints in this report.

- 1.6 **Status of the trees:** Having searched Havant Borough Council *My Maps* constraints map on 18th May 2020, it shows that there are **no** Tree Preservation Orders (TPO) or Conservation Areas affecting the site or adjacent land.

2. SITE VISIT AND TREE SURVEY

- 2.1 **Site visit:** Under normal circumstances a site visit would be carried out to assess the trees on or affecting the site. However due to current restrictions on non-essential travel, tree positioning data, measurements and photographs were supplied in order that a desk-based arboricultural assessment could be undertaken.
- 2.2 **Site Description:** The site is a derelict brownfield site, recently cleared of most scrub in order for a land survey to be undertaken. It has access along the S boundary, whilst to the E is existing residential development The N is bounded by the railway line and W bounded by the Hermitage Stream and weir. The site included in the topographic survey for the purposes of this proposal measures approximately 0.5ha as shown in Figure 1.



Figure 1. Aerial view showing the site included within this survey (Google 2020)

- 2.3 **Data Collection:** Each relevant tree or group was inspected and allocated an identification number as indicated in the Tree Survey Schedule (Appendix 1) and tree survey plan (Appendix 4). They were allocated one of four categories (A, B, C or U) in line with BS5837 recommendations (see Appendix 3).
- 2.4 **Root Protection Areas:**
- 2.4.1 In accordance with section 4.6 of BS5837, the stem diameter measurements have been used to calculate the Root Protection Area (RPA), both in terms of radial distance from the tree and as an area in m². The RPA is the area that should ideally remain free from disturbance by adjacent construction works, as it is deemed to be the minimum area around a tree required to maintain sufficient rooting volume to sustain the tree's vitality. Therefore the adequate protection of the roots and soil structure in this area must be treated as a priority.
- 2.4.2 The calculated extent of the RPA is used to identify any design constraints within the site, and is visually represented on the Tree Constraints & Protection Plan (TCPP,

Appendix 4). The TCPP shows the above-ground constraints (*i.e.* the branch spread), and the below-ground constraints (the anticipated extent of significant root spread depicted as the calculated RPAs).

- 2.4.3 Using the proposed site layout and the TCPP, the necessary protective measures have been identified. Further details relating to tree protection are given in Section 4.
- 2.5 **Tree survey:** A single individual tree was included within the survey and assessed for its suitability for retention. All other vegetation on site was of very low quality scrub development. Please refer to appendices 1 & 4 for details of the tree identity, location and assessment. Please also refer to the Tree Survey Schedule Notes (Appendix 2) and BS5837 Cascade Chart (Appendix 3) for full details.

3. ARBORICULTURAL IMPACT ASSESSMENT

- 3.1 **General observations:** The area of the proposed development is dominated by patchy scrub and ruderal vegetation with scattered scrub to c.3m around the residential garden perimeters. There are no individuals or groups of trees that would be considered as visual amenity features within the local landscape. The only tree located within the survey area is a small semi-mature walnut positioned towards the NE corner of the site (Figure 2). This is well away from the proposed development and will be retained within the scheme; it is identified at T1 in this report. T1 is partially obscured by nettle and bramble growth, and is c.5.5m high with an average crown spread of 3m. It has grown out at an angle but now forms a small but well rounded habit, however its small stature and location well away from prominent viewpoints means that it does not offer any significant public amenity value.



Figure 2. View of T1 looking NE, the only tree within the site and well away from development proposals

- 3.2 **Below ground constraints (Root Protection Areas):**
- 3.2.1 This section deals with tree roots, which can easily be overlooked during operations due to being hidden and often their importance, and that of the soil around them, is not fully understood. It is essential that the roots remain undamaged during the site preparation and works phases, as they provide the structural stability as well as transporting water and nutrients throughout the tree. Crucially they cannot perform their functions effectively if the soil structure around them is also damaged, which is why the RPA must be adequately protected.

3.2.2 The TCPP visually represents the required RPA for retained trees as a magenta circle centred on the tree stem, unless significant site conditions such as long-established nearby structures indicate that the shape of the rooting area will deviate from this format. It is quite possible, depending on soil conditions and tree species characteristics, that roots could extend beyond this zone, hence this area should be carefully protected during the planning and execution of site works.

3.2.3 The proposed layout indicates that no building works are planned to overlap the RPA of T1, and due to the peripheral location of the tree there will be no other conflicts between the tree and proposed development.

3.2.4 To ensure that the RPA of this retained tree is adequately protected from other potentially damaging actions such as storage of materials/plant, temporary site buildings, changes in levels etc., the full extent of the RPA which is not covered by any existing hard standing should have protective fencing erected in line with BS5837 for the duration of works. Section 4 provides details of this.

3.3 **Above ground constraints (branch spread):**

3.3.1 Trees in close proximity to buildings can pose some constraints, both real and perceived. Actual constraints occur where branches can conflict with new elevations, either now or in future. For this reason newly planted trees as well as younger existing trees need to be fully accounted for in the design and layout planning. Other significant constraints that are often overlooked include shading, leaf litter and damage from falling branches. However it should also be remembered that a certain degree of shading can be desirable to reduce glare and provide comfort during hot weather. Perceived constraints include post-development pressure from new residents to have large trees removed or severely pruned as a result of anxiety over possible hazards.

3.3.2 The proposed development will be well clear of the single retained tree on site. The small size and positioning of this tree to the N of the development also means that there will be no other relevant constraints such as shading, and so above ground arboricultural issues are not considered to be a significant constraint upon this site.

3.4 **Trees to be retained:**

3.4.1 The single existing tree will be retained within this scheme. Sufficient protection for trees on construction sites is of paramount importance if they are to be retained successfully. The stress caused by disturbance near existing trees can, if provision for adequate protection is not made, be a significant strain leading to severe damage and even death. It is important to note that although trees will appear healthy during and on completion of works, the full effects of below ground damage may not become apparent for five years or more.

3.4.2 Access to the working areas must be managed to protect the retained tree. In this case, sufficient space will be available for construction plant and materials outside the required protective barriers, however if any conflicts are foreseen then alternative arrangements must be made, in consultation with the project

arboriculturist and local authority. Please refer to section 4 for further details on the required protection measures.

- 3.5 **Tree removal:** No existing trees will be removed to facilitate this development. The only vegetation within the area affected is very low quality scrub and ruderal growth as shown in Figure 3. The necessary removal of this vegetation will be mitigated via a comprehensive landscaping scheme to accompany the development, which will result in a net enhancement of visual amenity value in the longer term.



Figure 3. Panoramic view looking SE, showing area of site to be impacted by the proposed scheme, including required removal of scrub vegetation in this area

4. ARBORICULTURAL METHOD STATEMENT

- 4.1 **Tree Works:** All required works including scrub removal as described above should be carried out prior to commencement of any site works.
- 4.2 **Protective fencing in accordance with BS5837:**
- 4.2.1 Before the commencement of any works on site, protective fencing shall be erected to the positioning shown on the TCPP. These shall be erected and maintained in position to clearly define the 'Construction Exclusion Zone' around retained trees. The positioning of the protective fencing will then be agreed by the LPA Arboricultural Officer, and adhered to throughout the project.
- 4.2.2 The extent of protective fencing seeks to encompass as much of the unsurfaced RPAs as possible. Vertical barriers must be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around retained trees. In most cases fencing should consist of a scaffold framework, well braced to resist impacts, with vertical tubes spaced a maximum of 3 metre intervals. An alternative but robust specification is also given in Appendix 5 and on the TCPP.
- 4.2.3 Signs shall be affixed to the fencing to inform on-site contractors of the importance of the fencing barriers (Appendix 6). Examples are also provided on the TCPP.
- 4.2.4 The RPA enclosed within tree protective fencing should be treated as sacrosanct and the following guidelines should be adhered to at all times:
- NO mechanised excavations
 - NO movement of construction traffic or parking of vehicles

- NO excavation by any means without arboricultural site supervision
- NO lowering or raising of levels (except removal of grass sward/surface layer, using hand tools)
- NO storage of building materials, excavated soil, chemicals or fuels
- NO fires to be lit in close proximity to trees

4.2.5 Fences must only be removed following agreement of the Local Authority or project arboriculturist to confirm on-site construction activity has been completed.

4.3 **Temporary ground protection:** No ground protection is currently proposed or considered necessary for this site, as the positioning of protective fencing will be adequate to protect the RPA of the retained tree on site.

4.4 **Site access, contractors car parking, site huts and storage:** The site will be accessed via the main road to the south, well away from the retained tree. No vehicles, materials, spoil, plant, site huts or welfare facilities shall be located on unsurfaced ground within the RPA of the retained tree.

4.5 **Installation of underground services within RPAs:**

4.5.1 All underground services should be positioned to avoid conflict with any RPA. If, for whatever reason, installation of underground services has to pass within RPAs, the project arboriculturist and the Local Authority must be notified prior to any tree protection barrier removal.

4.5.2 Trenching, for the installation of underground services, severs any roots present and may change the local soil hydrology in a way that adversely affects the health of the tree. For this reason particular care will be taken in the routeing and methods of installing underground services. Wherever possible, they should be kept together and arboriculturally sensitive methods of excavation used. At all times, where services are to pass within the RPA, detailed plans showing the proposed routeing will be drawn up in conjunction with an arboriculturist. Such plans will also show the levels and access space needed for installing the services.

4.6 **Hard landscaping within RPAs:** If any new or replacement hard landscaping is proposed within the RPA, the following points must be adhered to:

- Removal of any existing vegetation will be carried out by hand. Turf may be removed using a mechanical turf stripper or by hand.
- Any hard surfacing used within RPA should be permeable and gas porous. Paving slabs and block paving are available with built-in infiltration spaces between the slabs or blocks. These are ideal, though they should be laid dry jointed on a sharp sand foundation to allow air and moisture to penetrate to the rooting area.
- Bitumen paving can consist of porous or impermeable material. As the pores in tarmac paving will become blocked, the use of the material will be limited in extent to no more than 20% of any RPA.

4.7 **Soft landscaping within RPAs:** If any soft landscaping is planned within the RPA, then the following guidance should be followed:

- Ground preparation will be carried out sensitively to ensure root damage is minimised. At no time is any heavy plant to be used within the RPA. Turf may be removed using a mechanical turf stripper or by hand.
- At no time shall a rotovator be used within any RPA to prepare the soil. Any levelling will be done with the use of hand tools.
- Should the soil be compacted or have a poor structure which may hinder the development of any new planting, soil decompaction techniques may be used upon consultation with the project arboriculturist.
- New plants to be planted individually to minimise disturbance (no trench planting).
- No works will be carried out within any RPAs if the soil moisture is of a level likely to allow compaction to occur.

4.8 **Arboricultural supervision:** Any works undertaken within RPAs should be supervised at all times by the project arboriculturist. All contractors working on site should be briefed regarding the importance of tree protection and adhering to all points within this document as well as the TCPP. Anyone working on site should have access to these documents at any time.

5. CONCLUSIONS

- 5.1 The design proposals for development on land at West Street, Bedhampton has been assessed in accordance with BS5837:2012. It is my opinion that the tree identified for retention can be afforded due respect and provided with adequate protection, to ensure its safe and healthy retention during and following the works.
- 5.2 The only existing tree on site will be retained within the scheme. The required scrub removal to facilitate the proposals are not considered significant in terms of amenity or landscape value, and will be adequately mitigated by new landscaping.
- 5.3 As long as an appropriate scheme of tree protection is followed for the retained tree, as proposed in this document and the accompanying TCPP, I believe that the tree can be retained without undue stress on its long-term health.

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18th May 2020

Appendix 1 - BS5837: 2012 Tree Survey Schedule

Tree No.	Species	Height (m)	Stem Diameters (mm)								Branch Spread (m)				Crown Clearance (m)	Height & direction of 1st signif. limb	Age Class	Physiological Condition	Structural Condition	Preliminary Management Recommendations	Est. Remaining Contribution (yrs)	BS5837 Category Rating	Root Protection Radius (m)	RPA (m²)	
			Single Stem	2-5 stems					5> stems		N	E	S	W											
				Stem 1	stem 2	stem 3	stem 4	stem 5	Mean Dia.	No. Stems															
1	Walnut	5.5	255									3	3	3	3	1	2r	SM	F	Very small tree on boundary, grown out from edge with balanced habit. No significant wider visual amenity.	n/a	10-20	C2	3.06	29.4

Appendix 2 - Tree Survey Explanatory Notes

- 1 **Height** describes the estimated height of the tree from ground level, to nearest 0.5m (nearest 1m where total height exceeds 10m). Where practicable a clinometer is used to aid accuracy.
- 2 **Stem diameter** is the diameter of the main stem(s) measured in millimetres (to nearest 10mm) at 1.5m above ground level in accordance with Annex C of BS 5837:2012. Stem diameter may be estimated where access is restricted or the trunk is covered in ivy. Estimated dimensions are suffixed with a hash (#).
- 3 **Branch spread** refers to the approximate crown radius in metres (rounded up to nearest 0.5m) from the centre of the trunk at the four cardinal points.
- 4 **Crown clearance** is the average height in metres (to nearest 0.5m) of crown clearance above adjacent ground level. Where access is restricted this may be estimated.
- 5 **Height & direction of first limb** in metres above ground level where relevant; section 4.4.2.5 of BS5837 states this should be recorded to fully inform on potential ground clearance issues.
- 6 **Age Class** is as follows: **Y** = young trees up to 10 years old; **SM** = semi-mature trees less than 1/3 life expectancy; **EM** = early-mature trees 1/3 to 2/3 life expectancy; **M** = mature trees over 2/3 life expectancy; **OM** = over-mature trees in decline; **V** = veteran tree possessing certain attributes relating to veteran trees.
- 7 **Physiological Condition** is either: **Good** (trees with only a few minor defects and in good overall health); **Fair** (trees with minor, but rectifiable, defects or in the early stages of stress from which it may recover); **Poor** (trees with major structural and/or physiological defects such that it is unlikely the tree will recover in the long term); **Dead** (this could also apply to trees that are dying and unlikely to recover). This part of the assessment is essentially a snapshot of the trees' general health based on its appearance, vigour, and presence of any potential symptoms of poor health.
- 8 **Structural Condition** includes consideration of a range of factors including the presence of fungal fruiting bodies, cavities, decay and damage, condition/movement of soil around the tree base, growth habit, biomechanical related defects.
- 9 **Preliminary Management Recommendations** are focused on what is relevant in terms of the proposed development, as well as any obvious major issues that need addressing. The survey is not a condition or safety inspection so should not be relied upon as such.
- 10 **Estimated Remaining Contribution** is the approximate number of years the tree will continue to make a beneficial contribution without the need for oppressive arboricultural intervention, categorised as **<10**, **10-20**, **20-40** and **>40**.
- 11 **BS Category Rating** refers to BS 5837:2012 Table 1. This relates to tree/group quality and value, where **A** are trees of high quality with an estimated remaining life expectancy of at least 40 years, **B** are trees of moderate quality with an estimated remaining life expectancy of at least 20 years, **C** are trees of lower quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm. Category **U** relates to 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. The sub-category refers to the value type, where **1** is mainly arboricultural, **2** is mainly landscape and **3** is mainly cultural including conservation, historic and commemorative.
- 12 **Root Protection Radius** is a radial distance measured from the trunk centre, giving the radius of an equivalent circle. It is calculated using the formulae described in paragraph 4.6.1 of BS 5837: 2012 and is indicative of the minimum rooting area that should remain undisturbed in order for a tree to be successfully retained.
- 13 **RPA area** is the minimum area in m² which should remain undisturbed (up to a maximum area equal to a circular radius of 15m).

Appendix 3 - BS5837 Cascade Chart for Tree Categorisation

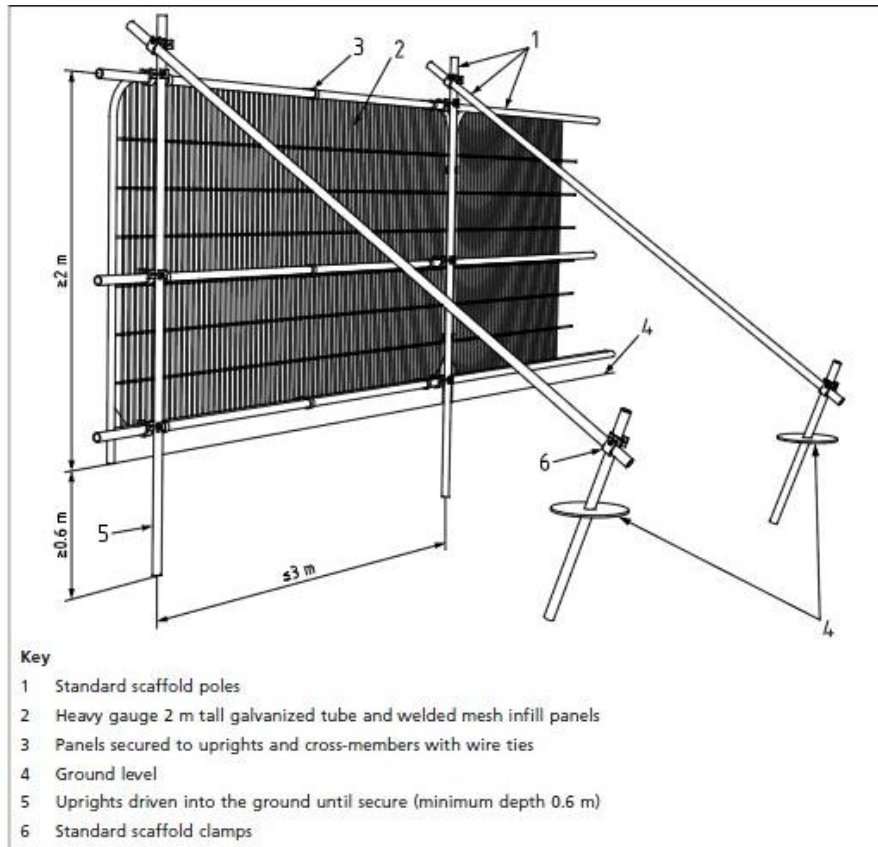
Category & definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention				
Category U Trees in such a condition that they cannot realistically be retained as living trees in the context of current land use for >10yrs	- Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees; - Trees that are dead or showing signs of significant, immediate and irreversible decline; - Trees infected with significant pathogens affecting health or safety, or very low quality trees suppressing trees of better quality. <i>NOTE: these trees can have existing or potential conservation value making retention desirable</i>			DARK RED
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	
Trees to be considered for retention				
Category A Trees of high quality with an estimated remaining life expectancy of >40yrs	Particularly good examples of their species, esp. if rare or unusual. Those that are essential components of groups or formal or semi-formal arboricultural features (e.g. principal avenue trees)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features.	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture).	LIGHT GREEN
Category B Trees of moderate quality with an estimated remaining life expectancy of >20yrs	Trees that might be included in category A but are downgraded because of impaired condition such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit category A designation.	Trees present in numbers, usually growing as groups or woodlands such that they attract a higher collective rating than they might as individuals. Trees occurring as collectives but situated so as to make little visual contribution to the area.	Trees with material conservation or other cultural value.	MID BLUE
Category C Trees of low quality with an estimated remaining life expectancy of >10 years, or young trees with a stem diameter <150mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary landscape benefits.	Trees with no material conservation or other cultural value.	GREY



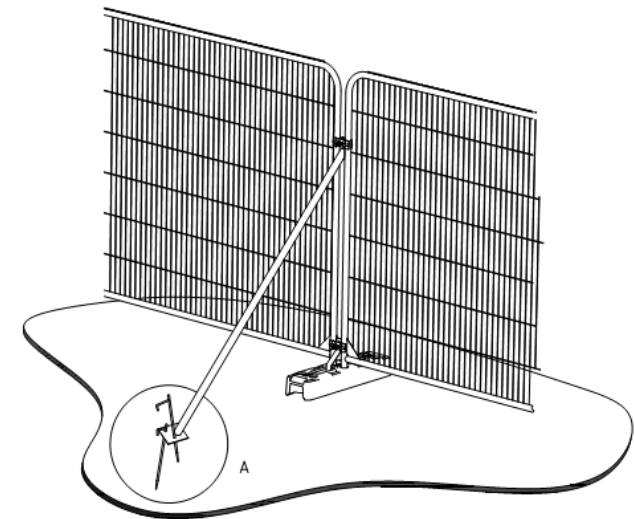
Appendix 4 - Tree Constraints & Protection Plan

(please see attached plan - drawing no. AS/MS/0520 TCPP)

Appendix 5 - Tree Protection Fencing in accordance with BS5837



a) Stabilizer strut with base plate secured with ground pins



Default specification for protective fencing (left) and recommended alternative specification (right)

Appendix 6 - Tree Protection Fencing Signage

