Treework Environmental Practice

Arboricultural Method Statement

5 Hermit Place, NW6 4BZ

Report Reference Number: 221007-1.0-5HP-AMS-AN

On behalf of

Alan Power Architects Ltd

07 October 2022

Document Control Sheet

Project Name: 5 Hermit Place, NW6 4BZ

Report Ref: 221007-1.0-5HP-AMS-AN

Report Title: **Arboricultural Method Statement**

	Name	Position	Date
Prepared by:	Alex Needs	Principal Arboricultural Consultant	07/10/2022
Surveyed by:	Alex Needs	Principal Arboricultural Consultant	04/10/2022

Revision	Date	Description	Prepared by
1.0	07/10/2022	For review or submission	AN

Table of Contents

1 Key Contact Details

Name	Company	Role	Contact Details
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2 Report purpose

2.1 This document serves to inform the technical design and the construction process. It details a precautionary approach towards tree protection which should be adopted for any operations, including access, proposed within the RPA. It seeks to demonstrate that the operations can be undertaken with minimal risk of adverse impact on trees to be retained and seeks to identify:

- **Who** has responsibility?
- **When** within the works programme activities should happen.
- **How** works should be carried out.

2.2 The level of detail within this report is dependent on the information available at the time of writing. At the pre-application design stage this may be minimal in which case this document will set out a series of parameters for construction activity (e.g. where service routes and/or construction activity should not occur), based on the RPA and the physiological needs of the tree, to which the finalized specifications and statements will apply. However, at the pre-construction, technical or specialist design stage this document will include input from other professions (eg. structural engineers, architects, landscape architects, transport planning consultants) and offer a greater degree of specific detail.

3 Background

3.1 Treework Environmental Practice was commissioned by Castle Trading Ltd on 28/09/2022 To produce an Arboricultural Method Statement (AMS) and Tree Protection Plan (TPP) to inform construction contractors on tree protection measures and methods that will be required to safeguard retained trees on site.

3.2 The AMS follows best practice guidelines in accordance with BS5837:2012 *Trees in relation to design, demolition and construction – Recommendations* and practical solutions, based on sound arboricultural knowledge and experience of the author.

3.3 The following documents have been reviewed by Treework Environmental Practice:

Document Title	Document/Drawing number	Originator
Proposed Layout	527 - Planning App Drawings 2022 v2017	Alan Power Architects Ltd
Tree Constraints Plan	221006-1.0-5HP-TCP-JI	Treework Environmental Practice

3.4 The RIBA Stage 2 'Concept Design' Tree Survey, which informs the Root Protection Areas (RPAs), Construction Exclusion Zones (CEZs) and the position of tree protection fencing and other prescribed technical construction measures, was undertaken by Treework Environmental Practice in 04/10/2022

3.5 The proposed development is for revisions to an approved scheme for the erection of a new dwelling. The application seeks to amend planning application reference 2015/2171/(P), which granted planning permission to demolish the existing garage and replace it with a two-bedroom dwelling. The description of development under reference 2015/2171/(P) is as follows: 'Erection of part one/part two storey plus basement dwelling following demolition of garage'.

3.6 This AMS has been produced to fulfil the requirements of Local Planning Authority (LPA) planning application. It provides a set of Operation tables with detailed methodology, which are to be complied with at all times. Any proposed works within Construction Exclusion Zones (CEZs) that are not covered within this AMS are to be 'agreed' with the Local Planning Authority and/or the Project Arboriculturist, and appropriate additional methodology provided.

3.7 The Document should be read along with the following appendices:

- Appendix A: Tree Protection Plan – Drawing Number: 221007-1.1-5HP-TPP-JI
- Appendix B: Tree Schedule
- Appendix C: Tree Protection Specifications
- Appendix D: Example Site Monitoring Form

4 General Tree Welfare

4.1 When working near trees, it is important to be aware that the majority of tree roots are normally located in the top 600 mm of soil and can spread out horizontally to a distance at least equal to the height of the tree.

4.2 The distance from the tree in which damage is likely to occur is calculated by the Root Protection Area (RPA), which represents the minimum area around a tree deemed to contain sufficient roots and soil volume to keep the tree viable. RPAs should be treated as a precautionary area within which activities such as ground compaction, excavation, the storing of materials, ground stripping, raising of levels and building are likely to cause damage to trees and therefore should not take place. Usually, barriers are erected around the RPA to physically exclude such activities. The area within these barriers is known as the Construction Exclusion Zone (CEZ). Unavoidable activity within the CEZ must be carefully executed, and must be guided by this detailed method statement.

4.3 Damage can sometimes be avoided, or at least minimised, by suitable technical measures which can be devised with consultation with a Project Arboriculturist. The protection measures and technical construction measures, applicable to this site, are included within this document.

4.4 Tree protection fencing will be installed as set out within the Tree Protection Plan at Appendix A. The fenced-off area will become a Construction Exclusion Zone (CEZ). Any works to be undertaken in the CEZ must follow the detailed method tables set out below.

5 General Precautions

5.1 In general, the following procedures will also be followed.

- No materials that are likely to have an adverse effect on tree health will be stored or discharged within the CEZ.
- Where storage of such materials is upslope of the trees, barriers will be put in place at ground level to minimise the risk of spillages leaching down-slope and contaminating the Root Protection Area of a tree. Such materials include:
    - Fuel and oil
    - Bitumen
    - Cement
    - Sand
- Fires on sites should be avoided if possible. Where they are unavoidable, they should not be lit in a position where heat could affect foliage or branches. The potential size of a fire and the wind direction should be taken into account when determining its location in relation to trees, and it should be attended at all times until safe enough to leave.
- Concrete will not be mixed or transported over unprotected ground within the CEZ.

- Any incidents involving potential damage to retained trees will be recorded on site using a monitoring form similar to that shown in Appendix D and a copy made available to the Local Authority Tree Officer if requested.

6 Arboricultural Site Monitoring

6.1 An arboricultural consultant will be appointed to advise on the tree management for the site and to attend:

- pre-commencement meeting before any work starts but after the installation of tree protection measures;
- regular monitoring visits to oversee the agreed tree protection, (schedule to be agreed at the pre-commencement meeting);
- further supervision visits, as necessary, to oversee any works that could affect trees (as detailed below in tables of operations).

7 Tables of Operations and Detailed Methodology

7.1 The tables below provide detailed method on each Operation and how they are to be undertaken, along with methods for other Operations which may be required to complete the works. Any deviation from the methods set out in the tables below will be discussed and agreed with the Project Arboriculturist before being implemented.

Operation 1: Tree pruning and removal

Method and Action Required	
Personnel	Site Manager, Project Arboriculturist, Arborists
Timing	Prior to other construction activity.
Appendix ref.	A, C

1) The tree work requirements are set out in the Tree Schedule (Appendix B). Tree **T2** will need pruning back to the boundary to allow construction access and to facilitate the construction. Parts of crowns to be pruned are shown as partial dashed outlines.
2) All tree works will be undertaken by suitably qualified Tree Surgeons and the work will be undertaken in accordance with BS3998:2010.
3) Wherever possible, all required tree pruning work will be undertaken without significantly reducing the landscape value or viability of the tree.
4) All tree work will be undertaken before any other operations on site. This will include:
   - facilitation pruning;
   - all other pruning.
5) Any variation to the tree surgery works will be agreed with the Project Arboriculturist before being implemented.
6) All arisings will be removed from site, except where identified for reuse.

Operation 2: Excavations within the RPA

Method and Action Required	
Personnel	Site Manager, Project Arboriculturist, Groundwork Contractors
Timing	Construction and/or landscaping phases
Appendix ref.	A, C, D

Removal of part or all of the existing floor slab and subsoil will be required to investigate the depth of wall foundations prior to construction. Further deeper excavation may also be required if underpinning is deemed necessary. This will be within the RPAs of trees **T1** and **T2.**

Works should comply with the following:

1) Removal of hard surfacing should be programmed to take place immediately before exploratory excavations to avoid premature removal of the protective surface.
2) Positions along the existing wall, approximately 1m across will be identified as optimum areas for the concrete underpinning fill. These will be the initial areas of exploratory excavation to initially examine the depth of foundations and, if necessary, to create underpinning voids.
3) Whilst the excavation is undertaken the Project Arboriculturist will advise if roots are discovered. If significant roots are exposed in proposed underpinning locations, alternative locations will be excavated until areas are identified by the Project arboriculturist that are suitable and unlikely to cause any significant long-term harm to tree health. Where the impact cannot be kept to an acceptably low level, the foundation design will be revised.
4) Removal of the existing hard surface within the RPAs will be performed using hand operated tools except in cases where the hard surface can only be broken up using machine. In these instances, the machine will be positioned on existing hard surface outside of the RPA and operate under the supervision of the Project Arboriculturist. The machine will not be positioned on areas within the RPA where the surface has been removed unless ground protection is installed as directed by the Project Arboriculturist.
5) Any exposed roots will either be pruned to a clean face using disinfected sharp secateurs or pruning saw, or, if they are to be re-covered, kept damp and out of direct sunlight whilst exposed, as directed by the Project Arboriculturist.
6) In hot conditions, exposed roots will be dampened down within 1 hour and wrapped in a damp hessian material or similar.
7) Woody roots >25mm diameter will not be pruned unless judged by the Project Arboriculturist not to be essential to the tree's health and stability. Any roots will be pruned to a clean face by the Project Arboriculturist using disinfected sharp secateurs or pruning saw.
8) New surfaces will be installed within 48hrs of removing the old material. Where this is not possible, then a temporary surface will be installed over the exposed area of the RPA. The temporary material will be suitable for purpose – as directed by the Project Arboriculturist.
9) Other than in areas required for underpinning, there should be no excavation below the existing subbase unless required to achieve levels permitted under full planning permission.
10) The Project Arboriculturist will oversee work and complete and submit a monitoring form on completion.

Operation 3: Installation of underpinning (if required)

Method and Action Required	
Personnel	Site Manager, Project Arboriculturist, Groundwork Contractors
Timing	Construction and/or landscaping phases
Appendix ref.	A, C

The development will retain and reuse the existing external walls and foundations and therefore will not require demolition of these, however depending on the results of careful investigations detailed in Operation 2, underpinning of the existing foundations may be necessary within the RPAs of **T1** and **T2**.

Works should comply with the following:

1) All machinery required to install the concrete underpinning fill will be located on existing hard surfacing or outside RPAs to prevent soil compaction.
2) The voids requiring concrete underpinning fill will be lined with impermeable sheeting to prevent toxic leachate entering the surrounding soil.
3) Any supporting ground beams will be installed above the existing soil level following excavation of the subbase.
4) Where the impact cannot be kept to an acceptably low level, the design will be revised.

Operation 4: Installation of underground services within the RPA

Method and Action Required	
Personnel	Site Manager, Project Arboriculturist, Project engineer, Groundwork Contractors
Timing	Construction phase
Appendix ref.	A, C, D

Installation of underground services may be required within footprint of the existing garage, which is also within the RPAs of **T1** and **T2**.

1) The Project Arboriculturist will review site-specific operations that involves the installation of underground services within RPAs of retained trees and input additional methodology where necessary.

2) Where service installation within the RPA is required, the potential impact to trees will be assessed by the Project Arboriculturist on a case-by-case basis and detailed specifications will be developed in consultation with the project engineer to ensure that any service installation does not result in significant damage to retained trees. Alternative locations for underground services outside of RPAs will be considered.

3) Where underground services are to be laid within the RPAs of trees, an assessment will be carried out by the Project Arboriculturist of the presence, location and significance of tree roots in the affected area, such as:

   - Trial excavation

4) Where the impact <u>can</u> be kept to an acceptably low level to ensure that the tree remains viable, the work will be carried out under the following conditions:

   - Supervised by the Project Arboriculturist, who will submit a monitoring form on completion.
   - All operations by hand/using hand operated tools only.

5) Where the impact <u>cannot</u> be kept to an acceptably low level, the following measures will be implemented:

   - Hand dig trenches and feed services through roots that are present
   - Excavate trenches using an airspade/airknife (compressed air hose) and feed services through roots that are present.

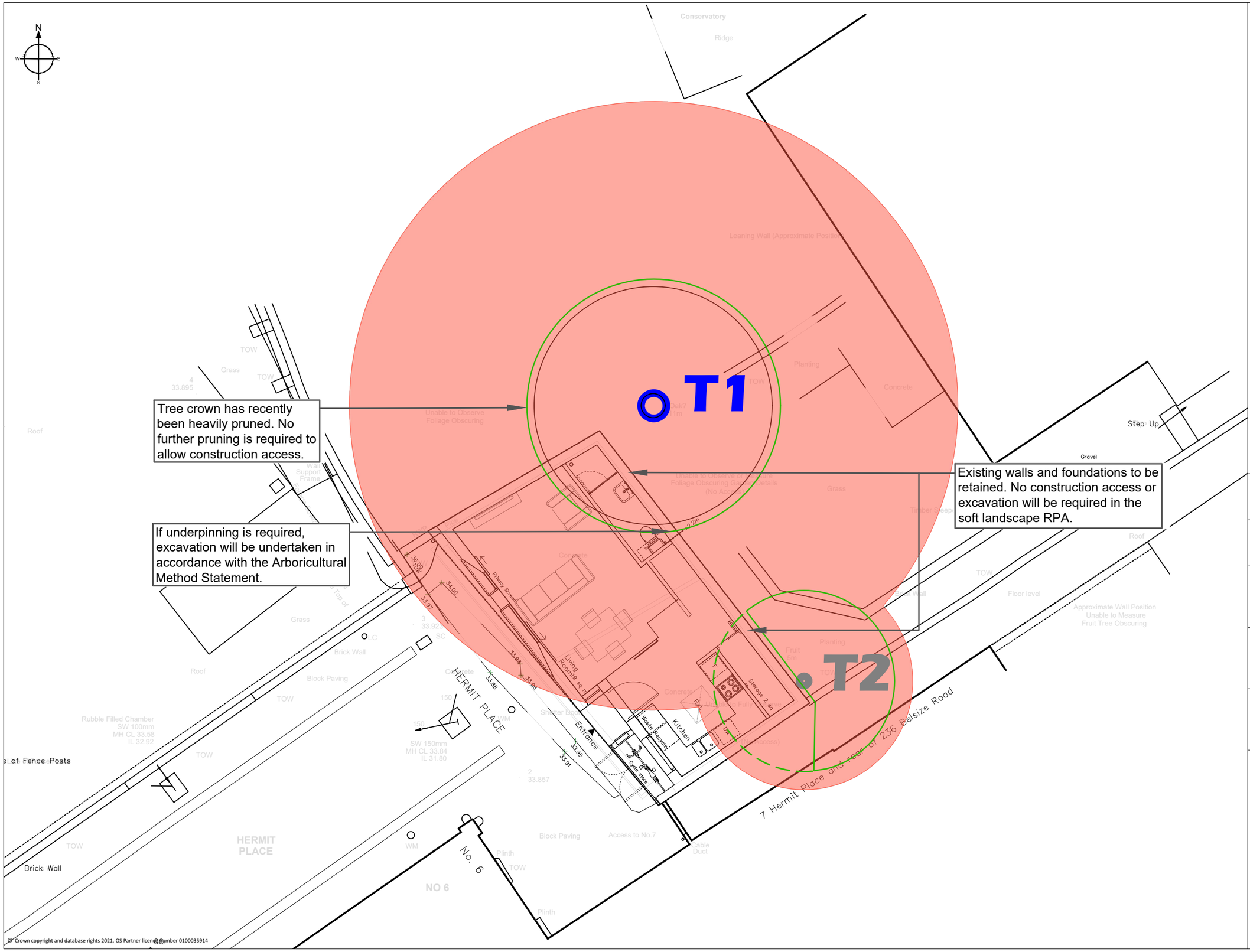
6) Excavation of trenches will conform to the following criteria:

   - Where roots are exposed, they will either be pruned to a clean face using disinfected sharp secateurs or pruning saw, or, if they are to be pushed aside and re-covered, kept damp and out of direct sunlight whilst exposed, as directed by the Project Arboriculturist.
   - The trench will be backfilled within 6 hours with soil of a suitable quality to encourage rooting.
   - All operations will be supervised and signed off by the Project Arboriculturist.

7) All excavation within RPAs will be supervised and signed off by the Project Arboriculturist.

Appendix A

Tree Protection Plan



T1

T1 Tree or Group Reference Number	Tree Stem Position A Category Tree
Tree Crown	Tree Stem Position B Category Tree
Root Protection Area	Tree Stem Position C Category Tree
Pruning/Tree Removal	Tree Stem Position U Category Tree

Date:
October 2022

Scale:
1:100 @ A3

Project Name:
5 Hermit Place, NW6 4BZ

Drawing Title:
Tree Protection Plan

Drawing Number:
221007-1.1-5HP-TPP-JI

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Appendix B

Tree Schedule

5 Hermit Place, NW6 4BZ
Tree Survey BS5837-2012

Treework Environmental Practice

Tree/Group Reference	Species	Height (m)	Stem Count	Stem Diameter (cm)	Crown Radius (m)	Crown Clearance Height (m)	Lowest Branch Height (m)	Life Stage	Physiological Condition	Observations and Recommendations	RPA (m^2)	RPR (m)	Remaining Contribution (Years)	Retention Category	Retention Sub-category
T1	*Ailanthus altissima* Tree Of Heaven	15.0	1	70	N E S W 3.5 3.5 3.5 3.5	8.0	6.5	Mature	Fair	Pollard. Recently reduced. Unable to access land, dimensions approximate.	221.7	8.4	20-40	B	1
T2	*Cerasus avium* Wild Cherry	6.5	1	25	N E S W 2.5 2.5 2.5 2.5	3.0	1.5	Early Mature	Fair	Unable to access land, dimensions approximate. **Prune from adjacent structure.** Prune to boundary to allow construction access.	28.3	3.0	20-40	C	1

Tree Schedule Key

Treework Environmental Practice

Tree/Group Reference	Reference number for individual trees or groups of trees, prefixed by T (Tree), G (Group), W (Woodland), H (Hedge) or S (Shrub) to indicate the type of feature.
Tree Count	Number of trees of a particular species recorded within a group feature, with the default value of 1 for single trees.
Species	Scientific name followed by common name (where available).
Height (m)	Tree height to the nearest metre, either measured with a device or estimated. Tree height for group records refers to the estimated average height of trees within the group (unrepresentative trees may be excluded from this estimate).
Stem Count	Number of stems. Stem count indicates whether the tree is single-stemmed or multi-stemmed and informs the RPA calculation.
Stem Diameter (cm)	Stem diameter, measured at 1.5m above ground level in accordance with Annex C of BS5837:2012. Diameters of multi-stemmed trees are presented as a combined stem diameter calculated in accordance with the formulae in Section 4.6.1 of BS5837:2012. Stem diameter for group records refers to the estimated average stem diameter of trees within the group (unrepresentative trees may be excluded from this estimate).
Crown Radius (m)	Distance from stem position to crown periphery in either the four cardinal or four ordinal directions, estimated to the nearest half metre. Crown spreads for group records refer to the estimated average spreads of trees within the group (unrepresentative trees may be excluded from this estimate).
Crown Clearance Height (m)	Distance between the ground and the lowest point of the crown periphery, estimated to the nearest half metre.
Lowest Branch Height (m)	Height of the lowest branch, the removal of which is considered likely to have a significant negative effect on the tree in terms of physiology or in terms of the size of wound created.
Life Stage	Young, Semi-mature, Early Mature, Mature, Late Mature, Ancient or Veteran.
Physiological Condition	Good, Fair, Poor, Dead.
Observations	General description of the tree or tree group, including basic features and morphology, structural and physiological condition, growing conditions and surroundings.
Recommendations	Management recommendations for tree works to address immediate unacceptable risks, or to facilitate development proposals.
RPA (m^2)	Minimum area around a tree deemed to contain sufficient roots and rooting soil volume to maintain the tree's viability, in which the protection of roots and soil structure is treated as a priority. Calculated from the stem diameter according to the formulae in BS5837:2012. RPA for group records is based on the estimated average stem diameter of trees within the group (unrepresentative trees may be excluded from this estimate).
RPR (m)	Radius of the RPA, in metres, when this is plotted as a circle around the tree stem.
Remaining Contribution (years)	Estimated number of years for which the tree will continue to make a positive contribution to the site, banded as < 10, 10-20, 20-40, 40 +.
Retention Category	Quality and value category (**A**, **B**, **C** or **U**) as defined in Table 1 of BS5837: 2012 (reproduced below), where **A** = high quality and value; **B** = moderate quality and value; **C** = low quality and value and **U** = tree identified for removal due to poor condition regardless of development proposals.
Retention Sub-category	One or more sub-categories (1-3) as defined in Table 1 of BS5837: 2012 (reproduced below), assigned for Categories **A**, **B** or **C** where 1 = arboricultural qualities, 2 = landscape qualities and 3 = conservation and cultural value.

Appendix C

Tree Protection Specifications

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Technical measures to prevent tree damage

Tree Pruning

Tree pruning will be carried out where the design and / or planned site operations encroach into the crowns of trees and where these encroachments can be accommodated through facilitation pruning without significantly reducing the landscape value and / or viability of the tree.

Tree pruning operations will:

- be specified by the arboricultural consultant
- be in accordance with current best practice
- be carried out by a suitably experienced and qualified arborist

Tree Protection Fencing

Tree protection fencing will be located at the edge of the Construction Exclusion Zone (CEZ) and will be suitably robust to provide sufficient protection trees.

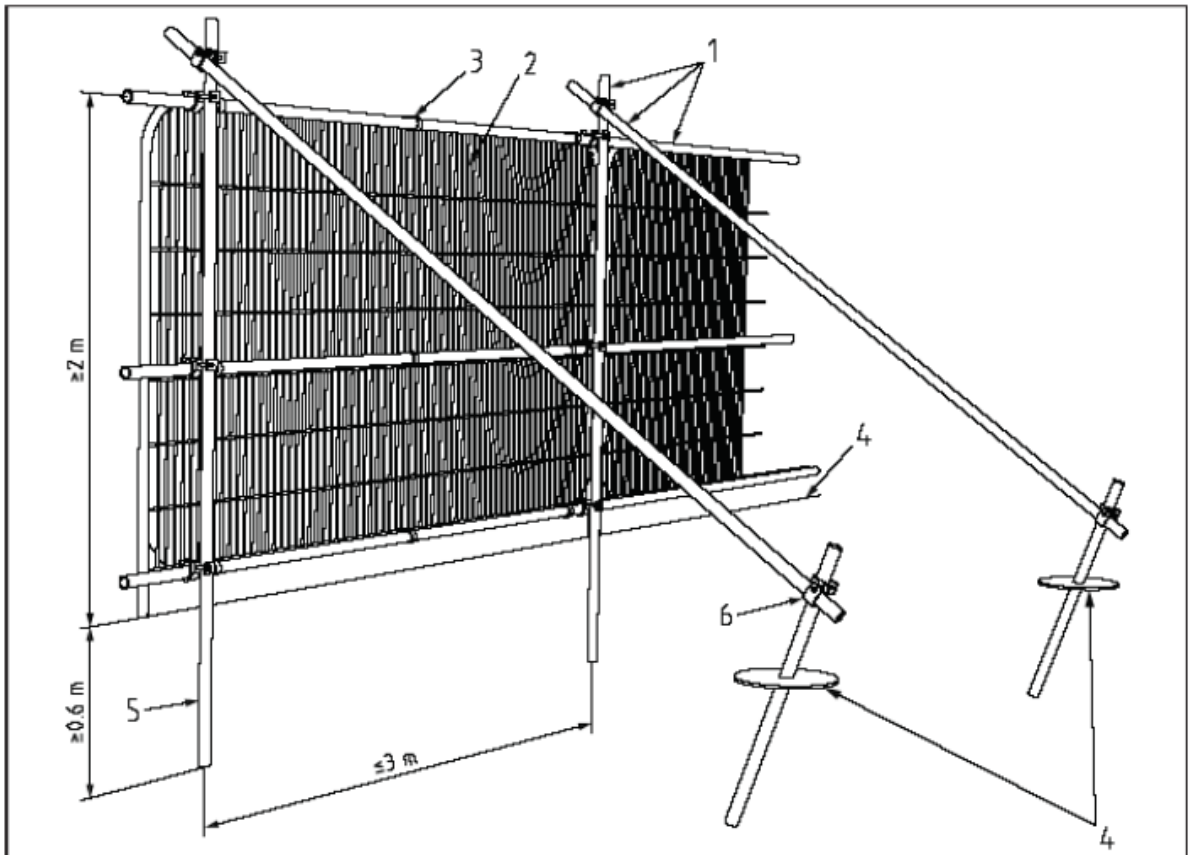
The performance requirement for fencing will be determined by the type of activity that will take place in the area around the CEZ.

Typically the performance requirement for the Tree Protection Fencing will be:

- Tree Protection Fencing will be installed prior to commencement of activity on the site.
- Tree Protection Fencing will only be removed once all works associated with the development have been completed.
- The Tree Protection Fencing will be installed and removed without causing damage to retained trees
- Installation, removal and, where required, replacement of Tree Protection Fencing will be supervised and signed off by the Arboricultural Consultant
- The Tree Protection Fencing will be stable and robust (minimum construction method, in accordance with BS5837: 2012, see illustration below)
- The area between the Tree Protection Fencing and the tree will be a Construction Exclusion Zone (CEZ)
- Fence panels will be made of mesh (e.g.: heras fencing) or, if solid, will have 30cm windows cut into each panel to allow visual assessment of conditions within the CEZ

- The CEZ will be clearly identified (see construction exclusion zone sign example below)

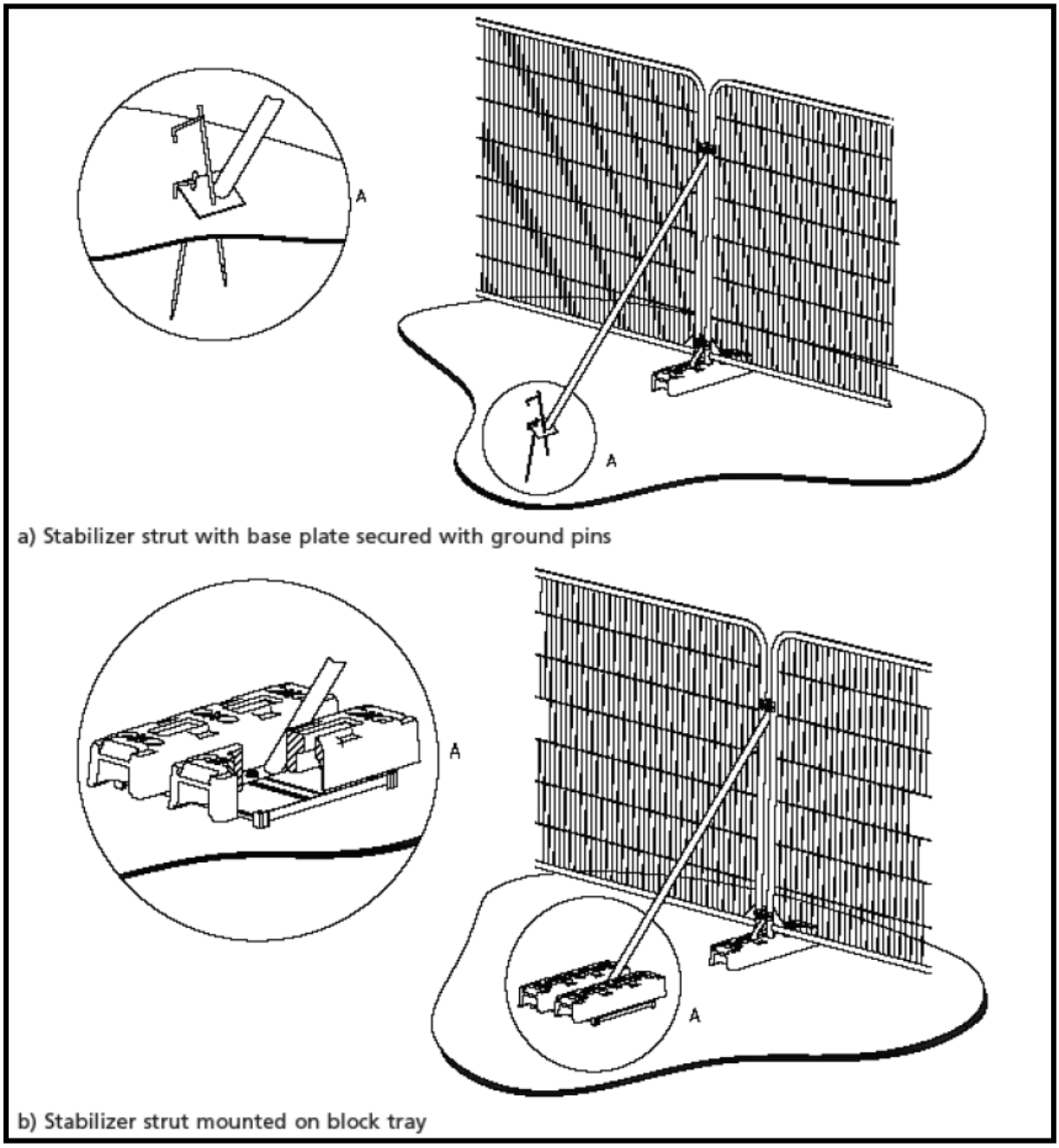
Tree Protection Fencing Sign



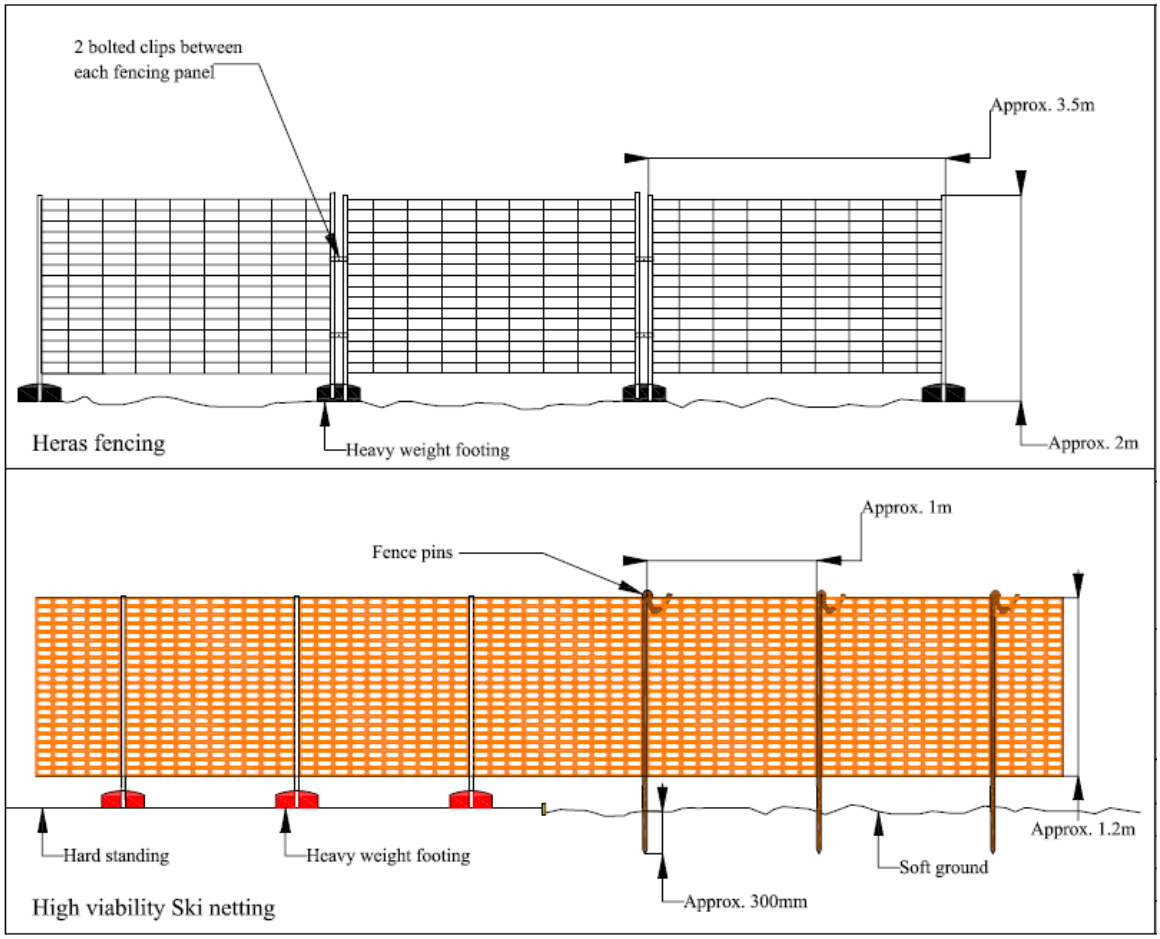
Key

1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

BS5837: 2012 - Figure 2 – Tree Protective Barrier



BS5837: 2012 – Figure 3 – Examples of Above Ground Stabilisation Systems for Temporary Tree Protection Fencing.



Examples of lower specification fencing may be considered areas of low intensity activity.

Ground Protection Measures

BS5837: 2012 provides the following examples of temporary ground protection measures:

a) *for pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100 mm depth of woodchip), laid onto a geotextile membrane;*

b) *for pedestrian-operated plant up to a gross weight of 2 t, proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150 mm depth of woodchip), laid onto a geotextile membrane;*

c) *for wheeled or tracked construction traffic exceeding 2 t gross weight, an alternative system (e.g.* ***proprietary systems*** *or* ***pre-cast reinforced concrete slabs****) to an engineering*

specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.

Concrete Temporary Ground Protection:

The Ground Protection will be installed using reinforced concrete slabs to an engineering specification, designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.

For the roots of the trees to remain undamaged there must be no excavation, soil stripping or site grading within the rooting areas – in other words NO DIGGING. This means that finished levels of the Temporary Ground Protection will be above existing ground level.

The ACoW and Construction Manager will supervise and sign off the installation and removal of the Ground Protection and any change to the Ground Protection.

General Performance Specification:

- The Ground Protection will ensure that tree roots are not physically damaged
- The Ground Protection will ensure that soil within the tree root environment is not compacted
- The Ground Protection will reduce the possibility for spilled materials / substances to seep into the soil
- The Ground Protection will be designed to prevent anaerobic conditions building up under the Ground Protection allow sufficient gaseous exchange and water penetration to the covered root environment.
- The Ground Protection will only be removed once all works associated with the demolition have been completed
- The installation and removal of Ground Protection will not damage trees.

This is a typical specification for Temporary Ground Protection:

The Ground Protection will be installed using a cellular confinement system minimum 100mm thick laid upon a permeable membrane and filled with washed no fines gravel such as 20-40mm washed angular stone.

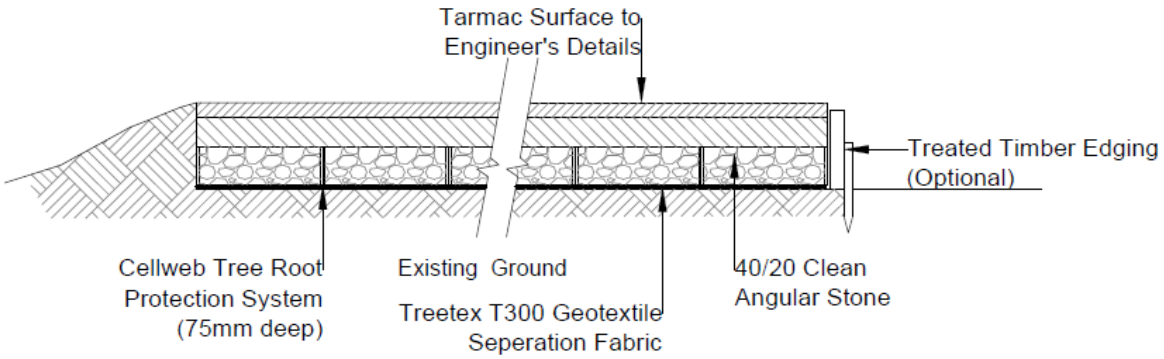
For the roots of the trees to remain undamaged there must be no excavation, soil stripping or site grading within the rooting areas – in other words NO DIGGING. This means that finished levels of the Temporary Ground Protection will be above existing ground level.

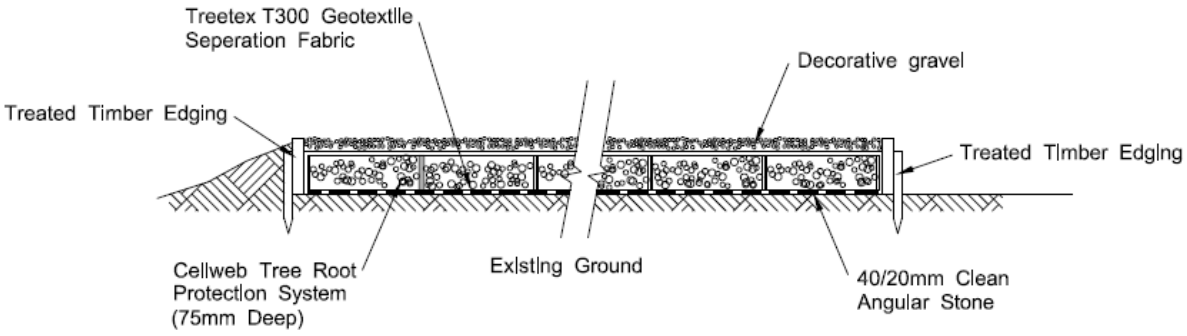
The Arboricultural Consultant will supervise and sign off the installation and removal of the Ground Protection and any change to the Ground Protection.

The installation of Ground Protection will involve the following sequence of operations:

1. *All organic material should be removed to prevent any build up of anaerobic conditions beneath the construction.*
2. *Rocks and other obstacles will be removed by hand.*
3. *Major hollows will be filled with sharp sand.*
4. *A suitable permeable membrane will be laid directly on to the ground and a cellular confinement system e.g. 'Cellweb' (see Appendix H) will be laid directly upon the membrane and pegged into position.*
5. *Washed, no-fines 20/40mm angular stone, to fill the cellular confinement system will be placed at one end and then pushed on to the grid so that machinery moves on the spread sub-base, not directly on the cellular confinement system and not the ground either side of it.*
6. *Depending on the type of access required, a sufficiently porous surface material may be laid over the top of the cellular confinement system.*
7. *The Ground Protection will only be removed once all works requiring access to the protected area have been completed and prior to commencement of soft landscaping.*

Operations to remove the Ground Protection within the RPAs of trees will be supervised and signed off by the Arboricultural Consultant.





Examples of Cellular Confinement System Details (Cellweb)

Appendix D

Example Monitoring Form

Treework Environmental Practice

Site Inspection Report
Completion of Arboricultural Operations – Monitoring Form

Site Name:			
Site Address:			
Client Name:		**Instructed By:**	
Site Manager:			
Arboricultural Operation Checked By:		**Date:** **Approved / Not Approved**	
Operation Completed / Additional Works Required: **Number of Photographs Supplied:**			
Completed By (Contractor Name):		**Contractor / Subcontractor**	
Copied to LPA	**Yes / No**	**Contact Name:**	
Copied to Client	**Yes / No**	**Contact Name:**	
Copied to Site Manager	**Yes / No**	**Contact Name:**	

Operation Completed / Additional Works Required (Continued):