

**ARBORICULTURAL METHOD STATEMENT (AMS)  
For the Demolition of a single Dwelling house and  
Outbuilding and the Erection of 8 No. Detached  
Dwelling Houses**

**At**

Cromwell Court, Greenway Lane,  
Harp Hill, Cheltenham GL52 6PW

**For Submission to**

Cheltenham Borough Council

**On the Instructions of:**

Churcham Homes Ltd

**Date of Site Visit:**

27 March 2018  
17 November 2020

**Report Ref:**

DTCL.137.AMS.2021

**Report Date:**

21 January 2021

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## **Disclaimers**

### **General - Trees**

Unless otherwise stated tree inspections have been undertaken from ground level and using non-invasive techniques only. Comments on the condition and safety of any tree relate to the condition of the tree at the time of survey. It should be recognised that tree condition is subject to change due to, for example, the effects of disease, wind or nearby development works. Changes in land use are also significant in respect of risk assessment. Trees should therefore be inspected at intervals relative to identified site risks.

Unless otherwise specified, no checks have been carried out in respect of statutory controls that may apply, e.g. Tree Preservation Orders, Conservation Areas or planning conditions. In addition, prior to undertaking any tree works, it is necessary to ensure due diligence is followed in respect of protected species and habitats.

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## 1 Background and Introduction

1.1 Cheltenham Borough Council (the Council) granted consent for the demolition of a single dwelling house and outbuilding and the erection of 8 No. detached dwellings and means of access at Cromwell Court, Greenway Lane, Cheltenham GL52 6PW under planning permission reference 18/02581/FUL. Subsequently, the Council granted consent for the variation of conditions 2, 3, 7 & 9 attached to the 2018 permission under planning reference 20/01612/CONDIT. The variation consent has 15 conditions attached of which two, 10 and 11 are concerned with trees and tree protection during construction, as follows:

- 10 The development hereby approved shall not be carried out unless in accordance with the approved Arboricultural Impact Assessment (ref: DTCL.137.AIA.2018). The protective measures specified within the Arboricultural Impact Assessment shall remain in place until the completion of the construction process.

Reason: To safeguard the existing tree(s) in the interests of visual amenity, having regard to saved policies G12 and G13 of the Cheltenham Plan (2020).

- 11 A specific Arboricultural Method Statement (AMS) needs to be submitted to and agreed in writing by the Local Planning Authority for the construction of the boundary wall adjacent to tree ref: T2 at the proposed entrance to this site. This tree has been described in the approved Arboricultural Impact Assessment as a veteran tree and as such no development should take place from a distance of 15 times the radius of the trunk diameter. This AMS should also give a detailed description and supervision of the described no-dig road. This no-dig road needs to be of a porous nature so that water is not diverted away/off tree T2 roots.

Reason: To safeguard the existing tree(s) in the interests of visual amenity, having regard to saved policies G12 and G13 of the Cheltenham Plan (2020).

1.2 The development will be carried out in accordance with the approved Arboricultural Impact Assessment, DTCL.137.AIA.2018 and this Arboricultural Method Statement, required under condition 11, sets out the detailed methodology for the protection of trees during construction and specifically the construction of the boundary wall adjacent to T2 and the installation of the access road using a 'no-dig' methodology, in accordance with the guidance contained within the current relevant British Standard, **BS5837: 2012** 'Trees in relation to design, demolition and construction – Recommendations';.

## 2 The Site and Surroundings

2.1 The site has been described in the AIA and other submitted documentation and will not be repeated here save to say that it is the subject of a Woodland Management/Restoration Plan reference 18-273-17-18 and that the trees are the subjects of a Tree Preservation Order (TPO); *The Borough of Cheltenham (Greenway Lane/Harp Hill) Tree Preservation Order No. 1, 1980*, which is an 'area' order.



### 3 Arboricultural Method Statement (AMS)

#### 3.1 Scope of Works

##### **General**

- Construction works could impact the retained trees specifically the veteran oak (T2) and the restored woodland compartments, Cpt1, Cpt2 & Cpt3 and will be protected in accordance with the requirements of the Cheltenham Borough Council Arboricultural Officer.
- This Arboricultural Method Statement supplies the required information.
- The work-flow diagram governing this method statement is at **Figure 1** below.

##### 1) **Tree Protection**

- The location of the fencing is as detailed on the attached approved drawing number DTCL.137.AIA.2018.TS.03.
- The construction of the fencing will be as specified at Section **6.2** of BS5837: 2012. See also **Figure 2** and **Photographs 1** to **4** below.
- Some of the protective fencing has been erected prior to the commencement of any on-site construction activities and will be signed off by the Supervising Arboriculturist and the Council Arboricultural Officer.

##### 2) **Boundary wall adjacent to T2**

- The boundary wall at the entrance to the site would be constructed within the RPAs of T2 and some of the boundary trees in Cpt1.
- The foundations of the boundary wall would be constructed in accordance with the guidance contained at Section **7.2** of BS5837: 2012.
- The wall will be constructed on a pile and ground beam foundation rather than a traditional strip foundation as shown in **Figure 3** and **Photograph 5** below.

##### 3) **No Dig Surfaces (Cellular Confinement Systems)**

- In order to minimize the impact of the hard surfaces of the new access within the RPAs, the construction of the access will be of the 'no-dig' method using a proprietary cellular confinement system as shown in the Arboricultural Association (AA) Guidance Note 12 '*The use of Cellular Confinement Systems Near Trees: A Guide to Good Practice*'.
- The systems recommended are the CellWeb™ or ProtectaWeb™ confinement systems which spread the load as detailed in **Figures 5A, 5B & 5CD** and **Photographs 7 -11** below.
- The final surface for the cellular confinement system shall either porous tarmac or block pavements.

##### 4) **Services**

- The services will be installed as shown on the Infrastructure Design Studio approved drawing number 1415-C0-C with the connection to the mains in Harp Hill.
- This will take the main drainage run through the newly planted woodland compartment Cpt3.
- The excavations for and installation of the new services shall be in accordance with the guidance contained within the National Joint Utilities Group (NJUG) publication '*Volume 4: Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees* (Issue 2, November 2007) – Operatives Handbook'. See **Figure 6** below.



### 3 Arboricultural Method Statement (Continued)

#### 5) ***New Tree Planting***

- The site will be planted up with new trees and hedges as specified in the Landscape Architect's approved Tree & Hedge Planting Plan and as set out at Section 3.12 of the approved AIA Report.
- All trees will be sourced from a reputable nursery which has a demonstrated, auditable, and implemented Biosecurity Policy.
- All trees will be planted in accordance with best arboricultural practice and the guidance set out in **BS8545: 2014** '*Trees, from nursery to independence in the landscape – Recommendations*'.
- Tree planting shall be supervised by the Landscape Architect with input from the Project Arborist.

#### 3.2 **Control Measures & Supervision**

- Appropriate control measures to keep unauthorised people away from the work areas will be used.
- Each operation will be assessed prior to the commencement of any on-site works and appropriate barriers / warning signs erected. See **Figure 2** below.
- A Project Arboriculturist will be appointed to liaise at all times with the Site Manager and with the Cheltenham Borough Council Arboricultural Officer.
- The Project Arboriculturist will be on site at all times relevant to the task being undertaken, e.g., when the fencing is being erected; when the cellular confinement system is being installed; when the excavation for the services is being undertaken; and on a regular basis to ensure protective fencing is being maintained as it should be.
- The Project Arborist will supply reports with photographs to the Cheltenham Borough Council Arboricultural Officer at regular intervals and particularly following significant phases of work, i.e., the erection of tree protective fencing, construction of the boundary wall & the installation of the no-dig surfaces.

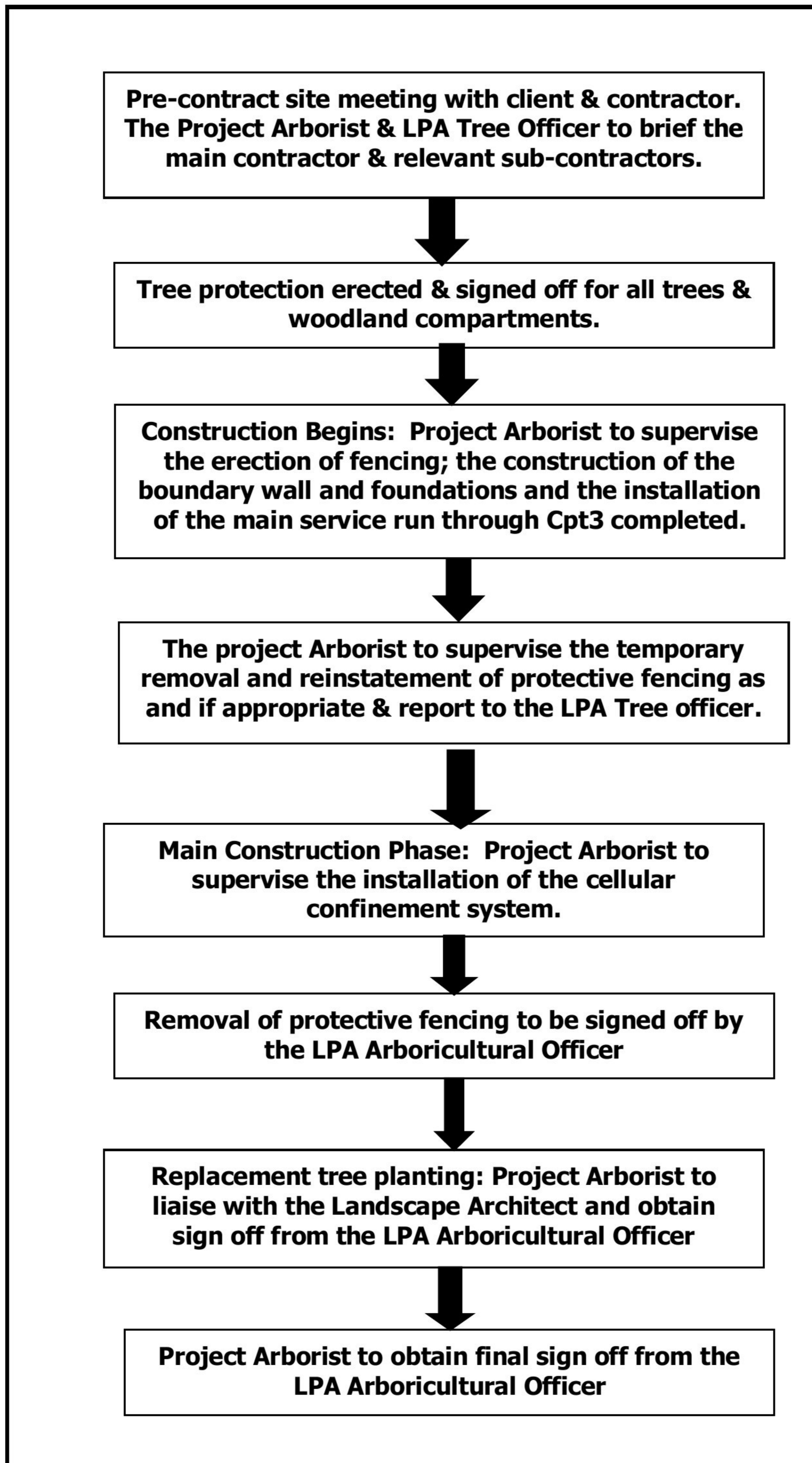
#### 3.3 **Sequencing**

- The Cheltenham Borough Council Arboricultural Officer will be advised prior to the commencement of work on site.
- All sub-contractors, site managers and relevant operatives shall be briefed of proposed works prior to commencement; the Cheltenham Borough Council Arboricultural Officer will be present at the pre-commencement briefing.
- Contractor/Site Manager will ensure delivery/availability of all relevant materials prior to the commencement of onsite works.
- All materials delivered shall be stored outside the tree protection/construction exclusion zones.



### 3 Arboricultural Method Statement (Continued)

3.4

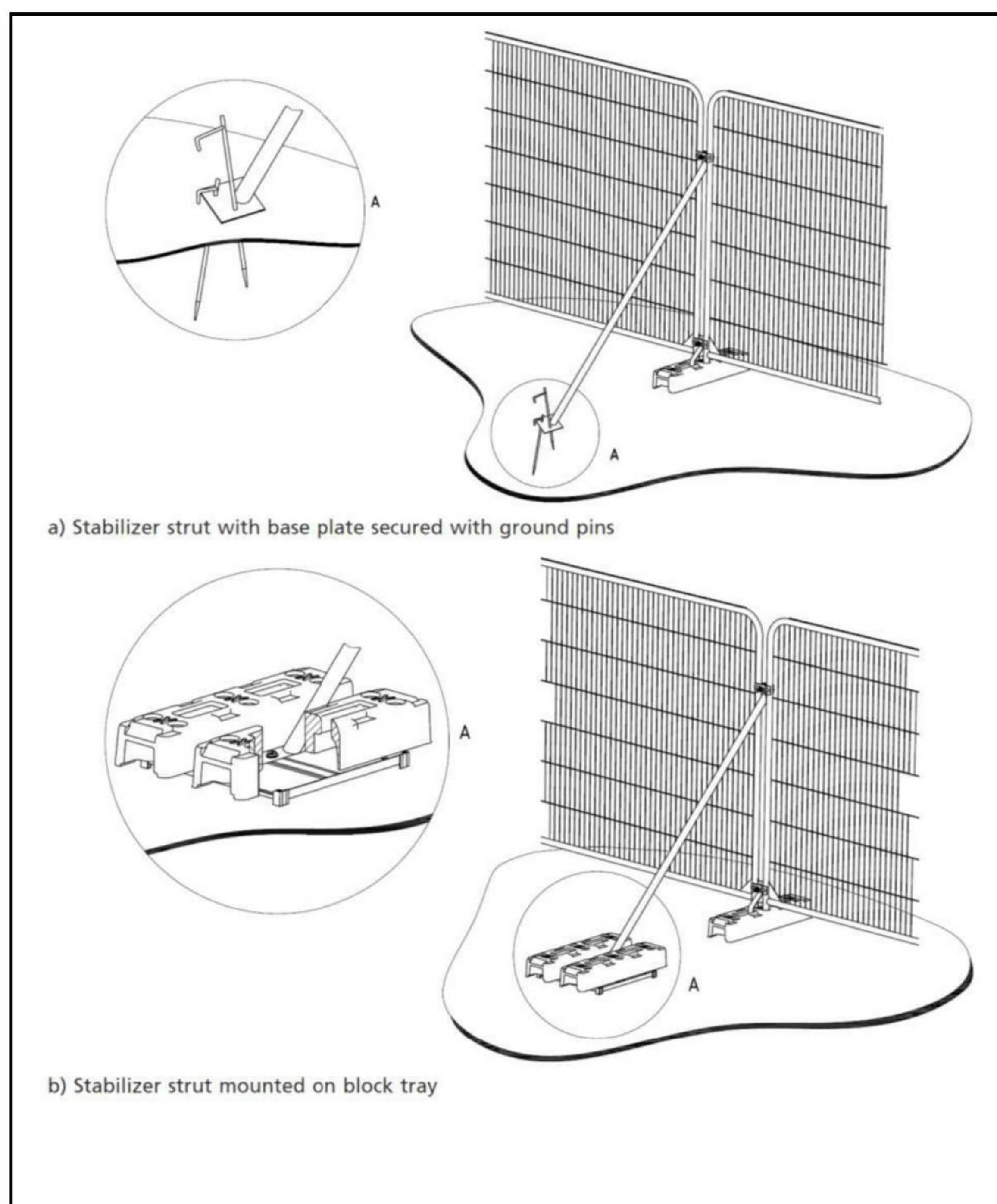
**Figure 1: Work-Flow Chart**



### 3 Arboricultural Method Statement (Continued)

3.5 **Tree Protective Fencing Details** – The exact location of the fencing is shown on the approved Tree Protection Plan (DTCL.137.AIA.2018.TS.03).

**Figure 2** – Protective Fencing Construction – As per **BS5837: 2012**



Specifications: Fence shall be 2m high x 3m long.

As Heras® type fencing can be easily moved, it must be mounted on rubber or concrete base plates and secured, in order to provide semi-permanent protection using stabilizing struts and base plates and the Heras sections secured by 'U-Bolts' or Scaffold Clamps, (Photographs 6 to 9).

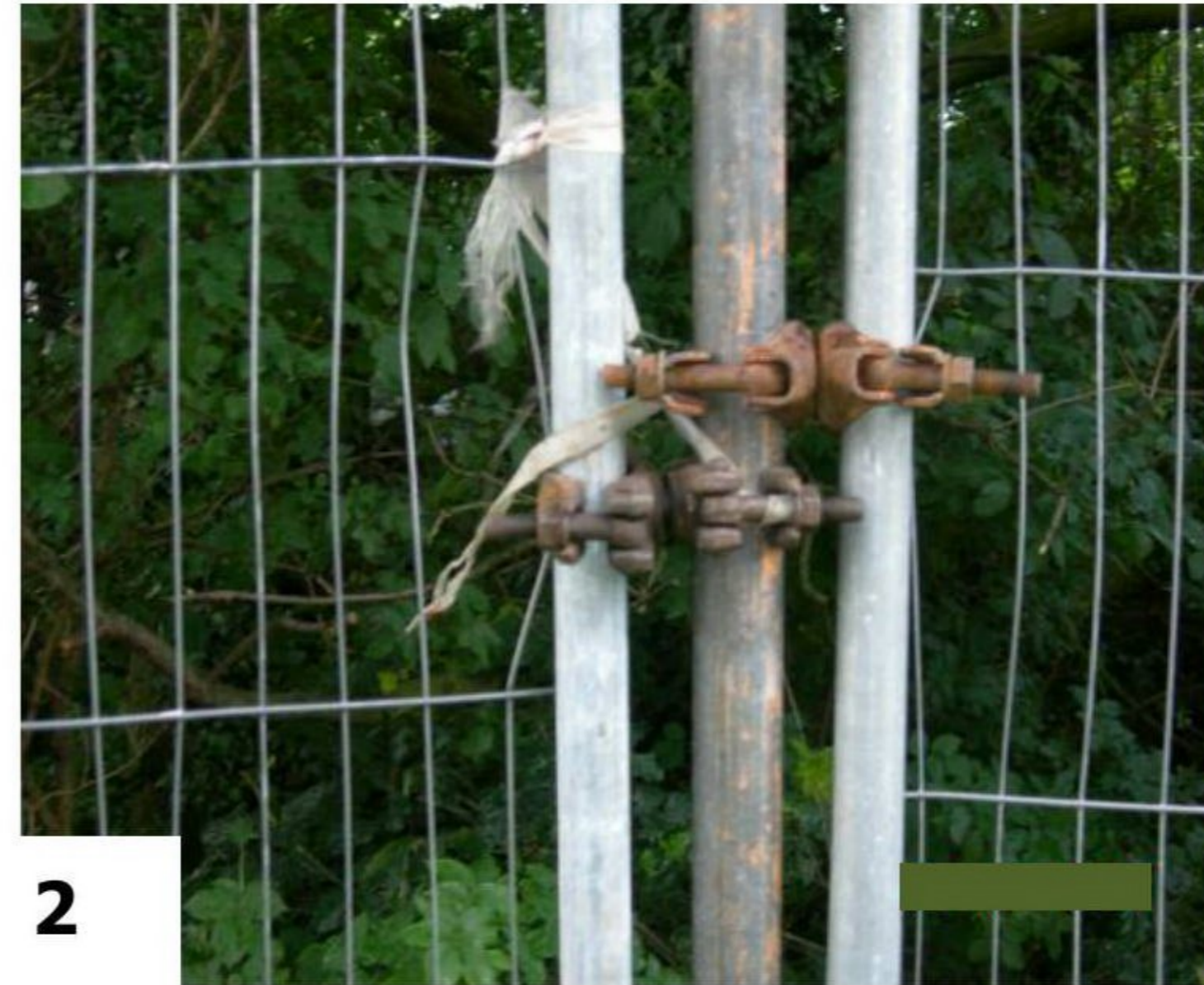
The fencing will be further identified by 'Tree Protection' warning signs.

**Note:** The sections of protective fencing are largely in place as of November 2020.



## 4 Arboricultural Method Statement (Continued)

Photographs of examples of the type of protective fencing required as used on other sites.



**Photograph 1:** Shows the BS5837: 2012 recommended panelling supported on scaffolding poles sunk a minimum of 0.6m into the ground.

**Photograph 2:** Shows how the panels are secured to the poles with scaffolding clamps



**Photograph 3:** Shows the BS5837: 2012 recommended panels supported on foot/block mounts (base plates) which in turn are pinned into the ground. The panels are locked together with 'U-Bolts and clamps.

**Photograph 4:** Shows fencing extended beyond the site onto the footpath to protect trees behind a newly built wall.



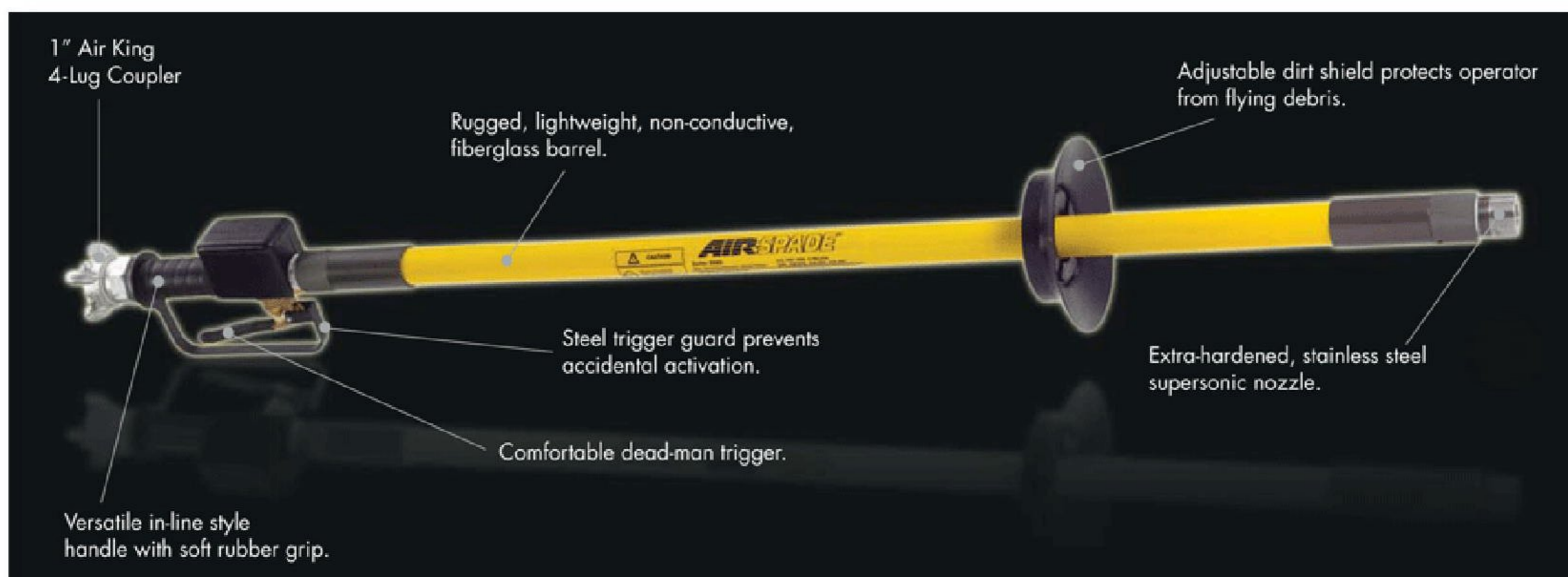
### 3 Arboricultural Method Statement (Continued)

#### 3.6 Construction of the front boundary wall

boundary wall at to entrance to the site from the access road around to the boundary with Greenway Lane and to the western boundary, which would contain the gateway to the site, (Architects Drawing Site Layout AP01). The wall would be constructed within the RPAs of the veteran oak (T2) and of some of the boundary trees in Cpt1.

The boundary wall would be built on a foundation supported on a ground beam which in turn would be built on helical steel piles. The helical piles will be of galvanised steel with a maximum diameter of 150mm within augured holes to an appropriate depth. They will be capped with concrete ground beam cast *in situ* using a plywood framework and membrane to prevent concrete leaching out. The concrete would be poured into the plywood framework, which would be removed once the concrete has set. The base of the pile cap would be a minimum of 50mm above existing ground level, (**Figure 4 & Photograph 6**).

In order to select appropriate locations for the piles, the soil in the line of the foundation will be excavated by compressed air displacement using an Air Spade<sup>®</sup> or a Soil Pick<sup>®</sup>, or equivalent at 30 bars. This is an industry acceptable methodology<sup>1</sup> for the removal of soil to expose roots without causing damage to the roots (**Figure 3 & Photograph 5**).



**Figure 3:** A view of a proprietary Air Spade

<sup>1</sup> BS5837: 2012 'Trees in relation to design, demolition & construction – Recommendations; Section 7.5 Special engineering for foundations within the RPA, Paragraph 7.5.2.



**3 Arboricultural Method Statement** (Continued)

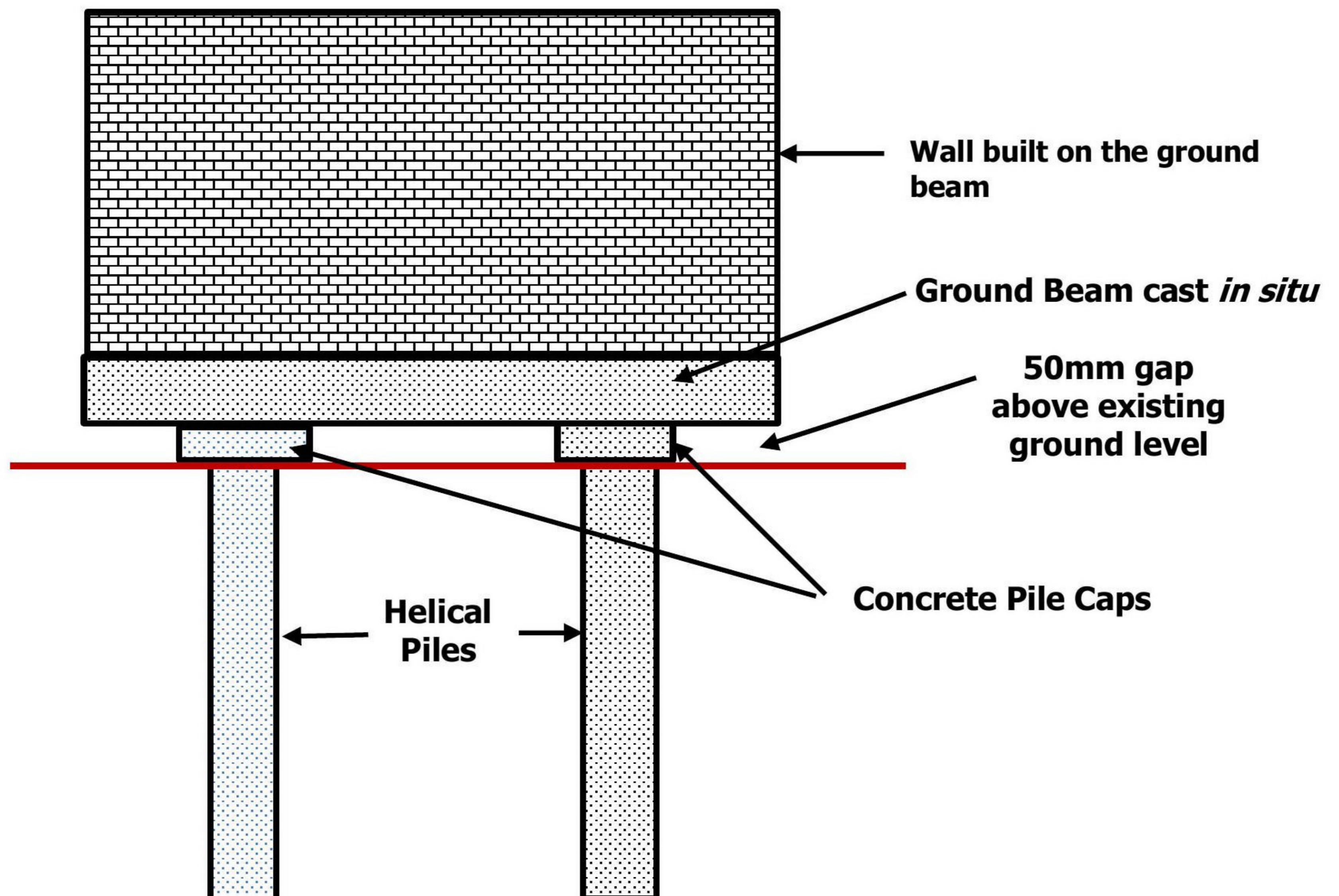
**3.6 Construction of the front boundary wall** (Continued)



**Photo 5:** A view of the Air Spade in operation exposing roots to facilitate the placement of piles.

Piles will be located away from any roots of 25mm diameter or larger.

The ground beam will be cast *in situ* as described above. The galvanised steel piles will be a maximum of 150mm in diameter. The piling contractor will assess ground investigation and loadings on piles within the RPA to determine if there is a possibility of using a smaller diameter pile <150mm diameter, if practically possible.



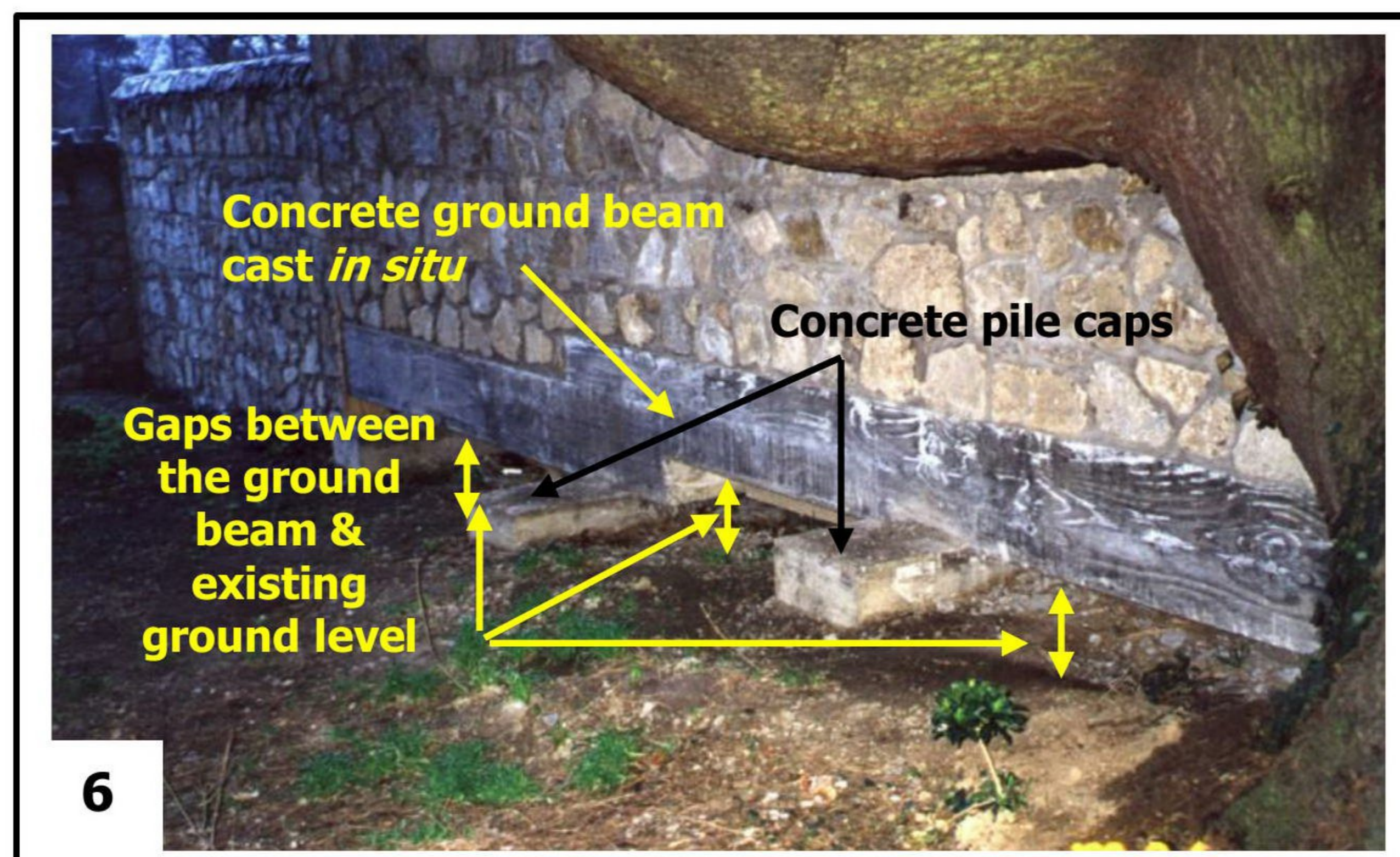
**Figure 3:** A schematic diagram of the construction of the boundary wall on a pile and ground beam foundation.

**Not to scale for illustrative purposes only**



### 3 Arboricultural Method Statement (Continued)

#### 3.6 Construction of the front boundary wall (Continued)



**Photo 5:** This is a view of a 3m high x 0.5m thick granite wall built on piles and a ground beam. The piles are pairs of galvanised steel bars driven 5m into the soil and capped with concrete caps.

**Note:** In this construction the ground beam is approximately 50mm above existing ground level as would the beam in the present proposal. Note also, the proximity of a fully mature Lebanon cedar tree.

This wall was constructed in 1999 and the two trees protected (two Lebanon cedar trees) were as of 2019 still in place, growing well with no signs of stress.

#### 3.7 No-Dig Surfaces (Cellular Confinement Systems)

BS5837 allows for new and permanent hard surfacing to be installed within RPAs at §7.4 of the Standard. At §7.4.2 the Standard recommends that 'no-dig' cellular confinement systems can be used to extend hard surfacing into RPAs. Experience shows that cellular confinement systems can be installed in the majority of situations without significant impact on the adjacent trees, and in 2020 the Arboricultural Association published detailed guidance on the use of cellular confinement systems in Guidance Note 12<sup>2</sup>.

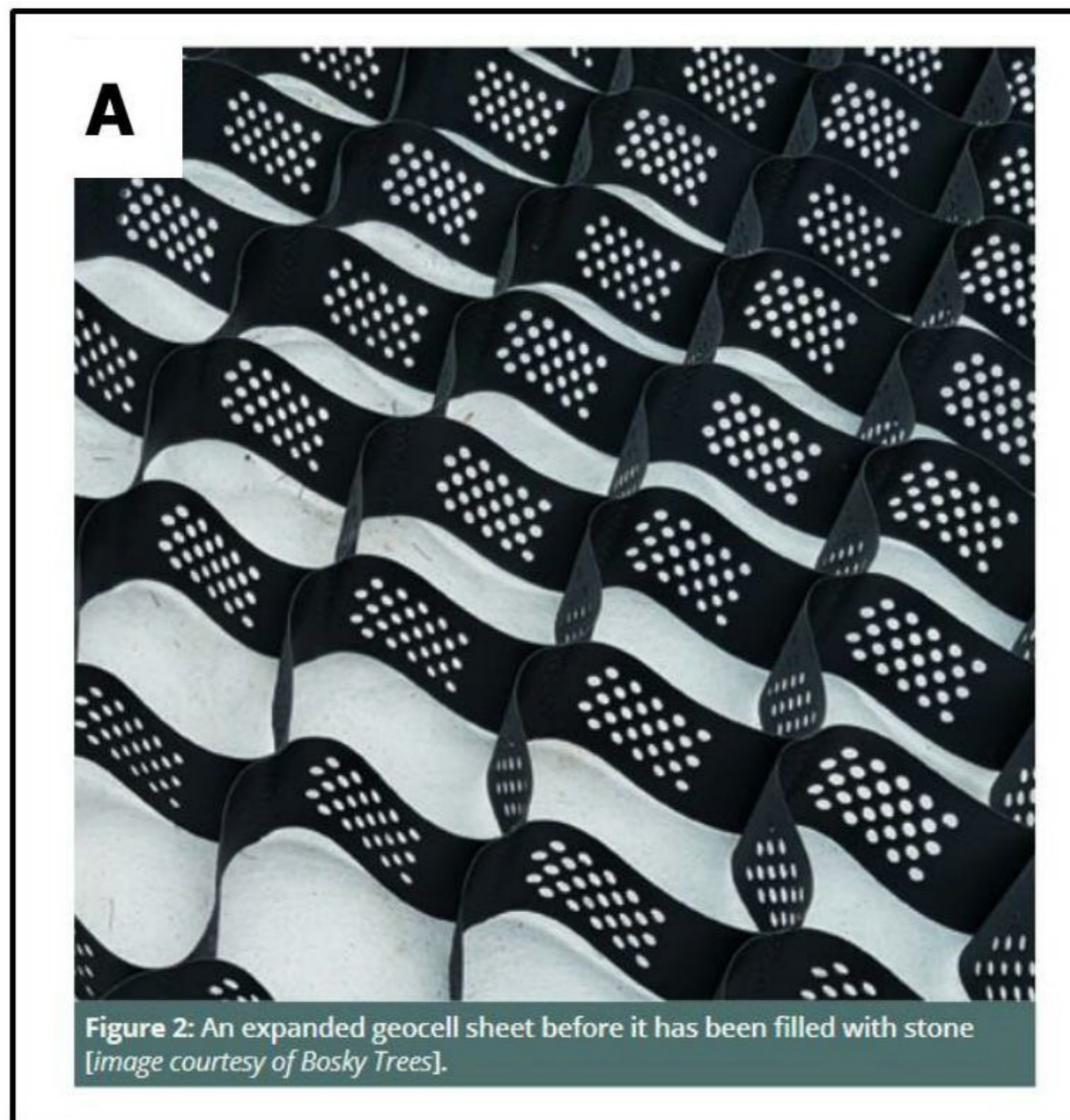
There are a number of systems available such as CellWeb<sup>®</sup> from Geosynthetics Ltd ([www.geosyn.co.uk](http://www.geosyn.co.uk)) and ProtectaWeb<sup>®</sup> from Wrekin Products Ltd ([www.wrekinproducts.com](http://www.wrekinproducts.com)) which have been shown to be the most reliable. Both products are made of high-density polyethylene (**HDPE**) and conform to ISO 13426-1: 2003 *Geotextiles & geotextile related products – strength of internal structural junctions – Part 1: Geocells*.

<sup>2</sup> Rose, B (2020) AA Guidance Note 12; The Use of Cellular Confinement Systems near Trees; A Guide to Good Practice. ISBN 978-0-900978-64-4



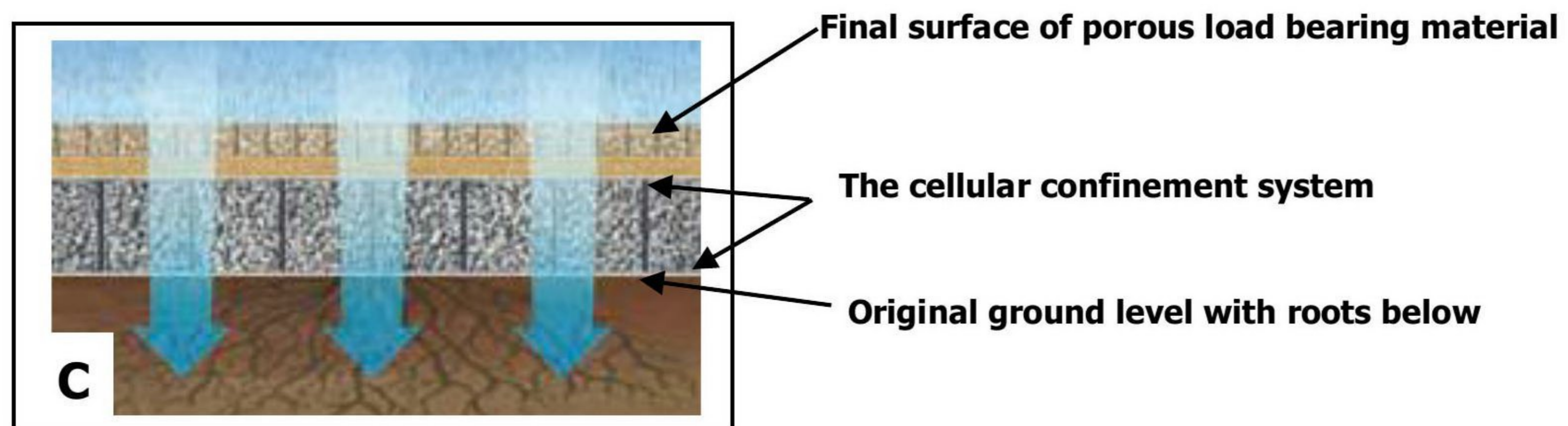
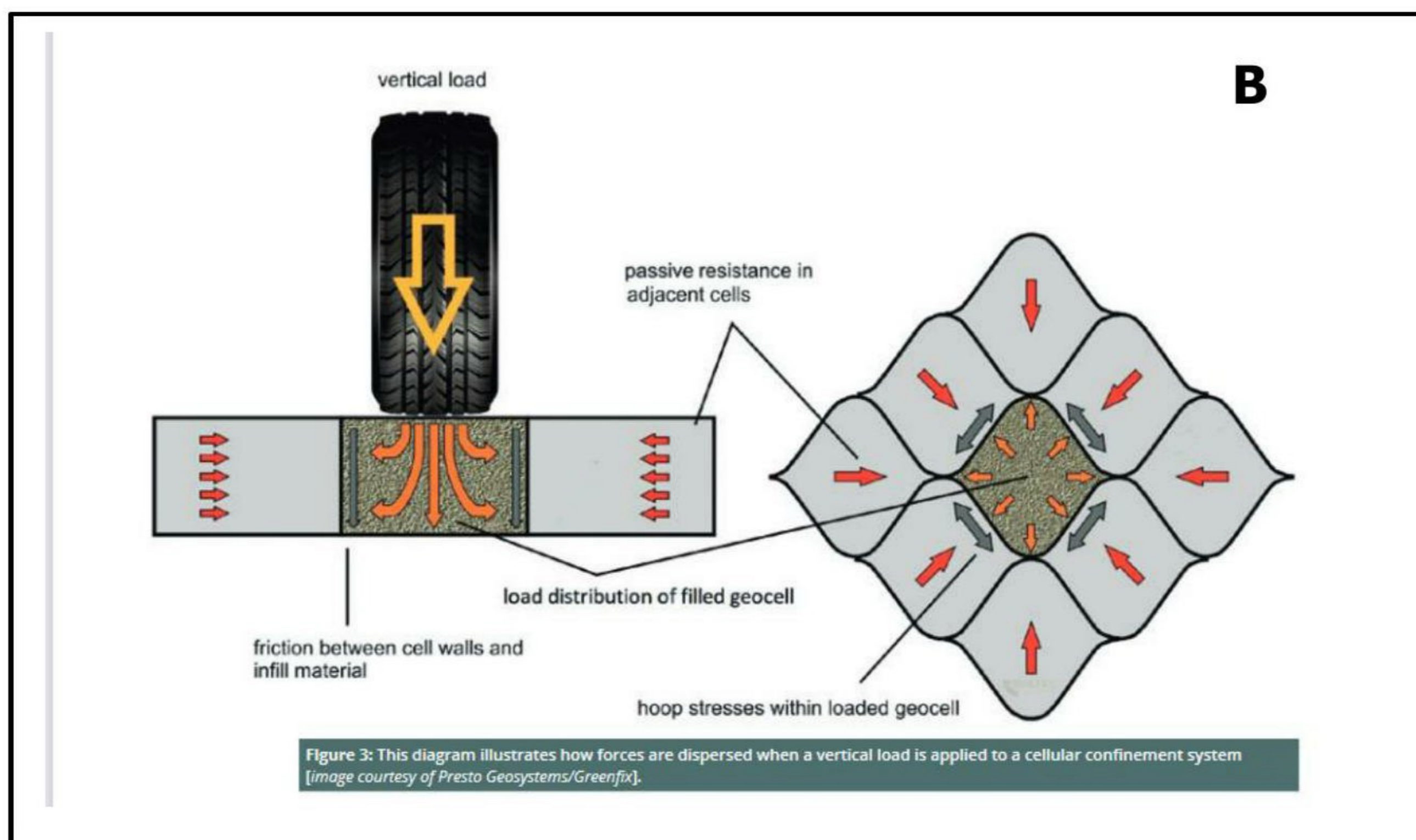
3 Arboricultural Method Statement (Continued)

3.7 No-Dig Surfaces (Cellular Confinement Systems) (Continued)



**Figure 5A & 5B:** Two diagrams showing (A) the structure of the Geocells; and (B) how forces on the system are dispersed such that the vertical load applied does not compact the roots of trees.

Both Diagrams taken from AA Guidance Note 12



**Figure 5C:** A schematic diagram showing how a cellular confinement system allows the percolation of air & water to the roots below.



**3 Arboricultural Method Statement** (Continued)

**3.7 No-Dig Surfaces (Cellular Confinement Systems)** (Continued)

The main access into the site will be the existing driveway with spurs going off to the north to provide access to Houses 3 & 7. The access driveway would be upgraded to provide an acceptable surface and the new spur constructed. Upgrading the existing access would impact the root protection areas (RPAs) of trees **T1** to **T14** inclusive. The new spurs or driveways to the two units would be through the northern section of woodland compartment Cpt 1, (Drawing DTCL.137.AIA.2018.03). However, they would exploit existing gaps between the trees that is sufficiently wide to accommodate the new driveway.

The installation of the cellular confinement system is shown in **Photographs 7 – 11** below



**Photo 7:** A close view of the CellWeb Geocell structure.



**Photo 8:** Covering a road width with the HDPE Geocell material; in this instance CellWeb.



**3 Arboricultural Method Statement** (Continued)

**3.7 No-Dig Surfaces (Cellular Confinement Systems)** (Continued)



**Photo 9:** Application of the washed 4/20 or 20/40 aggregate to fill the Geocells.



**Photo 10:** The cellular confinement system with the sub-surface/base course installed to facilitate construction traffic.



**Photo 11:** The cellular confinement road construction three years after installation.



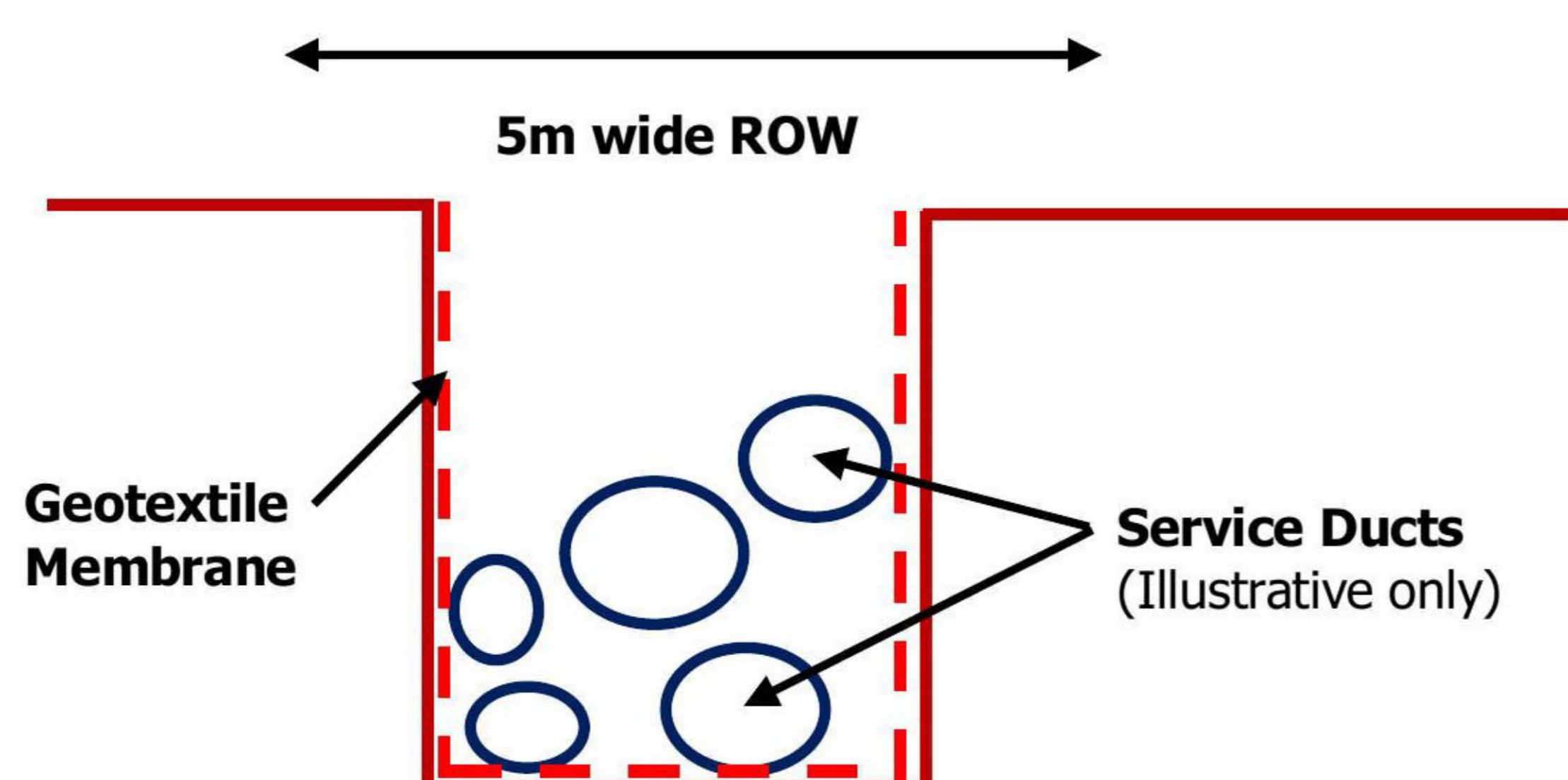
### 3 Arboricultural Method Statement (Continued)

#### 3.7 No-Dig Surfaces (Cellular Confinement Systems) (Continued)

A base course will be installed to facilitate traffic during construction as shown in Photograph 10 above. The final surface will be of a strong porous material, i.e., block pavements or porous tarmac or equivalent to allow percolation of water and air to the roots. It will also be of sufficient load bearing capacity to accommodate heavy traffic such as removal vans, refuse collection vehicles, and fire tenders etc.

#### 3.8 Underground Services

The services to the proposed dwelling units would be brought onto site from Harp Hill / Greenway Lane. This means that they would pass under the root protection zones (RPAs) of the trees in Cpt . However, Cpt3 has been restocked and a 5m wide services route / right of way (ROW) where no trees would be planted has been marked out, (see the services drawing 1415-C02-C). The ROW would contain a single trench to accommodate all the service ducts, following the guidance in the National Joint Utility Group (NJUG) '*Guidelines for the Planning, Installation and Maintenance of Utility apparatus in proximity to trees*' Issue 2 November 2007. The trench would be lined with a root-proof geotextile membrane to prevent future root ingress, as shown in **Figure 6**. It is proposed that the service route/ROW would be maintained free of trees and other vegetation and managed as an informal path through the compartment.



**Figure 6:** A schematic diagram for the construction of a common service trench beneath woodland compartment Cpt3.

**Not to scale – for illustrative purposes only**



### 3 Arboricultural Method Statement (Continued)

#### 3.9 New Tree Planting

The woodland compartments have been restocked with species and numbers of trees as set out in the Woodland Management/Restoration Plan of August 2017 and as agreed with the Forestry Commission as a condition of the Felling Licence Reference. 18/273/17-18. An additional 55 trees will be planted in the compartments to compensate for the removal of 16 pine trees in Cpt3 if Cheltenham BC grants consent for the removal of the pines.

Additional new tree planting is will be undertaken in the developed site. Most of the new trees will be native species, the planting scheme and proposed locations of the trees are shown in the approved Tree & Hedge Planting Plan.

All trees will be sourced from a reputable nursery which has a demonstrated, auditable and implemented Biosecurity Policy and planted in accordance with best arboricultural practice and the guidance contained in BS8545: 2014 '*Trees, from nursery to independence in the landscape – Recommendations*'.

#### 3.10 Attachments to this AMS

Approved Drawing DTCL.137.AIA.2018.TS.03 (Tree Protection Plan)  
Approved Tree & Hedge Planting Plan

### 4 Request for Confirmation of Discharge of Conditions

It is respectfully submitted that this Arboricultural Method Statement fulfils the requirements of Condition 11 of Planning Permission 20/01612/CONDIT dated 20 November 2020 and request that Cheltenham Borough Council accepts it and issues a formal discharge notice.



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Chartered Arboricultural Consultant

21 January 2021





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