

Arboricultural Method Statement

Arboricultural Method Statement and Tree Protection Plan
(in accordance with BS5837: 2012 Trees in Relation to Construction)
For:

Client:
Wade Construction

Location:
Danum, Grange Lane, Canwick, Lincoln

Date: 13th July 2021

(this report should be read in conjunction with the attached plan/s)



Client Details

Rob Wade
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Appendix “A”**Appendix “B”****Tree Protection Plan****Cellweb Installation Guide - PRODUCT DATA SHEET**

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1.0 Introduction

The purpose of this method statement is to evaluate the direct and indirect effects of the proposed design/layout and to ensure good practise in the protection of trees during the proposed development/construction of this residential dwelling.

1.1 I have been instructed by client Wade Construction to prepare this Arboricultural Method Statement and Tree Protection Plan for this proposed development, based on the data and survey results outlined within the Arboricultural Report (Ref: 755/20d v2)

1.2 This method statement should be included as part of the specification and schedule of works and issued to all relevant parties including the building contractor and sub-contractors.

1.3 Scope of Recommendations and Techniques

This method statement has been prepared in accordance with the survey results taken from the latest Arboricultural Report. This report is dated October 2020, the date of inspection is 9th June 2021. The report reference is 755/20d v2 and author / surveyor is Mark Hudson. This report and supporting plans, in accordance with grant of permission, application 20/0654/FUL of North Kesteven District Council has already been accepted by the Local Planning Authority.

1.4 This arboricultural method statement, in accordance with a revised design/layout, will outline the methods and techniques for preserving the requirements trees need in order to survive. The soil environment for retained trees can be protected throughout the course of development activities.

1.5 Site Supervision

An arboricultural consultant should be appointed by the developer for advice on the tree management for the site and to attend meetings, as set out within this method statement.

1.6 Description of Development

It is proposed to re-develop this site with the introduction of a new detached residential dwelling with associated access, driveway and amenity garden space. A new access to serve the dwelling shall be created off Grange Lane, just south of the existing access.

1.7 Site Description

The site is located within the small village of Canwick, a civil parish within the North Kesteven district of Lincolnshire. Situated 1 mile south from the city of Lincoln, the village overlooks the Witham Valley, around 1.28km north to the River Witham.

1.8 The site was previously occupied by a detached, single storey dwelling, with associated driveway, turning area, detached double garage and garden space. This property, known as Danum, has recently been demolished, although the detached double garage has been retained. Square in shape, the whole site area extends to 1765.82sq m. The immediate surrounding land use is residential, although the density of dwellings is quite low. Located on the southern fringes of the village, further north cutting through the village reaching the Canwick Park Golf Club, beyond which is the B1190 and the Lincoln Crematorium. Further south to the site, just beyond Heighington Road is a large expanse of mature woodland, of which extends to around 15 hectares. To the east is further woodland, to which adjoins the golf course. West to the site is mostly residential dwellings with associated infrastructure and garden space.

1.9 The sites boundary features are mixed. The front boundary is currently fenced off with heras fencing for security purposes, since the demolition of the original dwelling. The north side boundary is mainly timber board fencing, of which changes in height as you approach the rear of the property. The remaining boundaries are defined, mainly by hedges, although a small timber fence around 1m in height lines the rear western boundary. Tree cover within the site is strictly limited, although there is a dominance of canopy cover to this site it is mainly from trees within the boundaries of adjacent properties. Swallow House, the neighbouring property to the north has a particular dominance of canopy cover along this boundary line.

***Note:** A copy of this method statement must be permanently available on site for the duration of development activity*

2.0 Status of the Site

The Local Planning Authority (LPA) is North Kesteven District Council. Using the Council's on-line interactive mapping system on the 13th of July 2021, this confirms no trees within the site are afforded the protection of a Tree Preservation Order. This also confirms that the site is not within or adjacent to a Conservation Area.

3.0 Arboricultural Method Statement (AMS)

3.1 Pre-Development Tree Work

Prior to any construction activity taking place the recommended tree works should be completed.

3.2 Specification of Tree Works:

As specified in the Tree Schedule “*preliminary recommendations*” of the BS5837 Survey/Report, Ref:755/20d, and what works are required to facilitate the successful development of the site in accordance with the final design/layout.

3.3 Schedule of Tree Works:

- Trees to be removed
- Trees identified for remedial works

Individual Trees

- ■ **T1** – Sever ivy at base and remove first 6m. Clean out by removing any dead, dying, diseased, duplicating and crossing branches.
- **T2** – No Works Recommended
- **T4** – No Works Recommended
- ■ **T5** – Crown lift south side canopy overhang into the site up to approx. 6m.
- **T6** – No Works Recommended
- **T7** – No Works Recommended
- ■ **T8** – Crown lift canopy overhang into the site up to approx. 6m
- **T9** – No Works Recommended
- **T11** – No works recommended
- ■ **T12** – Crown lift up to approx. 2m from ground level
- **T13** – No Works Recommended
- **T14** – No Works Recommended
- ■ **T15** – Fell
- ■ **T16** – Fell
- **T17** – No Works Recommended

Groups of Trees

- ■ **G1** – Fell

Competent contractors must be appointed. All works should be carried out in accordance with the British Standards Recommendations for Tree Work (BS 3998:2010) or any subsequent updates.

All tree works must be completed to the satisfaction of the Local Authority Tree Officer before any other works begin.

3.4 Arboricultural Supervision (Pre-Commencement of Development)

A pre-commencement meeting should be held on site before any vegetation clearance, ground works and construction work begins. This would normally be attended by the site manager, the arboricultural consultant and a local planning authority ("LPA") representative, preferably the Local Authority Tree Officer. In the event that an LPA representative declines to be present, the arboricultural consultant should inform the LPA in writing of the details of the meeting. This meeting should include the following:

- Inspection of pre-development tree works to ensure works have been carried out in accordance with the approved specification of works and has been carried out to the correct standards.
- Any additional tree works expected, outside of the approved specification of works will be agreed and recorded.
- All tree protection measures detailed in this method statement should be fully discussed so that all aspects of implementation and sequencing are understood by all the parties.
- All specialist engineered methods detailed in this method statement should be fully discussed so that all aspects of implementation and sequencing are understood by all the parties.
- The details of the programme of tree protection and no-dig solution should be agreed and finalised.
- Any site supervision arrangements between the arboricultural consultant and developer should be agreed and finalised. Including any site visits deemed necessary, by a local planning authority ("LPA") representative.

3.5 Tree Protection – Construction

Trees will be protected by barriers and ground protection as described in appendix “A”. The positioning of the barriers and ground protection is also shown in appendix “A”. The barriers will form an exclusion zone that will be regarded as sacrosanct. Vertical barriers will be installed as soon as the pre-development tree work is complete. Once erected the barriers should be regarded as sacrosanct and should not be removed or altered without approval from the LPA. The ground protection will protect the soil environment where construction workspace and temporary construction access is justified within the RPA, this should be facilitated by a set-back in the alignment of the tree protection barrier. This should be installed as soon as the pre-development tree work is complete.

3.6 The barriers should be fit for the purpose of excluding all construction activity. For this site the barrier should consist of 2m tall, welded mesh panels on rubber or concrete feet joined together using a minimum of two anti-tamper couplers, installed so they can only be removed from inside the fence. The panels should be supported on the inner side by stabiliser struts, which would normally be attached to a base plate secured with ground pins (see Appendix “A”). All weather notices should be securely attached to the barrier with words such as “*Construction Exclusion Zone – KEEP OUT! Removing or moving these barriers may result in a breach of planning conditions*”.

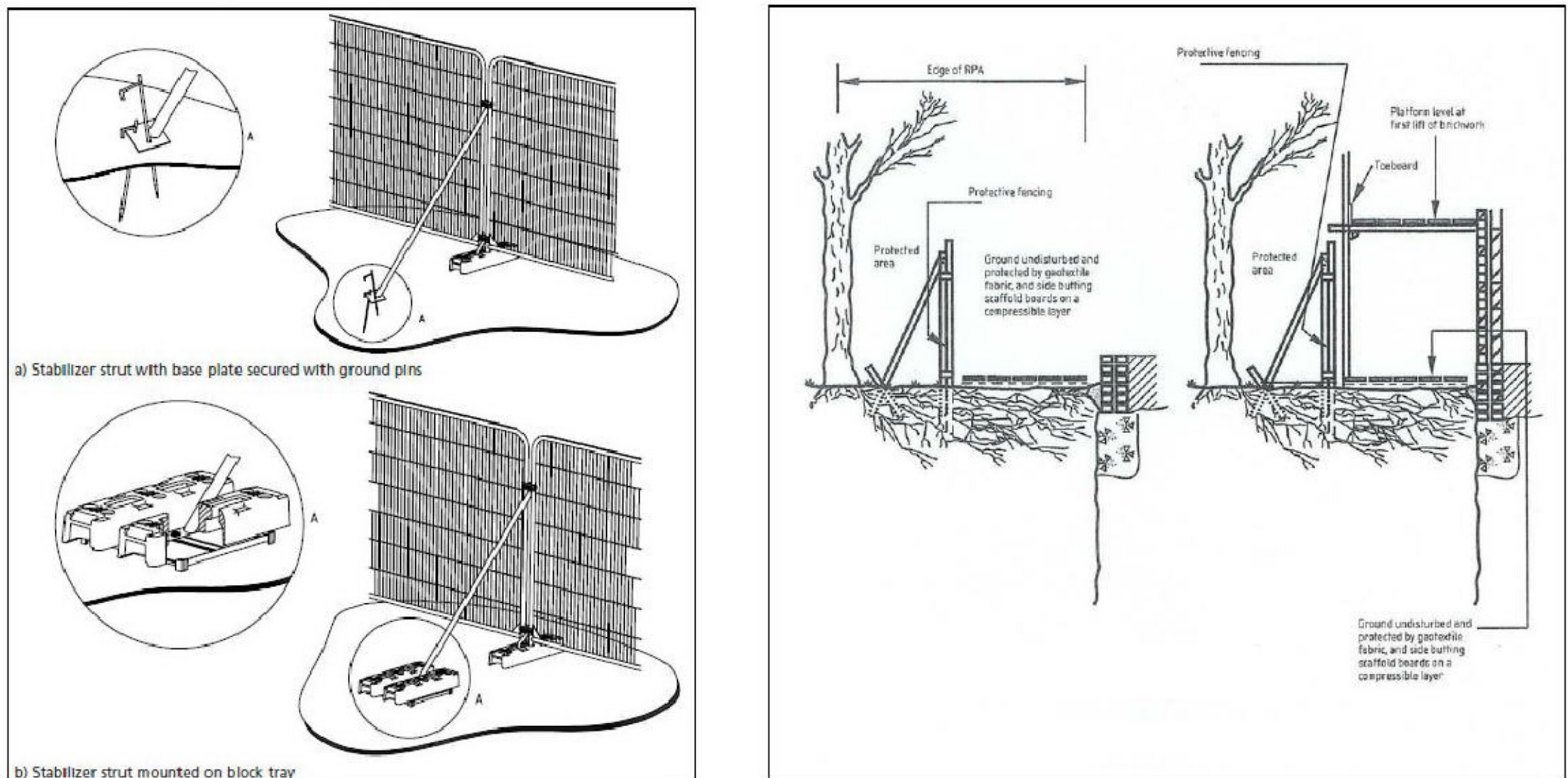
3.7 The ground protection should be fit for the purpose of pedestrian movements. For this site the ground protection should consist of a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g., 100mm depth of woodchip), laid on a geotextile membrane.

3.8 The primary concern for the protection of trees on this site is to protect, improve and maintain the trees microenvironment /root system and to avoid any physical damage

3.9 Arboricultural Inspection (Tree Protection Measures)

Once protective barriers and ground protection have been installed, prior to any other works taking place on site, all tree protective measures will be checked and approved in writing by the appointed arboricultural consultant and/or the Local Authority Tree Officer. Arrangements will be made at a convenient time for the arboricultural consultant and/or Local Authority Tree Officer to carry out an inspection of the site.

3.10 Specification for Protective Barrier and Ground Protection



3.11 Construction Phase

Prior to works starting all site personnel including sub-contractors should be inducted in the requirements expected in order to ensure the future health of trees. Begin main site works. The re-arrangement to facilitate a new access will require some work within the RPA of T1 with the removal of the existing access hard surface.

3.12 Installation of Services

When considering development for this site the installation of services must be kept as far as practically possible from the root protection area (RPA) of any retained trees/hedges.

3.13 Trenching near trees by conventional means, using a mechanical excavator, inevitably causes root loss, as the bucket easily rips through roots. For services such as foul, surface, electric, gas, BT etc., the most practical solution would be to run all services through one trench. Where encroachment into the RPA cannot be avoided trench-less techniques should be adopted. An alternative would be to hand dig a trench minimising the cutting of roots. Pipes and ducted cables can then be thread through enabling installation with very little damage, provided that the borehole is small and deeper than the main lateral roots

3.14 In the UK, the usual guidelines for trenching by utility companies are provided by NJUG 10, which is available to download at www.njug.org.uk/publications.html. By agreeing to the guidelines to be followed during trenching, all parties are assured that problems can be solved using a common set of criteria. Supervisors from the appointed contractor should direct operatives to follow the agreed practices and it is quite likely that the Local Authority Tree Officer will monitor for compliance.

3.15 Main Site Construction Works

Begin the main site works for the construction of the residential dwelling and associated infrastructure. The protective fencing will seal off the exclusion zone and temporary ground protection will preserve existing ground conditions, as detailed in the Tree Protection Plan. The protective fencing and ground protection should only be removed once all the construction works are complete.

3.16 Ground Works within RPA of tree T1

As part of the construction phase for the erection of this dwelling, the ground works expected within the RPA of T1 can be carried out.

3.17 Removal of existing access surfaces:

Carefully remove existing tarmac/stone make up that previously served as the principal access to the original dwelling. For removal operations a pneumatically operated percussive rock-drilling tool must be used usually held in the hands. Heavy plant and machinery must not be used during these operations. It will only be necessary to remove a required amount of existing surface to allow installation of a 100mm cellweb and the application of the final permeable wearing layer and for the area to be re-landscaped.

3.18 Existing tarmac surface close to T1



3.19 Installation of No-Dig Three-Dimensional Cellular Confinement System

(also refer to App "A" Tree Protection Plan for No-Dig location)

(also see App "B" Cellweb Installation Guide - PRODUCT DATA SHEET

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Step "1" - Ground vegetation should be killed off using a translocated herbicide such as glyphosate. Any sapling regeneration should be removed by hand with the aid of a spade. Any larger woody vegetation should be removed with the aid of a chainsaw, cutting to ground level. To prevent severe oxygen depletion in the soil during decomposition, all dead organic material should be raked off.

Step "2" - Fill in major hollows with sharp sand.

Step "3" - Lay a fibertex F4m non-woven Geotextile directly on to the prepared sub-base, overlapping dry joints by 300mm. This should extend to the area as identified within Appendix "A". This is required to ensure stone fill does not migrate in the soil below.

Step "4" - Lay a 100mm Cellweb onto the geotextile and pin into place to anchor, opening the cells and stapling adjacent panels together to create a continuous mattress. Construct the edging treatment with the use of wooden edging boards attached to pegs driven into the ground. Note: Conventional edge treatment must not be used as this involves excavation and may result in root severance.

Step "5" - Infill the 100mm Cellweb with a clean angular granular stone typically 20mm to 4mm. Note: The infill must not be Mot type 1. The stone infill should be applied by hand to avoid heavy plant damaging the 100mm Cellweb.



Picture - Geosynthetics Limited Tel: 01455 617 139 Fax: 01455 617 140 Email: sales@geosyn.co.uk

3.20 Installation of No-Dig Three-Dimensional Cellular Confinement System



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Picture - Geosynthetics Limited Tel: 01455 617 139 Fax: 01455 617 140 Email: sales@geosyn.co.uk

3.21 Installation of No-Dig Three-Dimensional Cellular Confinement System



Picture - Geosynthetics Limited Tel: 01455 617 139 Fax: 01455 617 140 Email: sales@geosyn.co.uk

Step "6" - Arboricultural Inspection (Cellweb Installation)

Once the Cellweb has been installed to the specified total of 100mm depth of Cellweb, the Cellweb will be checked and approved in writing by the appointed arboricultural consultant and/or the Local Authority Tree Officer. Arrangements will be made at a convenient time for the arboricultural consultant and/or Local Authority Tree Officer to carry out an inspection of the site.

3.22 Construction Phase Complete

After the main site construction phase is complete the final wearing layer may now be applied to the Cellweb, of which must be permeable. All final surfaces in Root Protection Areas must be porous. Surfaces can include porous block paving, porous asphalt, loose gravel, grass, and gravel retention systems (e.g., Golpla), resin bound gravel, concrete and astro turf.

3.23 Once all construction activity has finished on site the protective fencing and ground protection can be removed. Any post development landscape finishes should take into account existing trees and any deep cultivation within the RPA of the trees should be avoided.

3.24 Snagging

During construction/development activities, should there be a need for any variations to the scheme of tree protection and/or methods and techniques, whether planned or reactive, these variations shall be agreed in writing by the Local Authority Tree Officer.

3.25 During construction/development activities, in the event of incidents likely to result in the loss of trees that are to be retained then the site manager or Arboricultural Consultant shall notify the LPA Tree Officer of the incident within 48 hours.

3.26 The tree protective measures will seal off the exclusion zone and preserve the existing ground conditions, as detailed in the Tree Protection Plan appendix "A". The tree protection measures should only be removed once all construction activities are complete

4.0 Key Personnel

A list of the known contact details of the relevant parties is as follows:

Role	Name	Company
Arboricultural Consultant	Andrew Hudson	Engie Services New Oxford House George Street Grimsby DN31 1HB [REDACTED]
Landowner / Developer	Rob Wade	Wade Construction 26a Rectory Lane, Branston, Lincoln LN4 1NA [REDACTED]
Tree Officers – Local Authority North Kesteven District Council	Graham Wilson / Christopher Clay	North Kesteven District Council District Council Offices Kesteven Street Sleaford Lincolnshire NG34 7EF Email: nk-treeofficers@n-kesteven.gov.uk

5.0 Summary and Phasing of Works

Phased Project Management of Tree Issues Throughout Development	
Action	Summary of Detail
<p>Pre-Development Tree Work - Prior to any construction activity taking place the recommended tree works should take place.</p> <p>Arboricultural Supervision - A pre-commencement meeting should be held on site before any of the site clearance, ground works and construction work begins</p> <p>Installation of Tree Protection Measures Trees will be protected by barriers/ground protection as described in appendix "A" drw No. <i>TPP 03 130721</i> The positioning of the barriers/ground protection is also shown in appendix "A"</p> <p>Arboricultural Inspection (Tree Protection Measures)</p>	<p>As specified within this Arboricultural Method Statement, page 6, 3.1 – 3.3 Specification of Works</p>
	<ul style="list-style-type: none"> • Inspection of pre-development tree works to ensure works have been carried out in accordance with the approved specification of works and has been carried out to the correct standards. • Any additional tree works expected, outside of the approved specification of works will be agreed and recorded. • All tree protection measures detailed in this method statement should be fully discussed so that all aspects of implementation and sequencing are understood by all the parties. • The details of the programme of tree protection should be agreed and finalised. • All details, methodologies, and techniques for the construction of foundations shall be fully discussed. <p>Any site supervision arrangements between the arboricultural consultant and developer should be agreed and finalised. Including any site visits deemed necessary, by a local planning authority ("LPA") representative.</p>
	<p>The barriers should be fit for the purpose of excluding all demolition/construction activity. Vertical barriers will be installed as soon as the pre-development tree work is complete. Ground protection should be fit for the purpose of pedestrian movements and installed as soon as the pre-development tree work is complete. Once protection measures are installed, they should be regarded as sacrosanct and should not be removed or altered without approval from the LPA.</p>
	<p>All tree protective measures will be checked and approved in writing by the appointed arboricultural consultant and/or the Local Authority Tree Officer</p>
<p>Construction Phase – once tree protective measures have been formally approved main site construction may begin</p>	<ul style="list-style-type: none"> • Any variation to tree protective measures needs to be formally agreed • Any variation to methods/techniques, design/construction needs to be formally agreed • Any incidents of tree loss during development needs to be reported within 48hrs • Tree protective measures should be regarded as sacrosanct and should not be removed or altered without approval from the LPA
<p>Ground Works – T1 Removal of existing tarmac/stone surface within the RPA of T1</p> <p>Ground Works Installation of Cell-Web – Three-dimensional cellular confinement system within the RPA of trees T1 & T2. Once installed, prior to the final wearing layer being applied, installation must be formally approved by the LPA</p>	<p>All operations must be carried out using hand-held tools/machinery. No heavy plant/mechanical machinery should be used for operations within the RPA of T1</p>
<p>Construction Phase Complete</p>	<p>Installation to be in accordance with the methods and techniques described in this method statement and also App "B" Cellweb Installation Guide</p> <p>The tree protective measures can be removed. Final wearing layer for garage access point can be applied. Post development landscape finishes should still consider the trees below ground constraints</p>

Appendix "A"

Tree Protection Plan

Tree Barriers:

Barriers should be fit for the purpose of excluding construction activity from the root protection (RPA) area of retained trees. The barriers should remain rigid and complete throughout the demolition/construction phase.

BS5837: 2012 Trees in Relation to Construction recommends the barrier type specification is commensurate to site circumstances and associated risk of damage within the RPA of retained trees.

Pre-development site inspection should be carried out by an arboriculturalist or Local Authority Tree Officer to ensure protective measures are to the correct specification and fit for purpose. The Local Planning Authority should be made aware of any amendments.

Tree protective barriers protect the RPA of retained trees. Any contamination into these areas such as chemical, petrol, diesel and oil spillage should be avoided. The mixing of cement and use of toxic materials should have a designated area well away from tree barriers.

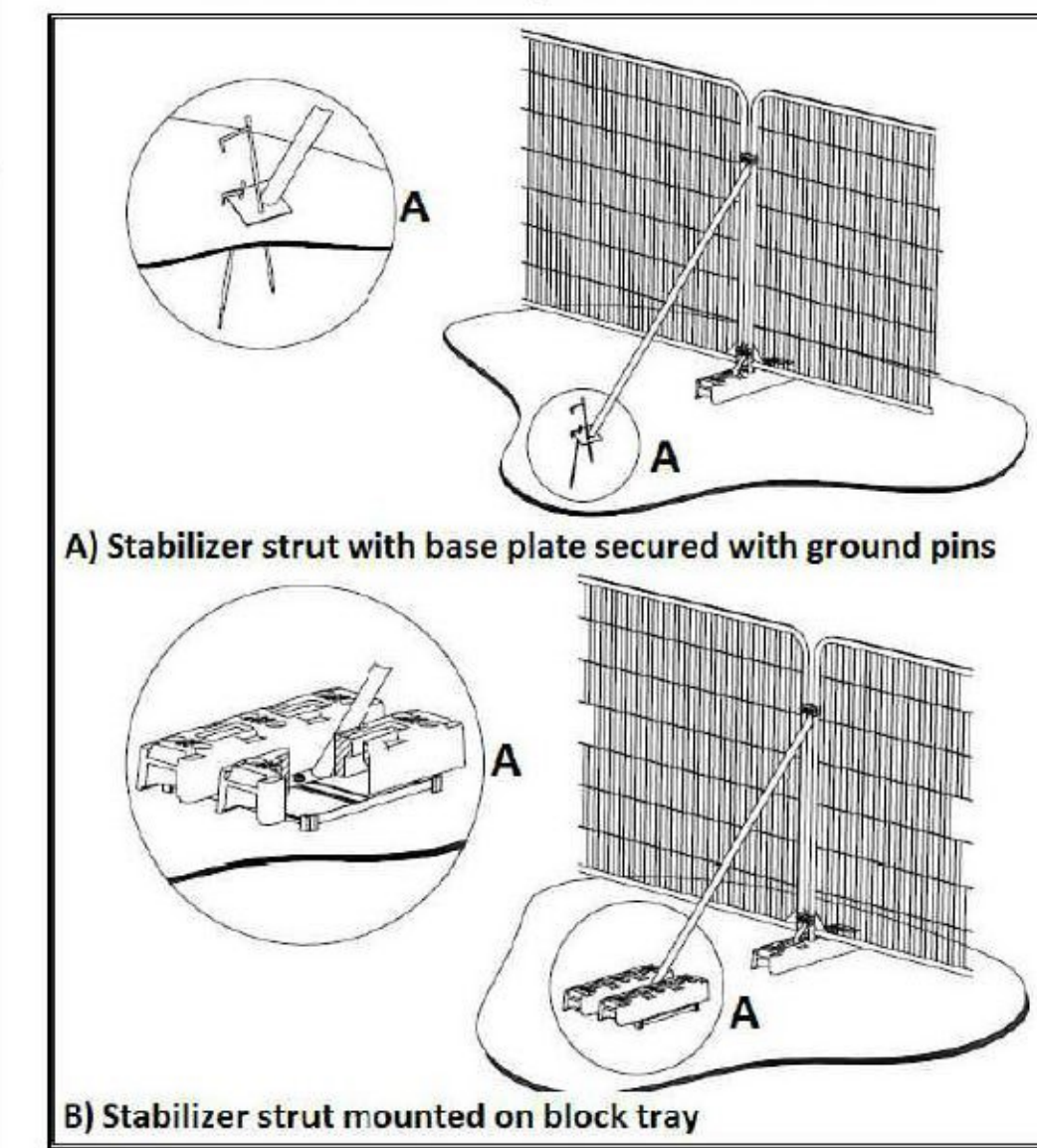
Temporary Ground Protection:

Ground protective measures should be capable of supporting any traffic/pedestrian entering or using the site without being distorted or causing compaction to the underlying soil. The objective should be to avoid compaction of the soil so that tree root functions remain unimpaired.

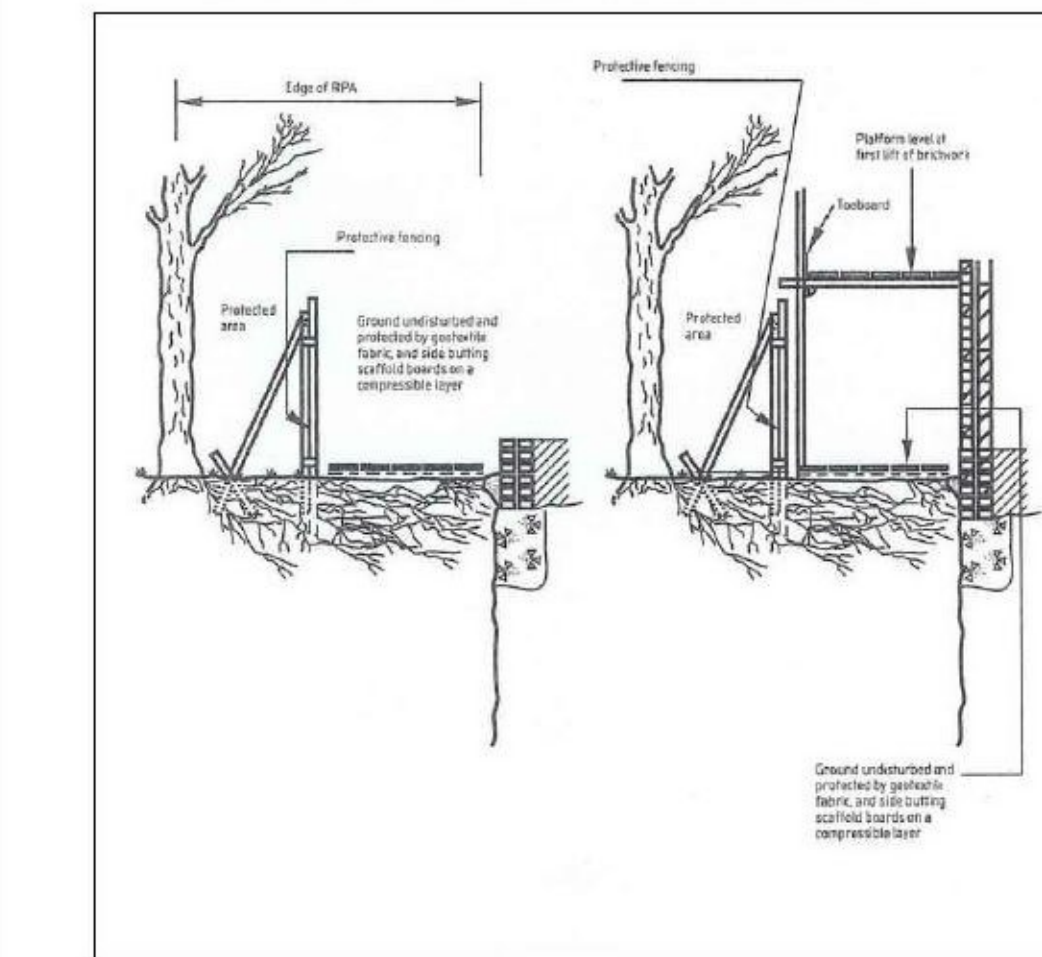
For pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100mm depth of woodchip), laid onto a geotextile membrane.

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

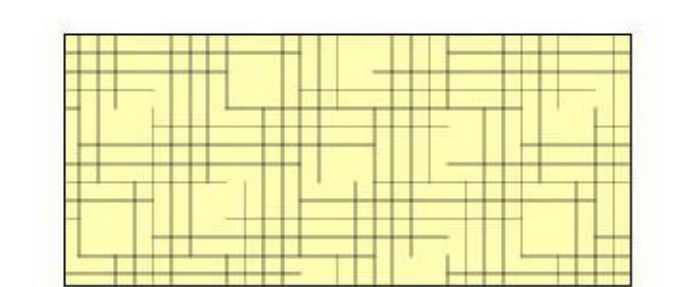
Barrier Specification



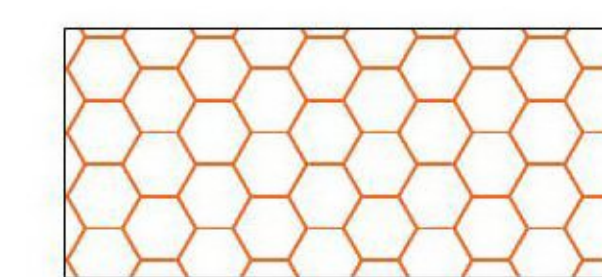
Ground Protection Specification



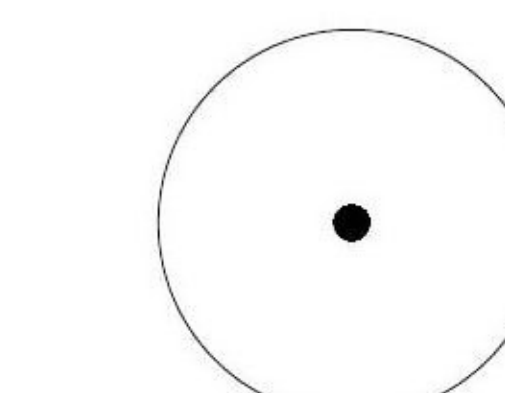
Barrier Position



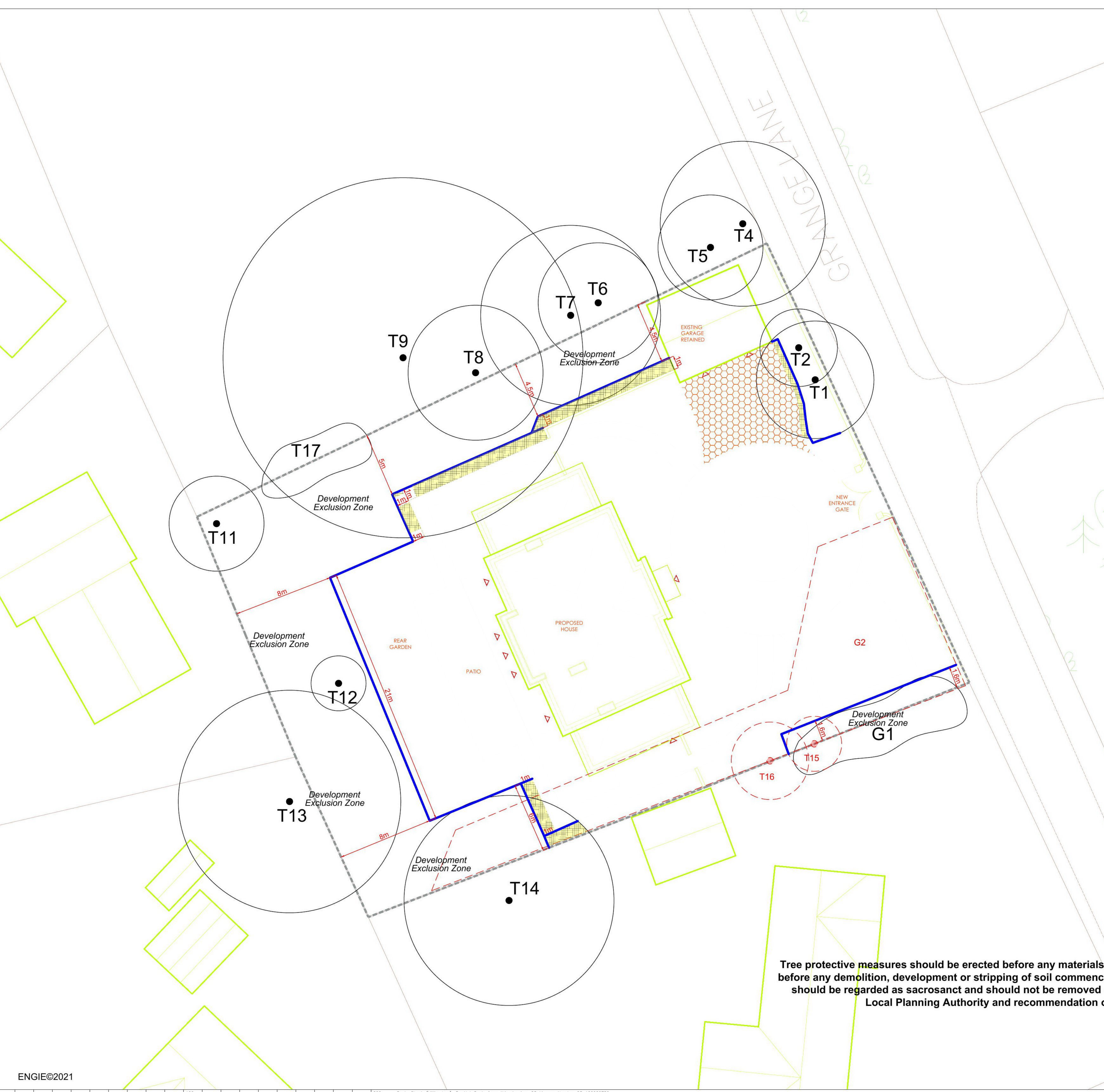
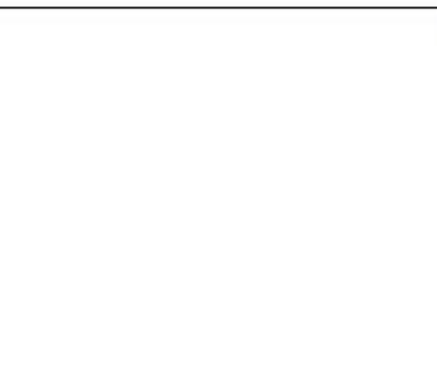
Ground Protection



No-Dig Cellweb



Root Protection Area



Tree protective measures should be erected before any materials or machinery is brought onto site and before any demolition, development or stripping of soil commences. Once erected, protection measures should be regarded as sacrosanct and should not be removed or altered without approval from the Local Planning Authority and recommendation of an arboriculturalist

ARBORICULTURAL CONSULTANCY		
New Oxford House George Street Grimsby North East Lincolnshire DN31 1HB Tel: 01472 324271		
CLIENT	Rob Wade - Wade Construction	
PROJECT	Residential Development Danum, Grange Lane, Canwick, Lincoln	
TITLE	Tree Protection Plan Revised_01.07.21_AH	
DRAWN	AH	CHECKED / APPROVED
DATE	06/06/2019	ORIGINAL SIZE / SCALE A1 (594 x 841) / 1:100
FILE REF	AH-ENGIE	DRAWING NO. / REVISION NO. TPP_03_130721 / Rev No.3_13.07.21

Cellweb® TRP Installation Guide



Step 1: Prepare Surface



Step 2: Lay out Treetex™



Step 3: Lay out Cellweb® TRP

- Cellweb® TRP is a NO DIG tree root protection measure and it is recommended that no excavation be performed without prior approval and guidance from the Local Authority Arboricultural Officer.
- Soil compaction from vehicles, machinery and materials is to be strictly prohibited during construction within Root Protection Areas (RPAs).
- Approval must be obtained from the Local Authority that the design and the method of construction is acceptable.
- Further information is available from the following two documents;
 - British Standard BS5837: 'Trees in Relation to Design, Demolition and Construction' (2012).
 - Arboricultural Advisory and Information Service: Practice note 12 – 'Through the Trees to Development' (APN12).

Installation Method

1. Prepare the Surface

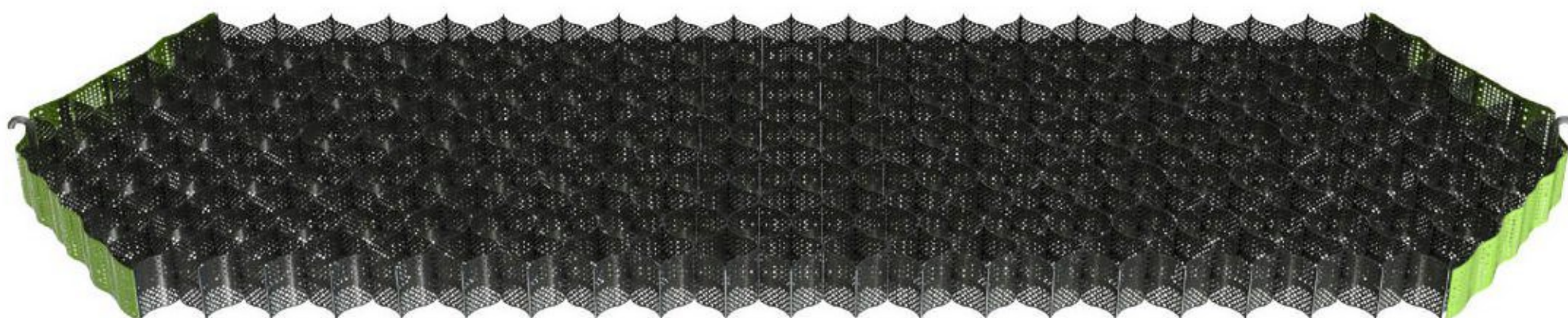
- Remove the surface vegetation using appropriate hand held tools or herbicide (see Note 1).
- Remove any surface rocks, debris and organic material.
- Create a level surface by filling any hollows with clean angular stone or sharp sand.
- Do not level off high spots or compact the soil through rolling.

2. Lay out the Treetex™ Non-Woven Geotextile

- Lay out the Treetex™ over the prepared area, overlaying the edges of the required area by 300mm.
- Overlap any joins by 300mm minimum or more, depending on soil structure (see Note 2).

3. Lay out the Cellweb® TRP Cellular Confinement System

- Lay out the collapsed Cellweb® TRP on-top of the Treetex™.
- Place one of the supplied J pins into the centre cell at the end of the panel and secure into the ground.



Cellweb® TRP - Installation Guide

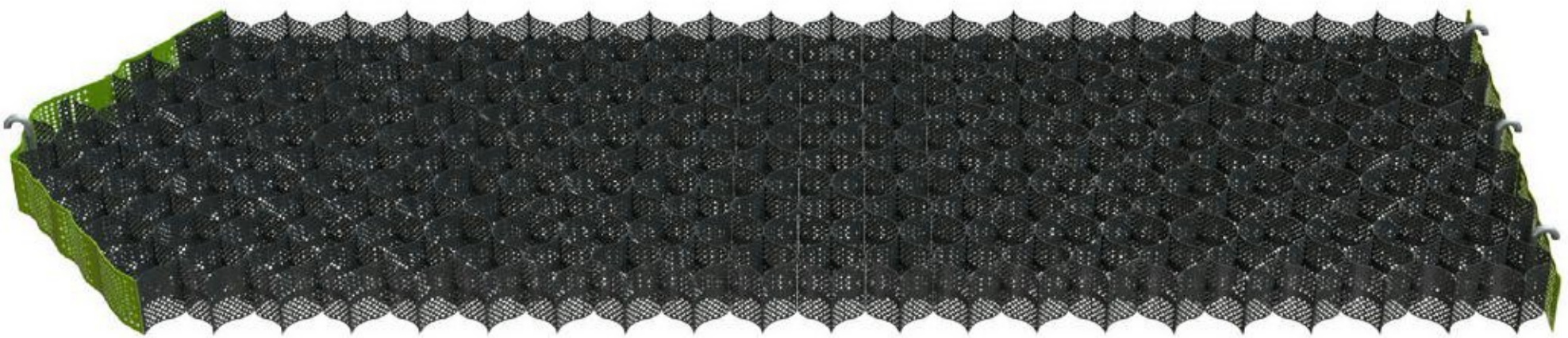


Step 3: Pinning Cellweb® TRP

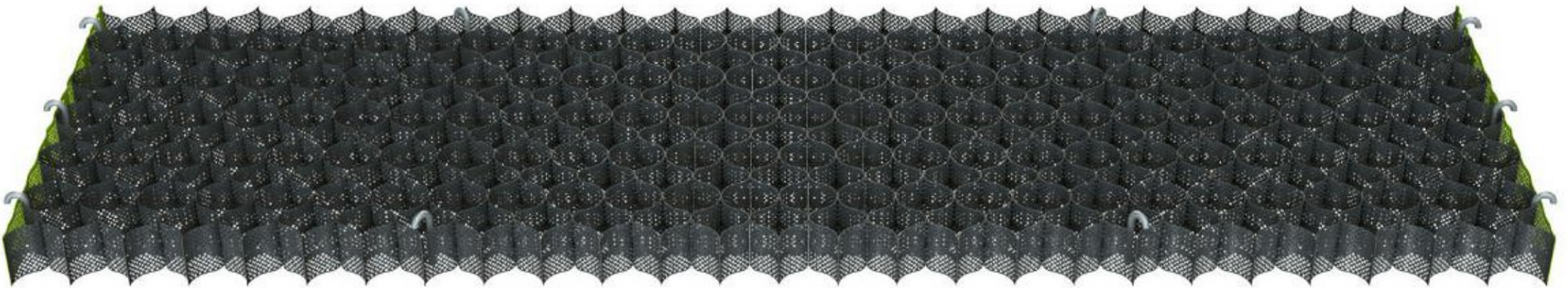


Step 3: Stapling Cellweb® TRP

- Pull out the Cellweb® TRP to its full 8.1m length and secure its length with another J pin.



- Now measure its width to 2.56m and secure in each of the corners with the J pins.
- Use 10 pins per panel to create a panel measuring 8.1m x 2.56m.



- This will produce a cell size of 259mm x 224mm which is the required cell aperture. Each cell must be fully extended and under tension.
- Staple adjacent panels together at each cell (see Note 3).
- If a curved path or shape is required, this should be cut when the Cellweb® TRP panel is pinned out to 8.1 x 2.56m, ensuring complete cells remain. Do not try to curve or bend the Cellweb® TRP panels into place.
- When cutting Cellweb® TRP, please bear in mind that you will lose two internal cells per cut. Across a 8.1m long panel, this equates to a loss of 0.224m x 2 along the length or 0.259m x 2 across the width.

Cellweb® TRP - Installation Guide



Step 4: Clean Angular Stone



Step 5: Edge Restraints



Step 6: Surface Options

4. Infill the Clean Angular Stone

- The infill material must be a clean angular stone, Type 4/20mm or Type 20/40mm (see Note 4).
- Do not use M.O.T type 1 or crushed stone with fines for tree root protection.
- Infill the Cellweb® TRP cells with the clean angular stone, working towards the tree and using the infilled panels as a platform.
- Minimum 25mm overfill of clean angular stone when used in conjunction with a hard surface.
- No compaction is required of the infill. Do not use a whacker plate or other means of compaction.
- Encourage settlement of the stone with the use of a light roller or with 2-3 passes of the construction plant used for installation.
- If the clean angular stone is being used as the final surface; regular maintenance will be required to ensure a minimum overfill of 50mm.

5. Edge restraints

- Excavations for kerbs and edgings should be avoided within the RPAs.
- Where edging is required for footpath and light structures, a peg and treated timber board edging is acceptable
- Other options include wooden sleepers, kerb edging constructed on-top of the Cellweb® TRP system, plastic and metal edging etc.

6. Surface options

- All surfaces in Root Protection Areas must be porous. Surfaces can include porous block paving, porous asphalt, loose gravel, grass and gravel retention systems (e.g Golpla), resin bound gravel, concrete and astro turf.

NOTES

- 1. Herbicide:** According to BS5837:2012 "The use of herbicides in the vicinity of existing trees should be appropriate for the type of vegetation to be killed, and all instructions, warnings and other relevant information from the manufacturers should be strictly observed and followed. Care should be taken to avoid any damaging effects upon existing plants and trees to be retained, species to be introduced, and existing sensitive habitats, particularly those associated with aquatic or drainage features."
- 2. Geotextile:** We recommend the installation of a Treetex™ under the Cellweb® TRP, or under the sub-base, if installed. The overlapping between adjacent rolls of Geotextile should be: CBR > 3%: 300mm minimum, CBR between 1% and 3%: 500mm minimum. CBR ≤ 1%: 750mm minimum.
- 3. Staples:** Number of staples per join: 200mm: 5 staples. 150mm: 4 staples. 100mm: 3 staples. 75mm: 3 staples.
- 4. Granular Fill:** Open graded sub-base, clean angular stone Type 4/20 or Type 20/40. Please refer to BS7533-13:2009 and to the Design Manual for Roads and Bridges (DMRB), Volume 4 Geotechnics and Drainage, Section 1 Earthworks, HA44/91, Volume 7 – IAN 73/06 Design Guidance for road pavement foundations and Manual of Contract Documents for Highway Works (MCHW), Volume 1 Specification for Highway Works for the construction and maintenance of the fill material.