www.geosyn.co.uk

Geosynthetics

Cellweb® TRP

Technical Support Package

"Creating Innovative Solutions with Outstanding Products"

What is Cellweb® TRP

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Cellweb® TRP is a cellular confinement system specifically designed for tree root protection. The system creates a stable, load bearing surface for traffic or footfall whilst eliminating damage to roots through compaction and desiccation of the soil.

The Cellweb® TRP system comprises of three specific elements; Cellweb®, Treetex™ pollution control geotextile and an infill of clean angular stone. The system has been designed combining the best possible products to create an unparalleled solution for tree root protection applications.

Cellweb® TRP is a no dig solution that ensures that the load placed upon it is laterally dissipated rather than transferring to the soil and roots below. The use of Treetex™ pollution control geotextile allows for drainage and separation whilst preventing contaminants from reaching the roots.

The walls of the cells are perforated and when combined with an infill of clean angular stone this enables free movement of water and oxygen ensuring that supplies to the tree roots are maintained.

What makes Cellweb® TRP different?

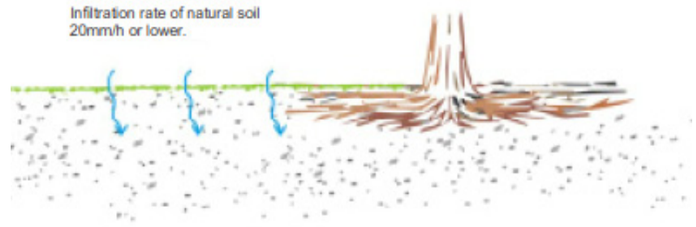
From the drawing board to installation, we are here to help.

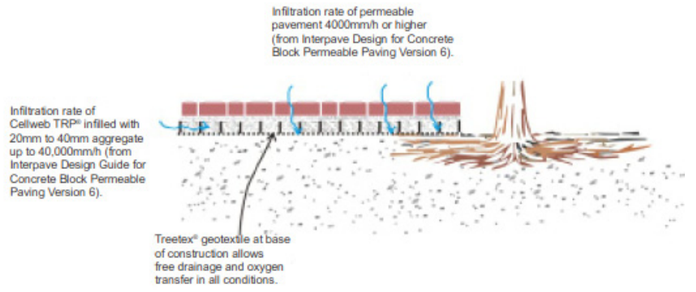
We have been supplying the Cellweb® TRP system since 1998 and our technical team have vast experience with tree root protection and the associated legislation.

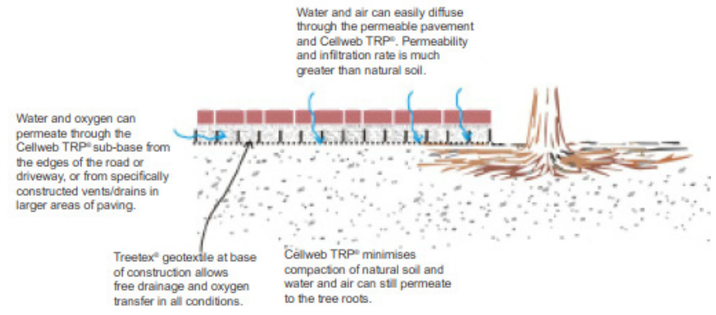
Delivering complete peace of mind to customers is our number one priority. As part of this customer care package we offer free on site consultations, technical recommendations and on site installation guidance on all projects.

Our in house Engineering Team provide site specific recommendations to ensure the solution used is cost effective and environmentally sound.

For more information on Cellweb® TRP or Geosynthetics Limited please contact our sales office on 01455 617139 or visit www.geosyn.co.uk.







Benefits Of Our Guarantee

Tried and tested
Cellweb® TRP is the only guaranteed system available today which has also the been independently tested and proven to prevent over compaction of the sub-soils and roots. Customers have been using the system since its inception without failure.

Full tree root protection services
Combining Cellweb® TRP with our in-house arboriculturalists and design engineers gives our customer the assurance that all their specific requirements will be met.

Peace of mind
The guarantee covers the replacement of not only the Cellweb® TRP system but also the tree(s), giving the customer complete peace of mind.

Helping to build the right solution
Our in-house engineers will provide free site specific technical recommendations to value engineer the project.

NBS Specification Clause

Obtaining a Guarantee

Provide a copy of the Arb Report
If an arb report hasn't already been produced, we would advise approaching an Arboricultural Association registered consultant to have a full survey completed.

Complementary Technical Recommendation (TR)
We offer all our customers full use of our engineering services free of charge. For all guaranteed projects, we provide a full technical recommendation and calculations which ensure the optimum solution is provided.

Scope Agreement
Once we have received the arb report and technical recommendation, we will work with our customer to specify which trees can be covered under the guarantee using a scoping agreement.

Installation
All we ask is that our customers follow our installation guide alongside the technical recommendation provided. Once completed we will ask for a customer signature agreeing to the terms and conditions of the guarantee.

Certification
Upon your agreement with the terms and conditions, we will send out a guarantee certificate alongside a copy of all of the details of the project.

NBS Specification Clause

I. The Tree Root Protection System shall be Cellweb® TRP by Geosynthetics Ltd 01455 617139

II. The Tree Root Protection System shall include Cellweb® TRP 3 dimensional cellular confinement panels measuring 8.1m in length x 2.56m wide. The system also includes a Treetex™ Pollution Control Geotextile.

III. The Cellweb® TRP shall incorporate perforated cell walls to provide lateral flow and frictional interaction between infill material and adjacent cells. Perforations shall be 11% of the cell wall surface area for Cell height of 100mm and 200mm and 16% for Cell height of 75mm and 150mm.

IV. The Cellweb® TRP shall incorporate a green identification strip along the length of the panel.

V. The seam peel strength of the cells shall be as shown in the following table:

Cell Height (mm)	75	100	150	200
Seam Peel Strength (N)	1065	1420	2130	2130
U.S.Army Corps of Engineers. Technical report GL86-19, Appendix A				

VI. The expanded cell size (width x length) shall be 259mm x 224mm.

VII. The infill material shall be a clean angular stone typically 40mm to 20mm or 20mm to 4mm.

VIII. The system shall be installed strictly in accordance with the manufacturers installation instructions.

IX. Fact Sheets 1,2,3,4,and 5 provide factual evidence of the Cellweb® TRP and Treetex™ systems performance in the application of Tree Root Protection.

X. The system shall encorporate a 10 year guarantee which covers the replacement of any dead tree(s) up to a value of £10,000 per tree, as well as a replacement of the system which has failed up to the value of £50,000.

Product Data

Weight Capabilities

- 75mm Cellweb® TRP confinement system

For foot and cycle traffic. This also provides a control measure for crust compaction

- 100mm Cellweb® TRP confinement system

For domestic traffic, such as cars and transit vans up applicable up to a 6t gross weight

- 150mm Cellweb® TRP confinement system

For emergency access and refuse collection applicable up to a 30t gross weight

- 200mm Cellweb® TRP confinement system

For H.G.V and construction traffic applicable up to a 60t gross weight

Note: This is a general guidance for the depth of Cellweb® TRP according to Gross Vehicle Weight for a firm and stable subgrade (CBR>3%).
If the ground conditions are poor and/or unstable please contact Geosynthetics Ltd to provide a site specific design.

Treetex™

Treetex™ is a heavy duty needle punched geotextile fleece. Manufactured from polyproplyene, Treetex™ is ideal for use in a Tree Root Protection system as it is easily moulded to the shape of the aggregate and has been proven to absorb 1.7 litres of oil per m2 ensuring that the roots are not damaged by pollutants from the surface.

Clean Angular Stone

We recommend using a 4/20 mm clean angular stone type 4/20 mm (preferred) or 4/40mm to allow water permeation and gaseous exchange within the rooting environment.
(*) Please contact Geosynthetics Ltd for further information on clean angular stone.

Aggregate gradings for sub-base materials to BS EN 12620

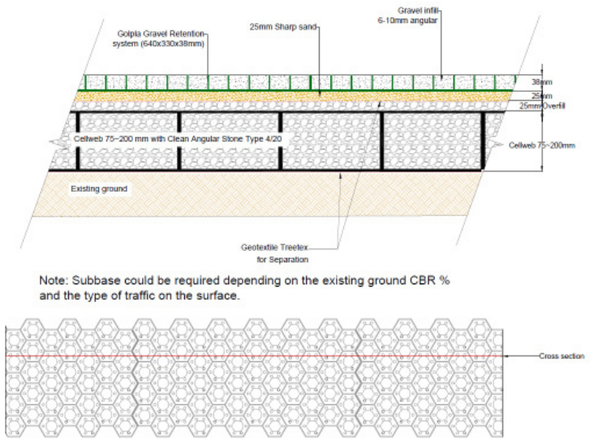
	Percentage Passing (%)	
Sieve Size (mm)	Coarse aggregate	Coarse aggregate
	4/40	4/20
80	100	-
63	98-100	-
40	90-99	100
31.5	-	98-100
20	25-70	90-99
10	-	25-70
4	0-15	0-15
2	0-5	0-5
1	-	-

Ancillary Products - Fixing Pin

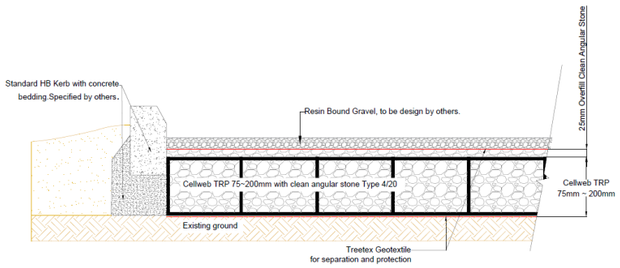
Fixing Pins	
Cellweb® Pins	
Geosynthetic Cellweb® pins are specifically manufactured to pin the Cellweb® system in place prior to fill. They are a 700mm long 12mm profiled bar with a 100mm return. Due to the heavy duty application they are the largest and strongest pins we manufacture.	
Cellweb® Stapler	
Cellweb® stapler rapid heavy duty 31 stapler.	
Cellweb® Staples	
Cellweb® staples 10mm staples 5000 per box.	

Surfacing Options

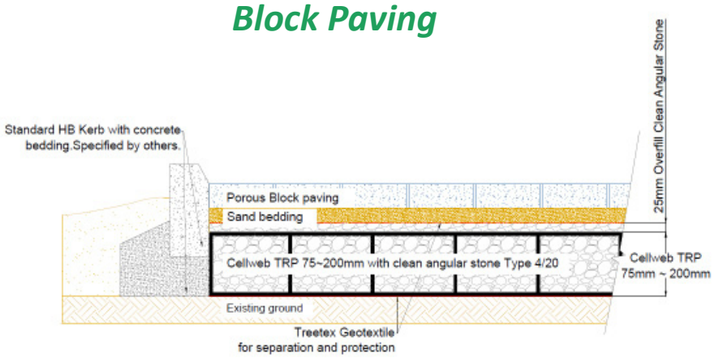
Golpla® Grass & Gravel Pavers



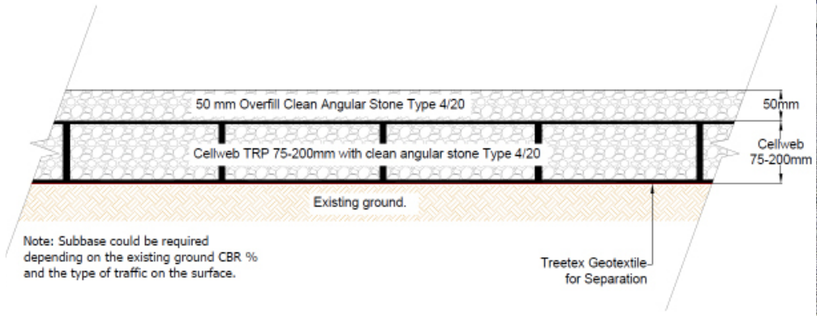
Resin Bound Gravel



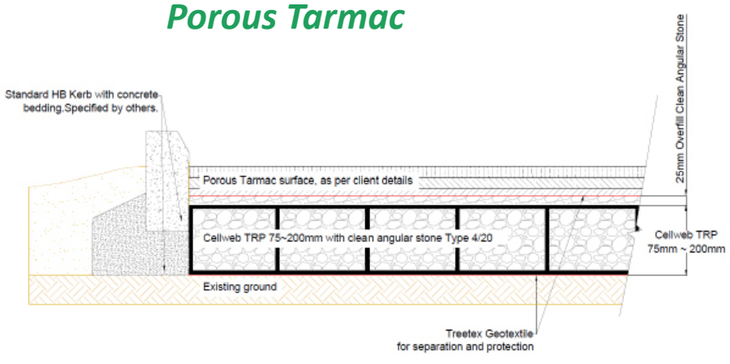
Block Paving



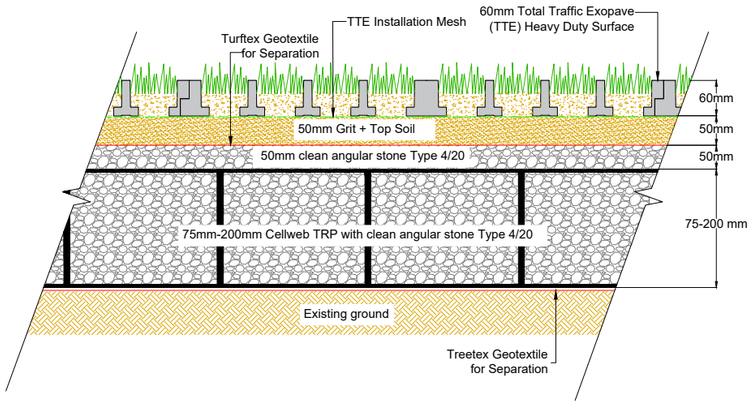
Gravel



Porous Tarmac

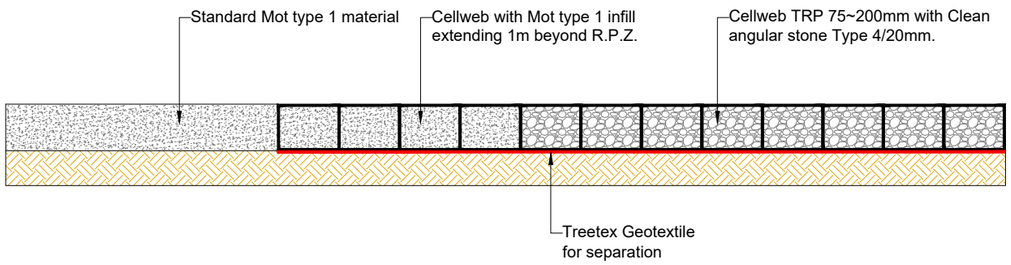


TTE® Heavy Duty Pavers

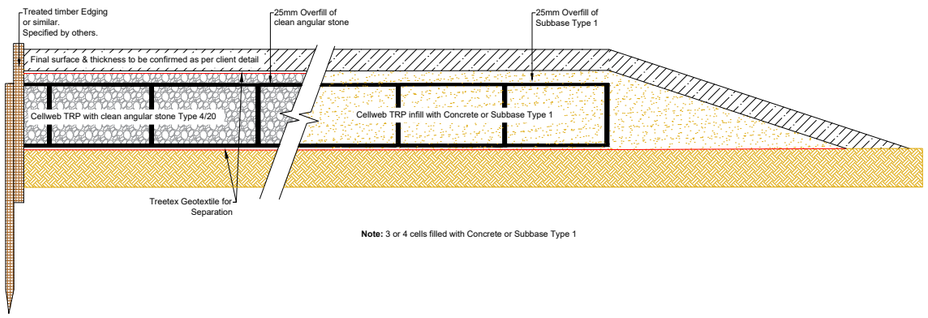


Edging and Transition Details

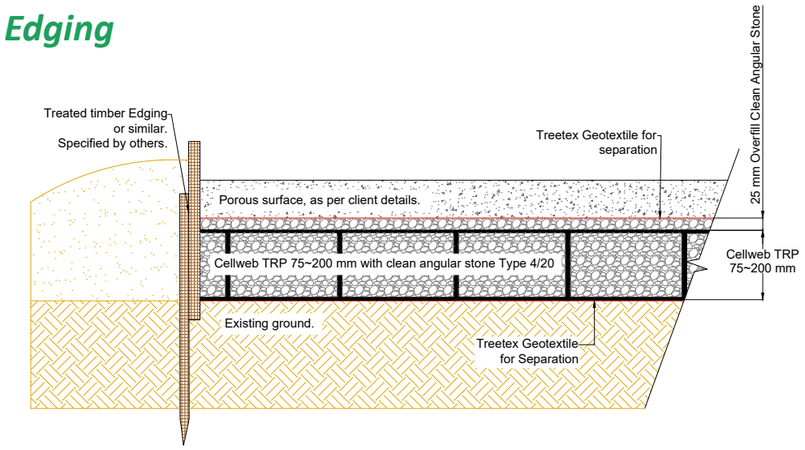
Transition Detail (Flat)



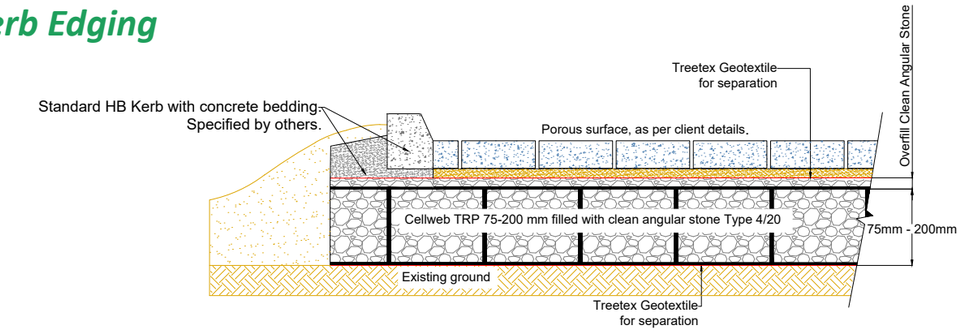
Transition Detail (Ramp)



Timber Edging



Kerb Edging



Adopted Roads and Footpaths

Cellweb® Tree Root protection is the UK's market leading tree root protection system and is widely specified for the construction of new hard surfaces within root protection areas in accordance with BS5837.

Difficulties when specifying the system often occur for the construction of public roads, footpaths and carparks where there is a requirement for the local authority to take responsibility for the maintenance of the new structure and formally adopt it.

The following page shows examples of where new hard surfaces constructed using the Cellweb® TRP system have been adopted by local authorities. This document is designed to provide examples to specifiers of the system and local authorities.

This document is designed to be used in conjunction with technical advice and site specific recommendations which are also available free of charge from Geosynthetics Limited.

Adopted Roads and Footpaths

Castle Gardens, Leicester

Location:	Castle Gardens Castle view Leicester
Project details:	This project was undertaken by Leicester City Council in 2015. The aim of the project was to create a new access and footpath from St Nicholas Circle in the centre of Leicester down into the Castle Gardens. This would create improved access to the Castle Gardens and enable the public to pass through the gardens to access other parts of the city. The project required thoughtful design to overcome significant changes in levels within the root protection areas of several mature trees and utilise Cellweb® TRP as a no dig solution. A full case study is available on this project.
Architect:	Levitate Architecture and Design Studio
Council:	Leicester City Council

Stoke Road, Norfolk

Location:	Stoke Road Poringland Norfolk NR14 7JL
Project details:	This no dig access road has be approved for formal adoption by Norfolk County Council. The road currently provides access to a newly constructed doctor's surgery, but will ultimately become the access to approximately 100 new homes to be built by developers David Wilson Homes. The road will be formally adopted on completion of the development.
Architect:	Plandescil Consulting Engineers
Council:	Norfolk County Council

Stanford in the Vale

Location:	Stanford in the Vale Faringdon Oxfordshire
Project details:	This footpath which runs adjacent to the railings was constructed on a David Wilson Homes development, to protect the roots and rooting environment of the Willow seen in the photograph. Both the Cellweb® TRP footpath and the road are surfaced with permeable blocks and has been adopted under a section 38 agreement by Oxfordshire County Council.
Architect:	Infrastruct CS Ltd
Council:	Oxfordshire County Council

Case Study

Cellweb®TRP

Helping to Protect Ancient Trees

Location:
Calke Abbey
Ticknall
Derby
Derbyshire
DE73 7LE

Project Description:
Provide a solution to prevent further die back of 'The Old Man of Calke' at Calke Abbey

Technical Requirements:

- Solution to alleviate existing soil compaction and encourage decomposers
- To minimise further soil compaction

Installer:
Geosynthetics Limited
National Trust

'The Old Man of Calke' is Calke Abbey's oldest tree and is thought to be up to 1200 years old. With the average age of large oak trees in Britain being 200 years it certainly is the 'Old Man' of oak trees. Put into context, this means that this tree would have been 200 years old when William the Conqueror arrived in Britain.

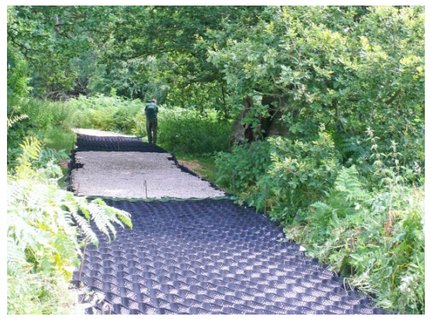
Many years of heavy footfall had caused a significant increase in soil compaction beneath one side of the tree. This had resulted in reduced water and oxygen availability to roots beneath this compacted ground. This was reflected in the crown, which was displaying accelerated and significant die back on the footpath side. A solution needed to be found to alleviate the existing soil compaction and minimize further future compaction, ultimately preventing further die back.

Geosynthetics' engineeering team and in house arboriculturalist worked with Brian Muelaner, the ancient tree advisor at the National Trust, to provide a solution to prevent the further decline of this ancient tree.

A 90mm layer of mulched wood chip was applied to the existing ground surface before the installation of the Cellweb®TRP system. This was used to encourage decomposers such as earth worms to help alleviate the ground compaction and aerate the soil.

A layer of Treetex geotextile was then laid on top, acting as a separation layer and pollution control measure. Panels of Cellweb®TRP were then laid on top of the Treetex and infilled with a clean angular stone. The Cellweb®TRP would minimise any further compaction within the rooting environment, while decomposers would naturally aerate the ground, reducing soil bulk density. The use of Cellweb®TRP infilled with clean angular stone would also allow the continued permeation of water and gas exchange between rooting environment and atmosphere.

This whole project was designed, supplied and installed courtesy of Geosynthetics. The Geosynthetics Tree Root Protection Team donated their time, knowledge and products to ensure that this tree will survive for generations to come.



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"This is an exciting new development in how to reduce compaction damage from vehicles and footfall to an ancient tree's roots, made possible by the generous donation by Geosynthetics in time, expertise and materials."

Brian Muelaner - Ancient Tree Advisor - National Trust

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