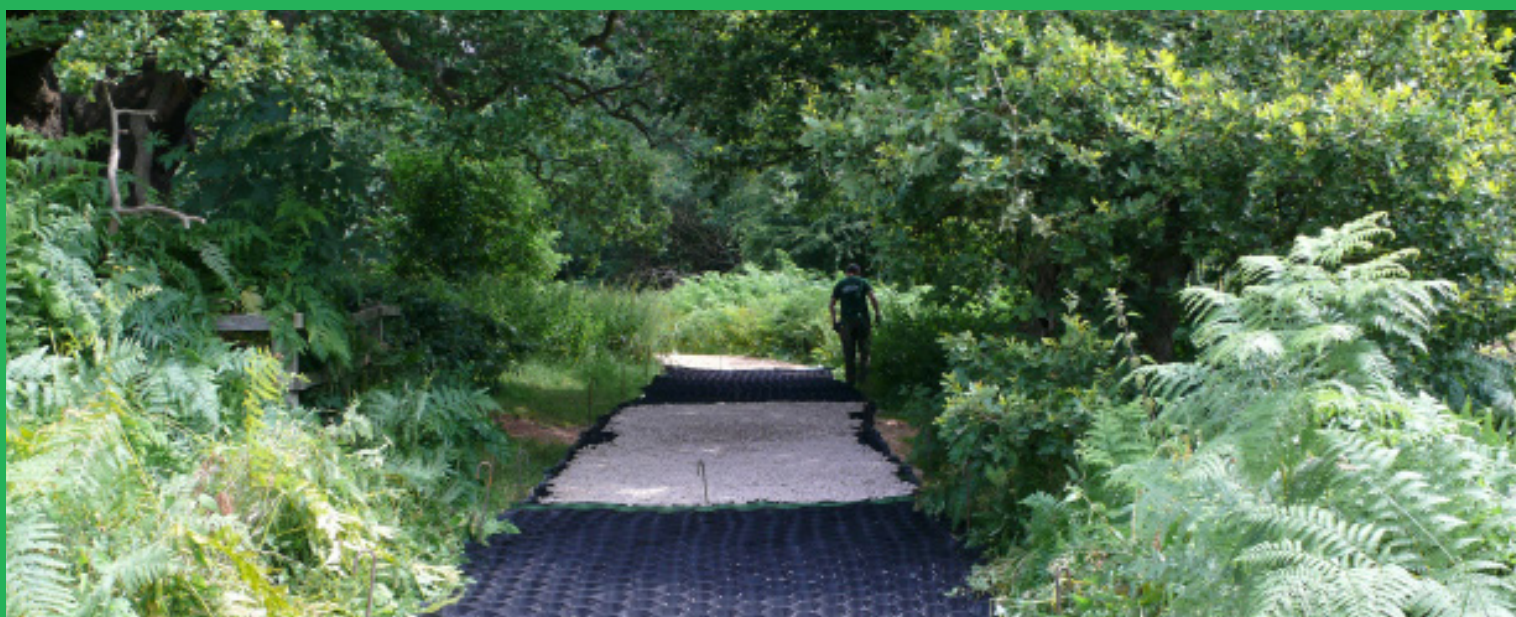




Ancient Tree Protection with Innovative No-Dig Solution

Calke Abbey



 Installer: Geosynthetic Limited & National Trust

 Calke Abbey, Ticknall, Derby, DE73 7LE

 Sector: Public Sector including Public Realm.

Project Overview

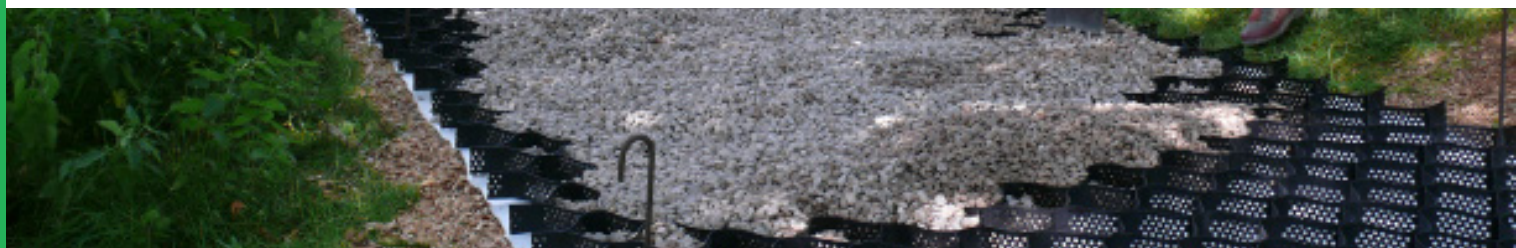
Calke Abbey is home to 'The Old Man of Calke,' a remarkable oak tree estimated to be up to 1200 years old, making it one of Britain's oldest veteran trees. When William the Conqueror arrived in 1066, this tree was already two centuries old.

Over the years, significant pedestrian footfall had led to severe soil compaction on one side of the tree, restricting water and oxygen availability to roots. This compaction caused noticeable crown dieback, raising urgent concerns about the tree's long-term health and prompting a preservation intervention.

Challenge

Protecting a National Treasure from Soil Compaction

- **The tree suffered accelerated dieback** due to compacted soil beneath high-traffic areas limiting root health.
- **A solution was required to alleviate existing soil compaction** and prevent further damage from ongoing foot traffic.
- **Maintaining natural soil aeration** through biological decomposers was a key technical aim.
- **The intervention had to balance** conservation, accessibility, and environmental sensitivity without invasive excavation.



Innovative Solutions:

Geosynthetics Limited's specialist engineering team collaborated closely with Brian Muelaner, the National Trust's ancient tree advisor, to develop a sensitive, effective root protection strategy:

◆ Layer of Mulched Wood Chip (90mm):

Applied over the existing ground to encourage decomposers such as earthworms, which naturally aerate and reduce soil bulk density.

◆ Treetex Geotextile Layer:

Laid over the mulch as a separation and pollution control layer, protecting root zones while allowing gas and water exchange.

◆ Permeability and Gas Exchange:

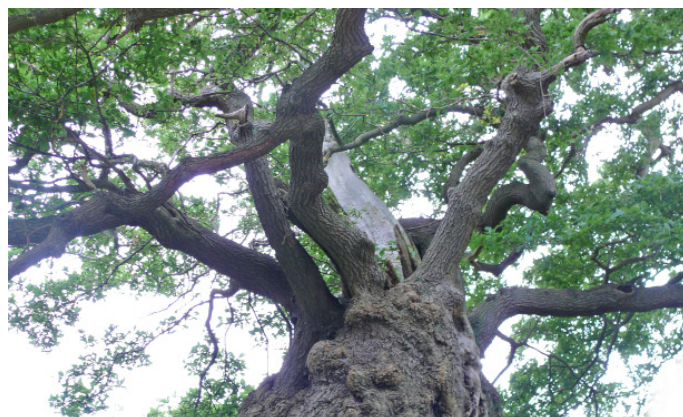
Cellweb® TRP's design maintains water infiltration and oxygen movement essential for root vitality and long-term tree health.

◆ Cellweb® TRP Panels:

Installed above the geotextile and infilled with clean angular stone to provide a robust geocellular confinement system. This structure evenly distributes surface loads, preventing further soil compaction beneath the rooting environment.

The entire project from design through supply and installation was undertaken by Geosynthetics Limited.

In a generous act of stewardship, the Geosynthetics Tree Root Protection Team donated their time, expertise, and materials, committed to preserving The Old Man of Calke for future generations.



Key Achievements:

1

Alleviated Soil Compaction:

Encouraged biological soil aeration via mulch and decomposer activity, enhancing root health naturally.

3

Sustained Soil Hydrology:

The combined system preserved natural water and air flow critical to tree longevity.

2

True No-Dig Protection:

Cellweb® TRP prevented further soil compaction without excavation or disturbance, fully protecting the ancient roots.

4

Conservation-Focused Design:

The solution honoured the tree's heritage status by blending ecological sensitivity with technical innovation.

Our Impact

For tree root protection solutions that respect conservation imperatives and environmental sensitivities, **contact Geosynthetics Ltd's technical team to discuss bespoke, no-dig systems designed to safeguard heritage trees across the UK.**

Client Testimonial

"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**

