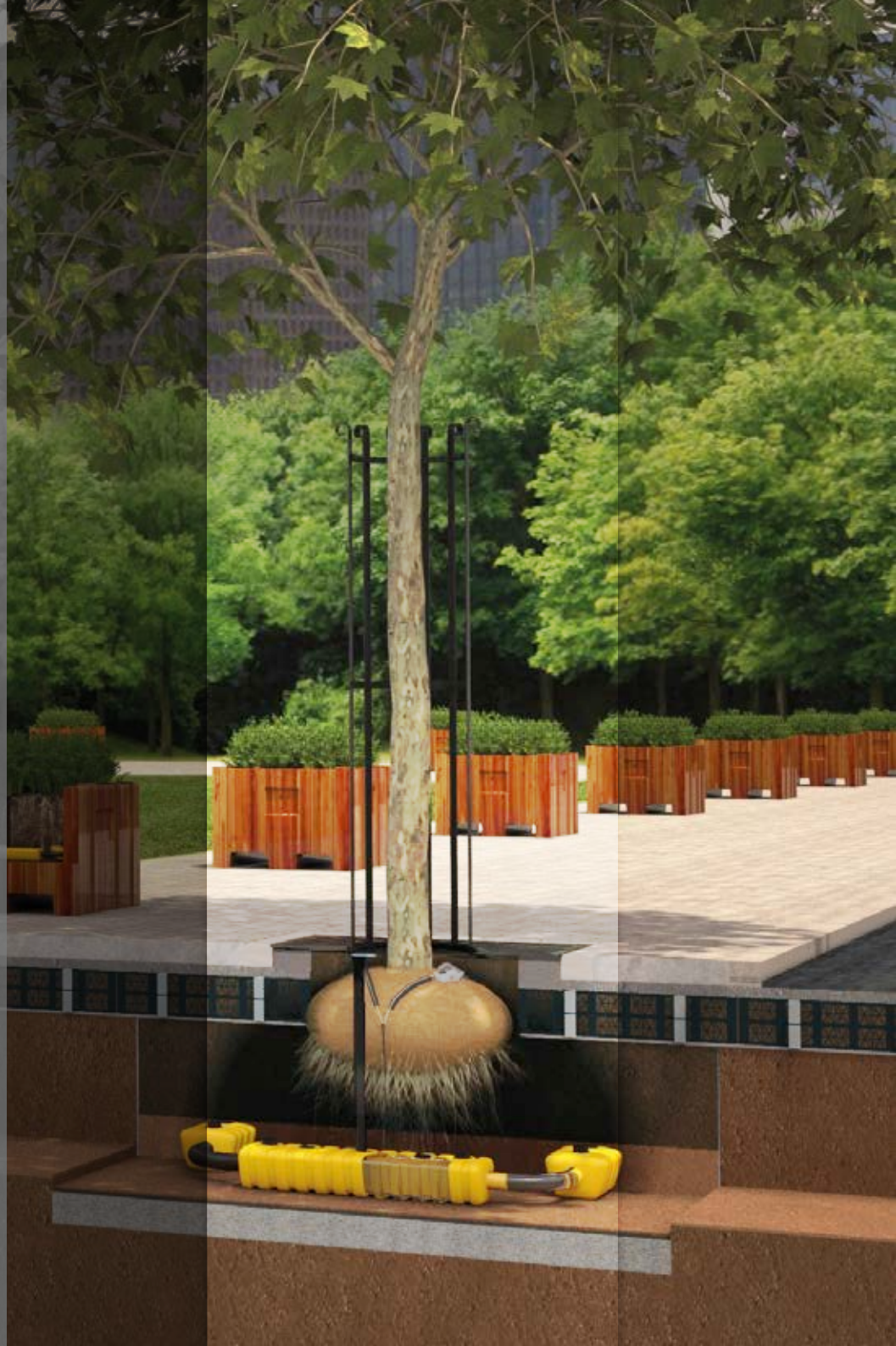


ArborRaft System



ArborRaft System

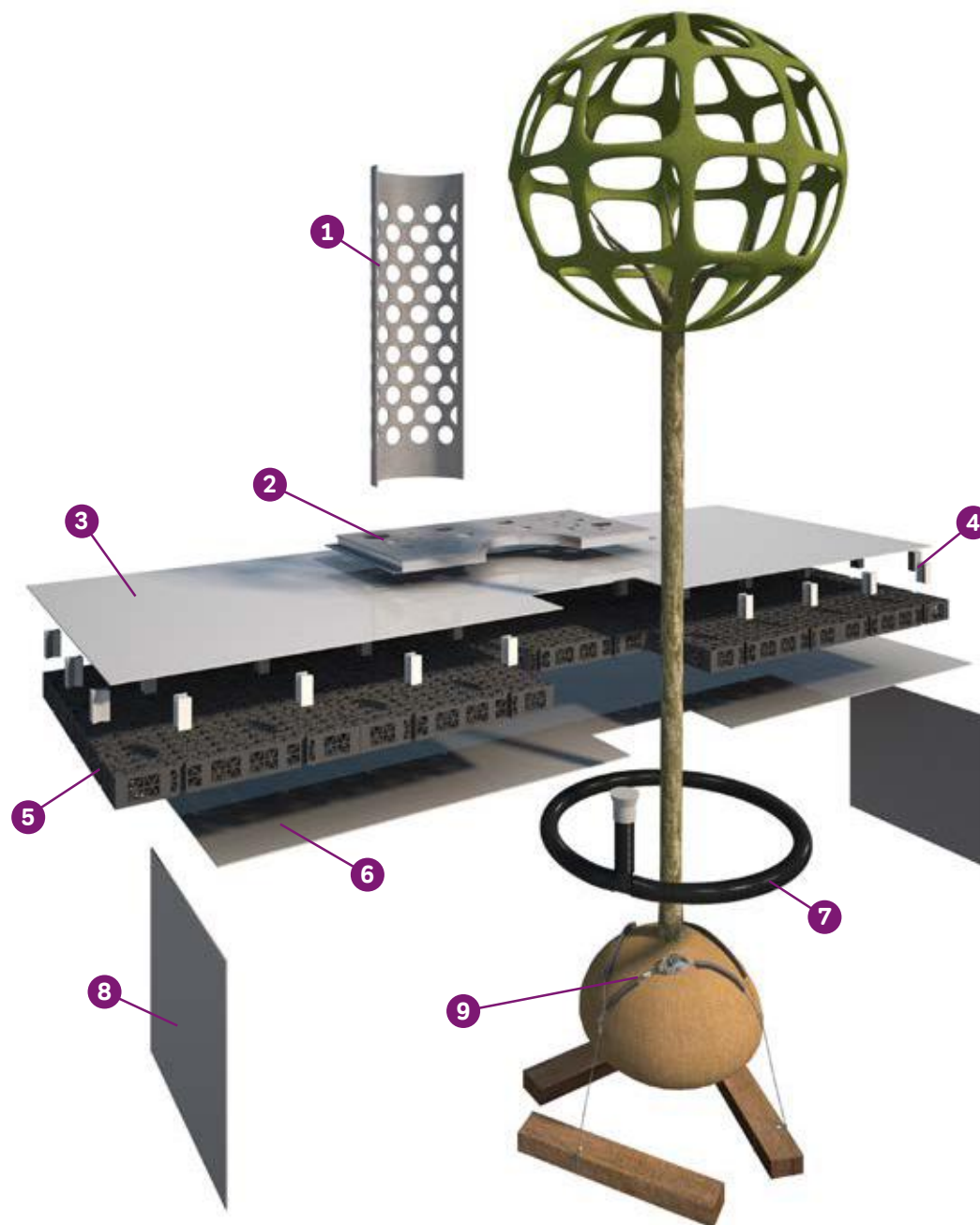
Urban green spaces play a vital role in the environmental, social and economic future of our towns and cities.

gtSpecifier recognises that the creation of urban forestry and the 'greening' of urban areas is a major driving force for policy makers, town planners and landscape architects across the UK. The team recognises that the future of our urban landscapes requires a balance of modern environmental pressure points – storm water and sustainable drainage, including micro-climates, improving air quality and CO₂ levels.

gtSpecifier has worked with landscape architects, civil engineers and local government to develop a portfolio of landscape solutions that consider all of the environmental pressure points above. The ArborRaft System is supplied to gtSpecifier by Infra Green Limited. Infra Green specialises in tree planting solutions, landscaping and water management systems. Offering a comprehensive portfolio of products and solutions that give urban trees the best start in life. The ArborRaft System creates an artificial forest floor that prevents soil compaction and protects the hard landscape. It creates an air void that diverts root growth away from the surface. The ArborRaft System works with the tree's roots to guarantee delivery of essential water and nutrients yet also encouraging root growth that mirrors the tree's canopy.

ArborRaft System Components

- 1 Laser Cut Tree Guard
- 2 Laser Cut Tree Grille
- 3 ArborTex 300 Membrane
- 4 ArborRaft Connector
- 5 ArborRaft Unit
- 6 ArborRaft TRC30 Membrane
- 7 Mona Irrigation
- 8 gtRootbarrier
- 9 Anchor System
- 10 ArborRaft Soil (not pictured)



Case study – Nottingham Trent University redevelopment

Nottingham Trent University city site is located in the heart of Nottingham city centre with 30 buildings surrounded by 5.1 hectares of open space. The heart of the campus underwent a multi-million pound refurbishment to keep up with current demands and needs.

The redevelopment consisted of two state-of-the-art buildings with beautiful landscaped outdoor spaces in the Clifton complex. With over 8,000 students based at Clifton the new facilities have been designed to provide a high quality environment to inspire students for generations.

The courtyard outside of the restaurant is part of the University's 'Green Zone' - an area in the centre of campus that will be free from smoking, unauthorised traffic and parked bicycles, which will contribute to the peaceful atmosphere of the campus.

The landscaping works for this area including the planting of 50 mature trees. Larger, more established trees were specified to maximise aesthetic and biodiversity value.

The landscaping contract was awarded to Ulyett Landscapes Limited, a long established landscaping company based in the East Midlands who are well respected for their work with local authorities, architects, civil engineers, builders and private house owners.

Ulyett Landscapes turned to gt Specifier, the specification team within leading landscape supplier, Green-tech, for our advice on the most suitable products for planting, securing and encouraging the healthy growth of the trees.

Taking into account the size of the trees and the environment – the whole site was on an incline; the team recommended the ArborRaft Tree Planting System. This is a system that combines nutrient-rich ArborRaft soil with exceptionally strong geocellular units. Together they create a healthy growing space for trees in urban areas subject to vehicle or pedestrian trafficking.

The individual ArborRaft units lock together and form a raft system that sits within the tree pit, providing load bearing support and reducing soil compaction. As the system retains the open structure of the soil, the roots are allowed to grow naturally and the essential oxygen, nutrients and water can flow freely through the growing media which all ensures the ideal growing environment to establish and flourish.

As well as the ArborRaft System the team provided advice and Green-tech supplied an anchoring system for each tree, the mona tree irrigation system, rootbarrier, subsoil, ArboRaft soil and bark for top dressing – everything needed for successful planting under one roof.

Barry Browne who heads up the gt Specifier team comments,

"Nottingham Trent University is one of the UK's most environmentally friendly universities and we are thrilled to be able to help them to create a sustainable, ecologically-sound Campus. The provision of green grass and open spaces were pivotal to the University's redevelopment plans – they wanted to provide places to unwind and reconnect with the outside world. We were delighted when they were so impressed that they chose the ArboRaft System again when their adjoining car park was revamped a few months later."



ArborRaft System

The ArborRaft System combines nutrient rich ArborRaft Soil with exceptionally strong geocellular units. Together they create a healthy growing space for trees in areas subject to vehicle loadings and trafficking.

Individual ArborRaft units are locked together to form a raft system that sits across the tree pit, providing load bearing support and reducing soil compaction.

The ArborRaft System works by spreading the load of any vehicle movements around the tree's rooting area. This eliminates soil compaction of the growing media within the pit and maintains the ideal growing environment for the trees to establish and mature.

The ArborRaft System accommodates vehicle loadings from cars through to heavy goods vehicles. The open structure of the individual units acts as an air gap diverting root growth away from the pavement towards nutrient-rich soil. It is a tried and tested system that has successfully been installed into projects across the UK and Europe.

How it works?

Open Structure

The open structure of the ArborRaft soil is retained, allowing roots to grow naturally and essential oxygen, nutrients and water to flow freely through the growing media. The nature of the system assists drainage and the free-flow of water through the tree pit. The system is flexible and can be designed to fit any tree pit size encouraging larger tree pits with less plastic.



Structural Strength

The structural strength of the ArborRaft System absorbs the impact of loads placed upon it to protect the growing media and tree roots below.



Prevents Compaction

The system prevents soil compaction, damage to the root structure and does not restrict the natural growth path of tree's roots. This assists the tree to create its own root-anchoring system that reflects the growth and spread of its canopy.



Protects The Pavement

The system creates an air gap and a barrier that prevents root growth upwards and protects the hard surface from root damage.



ArborRaft System installation

View the ArborRaft
Installation Video Online
gtSpecifier.co.uk



1. Excavate tree pit to include 500mm supporting shelf at the top of the tree pit.



2. Backfill lower pit with approved subsoil, position tree or leave vacant for planting season.



3. Install gt anchoring system and compact subsoil to architects specification.



4. Add ArborRaft soil to top approx. 400mm of tree pit.



5. Install irrigation system.



6. Cover with ArborRaft TRC30 Membrane.



7. ArborRaft units simply lock together with connectors.



8. Backfill with ArborRaft Soil



9. Cover with Arbortex 300 Membrane and finish to hard landscaping specification.



10. Finish as per specification.

Standard installation levels:

Assuming an 80mm thick paving block is used, the complete installation height of the ArborRaft System from pavement surface level to the underside of the ArborRaft layer will be:

Paving layer	80 mm
Paving bedding layer	50 mm
ArborRaft layer	150 mm
Sand bedding layer	25mm
Total	305 mm

*Above represents a typical car park installation where the system is subject to car trafficking.

ArborRaft Soil

The tried and tested ArborRaft soil has been specially developed for the UK market to work as a rootzone with the ArborRaft system. This ensures the structure of the growing media remains open and the correct level of water, air and nutrients are transported through the soil to the tree's roots.

The design of the system working in partnership with the ArborRaft soil prevents compaction within the tree pit, protecting and enhancing the tree's root growth.

Extensive testing has been completed for the ArborRaft Soil, ensuring that the optimum moisture, aeration and nutrient content is achieved, whilst maintaining a stable soil layer.

The ArborRaft soil working in partnership with the ArborRaft system provides the ideal start in life for an urban tree. The growing media is stable, prevents compaction and provides an open structure to allow the free-flow of water oxygen and nutrients.

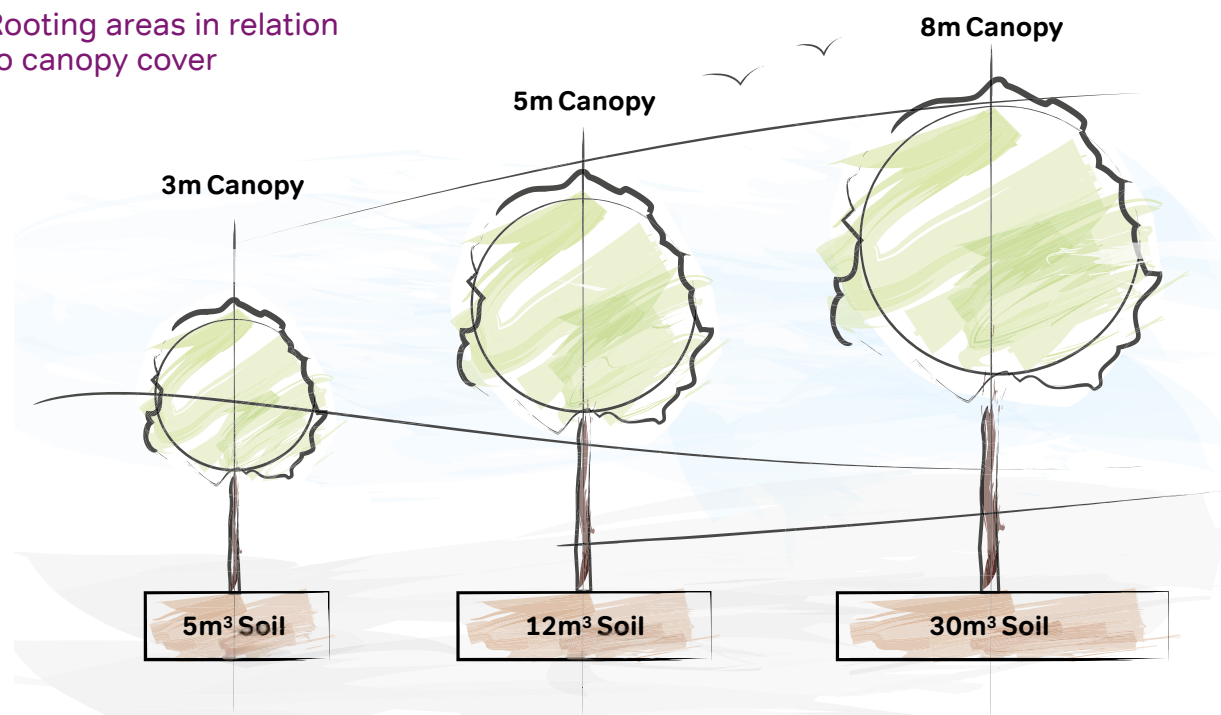
The importance of soil quality and quantity within tree pits has been further highlighted in the TDAG - Trees in the Townscape Report of 2012 and the more recent TDAG Trees in Hard Landscapes report, September 2014 stating that:

'In dense urban areas, the amount of soil installed will, to a large extent, determine the size the tree will reach over its lifespan.' TDAG, Trees in the Townscape Report

'Together with soil aeration, providing adequate rooting volume is the other fundamental precondition to secure a healthy cohabitation between trees and urban infrastructure.' TDAG, Trees in Hard Landscapes

Large rooting areas are of paramount importance to the development of the tree where nutrient rich soil can enhance the first few years of an urban tree's life.

Rooting areas in relation to canopy cover



* Diagram for illustrative purposes only. Exact soil volume required is dependent on tree species and planting environment.

Typical analysis of ArborRaft Soil	
Moisture Content %	26
Bulk Density (Mg/m3)	1.81
Dry Density (Mg/m3)	1.44
Nutrient %	12
Permeability (m/s)	$2.06 \times 10^{-0.5}$
Permeability (mm/hour)	74



Natural, lateral root growth with the ArborRaft System.

gtSpecifier - here to help

The gtSpecifier range of urban landscape solutions have been designed to protect, enhance and improve trees, plants and the environment.

To support our seminars and advisory work we have a portfolio of technical drawings and 3D images covering the most common planting scenarios. These drawings and specifications can all be found online at gtspecifier.co.uk, each individual drawing can be downloaded and incorporated into landscape projects making life a lot simpler.



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Request a gtSpecifier Professional Seminar:

Urban Tree Planting

- Planting in hard landscaped areas
- Load bearing structures
- Excavating and building a tree pit
- Anchoring
- Achieving a healthy, urban tree



Tree & Plant Irrigation

- An introduction to irrigation methods
- The plant or tree's water requirements
- Installing an irrigation system
- Subterranean irrigation systems



Guide To Good Soils

- The difference between manufactured, natural and screened topsoils
- The use of tree soils and load bearing soils
- Growing media used in green roof construction



Send your project details to the gtSpecifier team today and we will create an ArborRaft specification for you to view. info@gtspecifier.co.uk

ArborRaft System

gtSpecifier and Infra Green provide a wealth of experience and practical solutions for urban landscape projects. Working in partnership, we offer project specific design, technical and product advice to ensure the most cost effective and practical solution is achieved, for urban tree planting, green roofs, SUDS, ground stabilisation and landscaping applications.



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