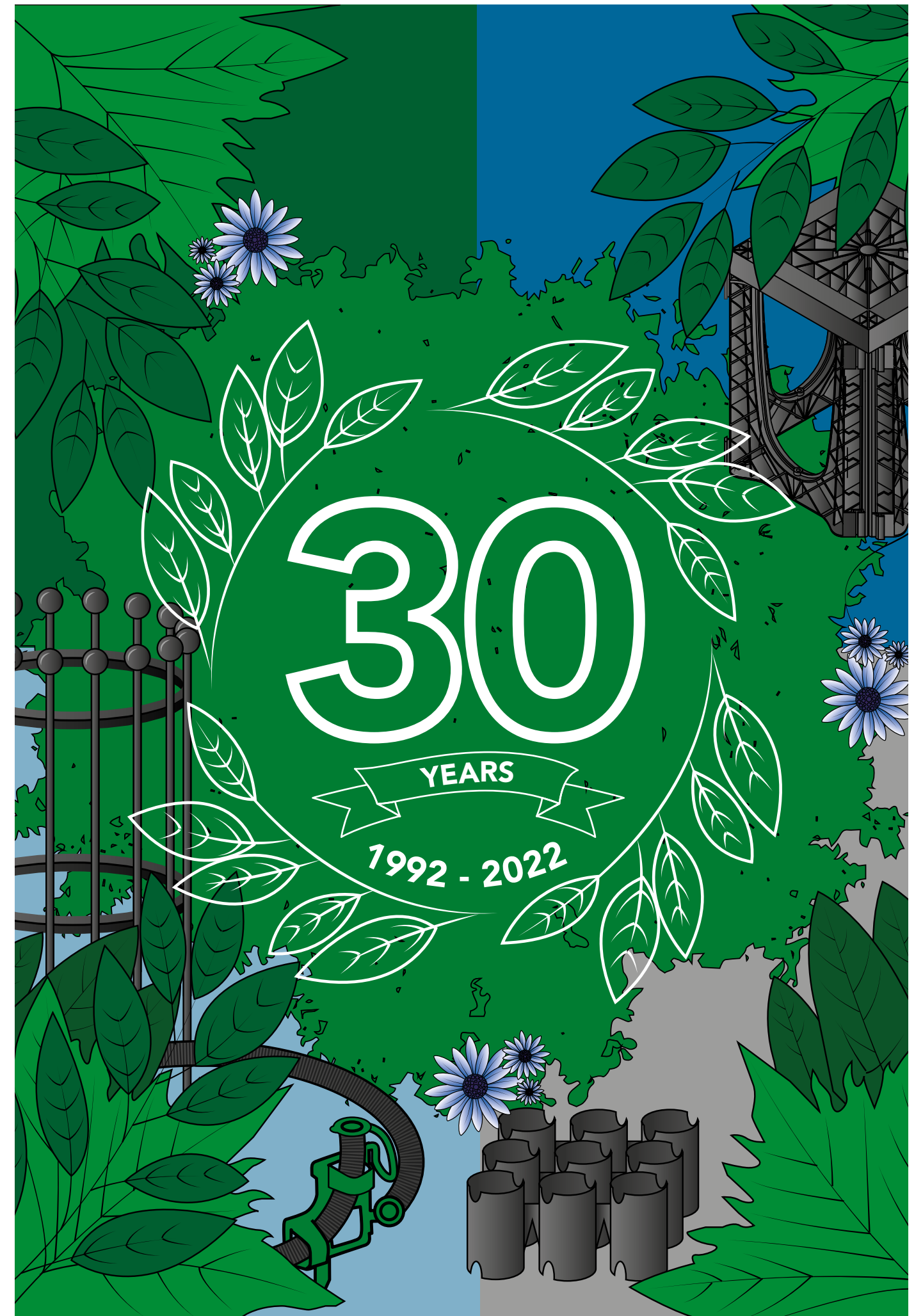




Urban Design Guide

Edition 10



3

Intro

3	Harnessing the Power of Nature
5	Why Green & Blue?
7	It's Not Just A Tree
9	Our History
15	Our Mission, Vision, Values
17	Incorporating Nature Based Solutions
19	Mitigating And to Adapting Climate Change
21	How we can support you
23	The GreenBlue Circular Economy
25	Carbon Footprint Strategy
27	Green,Blue,Smart Space, Air

29

Green

31	ArborSystem
33	Pavement Support Systems
39	Tree Irrigation
49	Tree Aeration
51	Root Management
59	Underground Guying
65	Tree Ties
67	Tree Grilles
79	Tree Guards
83	Geo textiles & Membranes
85	Green Wall Climbing Support Systems
87	Verdecade

89

Blue

91	The History of Urban Drainage
93	ArborFlow
95	StormForm
97	Kerb Flow Inlet
98	ArborCell
99	Control Flow Chambers
101	Raingardens
103	HydroPlanter
105	HydroPlanter Flex
107	Soils & Aggregates

109

Smart Space

111	Bankside Guard Seat
113	Park Benches
115	Bicycle Stands
117	Litter Bins
119	Tables
121	Bollards
123	Information Boards
125	Multifunctional Tree Surrounds
127	ReLuminate

129

Air

131	ArborCharge
133	Air Cleaning Planter

135

Support & Advice

137	How we work with you
139	Specification Support
140	ArborSystem Configurator
141	Continuing Education
142	Resources
143	Tree Species Selection
147	Maintenance
149	CAD Drawings

151

Case Studies

153	Kings Crescent, Hackney
157	Fletton Quays, Peterborough
161	St Pauls Cathedral, London
165	Wapping Wharf, Bristol
169	Old Vinyl Factory, Hayes
173	Chase Farm, Enfield
177	Sauchiehall Street, Glasgow
181	Cheltenham Racecourse
185	London Wall Place
189	Haskins Garden Centre, Snowhill
193	The Old Bailey, London
197	Mile End Shaft, Crossrail London
199	Newmarket Grosvenor Road

201

Research Insights

203	IOT enabled tree pits
205	Cool Towns Project Monitoring
207	Soil Cell Testing
209	University of Greenwich Tree Pit Trials
211	North Street, Keighley

213

Information

215	Policy & Legislation
217	ArborAdvance
219	FAQ's
221	International Partners
225	How to order
226	Useful Organisations
227	Glossary

Harnessing the power of *nature* to enhance the built environment!

Welcome to Edition 10 – GreenBlue Urban’s new green and blue infrastructure manual. This book represents the culmination of 30 years of learning and experience, principally in the urban tree planting world, but also across a wider spectrum of green and blue infrastructure projects in many countries.

Within its pages you will learn about 30 years of product innovation, teamwork, hard work and persistence – and 30 years of tree growth in demanding urban environments! Edition 10 is like a mosaic of where we are today – building a complete picture of ‘best practice’ urban tree planting – guiding the industry through the products and methodologies to assist them in successfully establishing long term trees and other living plants in our towns and cities.

This manual also details how the ‘blue’ can be engineered in with the ‘green,’ unlocking the potential of nature-based solutions for storm water interventions – an area GreenBlue Urban has made its own.

When one looks back at the estimated number of trees planted within GreenBlue’s urban tree systems, the mind starts to wonder at the sheer scale of accumulating ecosystem benefits those trees represent – countless and often overlooked benefits, which in turn impact positively on the everyday lives of innumerable people. This achievement is its own reward!

As we at GreenBlue Urban continue to find ways of

improving lives through functional and beautiful urban greening, we have the privilege of knowing that we are, and will continue to be, improving the quality of urban living for all.

GreenBlue Urban operates at the challenging interface between nature and the built environment. We thrive where hard landscape meets soft, this is our focus and core purpose as a company.

We invite the user of this guide to explore and enjoy – to participate in the great mission of bringing living, breathing plants into the heart of the most challenging urban situations.

We could speak of it as the art of intelligently integrating nature into urban spaces – enabling the construction of truly sustainable and beautiful environments, for the benefit of future generations. We are here to support you every step of the journey – lean on our team’s expertise, as you weave ‘nature’ into the ‘fabric’ of your urban space designs!



Dean Bowie
CEO, GreenBlue Urban
Dean Bowie





WHY GREEN & BLUE?



Properties landscaped with trees sell quicker and are worth **5% to 15%** more than homes without trees.



A single mature tree can absorb carbon at a rate of **21.6kg** per year.



Increased canopy cover helps mitigate air pollution, with street trees reducing particulate matter concentration by **15-20%**.



Trees properly placed around buildings as windbreaks can save up to **25%** on winter heating costs.



People are willing to pay **9% to 12%** more for goods and services in a shopping area with large, well-cared for trees.



For every **10%** increase in urban tree canopy, carbon is reduced by **3-7%**.



Evapotranspiration – trees ‘breathe’ water – a mature tree can use up to **200 litres** per day, cleaning & cooling the air.



Potential attenuation space within specialist soil can store **22%-35%** water by soil volume without effecting tree health.



ArborFlow SuDS can filter as much as **95%** of pollutants, such as microplastics, hydrocarbons, metals etc from stormwater runoff.



Calculated correctly, stormwater exceedance flow is clean enough to go into watercourses, as the ArborFlow has dealt with first flush pollutants.



For every **5%** of tree canopy cover, stormwater runoff is reduced by **2%**.



Healthy urban trees are capable of holding huge amounts of water – up to **70%** of the first hour of a rain event – on its canopy and branch structure.

IT'S NOT JUST A TREE

It's not just a tree – it's an incredible air cleaning, flood reducing, urban cooling, shade providing, health improving, pollution removing, aesthetically breath taking, urban miracle.

Oh, and it also happens to increase real estate values, enhance retail sales, improve school academic results, boost hospital convalescence rates, protect from ram raids and reduce urban crime levels.

A tree is the only thing we know of that you can put in an urban environment and (if planted with appropriate uncompacted soil volume) it will increase in value every year it lives...



Our History



1992

Greenleaf sets up as a partnership business, in a domestic garage, and the first RootRain Metro tree waterer is patented and launched to the market.

1996

Greenleaf now introduces a range of root management products – including ReRoot, our own patented shallow root management product, and Root Director. Now we are not just addressing causes of tree mortality, but also designing product to help deal with shallow root heave problems which create problems for many local authorities.



1998

A more comprehensive range of urban tree products continues to come together, including the RootRain Urban – our best-selling tree irrigation product.

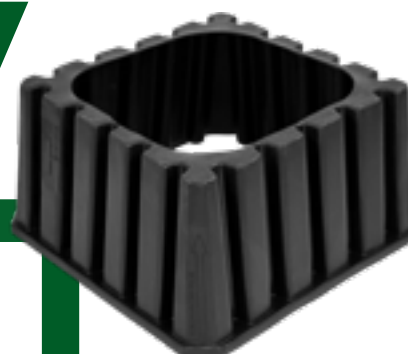
2002

Arborsystem – the first tree pit packages formulated – allowing a complete suite of products to be easily specified and installed, from a single source.



2007

The StrataCell is launched – and further products follow, including underground guying, new ArborVent aeration products.



1995

New larger tree waterers launched – Civic and Precinct, in response to market demand.



1997

Move to new premises, Croft Road, Hastings, 3500 square ft, a real step forward.



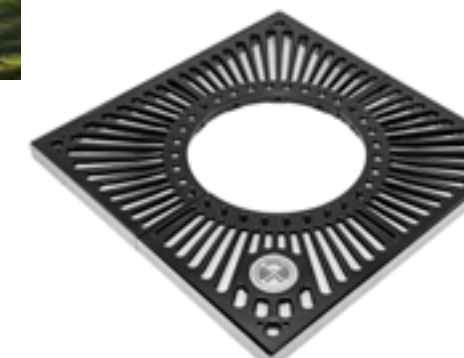
2001

RootCell – the first commercial soil cell system launched – a major move forward, and a global first for Greenleaf.



2003

Following continuing growth, Greenleaf moves to new premises: Haywood Way Hastings – a bigger building and plot, allowing us to further expand – and conducts some of our product trials on site.



2009

Further product enhancements, grilles and guards, and building our export market.

Company Profile

Why Green & Blue?

It's Not Just A Tree

Our History

Mission, Vision & Values

Incorporating Nature Based Solutions

Mitigating and Adapting to Climate Change

Sustainable Collaboration

GreenBlue Circular Economy

Carbon Footprint Strategy

Green, Blue, Smart Space, Air



2013

Further growth necessitated implementing the incorporation of Greenleaf and rebrand under a new name GreenBlue Urban Ltd. The new name reflects the move towards increasing the integration of trees and water sensitive urban design.



2015

Opening of our brand new head quarters - Northpoint, Compass Park. These excellent facilities have given us the infrastructure for the next stage of growth, additional warehousing, office space, research and development areas and training facilities, all set in beautiful grounds. Manufacturing plant on site also helps to reduce carbon footprint.



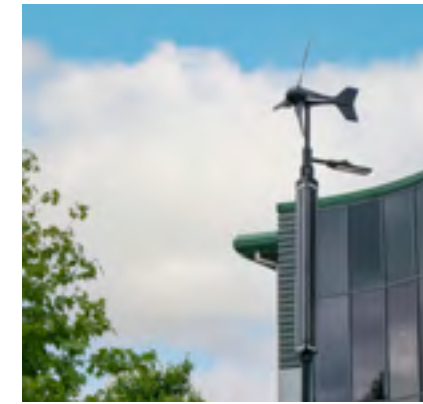
2017

We celebrate 25 years of growth, and reflect on the impact our products have had in enhancing urban environments through optimal tree growth, and the millions of lives improved by healthy trees.



2020

Continuing research into plastic material alternatives and a focus on the circular economy leads to the introduction of RootSpace Ocean, combining our 100% recycled material with post-industry fishing waste.



2022

The GreenBlue product range expands to include ReLuminate, our off-grid street light & HydroPlanter Flex raingarden.

2014

Building commences on our new purpose built headquarters in East Sussex.



2016

We launch our state of the art soil panel system – RootSpace - a culmination of our extensive experience in soil cell systems globally, simultaneously reducing costs and improving performance and usability.



2019

Introduction of HydroPlanter, our innovative 'plug & play' raingarden system, designed to make the installation and implementation of raingardens simple.



2021

GreenBlue Urban introduces two new arms to the business, Smart Space & Air, to include street furniture and air pollution mitigation systems.





550,000+ TREES

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The number of trees GreenBlue Urban have helped establish in the past three decades.

Improving the lives of millions.

Our Mission

GreenBlue operates as the interface between nature and the built environment.



Our Values

Customer Focussed

Always putting customers at the centre of business and our decision-making.

Our Vision

Creating healthier urban spaces in harmony with nature.

Reliable

Assurance that you are dealing with a leading company that can be trusted and provide cost effective solutions in all circumstances. Always tell the Truth.

Passionate

Employee satisfaction that they are doing their jobs to the best of their abilities.

Positivity

Helping to build lifelong relationships with colleagues and customers resulting in improved productivity and well-being.

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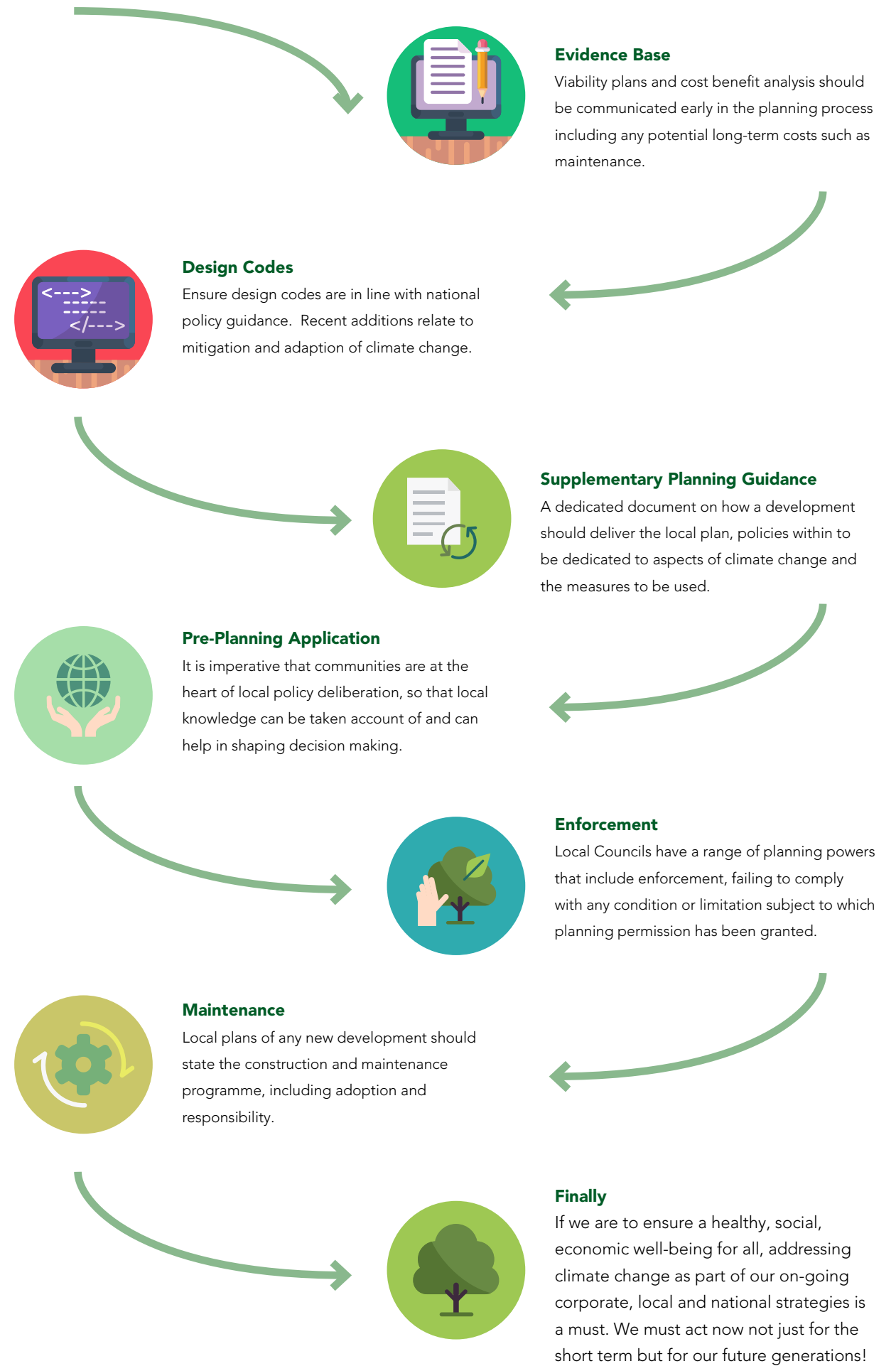
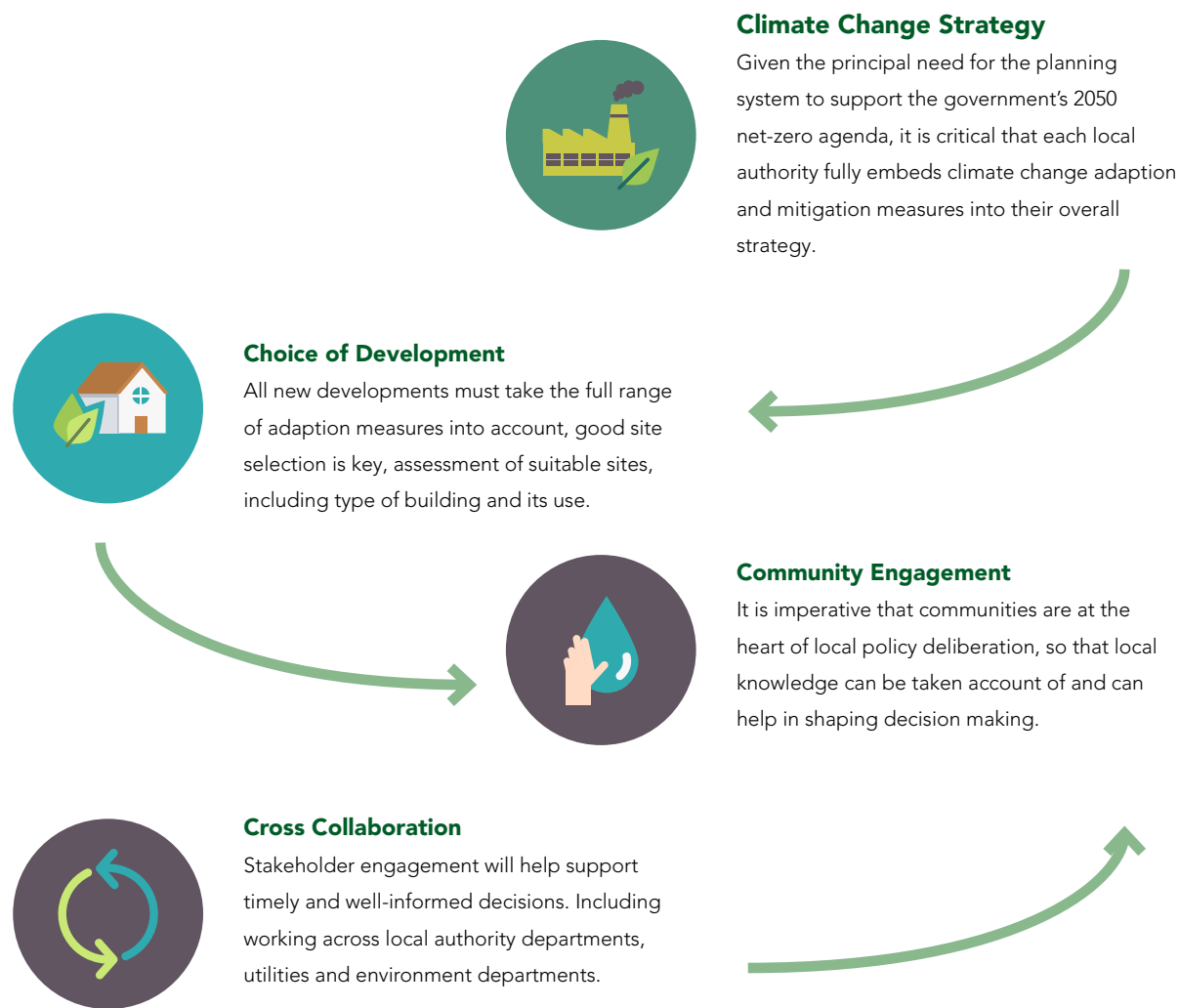
Carbon Footprint Strategy

Green, Blue, Smart Space, Air

Incorporating Nature Based Solutions to Combat Climate Change

GreenBlue Urban are fully aware of the constraints and perceived costs of green blue infrastructure in highways and new developments – with a lack of guidance on adoption, maintenance, underground utilities, concerns for building foundations along with the additional mix of sustainable urban drainage it is imperative planning authorities are familiar with best practice and department collaboration from the very start.

Responding to the climate challenge should be the prevailing objective of a local development plan and this objective should be embedded in all its policy requirements.



Mitigating and Adapting to Climate Change

Climate change is the greatest threat to the future of our planet, but there is still time for us to adapt to it and mitigate its effects.

It's a known fact that global temperature records are being continually broken. According to the World Meteorological Organisation (WMO), the five-year period 2015-2019 was the hottest of all time. Since 1880, the average global temperature has increased by 0.85°C, sea levels have risen by 19cm and the Arctic has lost 1.07 million km² of ice per decade.*

Climate change is a reality that is affecting millions of people across the world, especially the most vulnerable.

Mitigation Measures



Improving energy efficiency, renewable energy over fossil fuels.



Ensuring less waste - Reduce, reuse, recycle.



Using public transport and sustainable mobility.



Ecological reduction for farming and fishing.

Adaptation Measures



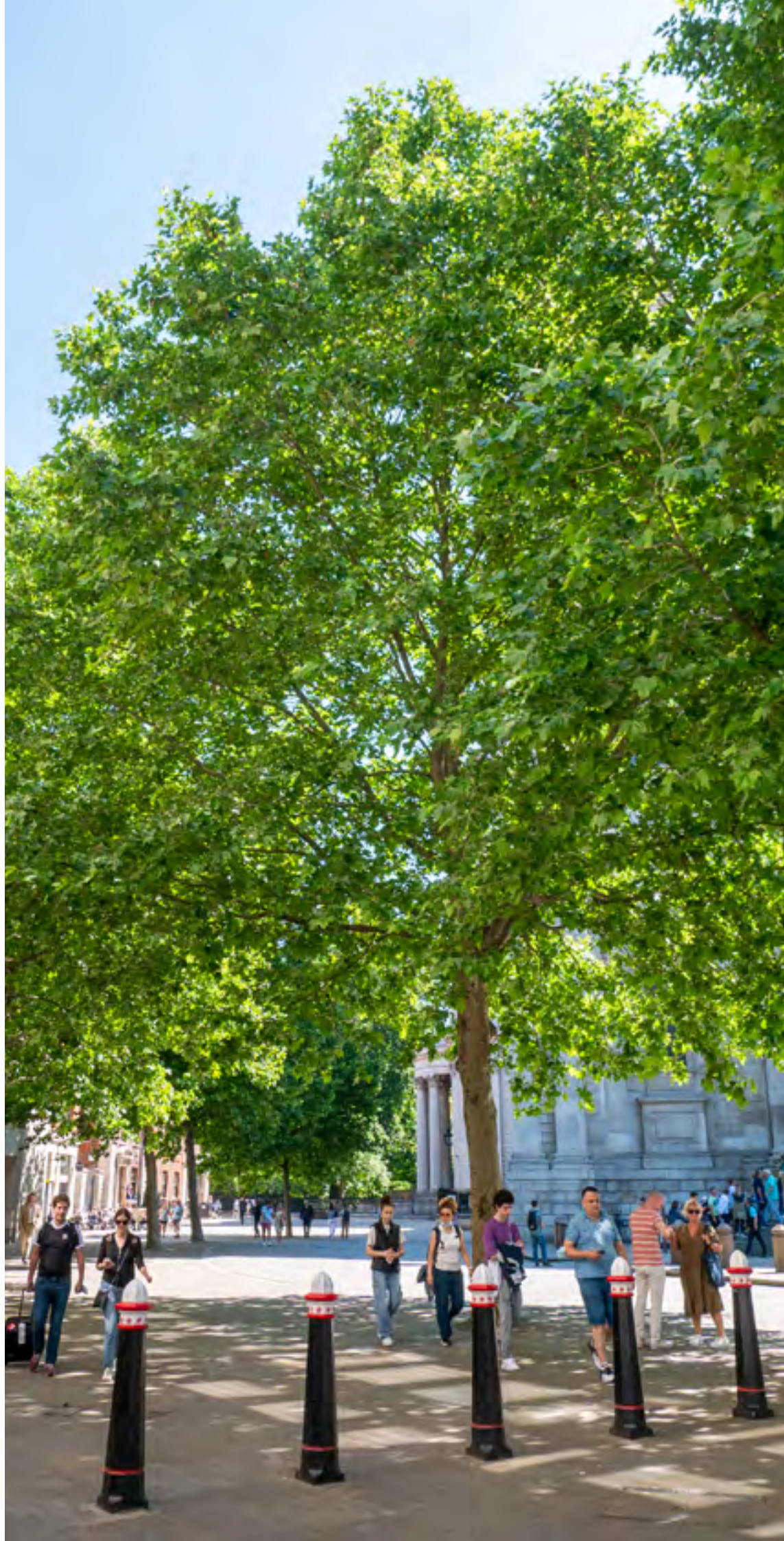
Replanting forests caused by damaged ecosystems.



Ensuring buildings and Infrastructure is more sustainable.



Developing effective action plans – innovative solutions to manage natural catastrophes.



How Can GreenBlue Urban Support?

GreenBlue Urban fully supports current government initiatives to ensure a Green Recovery at a time when nature, our health, well-being and social cohesion is of utmost importance.

Our urban conurbations are predominantly influenced by the built environment – our grey infrastructure. However, quality of life, health and personal fulfilment is closely related to the provision of green space, but the pressures of density on developments can make provision of adequate space for green components difficult to achieve.

Integrating the green (plants and trees) with the blue (watercourses, ponds, lakes, and storm drainage) elements makes our urban spaces more resilient, pleasant and healthy places to live, work and play.

Green infrastructure is often described as interconnected networks of multifunctional green space which provide multiple benefits and can accommodate sustainable development. These elements include parks, open space, trees, both street and private, playing fields, woods, private gardens, allotments and green roofs and walls.

Blue infrastructure usually relates to urban water infrastructure, including ponds, lakes, streams rivers and stormwater provision. Sustainable drainage schemes are usually included under this heading but are sometimes also labelled as green infrastructure.

Combining Green and Blue elements together is an effective way of providing a sustainable natural solution to urban and climatic challenges. Vegetation assists with air pollution removal, stormwater management and the heat island effects as well as creating places that are more pleasant and less stressful to live in.

At GreenBlue Urban we care for all who live, work and play in the urban environment.

1.1 * Intergovernmental Panel on Climate Change (IPCC).

Sustainability Collaboration

The responsibility of creating and maintaining our urban landscapes and infrastructure cannot be laid on any one profession.

The realities of the modern planning and construction process mean that both the public and private sectors have crucial roles to play if our urban landscapes and infrastructure are to be sustainable.

GreenBlue Urban works with all disciplines to help integrate green and blue innovative solutions into urban landscape, enabling successful award-winning projects around the world.

With a vision of creating healthier urban spaces, the last 30 years has seen GreenBlue drastically improve urban planting success, increased leaf canopy and successful management of stormwater – this would not be possible without the continued dedication from our collaborative partners across the industry.

Contractors

As the market leader in urban landscape solutions, GreenBlue is pleased to offer incomparable levels of support and assistance to landscape contractors and general contractors who are required to undertake the procurement and installation of our products.

All GreenBlue products and systems are provided with detailed instructions and technical details, even demo videos to assist with the installation process.

Our technical team is happy to support at any stage of the project journey. Products are fast and easy to install, however we are always happy to visit site to assist with the installation.

We want to support your award-winning project that you can be proud of for years to come!

Landscape Architects

GreenBlue Urban provides a range of services to assist landscape architects in the design of attractive and effective solutions for the healthy establishment and successful long-term growth of urban trees and SuDS designs, along with coordinating street furnishings.

As part of our Specification Support Service, we will be pleased to review your tree pit designs and offer advice on how to improve and enhance them.

You can also save design time by taking advantage of our professionally designed CAD tree pit packages, which are suitable for a wide range of situations and ensure product compatibility.

GreenBlue also support NBS Source, BIM and have our own online design tool – Discover more within the Guide!

Developers

With Biodiversity Net Gain a mandatory requirement - Environment Act 2021 requires developers to ensure new proposals feature at least 10% improvement to biodiversity. (BNG) is ‘an approach to development, and/or land management, that leaves nature in a measurably better state than beforehand’.

Along with the prerequisite that developments of 10 dwellings or more require SuDS interventions, unless deemed inappropriate ensures that green and blue infrastructure is finally further up the agenda at planning stage.

GreenBlue Urban offer the technical expertise on national planning policy and planning guidance on flood risk measures.

Urban Foresters

Urban foresters ensure the careful attention and management of tree populations in city settings for the purpose of improving the urban environment. Ensuring the health and longevity of our urban forests and street trees is a large task that requires resources.

GreenBlue is here to support urban foresters in their battle to maintain our urban landscape settings. Working collaboratively to educate and produce resources that will assist in the assessment of right tree, right place, right way, and much more.

Students

Working with many universities across the UK, GreenBlue Urban are proud to support several planning and architecture courses with bespoke hands-on learning and resources to our future urban planners.

In support, they will be better equipped to assess the viability of schemes based on the integration of nature-based solutions for the benefit of all. This guide in itself is the first stepping stone for many on their learning journey!

Urban Planners

Urban planners, municipalities and local authorities have an important role to play in ensuring that the care, maintenance, and expansion of the urban forest is not overlooked when considering any proposed developments.

The numerous benefits including improved public health, decrease in crime, social cohesion and other economic factors bring communities to the forefront for any healthy place design.

GreenBlue Urban are here to advise on policies for planning, current best practices, urban tree planting techniques, SuDs calculations, maintenance programmes and much more.

Encompassing our mission as the interface between nature and the built environment we can bring silo departments together to enable successful healthy developments from the very start that will be enjoyed for generations to come.

Civil Engineers

Engineers will of course pay careful attention to the structural integrity and building standards when dealing with buildings and roadways. GreenBlue are fully committed to support with data on continued testing of products in the knowledge that our products fully meet load capacity requirements.

Our designs greatly reduce the environmental difficulties faced in urban areas, while simultaneously controlling the occurrence of pavement heave or subsidence. GreenBlue products even make it possible for trees to share soil space with utilities, with neither one impinging upon the other.

With nature-based solutions at the forefront of managing stormwater we are delighted at the recent shift from tanked storage to SuDS solutions – our hydraulic guidance and detailed designs make the transition easy for experienced and new engineers alike.



The concept of a circular economy is not new – in fact, the linear economy characterised by taking, making and disposing of has only existed since the industrial revolution. In previous eras, very little was thrown away.

So why don't we still do this everywhere?

The truth is that it's far more convenient and sometimes cheaper to manufacture products from virgin material, and nearly always the quality is more consistent.

GreenBlue Urban has always been committed to the circular economy principle – and it is far wider than just product manufacture. A circular economy is a wide economic system that works to challenge global issues such as waste and pollution, but also climate change, biodiversity loss and pollution – both air and water. In setting such massive goals, the circular economy needs a huge shift in thinking, by all of us.

Planting trees is a perfect example of a circular economy, as the tree provides multiple benefits during its life, and can be used to manufacture products when it is cut down. Removal of a plantation tree results in space left for new tree planting, bringing employment to often rural areas.

But what about urban trees?

Urban trees also form part of a circular economy – but to maximise the benefits, these need to be properly planted, and grow to maturity. This is the raison d'être of GreenBlue Urban – assisting trees in their struggle to survive in a hostile environment.

GreenBlue's innovative solutions enable trees to grow to their species potential longevity. All the below-ground products are manufactured from 100% recycled materials and are recyclable up to 5 times once they have finished their life.

Rather than disposing of end of use plastics in landfill or by incineration, we use this recycled polymer to assist trees to grow and sequester the carbon produced by the manufacture of the original material.

2020 saw the launch of RootSpace Ocean, manufactured from reclaimed marine waste – further reducing the impact on the environment. Using nature-based solutions is central to the GreenBlue Urban philosophy, bringing environmental benefits to communities around the world.

Discover more on how we will be on track to reduce our carbon footprint to support the government's initiative to become carbon net-zero by 2040.

Carbon Footprint Strategy

GreenBlue Urban publishes a corporate GHG Inventory Report annually in accordance with ISO14064

Reducing Emissions

Goal: reduce stage 1 direct and 2 indirect emissions by 100% by 2025.

Carbon Neutral

From 2020, GBU are committed to annually offsetting all residual stage 1 direct and 2 indirect emissions using verified UK forestry offsetting schemes

Net Zero

Goal: achieve net zero by 2040.



9 Trees Business Partner

The vision of 9 Trees is to tackle climate change by creating new woodland habitats, promoting biodiversity, creating jobs within the countryside sector and connecting more people to nature. 9 Trees is a Community Interest Company, ploughing any profits back into good schemes, training and education.



100% Recycled materials

The majority of our products are 100% recycled, virtually all contain a large proportion of recycled material.



UK Manufacturing

For the lowest carbon footprint – over 90% of our products are manufactured completely in UK.



Environment-centric products

Our whole company is built around boosting tree growth, sequestering carbon, and nature-based water cleansing SuDS systems.



Power and water use

On-site manufacturing uses solar power
All facilities here use water from a borehole in our own grounds.



EV fleet

We have a policy of moving the entire company vehicle fleet over to EV or Hybrid power.



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Green

Blue

Smart Space

Air

Company
Profile

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Circular
Economy

Carbon
Footprint
Strategy

Green, Blue,
Smart Space,
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Trees are forest plants. As soon as we overlook this simple fact we are likely to make mistakes when planting in town and city environments. We cannot perfectly recreate the conditions trees enjoy in woodlands but we can go a huge distance in improving their chances of thriving in challenging conditions by tree literate design.

The key to success above ground, is investing below ground; an investment which is out of sight but quickly evident above ground for many decades and potentially even centuries.

At GreenBlue Urban, our heritage is in our urban forest – but our expertise in urban greening extends beyond just trees - encompassing green walls, rain gardens and assisting with the design of healthier, greener urban spaces with our innovative solutions.

31	ArborSystem
33	Pavement Support Systems
39	Tree Irrigation
49	Tree Aeration
51	Root Management
59	Underground Guying
65	Tree Ties
67	Tree Grilles
79	Tree Guards
83	Geo textiles & Membranes
85	Green Wall Climbing Support Systems
87	Verdecade



ArborSystem

The GreenBlue Urban ArborSystem® brings together the key elements of successful tree pit design and simplifies the design and installation process for specifiers and installers.

By using CAD, landscape professionals can combine root management, structural soil components, aeration, irrigation and choose an appropriate above ground surface grille and vertical guard – in a single package.

Since its inception and development over recent years, the ArborSystem integrated tree pit product package has proved itself in many demanding locations. For many landscape specifiers, Arborsystem has become the system of choice for integrating trees into the urban environment.

By using our pre-drawn CAD tree pit details, landscape professionals can use the ArborSystem tree planting systems to combine root management, structural soil components, aeration, irrigation and choose an appropriate above-ground surface grilles and vertical guard – all in a single package. Since its inception and development, the ArborSystem integrated tree pit product package has proved itself in many demanding locations.

For many landscape specifiers, ArborSystem has become the system of choice for integrating trees into the urban environment. Indeed, the ArborSystem is the most advanced and comprehensive complete tree planting system available on the market. For more information about ArborSystem products, continue browsing to find out about individual components.

Alternatively, contact us now and our team will be pleased to answer any queries regarding ArborSystem and urban tree planting.



Scan QR Code

To discover more on ArborFlow



StrataCell
Pavement Support Systems



RootSpace
Pavement Support Systems



RootSpace Ocean
Pavement Support Systems



RootSafe
Root Management



RootDirector
Root Management



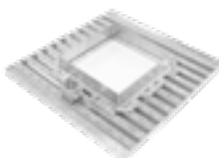
ArborGuy AnchorPlate
Underground Guying



RootRain Urban
Irrigation & Aeration



RootRain ArborVent
Irrigation & Aeration



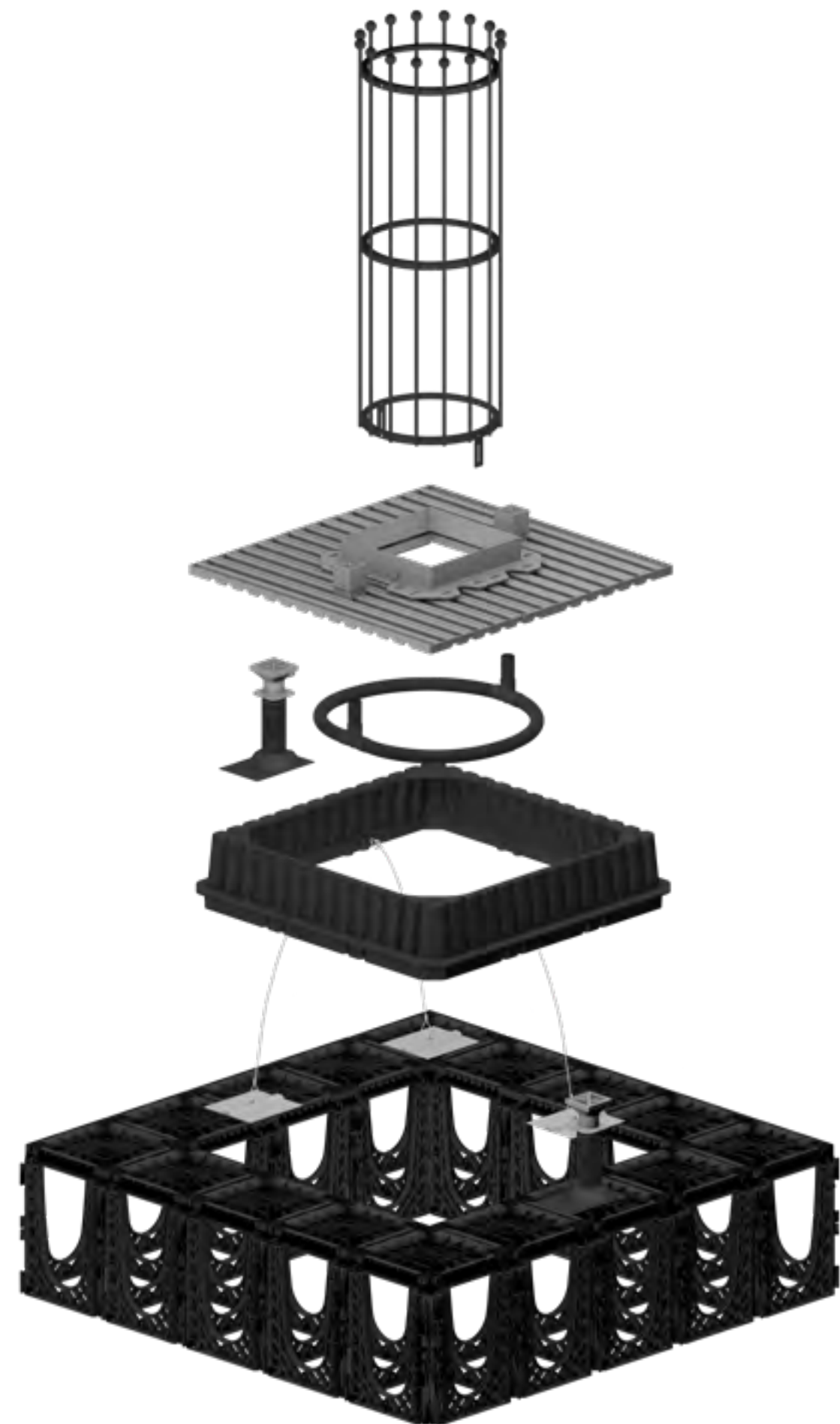
Zeta Tree Grille
Tree Surrounds



Ullswater Tree Guard
Tree Surrounds



RootSoil 20
Soils & Aggregates



RootSpace

Pavement support system manufactured from recycled plastic



Features

- Open lattice leg provides unlimited access for all the roots to 100% of the void space.
- 100% recycled material; alternative ‘RootSpace Ocean’ marine waste version available.
- Unique aeration deck lid providing aeration to the entire system.
- Lateral interlocking grid layout and side infill panels providing leading lateral strength characteristics.
- Range of depth options available from 475mm upwards in 200mm increments.
- BBA approved
- Environmental Product Declaration pending

Benefits

- Optimum conditions for soil biology maximising root growth & tree health.
- Very fast, simple and easy to assemble reducing installation time & costs.
- Ease of assembling around complex pipes and services.
- Designed for easy re-excitation for maintenance of utilities.
- Minimum excavation depths required.
- Can be used close to highways due to world leading lateral structural performance.
- Minimum carbon footprint due to 100% UK manufacture and highly efficient transport volumes.

The GreenBlue Urban RootSpace Pavement Support System is an engineered load-bearing soil cell with over 95% open void space for maximum rooting volume as well as the ability to accommodate services.

RootSpace G2 is manufactured in the UK from 100% recycled material, designed to be economic freight and is the culmination of more than 27 years experience in helping establish trees in complex urban environments.

The new generation of RootSpace is launched with a 400mm high option to suit a greater spread of situations.



RootSpace Upright



Optional RootSpace Infill panel



RootSpace Airdeck

Code	Height	Unit quantity	Cubic volume
GBURS41A	400mm (1 Cell deep)	1 sqm	0.4 m3
GBURS61A	600mm (1 Cell deep)	1 sqm	0.6 m3
GBURS42A	800mm (2 Cells deep)	1 sqm	0.8 m3
GBURS64A	1000mm (2 Cells deep)	1 sqm	1.0 m3
GBURS62A	1200mm (2 Cells deep)	1 sqm	1.2 m3

Working around utilities

To date, GreenBlue Urban systems have helped over 450,000 trees thrive in urban areas around the world. We’ve been involved in projects large and small, including some of the most prestigious developments in the world.

Given the nature of working in the built environment, many of these projects involved integrating utilities into the RootSpace system and the other components of the ArborSystem. These systems were designed to accommodate a wide variety of utilities and services making it possible to grow healthy urban trees while protecting surrounding building infrastructure.



Download Online
Scan the QR code to download the guide online.



View Product Online
Scan the QR code to view online.



- Manufactured in the UK**
- Made from 100% recycled material**
- ArborSystem Compatible**

RootSpace Ocean

Pavement support system manufactured from recycled ocean post-fishing industry waste



Features

- 100% recycled polyprop, but only approx. 30% ocean waste polyprop.
- Only 2 main interlocking components.
- Very open format with more than 95% soil void space.
- Highly engineered lattice structure optimising world lead strength v. cost ratio.
- Unique lid creates essential air zone above soil.
- Unique interlocking structural side panel.

Benefits

- Optimum conditions for soil biology maximising root growth & tree health.
- Very fast, simple and easy to assemble reducing installation time & costs.
- Designed for easy integration, and re-excavation for maintenance, of utilities.
- Minimum carbon footprint with 100% UK manufacture.
- Minimum excavation depths required.
- Can be used close to highways due to world-leading lateral performance.



View Product Online
Scan the QR code to view online.

Utilising fishing nets, ropes and post-use rigid plastic, RootSpace Ocean takes a preventative approach to ensuring that these products are recycled into useful raw materials that do not end up in our oceans and watercourses... green plastics!

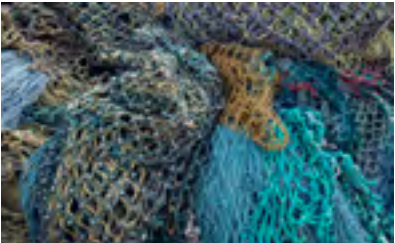
These green plastics are sourced by a trusted supplier that currently produces 12,000 tons of recycled plastic per year to be used in the production of high-quality environmentally friendly products, including RootSpace.

All of the used nets, ropes and post-use rigid plastics undergo the same process upon arriving at the production plant. They are first inspected & registered, before being cleaned and fractioned. They then undergo a process of extrusion, washing, drying & finally separation before being cut into green pellets ready for production.

This raw material is then delivered to GreenBlue Urban's HQ in Bodiam, East Sussex, where our own manufacturing team inject this raw material into our RootSpace soil cell. A truly green alternative to urban tree planting.



Code	Height	Unit quantity	Cubic volume
GBURS41A	400mm (1 Cell deep)	1 sqm	0.25 m3
GBURS61A	600mm (1 Cell deep)	1 sqm	0.5 m3
GBURS42A	800mm (2 Cells deep)	1 sqm	0.75 m3
GBURS64A	1000mm (2 Cells deep)	1 sqm	1.0 m3
GBURS62A	1200mm (2 Cells deep)	1 sqm	1.25 m3



Reclaim



Recycle



Process



Manufacture



Distribution



Final use



Manufactured in the UK
 Made from 100% recycled material
 ArborSystem Compatible

- Green
- ArborSystem
- Pavement Support Systems
- Tree Irrigation
- Tree Aeration
- Root Management
- Underground Guying
- Tree Ties
- Tree Grilles
- Tree Guards
- Geo textiles & Membranes
- Green Wall Climbing Systems
- VerdeÇade

StrataCell

Pavement support system



Features

- 100% recycled material.
- Integrated matrix simple and fast to click together.
- 94% void ratio for total soil/root access and minimal plastic.
- Large openings permit pipes, services and soil aeration systems.
- Ingenious and unique octagonal shape optimises structural integrity.

Benefits

- Optimum conditions for soil biology maximising root growth & tree health.
- Very fast, simple and easy to assemble reducing installation time & costs.
- Ease of assembling around complex pipes and services.
- Minimum excavation depths required.
- Can be used close to highways due to world leading lateral structural performance.
- Minimum carbon footprint due to 100% UK manufacture and highly efficient transport volumes.

The GreenBlue Urban StrataCell Pavement Support System is an engineered load-bearing soil cell with over 94% open void space for maximum rooting volume as well as the ability to accommodate services.

StrataCells are manufactured in the UK from 100% recycled material, designed to help establish trees in complex urban environments.

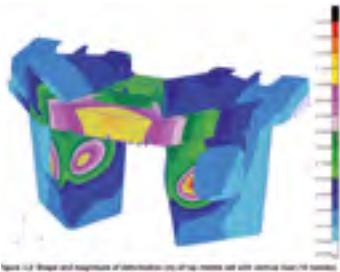
Designed to highly advanced engineering specifications to support greater vertical loads, StrataCell brings tree-root systems closer to pavement surfaces. Engineers have calculated that, with only 300mm of granular pavement depth, a StrataCell matrix can support maximum traffic loads.



Installation of StrataCell soil cell system at BBC Television Centre, White City.



Completed installation of BBC Television Centre (Photographed in 2020)



Extensive computer modelling and laboratory testing have established StrataCell as the strongest large soil cell.



StrataCell is designed to work around below ground utilities and constraints.

Code (30 series)	Code (60 series)	Height	Unit quantity	Cubic volume
GBUSC301A	GBUSC601A	250mm (1 cell deep)	1 sqm	0.25 m³
GBUSC302A	GBUSC602A	500mm (2 cells deep)	1 sqm	0.5 m³
GBUSC303A	GBUSC603A	750mm (3 cells deep)	1 sqm	0.75 m³
GBUSC304A	GBUSC604A	1000mm (4 cells deep)	1 sqm	1.0 m³
GBUSC305A	GBUSC605A	1250mm (5 cells deep)	1 sqm	1.25 m³
GBUSC306A	GBUSC606A	1500mm (6 cells deep)	1 sqm	1.5 m³



View Product Online
Scan the QR code to view online.



Manufactured in the UK



Made from 100% recycled material



ArborSystem Compatible

RootRain Metro

Irrigation System



Features

- Durable recycled plastic bracket.
- 35mm flexible perforated pipe.
- Available in contractor pack form.
- Available in three different cap configurations.

Benefits

- Quick and easy to install.
- Improved drought tolerance.
- Fast watering (60 litres per minute in porous soil).
- Reduces water volume requirements by eliminating wastage.
- Establishes deeper rooting profile.
- Increases drought tolerance & stability.
- Reduces risk of surface root damage.

Typical Installation Specification

Install RootRain Metro (state product code) c/w pipe and fixing bracket with attached top cap as follows:

Loop the free end of the 35mm perforated irrigation pipe around the root system approximately 250mm below finished level. Plug the pipe into the bracket bottom cap.

Nail the bracket to the tree stake to prevent theft. Backfill the rest of the tree pit. It is important to ensure that the inlet pipe and top cap protrude between 10mm and 50mm from the finished surround level. The main bracket section should not be visible.

Developed in the early 1990s, the RootRain Metro system is one of the most widely specified proprietary tree pit irrigation systems in the world. RootRain Metro is available in four different sizes and with three different cap configurations. The system is also available in contractor pack form.



RootRain with plastic cap.



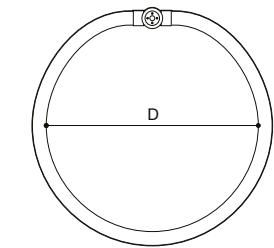
Plastic cap with chain.



Metal cap with chain.



Installed RootRain Civic RR1A in soft.



Using the table below the specifier can select the correct size in relation to root ball diameter.

Code	Rootball dia.	Cap type	Pipe length
RR1A	0.40m	Plastic	1.25m
RRPC1A	0.40m	Plastic with chain	1.25m
RRPC1A	0.40m	Metal with chain	1.25m
RR2A	0.55m	Plastic	1.75m
RRPC2A	0.55m	Plastic with chain	1.75m
RRMC2A	0.55m	Metal with chain	1.75m
RR3A	0.80m	Plastic	2.50m
RRPC3A	0.80m	Plastic with chain	2.50m
RRMC3A	0.80m	Metal with chain	2.50m

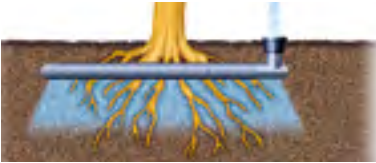
The principles of tree root watering



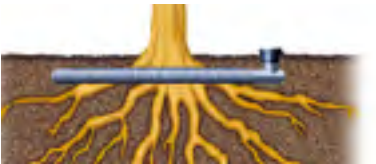
Surface irrigation is rarely efficient for trees, the topsoil layer waterlogs, leading to surface run off, soil capping, compaction and wastage. Water has difficulty penetrating the deeper root zone.



If surface is irrigated regularly to a shallow depth, roots will remain near the surface leading to a long-term susceptibility to drought.



RootRain waterers deliver water directly to the root zone. This eliminates wastage and reduces the risk of surface compaction.



The roots are encouraged to establish at a greater depth improving long term drought resistance and tree stability. Provides an access point for air and feeding with soluble fertilisers.



View Product Online
Scan the QR code to view online.

- Manufactured in the UK**
- Made from 100% recycled material**
- ArborSystem Compatible**

Green

ArborSystem

Pavement
Support
Systems

Tree
Irrigation

Tree
Aeration

Root
Management

Underground
Guying

Tree Ties

Tree Grilles

Tree Guards

Geo textiles &
Membranes

Green Wall
Climbing
Systems

VerdeÇade

RootRain Urban

Irrigation System



The RootRain Urban is a large capacity irrigation system with a fixed grid inlet, particularly suited to open space and roadside verge tree planting in softscape. The grid allows water and air through but prevents ingress of litter and debris.

The RootRain Urban is particularly suited to roadside verge and open space tree planting. The inlets are trimmer resistant and can be set below mowing machine height. They have very little vandal appeal and no theft value, making them ideal for housing estates and public areas.

Features

- Large capacity 60mm irrigation system.
- 100 litre per-minute capacity in porous soil.
- Grid lid prevents debris and rodent ingress.
- Manufactured from durable recycled materials.
- Includes adjustable riser.
- Automatic irrigation adapter available.

Benefits

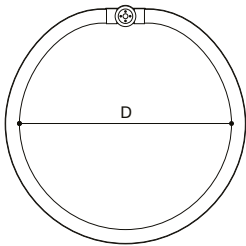
- Quick and easy installation.
- Cost-effective on large and small schemes.
- Vandal resistant.
- Discreet and unobtrusive.
- Establishes deeper rooting profile.
- Increases drought tolerance & stability.
- Reduces risk of surface root damage.
- Protection from debris and rodent ingress.



This illustrates the correct level for the RootRain Urban inlet. Too low could lead to blockages; too high can look obtrusive.



View Product Online
Scan the QR code to view online.



Using the table below the specifier can select the correct size in relation to root ball diameter.

Code	Pipe length	Pipe dia	Inlet height	Inlet diameter	Weight
RRURB1A	3m	60mm	300mm	80mm	1kg
RRURB2A	5m	60mm	300mm	80mm	1.4kg
RRURB3A	8m	60mm	300mm	80mm	2kg
RRURBDI3A	8m	60mm	300mm	80mm (2no per system)	2.5kg

Typical Installation Specification

Install RootRain Urban (1, 2 or 3) irrigation system as follows:

Loop the 60mm irrigation pipe around the shoulder of the root ball (200mm-300mm below ground level) and connect securely to the tee piece. The vertical piece of pipe can be cut to length to ensure that the inlet is flush or slightly (25mm maximum) proud of the final pit surround.

Green

ArborSystem

Pavement
Support
Systems

Tree
Irrigation

Tree
Aeration

Root
Management

Underground
Guying

Tree Ties

Tree Grilles

Tree Guards

Geo textiles &
Membranes

Green Wall
Climbing
Systems

VerdeÇade



Manufactured in the UK



Made from 100% recycled material



ArborSystem Compatible

RootRain Civic

Irrigation System



One of our longest standing products, the RootRain Civic is a large capacity irrigation system with a fixed grid inlet complete with a vandal resistant powder-coated aluminium cap on a retainer chain. Like the RootRain Urban, it is suited for open space and roadside verge tree planting in softscape.

RootRain Civic is a very well-proven large capacity irrigation system which has a vandal resistant inlet with a powder-coated aluminium cap on a retainer chain. Popular with landscape architects and contractors, the RootRain Civic has been widely used on projects demanding a high level of specification.

Features

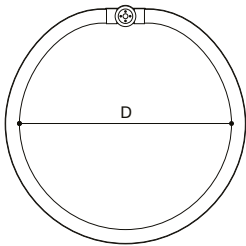
- Large capacity 60mm irrigation system.
- 100 litre per-minute capacity in porous soil.
- Grid lid prevents debris and rodent ingress.
- Manufactured from durable recycled materials.
- Includes adjustable riser.
- Automatic irrigation adapter available.
- C/W vented aluminium cap on retainer chain.

Benefits

- Quick and easy installation.
- Cost-effective on large and small schemes.
- Vandal resistant.
- Discreet and unobtrusive.
- Establishes deeper rooting profile.
- Increases drought tolerance & stability.
- Reduces risk of surface root damage.
- Enhanced protection from debris and rodent ingress.



When installed correctly, only the aluminium cap should be visible.



Using the table below the specifier can select the correct size in relation to root ball diameter.

Code	Pipe length	Pipe dia	Inlet height	Inlet diameter	Weight
RRCIVIC1A	3m	60mm	300mm	80mm	1kg
RRCIVIC2A	5m	60mm	300mm	80mm	1.4kg
RRCIVIC3A	8m	60mm	300mm	80mm	2kg
RRCIVICD13A	8m	60mm	300mm	95mm (2no per system)	2.5kg

Typical Installation Specification

Install RootRain Civic (1, 2 or 3) irrigation system, complete with aluminium cap and retainer chain.

Loop the 60mm irrigation pipe around the shoulder of the root ball (200mm-300mm below ground level) and connect securely to the tee piece. The vertical piece of pipe can be cut to length to ensure that the inlet is flush or slightly (25mm maximum) proud of the final pit surround.



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Manufactured in the UK



Made from 100% recycled material



ArborSystem Compatible

Green

ArborSystem

Pavement
Support
Systems

Tree
Irrigation

Tree
Aeration

Root
Management

Underground
Guying

Tree Ties

Tree Grilles

Tree Guards

Geo textiles &
Membranes

Green Wall
Climbing
Systems

VerdeÇade

RootRain HydroGrille

Irrigation and aeration for rooting areas below hard surfaces



GreenBlue Urban's RootRain Hydrogrille tree aeration system maintains long term soil health and fertility by facilitating high volumes of water and oxygen to reach the tree rooting area directly and allowing toxic gasses to escape – a critical tree welfare factor.

The lift and swing lid is intended for easy access for cleaning and has the capacity to withstand heavy vehicular overrun, including from street sweepers.

Features

- Heavy duty cast aluminium inlet withstands over 10t wheel loads inc. street sweepers.
- Anti-vandal lid lifts and swings to one side for fast irrigation & maintenance.
- Unique removable self-cleaning device supplied with all HydroGrilles.
- Twist and lock lug secures the HydroGrille into GBU's range of tree grilles.
- Concrete flange at base of ArborVent prevents slumping.

Benefits

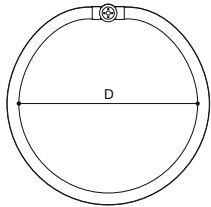
- Constant gaseous exchange for soil health.
- Critical for tree survival and longevity.
- High quality robust construction for durability during construction and throughout working life.
- Flush mounting fits seamlessly with virtually any type of paving finish.
- Flush finish heel-safe grating eliminates trip hazards.
- Self-cleaning device atomises water flow to reduce soil erosion within tree pit.



Hydrogrille Inlet which interlocks with our 'ArborSystem' range of tree grilles.



Inlet opens for irrigation.



Using the table below the specifier can select the correct size in relation to root ball diameter.

Code	Inlet size	Pipe dia	Pipe length	Inline filter
RRHYDR1A	120mm dia	60mm	3mtr	RRILF60A
RRHYDR2A	120mm dia	60mm	3mtr	RRILF60A
RRHYDR3A	120mm dia	60mm	3mtr	RRILF60A

Typical Installation Specification

Install RootRain HydroGrille (1, 2 or 3) irrigation system c/w cast aluminium inlet as follows:

Loop the 60mm irrigation pipe around the shoulder of the root ball 200mm-300mm below ground level and connect securely to the tee piece.

The vertical piece of pipe can be cut to length to ensure that the inlet is flush with the paving surround. If fitting into a tree grille, ensure inlet is connected to vertical 60mm riser pipe, locate inlet into purpose formed aperture within the grille and twist to lock into place.



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- Manufactured in the UK**
- Made from 100% recycled material**
- ArborSystem Compatible**

RootRain HydroFort

Water reservation and tree protection



Features

- Tough recycled U.V. stabilised plastic.
- Comes in 2 click-together halves.
- Circular format with serrated bottom edge.

Benefits

- Robust material stands up to rough treatment.
- Prevents salt ingress.
- The format enables easy installation process.
- Attractive low-profile appearance.
- Contains up to 26ltrs of water.
- Proven to improve vegetation success



Code	Diameter	Height	Colour
RRHF430B	430mm	190mm	Black
RRHF600B	600mm	250mm	Black



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RootRain Auto-Irrigation Adapter

Connection for automatic irrigation systems



Features

- Heavy duty composite components.
- Push fit water supply connection.
- Threaded internal connection for 'bubbler' nozzle.

Benefits

- Visible outlet allows easy functionality checks and maintenance.
- Simple push-fit connections for ease of installation.
- Reduce tree maintenance costs.

Suitable for use with

- RootRain Urban.
- RootRain Civic.
- RootRain HyrdoGrille.
- RootRain ArborVent 100.
- RootRain Precinct 100.

A new development by GreenBlue Urban. Automatic irrigation is a popular way of reducing maintenance costs of trees and other plants. The RootRain Auto-irrigation Adaptor can be used with all RootRain 60mm irrigation systems and provides a robust barbed push-fit joint for simple connection to the existing automatic water supply pipe.

An outlet point viewable from the surface enables quick functionality checks, this decreases potential for tree damaged caused by unnoticed functionality issues with automatic irrigation systems.



Code	Description	Materials	Connection type
GBUAIWAA	RootRain Auto-Irrigation Watering Adaptor	PVC/PP	Barbed push fit

To suit water pipe 25mm internal dia



View Product Online
Scan the QR code to view online.

RootRain ArborVent/Precinct

Irrigation and aeration for rooting areas below hard surfaces



GreenBlue Urban’s RootRain ArborVent & Precinct irrigation and aeration systems maintain long term soil health and fertility by facilitating high volumes of water and nutrients such as oxygen to reach the tree rooting area directly, and allowing toxic gasses to escape. This is critical for trees for, without aeration, soil beneath paved areas will quickly become anaerobic and unable to support the life of the tree.

The ArborVent & Precinct are designed primarily with aeration of the wider tree pit in mind, but can be used for the primary root-ball irrigation system depending on the type of tree grille being used, and being a heavy-duty cast aluminium structure are perfect for heavily trafficked hardscape areas.

Features

- Heavy duty cast aluminium inlet withstands over 10t wheel loads inc. street sweepers.
- Anti-vandal lid lifts and swings to one side for fast irrigation & maintenance.
- Unique removable self-cleaning device supplied with all ArborVents.
- ArborVent 150 includes Manifold for connectivity with RootSpace structure.
- Concrete flange at base of ArborVent prevents slumping.

Benefits

- Constant gaseous exchange for soil health.
- Critical for tree survival and longevity.
- High quality robust construction for durability during construction and throughout working life.
- Flush mounting fits seamlessly with virtually any type of paving finish.
- Flush finish heel-safe grating eliminates trip hazards.
- Self-cleaning device atomises water flow to reduce soil erosion within tree pit.



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Scan the QR code to view online.



Code	Inlet size	Pipe dia.	Downpipe	Pipe length	Inlet
RRARBV1D	110mm sq	60mm	700mm	3mtr	Single
RRARBV2D	110mm sqr	60mm	700mm	5mtr	Single
RRARBV3D	110mm sqr	60mm	700mm	8mtr	Single
RRARBVDI3D	110mm sqr	60mm	700mm	8mtr	Double
RRARBV150B	150mm sqr	110mm	750mm	n/a	Double

Code	Inlet size	Pipe dia.	Downpipe	Pipe length	Inlet
RRPREC1C	100mm dia	60mm	700mm	3mtr	Single
RRPREC2C	100mm dia	60mm	700mm	5mtr	Single
RRPREC3C	100mm dia	60mm	700mm	8mtr	Single
RRPREC3C	100mm dia	60mm	700mm	8mtr	Double

Typical Installation Specification

Install RootRain ArborVent & Precinct (1, 2 or 3) irrigation system c/w cast aluminium inlet as follows: Loop the 60mm irrigation pipe around the shoulder of the root ball (200mm-300mm below ground level) and connect securely to the tee piece.

The vertical piece of pipe can be cut to length to ensure that the inlet is flush with the paving surround.



- Manufactured in the UK**
- Made from 100% recycled material**
- ArborSystem Compatible**

RootSafe™

Deep linear application flat root barrier



RootSafe is a high strength root barrier for deeper applications. This product has been used extensively on many projects around the UK, particularly in new service infrastructure projects, business parks and housing developments.

Usable vertically, horizontally, around sharp corners, curves and landscape edges, it is one of the most highly adaptable solutions available. RootSafe is rigid enough to hold its form when placed into a trench. This is a big advantage as it will not be dragged downward during backfilling.

Market leading puncture resistance and strength, mean that this is the root barrier of choice for specifiers and utility companies requiring root free service corridors. The high puncture resistance of RootSafe allows easier compaction close to the barrier ensuring an excellent product/soil interface.

Features

- Available in 300mm, 600mm,1000mm, 1500mm and 2000mm depths.
- Available in 1mm or 2mm thicknesses.
- Supplied in roll form and cut to order in 10m increments to minimise waste.
- 100% recycled HDPE is impervious to moisture and root penetration.
- Resistant to puncture, biodegradation, photodegradation, bacteria and most chemicals.
- ReRoot jointing tape allows root-proof joints.
- Can be fully recycled at end of life.

Benefits

- Effective in the control of Japanese Knotweed and other invasive plants.
- Fulfills all Arboricultural Advisory and Information Service guidelines for root barriers.
- Prevents pavement ‘root heave’ effectively eliminating trip hazards.
- Ease of installation in virtually all situations with no specialist equipment required.



RootSafe can be used to keep tree roots from damaging services and paved areas.



RootSafe will hold its form in a trench excavation. This makes installation quick and easy.

Code	Thickness	Depth	Roll length	Pallet Qty
RER210X0.6A	1mm	600mm	100mtr	12 rolls
RER210X1.0A	1mm	1000mm	100mtr	10 rolls
RER210X1.5A	1mm	1500mm	100mtr	6 rolls
RER220X1.0A	2mm	1000mm	100mtr	10 rolls
RER220X1.5A	2mm	1500mm	100mtr	6 rolls
RER220X1.0A	2mm	2000mm	50mtr	6 rolls (wide pallet)

Typical Installation Specification

RootSafe (including relevant product code) linear root barrier as follows:

Excavate narrow trench between the tree and the structure to be protected. Please note: the positioning of the trench will depend on tree species and other site conditions. Please consult a qualified arboriculturist.

The barrier should be positioned in the trench against the side of the trench nearest the tree. Any sharp objects should be removed from the trench walls and the backfill material.

RootSafe roll ends can be joined by overlapping at least 500mm and securing both sides with GreenBlue Urban ReRoot jointing tape. For critical applications the material can be seam welded.

Ensure that the top of the barrier finishes at least 10mm above finished soil levels tree side, to avoid subsequent root overgrowth.

The barrier can be trimmed using a sharp knife. Backfill the trench in layers, compacting carefully. It may be desirable, depending on site conditions, to encapsulate the top edge of the barrier in concrete haunching to protect the barrier and to finish the installation tidily.



View Product Online
Scan the QR code to view online.

- Manufactured in the UK**
- Made from 100% recycled material**
- ArborSystem Compatible**

ReRoot™

Ribbed Root Barrier



ReRoot is a range of ribbed root barriers designed for the protection of paved surfaces, shallow service ducts and utilities.

This versatile root management system can be used to surround individual or groups of trees because the ribs are proven to divert lateral root growth downwards which has many benefits.

Many local authorities now state in their planning policy that trees planted in soft areas within 3m of a paved/hard surface, that will be adopted by the council, must be lined with a root barrier.

Features

- Available in 300mm, 600mm and 1000mm depths.
- Supplied in roll form and cut to order in 10m increments to minimise waste.
- 100% recycled HDPE is resistant to puncture, biodegradation, and photodegradation.
- ReRoot jointing tape allows root-proof joints.
- Full depth rib - the rib extends to the full depth of the root barrier.

Benefits

- Prevents ‘root girdling’ – a fatal rooting pattern.
- Deeper root growth improves drought tolerance and tree stability.
- Guides roots away from areas vulnerable to de-icing salts.
- Prevents pavement ‘root heave’ effectively eliminating trip hazards.
- Ease of installation in virtually all situations with no specialist equipment required.
- Roll form provides flexibility to work around obstacles while being rigid enough to hold it’s form when backfilling.



ReRoot is protected by patent no. 2311309 as the only roll form root barrier with integral root deflecting ribs.



ReRoot 1000 installed to protect underground services and divert roots beneath pavement surfaces into the preferred rooting area.



Investment at planting stage will prevent costly root damage to pavements.



Investment at planting stage will prevent costly root damage to pavements.

Code	Depth	Roll length	Thickness
RER300A	300mm	30mtr	1.0mm
RER600A	600mm	30mtr	1.0mm
RER1000A	1000mm	30mtr	1.0mm

Typical Installation Specification

Install ReRoot linear root barrier with integral root deflecting ground lock ribs as follows:
Excavate narrow trench to a depth of the ReRoot barrier used. Ensure that the base of the trench is firm and level.

Remove any sharp objects from close proximity to the trench walls. Install root barrier with the ribs facing the tree roots. Backfill the tree side with good quality topsoil and the rear side of the barrier simultaneously with subsoil allowing for surface finishing – kerbing etc.

Backfilling should be in layers. Concrete is permissible on the rear side of the barrier if required to support hard landscape surface. Care should be taken to remove any sharp objects from the backfill material. The top edge of the root barrier must remain 10mm above the surface tree side. To join roll ends tape both sides with GreenBlue Urban ReRoot jointing tape.

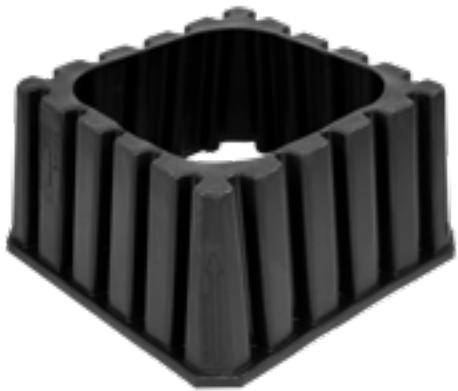


View Product Online
Scan the QR code to view online.

- Manufactured in the UK**
- Made from 100% recycled material**
- ArborSystem Compatible**

RootDirector

Modular root management



Features

- Modular preformed construction.
- Integral ribs to prevent root girdling.
- ‘RS’ range fits RootSpace soil cells.
- Stackable for ease of transport.

Benefits

- Prevents ‘root girdling’ – a fatal rooting pattern.
- Deeper root growth improves drought tolerance, tree stability and longevity.
- Guides roots away from areas vulnerable to de-icing salts.
- Prevents pavement ‘root heave’ effectively eliminating trip hazards.
- Super fast installation - no cutting or joining tape.

Designed for the protection of pavements and hard landscaped areas, the ribbed RootDirector system prevents root girdling and diverts root growth downward and outward thus avoiding the unsightly and hazardous root damage so commonly seen in urban areas.

The RootDirector’s rigid, one-piece construction makes installation simple. As a product within the ‘Arborsystem’ range, it is compatible with the RootRain irrigation system, RootCell / StrataCell load bearing soil structure and our extensive tree grille and guard range.

The RootDirector ‘RS’ range is specially designed to locate securely into the RootSpace soil cell system.



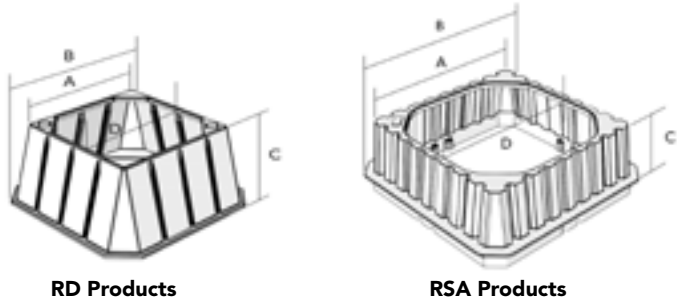
RootDirectors are the ideal root management solution for individual tree planting schemes, and were used in the above project.



View Product Online
Scan the QR code to view online.



RSA RootDirectors were used on this project, Haskins Garden Centre, Crawley, to divert roots down into the RootSpace soil support system - preventing pavement heave.



Code	A - Top (mm)	B - Base (mm)	C - Depth (mm)	D - Opening (mm)	Min tree grille size (mm)
RD510A	510	595	310	425	600
RD610H	510x610	595x695	310	410x510	1000
RD640A	630	885	455	575	1000
RD1050A	975	1370	545	860	1200
RD1400A	1300	1805	500	1200	1500
RD1000RSA	888	980	250	800	1200
RD1500RSA	1388	1480	250	1300	1800

Typical Installation Specification

Install RootDirector preformed root barrier system with integral root deflecting ribs.

Excavate planting pit to accept RootDirector. Ensure adequate drainage to pit. If using in conjunction with soil cells, these should be installed first.

The lower flange of the RootDirector should be level and on a firm even base to avoid settlement. Ensure top edge of RootDirector is level with finished surround unless installing with a tree grille. If a tree grille is being used, check depth of support frame.

Backfill inside and outside simultaneously, firming in 150mm layers. Topsoil inside the RootDirector should not overflow the top flange.

- Manufactured in the UK**
- Made from 100% recycled material**
- ArborSystem Compatible**

RootForm

Modular root management



Features

- Modular construction for any sized tree pit.
- Recycled HDPE is resistant to puncture, biodegradation, and photodegradation.
- 400mm standard depth.
- Suitable for inclusion of steel reinforcement if required.

Benefits

- Internal ribs prevent ‘root girdling’ – a fatal rooting pattern.
- Deeper root growth improves drought tolerance, tree stability and longevity.
- Guides roots away from areas vulnerable to de-icing salts.
- Prevents pavement ‘root heave’ effectively eliminating trip hazards.



GreenBlue Urban’s RootForm system is a dual purpose product with all the benefits of GreenBlue Urban’s Root Director products but with the added function of providing a high speed shuttering system to create a structural concrete haunch around the tree pit.

RootForm is designed to be filled with concrete leaving a perfect base for fixing down tree grille frames and preventing compaction of the tree rooting area immediately adjacent to the root ball due to lateral compaction.

The simple, strong, click together sections are ready for concrete pour in moments and the sectional format mean the components can be configured to any size tree pit, even rectangular ones. Like RootDirectors, the system naturally prevents root girdling and encourages deep root growth improving stability and drought balance.



RootForm is the ideal root management solution for individual tree planting schemes.

Code	Depth	Tree grille frame size	Components	Weight (Kg)	Concrete volume (ltrs)
RF4-10A	400mm	1000mm sqr	4x Corner, 4x 300	21	190
RF4-12A	400mm	1200mm sqr	4x Corner, 4x 500	25	229
RF4-15A	400mm	1500mm sqr	4x Corner, 4x 300, 4x 500	32	285
RF4-18A	400mm	1800mm sqr	4x Corner, 8x 300, 4x 500	40	341



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RootDirector Riser

Modular root management



Features

- Single component building block
- Configurable to suit different sizes and depths
- Structural lateral support for paving layerworks

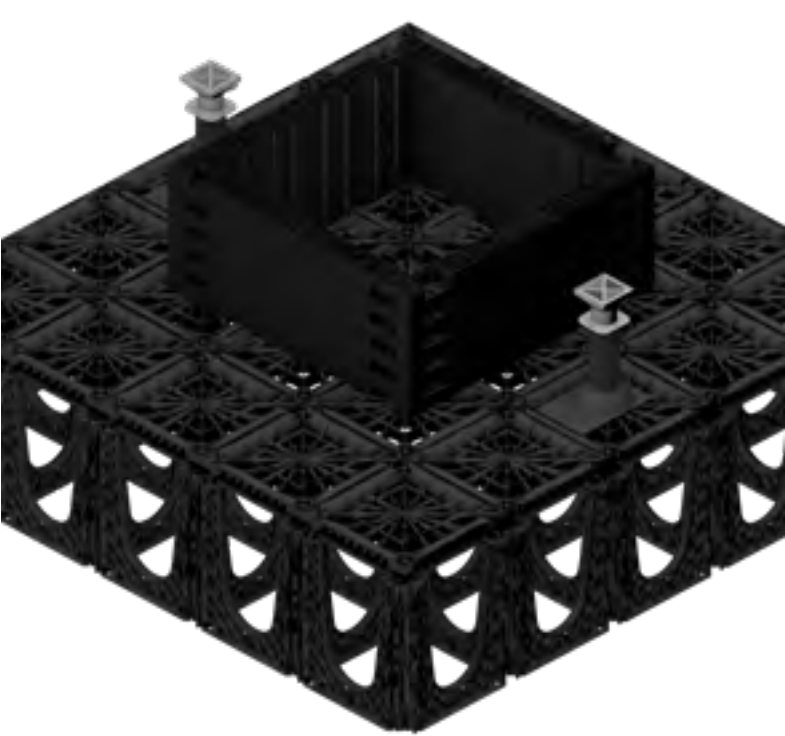
Benefits

- Save costs through fast and simple installation
- Solves the issue of lateral support for deep paving layerworks
- Delivers all the tree benefits of enhanced rooting patterns



Having manufactured root control systems for 3 decades, GreenBlue Urban is delighted to provide a further development in this field. The new RootDirector Riser builds on all the benefits of the existing RootDirector range which are designed for the protection of pavements and hard landscaped areas, preventing root girdling and diverting root growth downward and outward, thus avoiding the unsightly and hazardous root heave so commonly seen in urban areas.

Whereas the traditional RootDirector is a fixed depth, the new RootDirector Riser system can be configured to suit any RootSpace tree pit opening size and layered to suit any paving layerworks depth. Built in 100mm increments to provide sufficient lateral support to withstand high load bearing paving layerworks. Designed to integrate seamlessly with the complete ArborSystem package, the RootDirector Riser benefits from a simple installation process and single-component simplicity.



- Manufactured in the UK**
- Made from 100% recycled material**
- ArborSystem Compatible**

ArborGuy™ AnchorPlate™

Tree Anchoring System



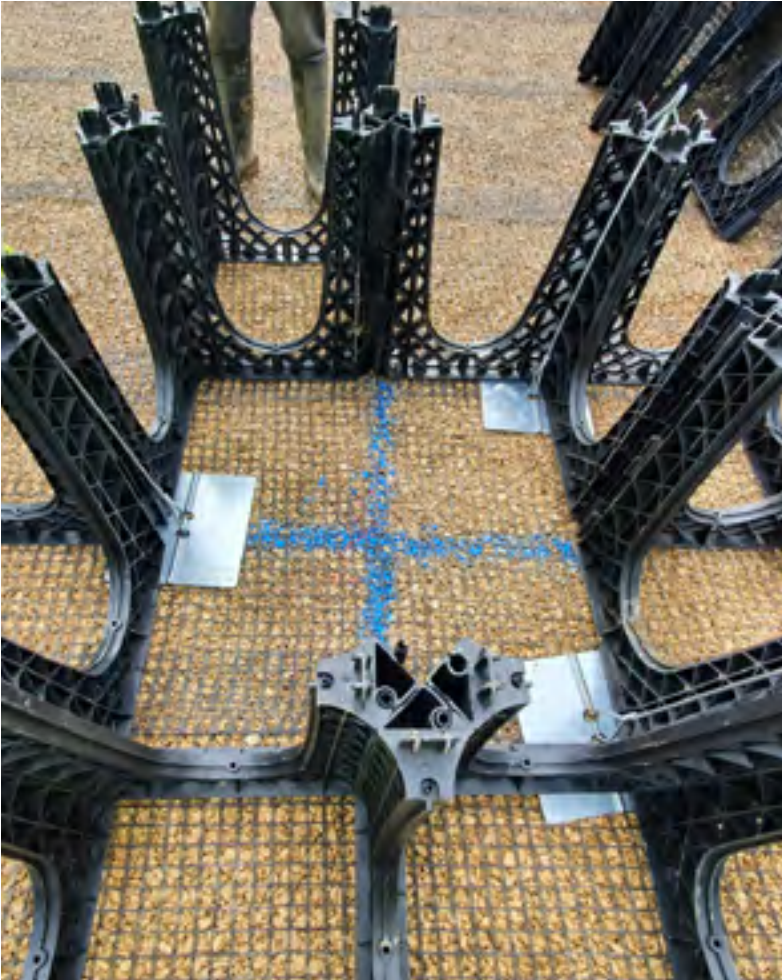
This method of securing trees has many advantages over staking and is suitable for medium/large root-balled trees. The new ArborGuy AnchorPlate is designed as the lowest profile ‘deadman’ anchor system available and provides a complete package - no further parts required.

Features

- Three high strength steel anchor wires.
- Single piece, wide webbing anchor strap for fast installation.
- Integral ratchet tensioner.
- Fully complements GreenBlue Urban packages.

Benefits

- Out of sight anchoring.
- Wide webbing strap will not cut into the rootball, no extra protection mat required.
- Low profile anchor eliminates further excavation.
- Complete system, no further components or tools required.
- No drive-in anchor makes it safer for working in the vicinity of below ground services.



ArborGuy AnchorPlate can be installed beneath the RootSpace layer before soil filling for additional pull out strength.

Code	RootSpace Depth (mm)	Max Tree Girth (circ.) (mm)	Wire Length (mm)
SASAP04A	400	<45	500
SASAP06A	600	<45	700
SASAP08A	800	<45	900
SASAP10A	1000	<45	1100
SASAP12A	1200	<45	1300



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Manufactured in the UK



ArborSystem Compatible



ArborGuy™ Drive-In

Drive-In Tree Anchoring System



Features

- Three high strength steel anchor wires.
- Single piece, wide webbing anchor strap for fast installation.
- Integral ratchet tensioner.
- Fully complements GreenBlue Urban packages.

Benefits

- Out of sight anchoring.
- Wide webbing strap will not cut into the rootball.
- No extra protection mat required.
- Anchor head designed to eliminate damage to buried wires and utilities.



This method of securing trees has many advantages over staking and is suitable for medium/large root-balled trees. The rootball is held in position by driving tree anchors into the base of the tree pit and fastening the ArborGuy ratchet strap.



ArborGuy anchor system, plus complete installation tool kits available.



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Code	Max Tree Girth (circ.) (cm)	Wire Dia (mm)	Wire Length (mm)	Strap Length (mtr)
SASLCB	45	6	1000	12
SASLAB	45	6	1000	12
SASMCB	25	4	1000	6
SASMAB	25	4	1000	6

Manufactured in the UK
 ArborSystem Compatible

ArborGuy™ Deadman

Tree Anchoring System



Features

- Heavy duty galvanised wire anchor ropes.
- Single piece ratchet strap tension system.
- Simple system fully complements GBU ArborSystem and ArborFlow tree packages.

Benefits

- Out of sight alternative to stakes.
- Broad strap tension system will not cut into rootball.
- Effective against high winds.
- Immune from vandalism or accidental post-installation damage.



The well-known ‘Deadman’ version of the GreenBlue Urban ArborGuy is a favourite with many customers. Ideal for use in tree pits where underground utilities may be present immediately beneath. Three ‘Deadman’ (e.g. timber baulks) are placed in the bottom of the pit, and three ArborGuy Deadman wires are noosed round them providing very stable anchoring points for restraining the tree rootball.



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Code	Description	Wire length	Tree girth
SASDMB	ArborGuy Deadman Anchor System	1.0m	<40cm
SASDMXA	ArborGuy Deadman Extra-Long Anchor System	1.25m	<100cm

Manufactured in the UK
 ArborSystem Compatible

ArborGuy™ Overhead

Tree Anchoring System



Features

- Large Arborguy Drive-In anchor.
- Galvanised steel wire rope for longevity.
- Durable sleeving for bark protection.

Benefits

- Pre-assembled for fast installation.
- Tamper-proof construction.
- Post-installation adjustability.
- Disassemble/reassemble for temporary/seasonal trees.



Some types of trees are not suitable for below ground guying, for example Palm Trees or Christmas Trees, due to absence of sufficient rootball size or structure, e.g. bare root trees, or they are of a temporary nature.

The GreenBlue Overhead Guying system is perfect for these types of applications. The GreenBlue Arborguy Drive-In anchor is connected to a tamper-proof guy rope which secures the tree with bark protective sleeving.



Code	Max Tree Height (mtr)	Drive-in Anchor System	Overhead Guy Section	Number of Guys
SASOHG06A	6	Medium composite anchor 4mm x 1mtr wire	4mm x 4mtrs	3
SASOHG15A	15	Large composite anchor 6mm x 1mtr wire	4mm x 12mtrs	4



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 **Manufactured in the UK**
 **ArborSystem Compatible**



Green
ArborSystem
Pavement Support Systems
Tree Irrigation
Tree Aeration
Root Management
Overground Guying
Tree Ties
Tree Grilles
Tree Guards
Geo textiles & Membranes
Green Wall Climbing Systems
VerdeÇade

NatureTie

Biodegradable Tree Tie



In general, GreenBlue Urban’s NatureTie can be used similarly to other tree tie types, but without the need for a spacer between the tree and the stake. The space can be formed by the material itself.

This product has many advantages over plastic and rubber. It will not strangle the tree as the tree grows but will biodegrade gradually as the tree establishes its own roots for anchorage.

Features

- 100% natural tough jute hessian.
- 30mtr rolls.
- Sustainable material.
- Reduces risk of rot behind tie.

Benefits

- Removes risk of tree strangulation.
- Very cost effective for large tree planting/forestry schemes.
- Reduces maintenance requirements.



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Manufactured in the UK



Made from 100% recycled material



ArborSystem Compatible

Code	Description	Roll length	Colour
GLNTA	NatureTie	30mtr	Natural

Tree Ties

Reinforced nylon rubber tree ties



Features

When selecting a method and the material for tree tying the following factors should be considered.

1. Size of tree.
2. Location.
3. Maintenance requirements.
4. Likely wind loading and other environmental considerations.
5. Durability and cost.
6. Vandalism.
7. Aesthetic appearance.

GreenBlue Urban stocks an extensive range of tree tie products to suit many varying applications.



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Made from 100% recycled material



ArborSystem Compatible

GreenBlue Urban stock an extensive range of tree tie products to suit a variety of applications. Reinforced nylon and rubber tree ties are the most popular versions for local authorities and landscapers.

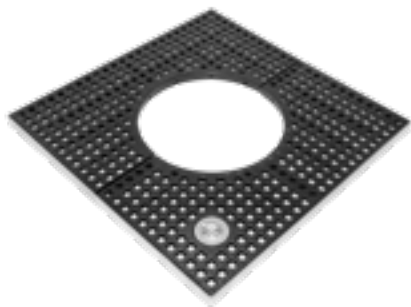


Code	Description	Belt size (mm)
GLPAA	Standard pad	25mm
GLPAAA	Extra large pad	38mm
GLPBA	Chunky pad	25mm
GLPBBA	Chunky pad	38mm
GLPFA	Plastic sleeve (300mm)	25mm
GLPFFA	Plastic sleeve (300mm)	38mm

Code	Description	Length	Width
GLB25B	Reinforced	10m	25mm
GLB35B	Reinforced	10m	35mm

Reinforced – Nylon reinforced rubber belt, most popular version for local authorities and landscapers.

DTS Tree Grilles



Avon

Features

- Heavy duty galvanised support frame.
- Power coated cast ductile iron segments.
- Integrated irrigation system.
- Anti-theft lugs.
- Stainless steel fixings.
- Fully compatible / integrates with GBU below ground systems.

Benefits

- Prevents compaction of soil.
- Enables gaseous exchange and water to freely access rooting area.
- Can be disassembled if needed for major tree maintenance.
- Designed and built to be strong enough for vehicular overrun.

Designing tree grilles is something GreenBlue Urban have been doing for over two decades. Beautiful and timeless patterns have been created which add quality and flair to the urban environment. The fundamental critical purpose of tree grilles is to prevent soil compaction around the rootball allow gaseous exchange and water ingress.

We have developed highly engineered design methods and finishing processes to ensure the durability of the structure and the coating is robust enough to perform under harsh urban environments.



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Tay



Adur



Yare



Dart

Code	Perimeter Dimensions	Internal Aperture Diameter
ADUR10A	1000mm	500mm
ADUR12A	1200mm	600mm
ADUR15A	1500mm	600mm
AVON10B	1000mm	500mm
AVON12B	1200mm	600mm
AVON15B	1500mm	600mm
DART10B	1000mm	500mm
DART12B	1200mm	600mm
TAY10B	1000mm	500mm
TAY12B	1200mm	600mm
TAY15B	1500mm	600mm
YARE10A	1000mm	500mm
YARE12A	1200mm	600mm

Typical Installation Specification

Ensure the depth around edge of tree grille frame has a minimum of 100mm of concrete. Reinforce if loading requires it. Place outer frame on concrete ensuring that top is level and at a height to suit adjacent surfacing. When concrete foundation has set sufficiently, fit tree grille segments and fasten anti-vandal bolts. RootRain Hydrogrille inlet and vertical steel guard can now be fitted.

 **Manufactured in the UK**
 **ArborSystem Compatible**

FTS Castle2 Tree Grille

Fully integrated recessed tree grille systems



Features

- Fully compatible / integrates with GreenBlue Urban below ground systems.
- Removable optional ‘Double tray’ format available in most sizes allows for tree growth.
- Vertical guard attachment option available.
- Heavy duty galvanised steel structure with 6mm thick galvanised steel frames for vehicular overrun.
- Integral irrigation point and system included.
- Stainless steel fixings.

Benefits

- Ease of handling and installation.
- Prevents compaction of soil.
- Supports tree success by enabling gaseous exchange in the soil and water to freely access rooting area.
- Can be manufactured to meet virtually any structural requirements.
- Discreet concept allowing continuous paving over the tree pit.
- Provides for long term tree requirements.
- Theft proof.

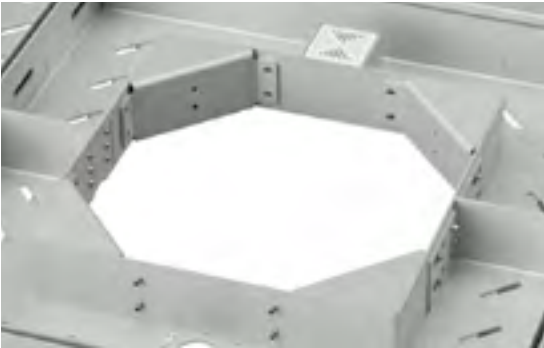
Relaunching one GreenBlue Urban’s success stories, the Castle2 Tree Grille now delivers even more user-friendly features. This heavy duty recessed tray system allows virtually any style of surround paving to be placed within the trays and continue right over the tree pit whilst providing structural support for overrun as required.

Supplied complete with irrigation and aeration functionality like the original Castle Tree Grille, the Castle2 now simplifies installation through convenient lifting hand holds, less fixings and an adaptable irrigation inlet. The two most important new features are a new lifting bracket enabling safe mechanical lifting when trays are filled with heavy paving material, and the removal of vertical lifting sockets in the corners, giving a much cleaner above ground appearance.

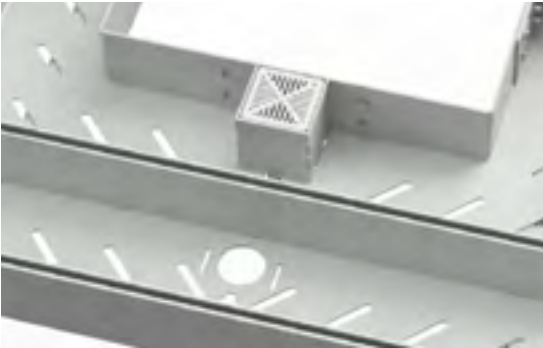
Another new, long-awaited feature is a new joining mechanism which enables unbolting and removal of trays even after being fully paved. This allows long term health due to being able to remove the inner tray set when the tree girth grows to dimensions requiring extra space.



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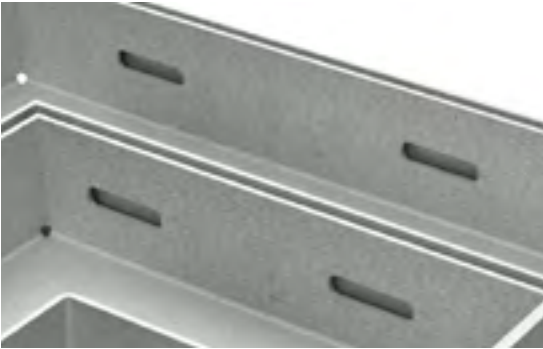
Optional brackets for vertical guard attachment.



Multi-location irrigation inlet.



Removable trays for tree maintenance and long term tree growth.



Hand holds for ease of installation.



Optional brackets for safe lifting of trays.

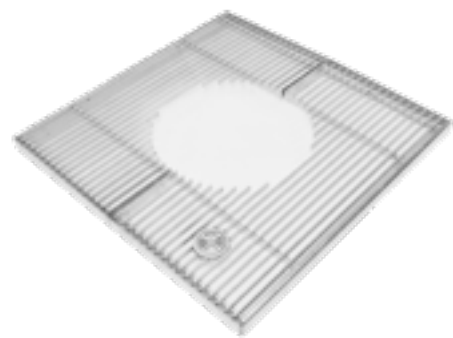
Outer frame size	Single Tray (central opening size)	Double Tray (central opening size)
1000mm	CASTLE10A (500mm)	N/A
1200mm	CASTLE12A (600mm)	CASTLE12B (400mm*)
1500mm	CASTLE15A (600mm)	CASTLE15B (600mm)
1800mm	N/A	CASTLE18A (600mm)
2000mm	N/A	CASTLE20A (600mm)
2400mm	N/A	CASTLE24A (600mm)

*Not suitable for standard tree guards

 **Manufactured in the UK**
 **ArborSystem Compatible**

FTS Clyde Tree Grille

Fully integrated fabricated tree grille systems



Designing tree grilles is something GreenBlue Urban have been doing for over two decades. Beautiful and timeless designs have been created which add quality and flair to the urban environment.

The fundamental critical purpose of tree grilles is to prevent soil compaction around the rootball. We have developed highly engineered design principles and finishing processes to ensure the durability of the structure and the coatings are robust enough to perform under harsh urban environments.

Not suitable for use with vertical tree guards.

Features

- Heavy duty galvanised support frame.
- Galvanised mild steel fabricated segments.
- Integrated irrigation system.
- Anti-theft lugs.
- Stainless steel fixings.
- Fully compatible / integrates with GBU below ground systems.



Custom Clyde tree grille used in conjunction with ArborFlow/StormForm tree pit system.

Benefits

- Prevents compaction of soil.
- Enables water to freely access rooting area.
- Can be disassembled if needed for major tree maintenance.
- Design and built to be strong enough for light vehicular overrun.
- Enabling soil gaseous exchange.



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Code	Outer Dimensions	Central Aperture
CLYDE10GB	1000mm	500mm
CLYDE12GB	1200mm	600mm
CLYDE15GA	1500mm	600mm

Includes:

- Heavy duty galvanised support frame.
- Powder coated grille segments.
- Cast aluminium RootRain irrigation inlet.
- Perforated pipe RootRain irrigation system.
- Stainless steel fixings.



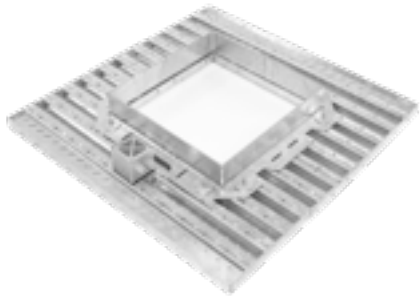
Manufactured in the UK



ArborSystem Compatible

Zeta Tree Grille

Fully integrated fabricated tree grille systems



The Zeta is a unique tree grille boasting a completely invisible structure allowing interruption-free paving right up to the tree. The low-profile design provides high strength support for virtually any type of paving adopted for the surrounding street scene. This is even suitable for areas supporting certain types of vehicle access.

The adjustable collar simplifies installation by absorbing variances in the tree pit build up in any direction, and allowing perfect finish levels and orientation. The Zeta comes supplied with the full tree pit irrigation/aeration system as standard. This has been used with excellent results in the most demanding, very low tolerance locations.

Features

- Fully compatible / integrates with GBU below ground systems.
- Unique high strength, low-profile structure with ‘floating’ collar for adjustment to paving grout lines.
- Vertical guard attachment option available.
- Heavy duty galvanised steel structure for vehicular overrun.
- Integral irrigation point and system included.
- Stainless steel fixings.

Benefits

- Very discreet concept allowing continuous paving over the tree pit.
- Adjustable collar for accurate alignment with paving grout lines.
- Enables gaseous exchange and water to freely access rooting area.
- Can be manufactured to meet virtually any structural requirements.
- Prevents compaction of soil.
- Theft proof.



Very discreet concept allowing continuous paving over the tree pit.



View Product Online
Scan the QR code to view online.



Integrated ArborVent inlets.



Adjustable collar for accurate alignment with paving grout lines.

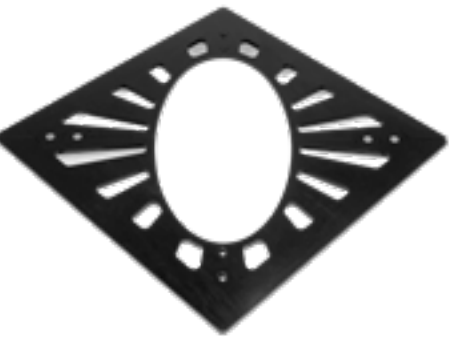


Code	Size	Opening
GBUZETA10A	1000mm	500mm
GBUZETA12A	1200mm	600mm
GBUZETA15A	1500mm	600mm
GBUZETA18A	1800mm	600mm
GBUZETA20A	2000mm	600mm

 **Manufactured in the UK**
 **ArborSystem Compatible**

Medway Tree Grille

Fully integrated fabricated tree grille systems



Our unique Medway grille is 600mm square designed to fit within the space of a single paving slab. This is for small species low budget tree pits where full tree maturity size is not required. RD510 root directors and Metro irrigation systems are supplied complete with the Medway tree grille to create a full low soil volume tree pit system.

Steel support frames are available separately where increased vertical load bearing capacity is required.

Features

- Oval centre allows insertion of tree stakes.
- Very strong laser cut powder coated steel.
- Supplied with RD510A RootDirector.
- Supplied with Metro Irrigation System.

Benefits

- Enables tree grille to be placed within a single paving slab.
- Quick and easy installation.
- Vandal resistant construction.
- Low budget option.
- Prevents soil compaction around tree root ball.



Code	Size	Description
MEDW06A	600mm	Medway laser cut steel tree grille. C/W RootRain Metro Irrigation & RD510 RootDirector.

 **Manufactured in the UK**

 **ArborSystem Compatible**

ArboResin

Porous tree pit surface



Features

- Resin bound stone.
- Permeable finish.
- Variety of colours available.

Benefits

- Surface allows free flow of air and water to the root zone.
- Will support light vehicular traffic (when laid to a minimum depth of 75mm.)
- Avoids problems associated with loose gravel.
- A choice of different aggregates available.
- Can be retrofitted around existing trees reducing trip hazards.
- Detailed installation specification available on request.

Product Specification

- Triple washed and dried stone graded to 10mm (0.4”), supplied in 25kg (55.11 lbs) bags and ArboResin two-part resin system.
- (Colour UV stabilized resin available as an option) ArboResin installation kit ArboResin solvent cleaner.
- Standard galvanised frames are available to provide a paving/ bound gravel edge and help support paving loading for light traffic.

ArboResin is a well proven hard wearing, attractive porous tree pit surface. Loose stones are a nuisance in pedestrian environments and tarmacadam or conventional paving has the effect of an impervious cap over the tree pit.

With ArboResin, the stone is bound together using a very high strength resin which prevents the gravel migrating beyond the tree pit. The nature of the resin bond results in a highly porous tree friendly surface immediately adjacent to the tree.



 Brittany Bronze

 Red Granite

 Silver Grey

 Rhine Gold

 Trent Pea

Code	Colour	Unit
GLARBBB	Brittany Bronze	1kg resin + 25kg stone
GLARBUVRG	Red Granite	1kg resin + 25kg stone
GLARBUVSG	Silver Grey	1kg resin + 25kg stone
GLARBTP	Trent Pea	1kg resin + 25kg stone
GLARBRH	Rhine Gold	1kg resin + 25kg stone

ArboResin Tree Grille

Precast tree grille systems



Specifiers and contractors alike appreciate the GBU ArboResin Precast tree grille for its clean aesthetic appearance, its ease of installation and its reliable theft-proof steel structure which is unique to GBU. This heel-proof and wheel chair friendly tree surround boasts a highly porous finish which is perfect for SuDS installations.

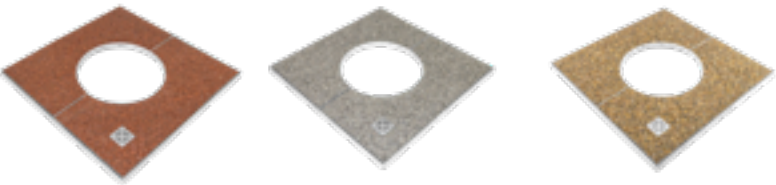
The gritted resin finish and complete integral irrigation system add to the wealth of features delivered with this product.

Features

- Heavy duty galvanised support frame.
- Steel tray segments supplied pre-filled with ArboResin stone surfacing.
- Grittred resin provides element of slip resistance.
- Integrated irrigation system included.
- Anti-theft lugs and central locking ring.
- Stainless steel fixings.
- Fully compatible / integrates with GBU below ground systems.

Benefits

- Steel tray system eliminates long term ArboResin crumbling and deterioration.
- ArboResin tray system is highly porous, perfect for SuDS applications.
- Heel proof and wheel-chair friendly.
- Prevents compaction of soil.
- Permits natural irrigation and aeration of soil.
- Can be disassembled if needed for major tree maintenance.
- Design and built to be strong enough for light vehicular overrun.



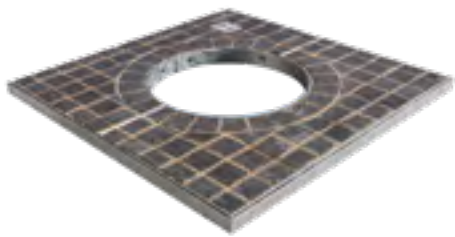
Colour	1000mm	1200mm	1500mm	1800mm	2000mm
Brittany Bronze	ARBPC10A	ARBPC12A	ARBPC15A	ARBPC18A	ARBPC20A
Silver Grey	ARBPC10B	ARBPC12B	ARBPC15B	ARBPC18B	ARBPC20B
Red Granite	ARBPC10E	ARBPC12E	ARBPC15E	ARBPC18E	ARBPC20E
Trent Pea	ARBPC10F	ARBPC12F	ARBPC15F	ARBPC18F	ARBPC20F
Rhine Gold	ARBPC10G	ARBPC12G	ARBPC15G	ARBPC18G	ARBPC20G



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SettStone Tree Grille

Precast tree grille systems



Specifiers and contractors alike appreciate the GBU Precast SettStone tree grille for its clean aesthetic appearance, its ease of installation and its reliable theft-proof steel structure which is unique to GBU.

This heel-proof and wheelchair friendly tree surround boasts a porous grout system which is perfect for SuDS installations. The smart granite sett style appearance and complete integral irrigation system adds to the wealth of features delivered with this product.

Features

- Heavy duty galvanised support frame.
- Steel tray segments supplied pre-filled with granite sett surfacing.
- Porous grout system.
- Integrated irrigation system included.
- Anti-theft lugs and central locking ring.
- Stainless steel fixings.
- Fully compatible / integrates with GBU below ground systems.

Benefits

- Steel tray system prevents long term cracking and deterioration.
- Porous grout system, perfect for SuDS applications.
- Heel proof and wheel-chair friendly.
- Prevents compaction of soil.
- Permits natural irrigation and aeration of soil.
- Can be disassembled if needed for major tree maintenance.
- Design and built to be strong enough for light vehicular overrun.



Code	Perimeter Dimensions	Internal Aperture Diameter	Colour
SSPC12UGA	1200mm	600mm	Urban Grey



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Vertical Tree Guards

Engineered steel tree protection systems



Ullswater

Features

- Fully compatible with most GreenBlue Urban tree grilles.
- Unique engineered angle profile rings.
- Integral 4-point tree guard tie kit.
- Stainless steel fixings located in an out-of-sight position.
- Simple adjusting mechanism allows guards to be easily levelled on most gradients.

Benefits

- ‘The Lakes’ range of quality designs contribute to urban aesthetics.
- Large diameter to accommodate mature tree establishment.
- Protection against vandalism and accidental damage.
- Angle rings provide high level of tree protection and shape retention.
- Tree guard tie prevents damage to the bark/trunk.
- Theft resistant.

In an urban setting trees, and young trees in particular, are highly vulnerable to damage from vehicles, bicycles, lawn mowers and other equipment, as well as gratuitous vandalism. GreenBlue Urban have designed ‘The Lakes’ range of tree guards using a very robust unique construction to provide the ideal answer to such problems.

The guards can be fitted to most GreenBlue Urban tree grilles or ground fixed when used in soft landscape / parkland.



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Coniston

Derwent

Ennerdale



Thirlmere

Windermere

Ullswater

Code	Description	Height	Diameter
CONIS185A	Coniston	1800m	500mm
CONIS186A	Coniston	1800m	600mm
DERW185A	Derwent	1800m	500mm
DERW186A	Derwent	1800m	600mm
ENNER185A	Ennerdale	1800m	500mm
ENNER16A	Ennerdale	1800m	600mm
THIRL185A	Thirlmere	1800m	600mm
THIRL186A	Thirlmere	1800m	500mm
ULLSP5A	Ullswater	1800m	600mm
ULLSP6A	Ullswater	1800m	500mm

Tree Guard 4-Point Tie Kit

The GBU Tree Guard Tie is designed as a premium adjustable restraint system which blends in very neatly with the Tree Guard and surroundings.

This prevents trees from sustaining damage in high winds against the side of the Tree Guard, and can be used to encourage a slightly misaligned tree towards a more upright growth pattern which is often very important in the urban realm.

This is supplied as standard with most GBU vertical tree guards.



 **Manufactured in the UK**
 **ArborSystem Compatible**

Arbortech Tree Shield

Robust and attractive tree protection

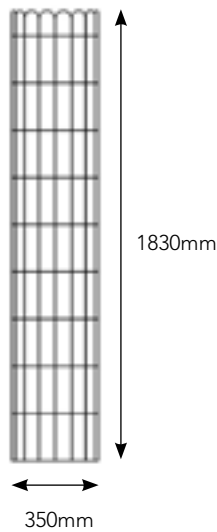


Features

- Heavy-duty steel construction.
- Robust powder coat finish.
- Attractive ornamental looped top.

Benefits

- High level of protection for trees.
- Visually attractive.
- Cost-effective solution.



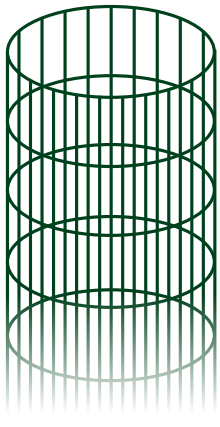
Code	Description	Height	Diameter	Weight
GBUATG183x35A	Arbortech Tree Shield	1830mm	350mm	55kg



View Product Online
Scan the QR code to view online.

Weldmesh Tree Guards

Urban tree protection

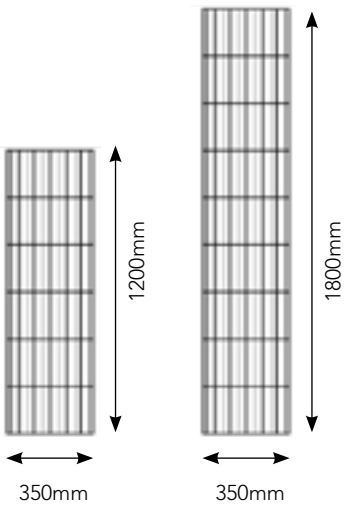


Features

- Heavy gauge welded wire construction.
- Galvanised or polyester coated finish.
- 300mm diameter.

Benefits

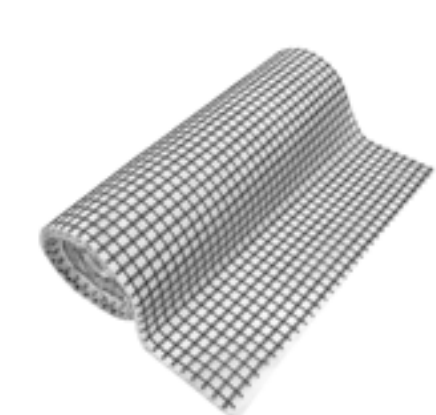
- Cost effective.
- Fast to install.
- Effective tree protection against damage.



Code	Finish	Height
GLWMG12x3A	Galvanised	1200mm
GLWMG18x3A	Galvanised	1800mm
GLGCG12x3A	Green poly coat	1200mm
GLGCG18x3A	Green poly coat	1800mm

Twinwall Geonet

Load Bearing Twinwall Geonet for structural tree pit requirements



A structural twin wall geotextile used in ArborSystem tree pits selected to fulfil stringent structural loading requirements. GLTWGNA twinwall geonet is used over the top of the RootSpace or StrataCell soil cell system, beneath the surface layerworks to eliminate ingress of surface layerworks materials into tree pit rooting zone and to provide additional support and stabilisation for surface subbase materials. It also discourages root growth vertically.

Benefits

- Stabilises surface layerworks.
- Eliminates ingress of surface layerworks materials into tree pit rooting zone.

Code	Description
GLTWGNA	Load Bearing Twinwall Geonet for structural tree pit requirements

20mm Geogrid

Load Bearing Geogrid for structural tree pit requirements



GBU load bearing geogrid is selected specifically to meet stringent structural loading requirements for GBU soil cell systems such as RootSpace and StrataCell. GRN20A is used for stabilising the base of tree pits before soil cells are installed, and for increasing the lateral strength of soil cell structures.

Benefits

- Provides base and side aggregate stabilisation required for load bearing urban tree pits without restricting lateral root growth.

Code	Description
GRN20A	Load Bearing Geogrid for structural tree pit requirements

Close Weave Mesh

Permeable geomembrane for ArborFlow tree pits



GBU permeable geotextile for Arborflow tree pits is selected specifically to meet permeability objectives required for GBU Arborflow SuDS tree pits using RootSpace and ArborCell systems. GBUCWMA is used both above and beneath the ArborCell layer. Water entering the tree pit from the road can frequently enter with volume and force, threatening localised erosion within the tree pit, GBUCWMA below the ArborCell helps eliminate the erosive force of the water and permit gentle infiltration into the soil across the entire tree pit. GBUCWMA also supports permeable paving generally used over Arborflow tree pits and prevents paving base from infiltrating the ArborCell layer.

Benefits

- Eliminates risk of localised erosion internal to the tree pit due to water inflow.
- Stabilises surface layerworks.

Code	Description
GBUCWMA	Permeable geomembrane for ArborFlow tree pits

Hessian Separation Membrane

Natural SuDS separation membrane



A natural jute hessian membrane is ideal to for the purpose of creating a separation layer between soil and drainage stone within SuDS tree pits. The common issue created by synthetic membranes is that despite being porous, a barrier is caused by the effect of surface tension.

Over a short period of time the migration of fines will settle down and the hessian membrane will no longer be required and will rot away naturally providing no inhibition to water drainage.

Benefits

- 100% natural, renewable, biodegradable product.
- Won't clog or block with silt or fine particles.

Code	Description
GBUHESA	Natural SuDS separation membrane

Green Wall Climbing Support Systems

Vertical Greening of façades, pergolas and garden spaces is an ecologically sound method of taking your project beyond the ordinary. Greening is increasingly difficult in overcrowded urban scenarios whilst its importance is ever growing.

GreenBlue Urban offers climbing plant support systems coupled with superior technical advice and active support, enabling you to bring your greened urban vision to reality – whether that's building an exterior or interior green wall, adding a living wall to a building or if you're developing a much larger project. Our design guide has been produced to help you simply specify the solution that is right for your scheme.



Green

ArborSystem

Pavement
Support
Systems

Tree
Irrigation

Tree
Aeration

Root
Management

Underground
Guying

Tree Ties

Tree Grilles

Tree Guards

Geo textiles &
Membranes

Green Wall
Climbing
Systems

VerdeÇade

VerdeÇade

Climbing Plant Trellis Support

The GreenBlue Urban plant climbing trellis systems have been developed following long experience; ensuring that compatible products are integrated to provide a range of solutions that are proven to be effective and flexible.

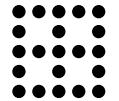
Complete support throughout the design and implementation is available including CAD designs and a free of charge first installation support service on site; this ensures that the products are specified and installed correctly and efficiently – providing the best long term results and project completion efficiency.



Robust & Durable
Robust & versatile products with a wide range of bracket and wire systems adaptable to every scenario.



Expert Technicians
Our experienced team of design technicians are here to advise & support you with your project.



Unique Designs
Our diverse range of products can be combined to create a truly unique design.



View Online
Scan the QR code to view online.



Series 4

Our smallest bracket system available with a post height of 4cm and compatible with 2.0mm diameter wire, the Series 4 is suitable for configuration heights up to 2.5 metres and is ideal for light weight plants such as clematis or annual climbing plants. These brackets are manufactured from marine grade 316 stainless steel and boast a polished refined finish.

Code	Bracket type	Post height	Distance	Fixing Type
			between brackets	
GB040R	Series 40	40mm	1.0m	Universal plug
Wall Type for fixing: Wood, Concrete, Masonry				



Series 6 & 9

Our most popular bracket system with post height options of 6cm and 9cm, the Series 6 and 9 products can support wire spans of up to 3.0m and are suitable for medium weight plants such as Jasminoides and climbing roses. These brackets are manufactured from marine grade 316 stainless steel and boast a polished refined finish.

Code	Bracket type	Post height	Distance	Fixing Type
			between brackets	
GB060R	Series 60	60mm	2.5m	Universal plug
GB090R	Series 90	90mm	2.5m	Universal plug
GB090C	Series 90	90mm	2.5m	Universal plug
GB090M	Series 90	90mm	2.5m	Universal plug
Wall Type for fixing: Wood, Concrete, Masonry				



Series 10

Suitable for medium to large sized schemes and heavier and woody plants such as Wisteria, the Series 10 has a large base plate for firm fixing and to support greater wire spans. A timeless classic combining ease of installation and reassuring stability. These brackets are manufactured from marine grade 316 stainless steel and boast a polished refined finish.

Code	Bracket type	Post height	Distance	Fixing Type
			between brackets	
GB100W	Series 100	100mm	3.0m	Screw
GB100C	Series 100	100mm	3.0m	Resin
GB100M	Series 100	100mm	3.0m	Resin
Wall Type for fixing: Wood, Concrete, Masonry				

Urban stormwater management is the effort to reduce hard surface runoff from rainwater; tackling issues of flooding, erosion pollution of watercourses and infrastructure damage.

One solution is to increase the use of pervious surfaces throughout the urban environment. An increasingly common way is to combine green and blue to give maximum benefit. The implementation of sustainable drainage systems is now demanded by many authorities as a prerequisite of planning considerations.

These need to be designed in early in the design process, taking into account site conditions and geology, master planning design and environmental impact assessments. GreenBlue Urban’s stormwater management solutions are designed to replace conventional piped drainage designs with green infrastructure features such as swales, rain gardens and tree pits.

91	The History of Urban Drainage
93	ArborFlow
95	StormForm
97	Kerb Flow Inlet
98	ArborCell
99	Control Flow Chambers
101	Raingardens
103	HydroPlanter
105	HydroPlanter Flex
107	Soils & Aggregates



The History of Urban Drainage

For the past couple of millennia, stormwater in our cities has been managed on the principle of channelling it away as fast as possible. The use of existing water courses to take the volumes of run off may have worked to some extent during the pre-urban age, where largely people lived on the land, and most of it was permeable, but with the mass urbanisation that came with the Industrial Revolution, these methods of water management became less effective.

A major influence on our stormwater management has been the massive increase in hard surfacing, both on the ground and on roofs. Impermeable paving, and sealed roofing products means that rain, once fallen, arrives at drainage features far quicker than when surfacing was pervious, and roofing consisted of less engineered types, for example, thatched roofs.

In many older cities around the world, stormwater and foul sewage used the same channels for removal, which have evolved to become what is known as “combined sewer” systems. With the increase in population in the urban areas, the proportion of foul sewage to rainwater has increased, meaning that many of our combined sewers are not able to cope with a storm water event due to capacity being taken up by foul sewage, leading to flooding and sewage spillages, which are health threatening.

More modern developments use a dual pipe drainage system, with a foul sewer and a separate surface water sewer. The surface water sewer often exits into a water course nearby, as it officially only contains rainwater and run off from hard surfaces. Unfortunately, this hard surface run off often has traces of contaminants which are not acceptable in water courses, and during severe rainstorms, water courses can become polluted, causing death of aquatic life.



The concept of a more naturally managed storm water management policy started in the US and Australia in the 1970s, and then came to the UK during the 90's. These concepts called LID (Low Impact Development [USA]), WSUD (Water Sensitive Urban Design [AUS]) and SUDS (Sustainable Urban Drainage Systems [UK]) challenged existing policies by suggesting that rainwater should be slowed down as much as possible: and the time taken before entering the drainage network should be extended. This can be done by a number of means, but principally by reusing water on site, maximising infiltration into the ground, storing storm water on site to be released slowly and by using vegetation to attenuate and clean the water.

More recently stormwater has been recognised as an asset in our urban areas, rather than a liability which must be removed as fast as possible. Open vegetated stormwater gullies, known as swales, provide an area where water can be stored above ground for a period and drained slowly, giving both a visual and practical landscape amenity. In some cities, local authorities have made features of water management infrastructure, and these have enhanced urban life.

Issues arising over Water Neutrality (minimising the impact of new developments on the supply of water) and Nitrate Neutrality (where high run-off levels of nitrates from land have polluted watercourses and the sea) have helped focus attention on the need of mitigation measures if development is to continue in some areas. Sustainable drainage systems, and the re-use of water form part of the solution to these challenges.



Sheffield Grey to Green inner city greenway providing protection to pedestrians from vehicles. © Nigel Dunnett

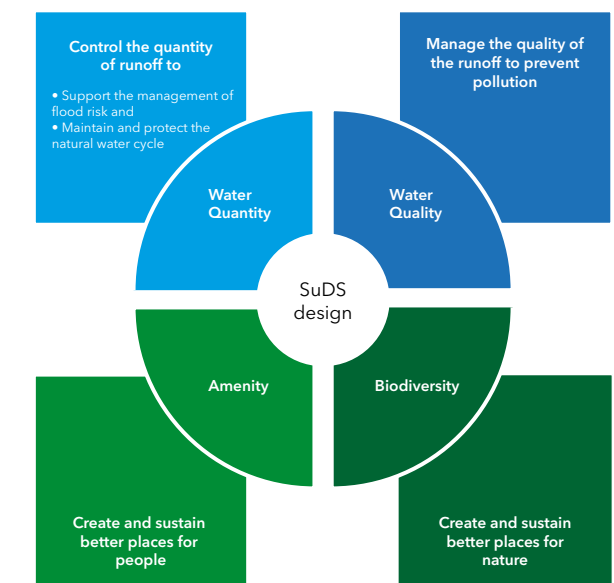
The Four Pillars of SuDS/LID

In 2015, CIRIA (Construction Industry Research and Information Association) launched the SuDS Manual, which stated that the overarching principle of SuDS design should be that surface water runoff should be used for maximum benefit, and the diagram below shows how the benefits can be delivered:

Many systems include one of these four pillars, but few maximise the opportunities available with all of these criteria. Many of the storage schemes manage the water quantity element (which of course is the most pressing in terms of flood management and have the largest potential liability) but do not actually meet the other opportunities. Below ground storage, such as tanks or increased pipework sizes with flow controls provide nothing in amenity value and many local water authorities are no longer approving such schemes because of the challenges of maintenance.

Some of the above ground features such as attenuation basins or swales do provide useful amenity and biodiversity opportunities but can be expensive in land use and are difficult to retrofit.

GreenBlue Urban has been concentrating much research and development on SuDS / LID in recent times. It is clear that maximising the potential of our building land is very important, but providing attractive, healthy and safe places to live is equally vital. In our experience, developments are challenging places to install green infrastructure, as development density is ever increasing due to the rising cost of land and have limited options when considering water sensitive urban design. Developments continue to be allowed in flood plain areas, which are not simple to drain, and in this kind of scenario, sustainable drainage becomes critical in long term planning.



© Tomas Castelazo, www.tomascastelazo.com / Wikimedia Commons

ArborFlow

The ArborFlow suite of products are the result of over a decade of research and development, guaranteeing compatibility and cost-effectiveness. Fully aware of the challenges when combining green and blue infrastructure, these unique products are designed to help overcome these, and fully enable the green infrastructure to mature to full potential, handing us the benefits that only healthy trees can provide.

Products manufactured from 100% recycled material in the UK, to exacting standards mean that the client, the specifier, the installer and the end adopter are assured of the long-term effectiveness of the solution. This peace of mind helps allay the many questions that arise from those that are new to Sustainable Drainage Systems.

Many of the products used within ArborFlow systems are also used in standard tree pit solutions. However, the soil mediums are invariably different, and the water inlet design is critical for correct water distribution. Please contact our technical team for further information.



StrataCell
Pavement Support Systems



RootSpace
Pavement Support Systems



RootSpace Ocean
Pavement Support Systems



RootSafe
Root Management Systems



StormForm
Inlets



ArborGuy AnchorPlate
Underground Guying



RootRain Urban
Irrigation & Aeration



RootRain ArborVent
Irrigation & Aeration



ArboResin Precast
Tree Surrounds



Ullswater Tree Guard
Tree Surrounds



ArborSoil Hydro MAX
Soils & Aggregates



Scan QR Code
To discover more on
ArborFlow

StormForm™

Multifunctional SuDS tree surround



Features

- Manufactured from recycled materials.
- Galvanised steel gulley and grating.
- Integral easy access silt/debris trap.
- Range of integral tree grilles available
Internal ribs for root control.
- Integral primary tree irrigation system.
- Integral water level indicator.
- Stainless steel fixings.

Benefits

- Compact, multi-functional unit easy to specify & install.
- Attenuates peak water flow rates in extreme rain events.
- Non-blocking / easy access inlet grate
- Directs roots downwards.
- Prevents soil compaction around rootball.
- Supports tree grille securely.

GreenBlue Urban’s compact SuDS tree pit surround, StormForm - part of the ArborFlow family - has been developed as an effective means of managing surface water run-off through tree pits. Ideal for use in urban areas where space is at a premium, StormForm handles extreme rainfall events in urban areas with ease.

With super-fast flow through rates and large storage capacity, StormForm is perfect for attenuating peak flows during the most extreme storm events and directing the water right into the tree pit where pollution and further capacity storage is available.

StormForm is an ingenious multi-functional system combining stormwater capture and storage, silt/debris capture, root control, primary irrigation and tree grille all on one easy to assemble, robust unit.



View Product Online
Scan the QR code to view online.



StormForm is modular, allowing for a variety of sizes to suit site constraints and rootball sizes.

Code	Description	Nominal size	Water storage	Flow rate
SF100A	StormForm 100 Series System	1000mm x 1000mm	202 ltrs	10,000 ltrs/hr
SF200A	StormForm 200 Series System	1750mm x 1000mm	293 ltrs	15,000 ltrs/hr
SF300A	StormForm 300 Series System	1750mm x 1750mm	384 ltrs	19,000 ltrs/hr

 **Manufactured in the UK**
 **ArborFlow Compatible**

Kerb Flow Inlet

Road side storm water inlet



GreenBlue's BS EN 124:1994 D400 Group 3 hinged kerb unit is designed for carriage ways and can be accessed from any position for rodding or cleaning purposes. It is supplied with Stainless Steel bolts and hinged to prevent theft.

This comes as a two-part product, with the kerb inlet and the gulley chute connector with a 170mm O/D outlet spigot for connection to the ArborFlow SuDS tree pit system.

Features

- Heavy duty cast ductile iron construction
- Locking hinged theftproof lid
- Stainless steel fixings

Benefits

- D400 loading capability
- Kitemarked by BSI
- Theftproof

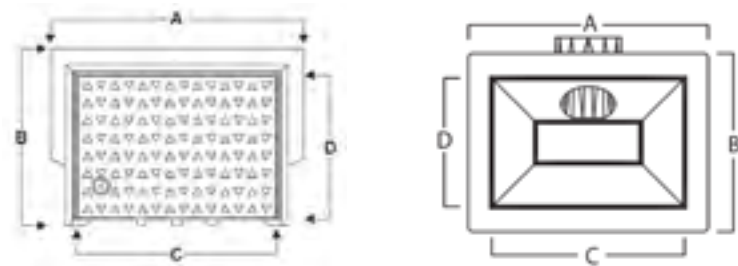


Code		A (mm)	B (mm)	C (mm)	D (mm)
GBUCIKI500A					
	Kerb Inlet	645	445	500	350
	Gulley Chute	600	450	490	340



[View Product Online](#)
Scan the QR code to view online.

Manufactured in the UK
 ArborFlow Compatible



ArborCell

Load-bearing module designed for water attenuation



The GreenBlue Urban ArborCell unit is a load-bearing module designed for water attenuation and distribution within the ArborFlow SuDS tree pit system

GreenBlue Urban ArborCell water attenuation cell is used within GreenBlue Urban SuDS tree pits to provide additional attenuation capacity and help distribute water throughout the tree pit.

Providing high load bearing capacity, the ArborCell is installed above RootSpace and can be paved over, even in the most demanding locations..

Features

- Recycled plastic.
- 92% void space.
- High load bearing capacity.

Benefits

- Recycled plastic reduces landfill.
- Increased stormwater attenuation.
- Suitable for roadway applications.



[View Product Online](#)
Scan the QR code to view online.



Code	Description	Dimensions (mm)	Material	Finish	Colour
GBUABC110B	ArborCell 110mm deep base unit	400 x 800 x 110	Recycled polypropylene	Natural	Black
GBUABC40C	ArborCell 40mm deep cap	400 x 800 x 40	Recycled polypropylene	Natural	Black
GBUABCCLIPA	ArborCell Clip	-	Recycled polypropylene	Natural	White



ArborFlow Compatible

Control Chamber

Configurable silt trap / flow control system

Features

- Full design and manufacturing expertise
- Some options are configurable on site to adapt to varying conditions
- Suitable for many different applications within the full SuDS train
- Very robust construction

GBU SuDS control chamber is a system which is bespoke manufactured to individual requirements.

Variable inlet / outlet levels can be catered for, and the chamber can be adopted either as a silt trap or a flow control chamber.

Depths, diameters, features, outlets, can all be configured to optimise tree pit attenuation performance.

Benefits

- Heavy duty plastic construction
- Variety of manhole cover styles
- Full suite of features and options



Control chambers are available in a variety of configurations in order to suit your application needs.

The control chamber can be accessed for inspection through a cover available in two finishes.

Code	Description
GBUCFCA	Control Flow Chamber for use with SuDs systems incorporating the Regulator Chamber and Silt Tray.



Raingardens

Rain gardens have become one of the most accepted forms of Sustainable Drainage features in urban areas. Simple to design and install, these interventions can significantly assist with reducing peak flows into the drainage network, treat run-off water to levels acceptable for discharge into water courses and bring bio-diversity into our towns and cities.

The CIRIA SuDS Manual gives pollution removal indices, and the HydroPlanter range of raingarden products meets the maximum pollution removal levels achieved by bioretention systems when correctly designed and installed.

Bringing together the different options for rain garden product supply in one place means that GreenBlue Urban are uniquely placed to advise on which solution is best for your project.



HydroPlanter™

'Plug & Play' Stormwater Rain garden System



We at GreenBlue Urban Ltd are please with the success of the modular, stormwater bioretention rain garden system, the HydroPlanter. Simple to retrofit into highways schemes and ideal for new developments of any size.

This is a 'plug and play' sustainable urban drainage solution that can attenuate and cleanse storm water and provide amenity and biodiversity to new and existing spaces.

The modules will be filled with a particular soil specification and planted wildflowers and biodiverse grasses. The concept is flexible, scalable and each unit stacks together to be a convenient solution that any subcontractor can work with and install. Installation is fast, simple and offers significant savings to alternative methods. The modular characteristics with pre-calculated hydrological performance statistics mean that specification and design is very simple for any given catchment area.

Features

- Manufactured from 100% recycled materials.
- Plug-and-play slot-together modules.
- Optional Exceedance Flow overflow system.
- Stackable design for transport and storage efficiency.
- Full design/specification support for architects and drainage/SuDS engineers.
- Comprehensive system with optional paving edging components / kerb inlets / bespoke options.

Benefits

- Architects find it easy and simple to specify and design.
- Excellent water cleansing, amenity and biodiversity performance.
- Installation speed and simplicity.
- Cost effective system.
- Freeze/thaw resistant.



View Product Online
Scan the QR code to view online.



HydroPlanter can be installed in continuous, modular runs, or individually depending on site constraints and hydraulic performance requirements.



Code	Description	Nominal size	Water storage	Flow rate
GBUHPSM1A	HydroPlanter Starter Module	0.8 cubic metre	202 ltrs	10,000 ltrs/hr
GBUHPCM1A	HydroPlanter Continuation Module	0.8 cubic metre	293 ltrs	15,000 ltrs/hr
GBUHPEM1A	HydroPlanter End Module	1.12 cubic metres	384 ltrs	19,000 ltrs/hr
GBUHPEM1A	HydroPlanter Individual Module	1.12 cubic metres	384 ltrs	19,000 ltrs/hr



Manufactured locally from 100% recycled material.



Highly effective filtration & flow control.



Provides amenity and biodiversity.



Modular, stackable 'plug and play' system makes for economic freight.



Manufactured in the UK



Made from 100% recycled material

HydroPlanter Flex™

'Plug & Play' Stormwater Raingarden System



Building on the enthusiastic reception and adoption of our HydroPlanter modular stormwater bioretention rain garden system throughout the UK, and in response to calls for more extensive rain gardens and flexibility of shape, GreenBlue Urban are excited to launch the worlds first flexible rain garden system - the HydroPlanter Flex!

Rain gardens are increasingly chosen as the best method of achieving the 4 pillars of SuDS - water quality, water quantity, amenity, and biodiversity - due to being low cost and highly effective. Simple to retrofit into highways schemes and ideal for new developments of any size, the HydroPlanter Flex cuts the complexity and unknowns out of design and installation, and is the perfect solution for contractors and housebuilders trying to meet local SuDS regulations.

Features

- Comprehensive package of components in a single system
- Impermeable liner, drainage stone, bioretention soil and pipework included
- Exceedance Chamber for overflow and inspection/maintenance
- Full design/specification support for architects and drainage/SuDS engineers



View Product Online
Scan the QR code to view online.



Code	Description	Unit
HPFRGSN	HydroPlanter Flex Rain Garden System - Non-Infiltration	Per square meter
HPFRGSI	HydroPlanter Flex Rain Garden System - Infiltration	Per square meter

- Included
- Option of permeable or impermeable liner system
 - Drainage aggregate and pipe system
 - Filtration membranes
 - ASHMAX bioretention soil and surface mulch
 - Exceedance flow system

Manufactured in the UK

Benefits

- Supports '4 Pillars of Suds' - water quantity / water quality / amenity / biodiversity.
- Cuts complexity in design and installation.
- In-house design and installation support service.
- Fully modellable.

ArborSoil Hydro MAX

High performance SuDS planting media



View Product Online
Scan the QR code to view online.

GreenBlue Urban, following months of extensive research in field and laboratory, have developed a unique, market-leading blend of soil for rain gardens and SuDS tree pits. As specialists in soil science, we understand the conflicting requirements of hydraulic, pollutant removal and horticultural performance and we constantly test and experiment with different materials to develop new blends.

No single location can supply the whole UK. This necessitates the development of a reliable supply chain, requiring a high standard of supplier selection and quality control to provide assurance in consistency of materials and long-term reliability of performance.

Due to a wide variation in availability of raw materials around the UK, GreenBlue Urban undertake regular supplier audits, detailed analysis and approval all raw materials and monitoring of blending and handling processes.

Benefits

- Reliability of hydraulic performance
- Consistency of material
- A soil blend you can trust

Code	Description	Unit
ASH-MAX	ArborSoil Hydro MAX	Tonne

Drainage Stone

Selected aggregates for tree pit drainage



Aggregate selected specially for its free draining characteristics and structural performance. Provides drainage zone at the base of tree pits to prevent waterlogging in the soil. Also used as backfill material around the perimeter of tree pits to eliminate differential settlement of finished surfaces.

The HydroPlanter drainage stone is a similar, but smaller aggregate, used in the base of HydroPlanter systems.

Benefits

- Provides base and side aggregate stabilisation required for load bearing urban tree pits

Code	Description	Grading
DRSTC	Drainage Stone	10-20mm
DRAINA	HydroPlanter Drainage Stone	4-10mm

RootSoil 20

For use in RootSpace soil cell system



View Product Online
Scan the QR code to view online.

Our recommendation will always be to provide tree roots with the substance nature intended – good quality, uncompacted topsoil. Trees have been growing in this for thousands of years. RootSoil 20 is our premium blend of quality sandy loam topsoil providing the ultimate in tree health, growth and longevity. Proven by decades of urban tree planting.

Benefits

- Optimum tree health, stability and longevity.
- Zero maintenance or fertilization required.
- Naturally well-draining.

Code	Description
ROOTSOIL20A	RootSoil 20 to fill top 600mm of RootSpace, filling StrataCells and RootDirectors
ROOTSOILSUBA	RootSoilSUBA to fill lower 600mm of RootSpace.

RootStart

Mycorrhizal fungal inoculant for sustainable urban soils



View Product Online
Scan the QR code to view online.

For thousands of years over 90% of all plants have depended on mycorrhizal fungi, a remarkable group of microorganisms that help to seek out, release and transport essential nutrients and water to the tree. These fungal partners live with their host throughout its life time, acting as a vast secondary rooting system, increasing the root capacity of a tree by up to 700 times.

The fast establishment of this partnership ensures a newly planted tree has its best chance of both early and long term growth. RootStart is a wide spectrum mycorrhizal inoculant which gives most common species a helping hand during the establishment phase.

Benefits

- Reduces mortality
- Better drought tolerance
- Earlier and better root growth

Code	Description	Bucket Qty
RSPMF2.5LA	RootStart Professional Mycorrhizal Fungi	2.5ltr

Smart Space

Over the years, GreenBlue Urban has repeatedly relayed numerous worldwide studies on the importance of having trees in retail areas; proving that the presence of healthy mature trees positively influences shopping behaviour.

Studies have shown that customers are prepared to pay 9 to 12% more for goods and services in a shopping area with large, well-cared-for trees. In addition to providing accessible, inviting green space for recreation.

Whilst we put long-term green infrastructure at the heart of everything we do, our innovative solutions now extend to street furniture. – StreetPark provides architects, landscape architects, local authorities and contractors with a high quality, design led and purposeful range of unique street furniture collections, designed to further enhance public realm urban tree planting and landscaping projects.

With a range of benches, bollards, bicycle stands, planters, grilles and even bus stops GreenBlue are creating resilient high quality outdoor spaces that connect people with people and with nature.

111	Bankside Guard Seat
113	Park Benches
115	Bicycle Stands
117	Litter Bins
119	Tables
121	Barrier Pillars/Bollards
123	Information Boards
125	Multifunctional Tree Surrounds
127	ReLuminate



Bankside Guard Seat

Circular tree bench

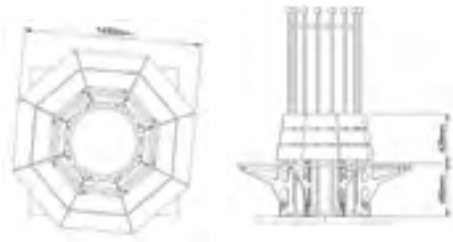


Features

- Heavy duty powder coated steel frame sections.
- FSC Iroko seat facings.
- Stainless steel fixings included.
- Suitable for GBU's 600mm diameter 'Lakes' range of vertical steel tree guards.

Benefits

- Environmentally friendly fully FSC certified sustainable timber.
- Natural Iroko finish weathers to a beautiful silver-grey.
- Simple to retro fit to existing GBU tree guard installations.
- Ergonomically comfortable design.
- Vandal resistant.



GreenBlue Urban's new Bankside Guard Seat is a fantastic compliment to the enduring range of GBU vertical tree guards such as the Ullswater. Designed to be suitable for retro fitting to existing tree guards as well as for new projects, it fits flawlessly into the streetscape providing a perfect relaxation spot beneath a tree.

FSC Iroko hardwood brings out the attractiveness and durability of natural sustainable materials. Structural frames engineered from steel and given robust powder coat protection treatments, and extra-large stainless-steel fixings ensure this bench will endure in the harshest environments.



Code	Dimensions	Suitable for:
GBUBGS18A	W 1450mm x H 890mm	GBU 'Lakes' range of vertical steel tree guards, except the 'Derwent'. All GBU tree grilles with 600mm diameter round central apertures..



View Product Online
Scan the QR code to view online.



Smart Space
Bankside Guard Seat
Park Benches
Bicycle Stands
Litter Bins
Tables
Bollards
Information Boards
Multifunctional Tree Surrounds
ReLuminate

Park Benches



Park benches are an essential element of the city landscape. They are a place where you can relax and socialise.

New research has shown that park benches bring quality to our lives and to our communities. They are great for encouraging you to go outside, to take in your natural surroundings. It is suggested that if you sit outside amongst nature for at least half an hour you can dramatically reduce stress.

With a wide variety of benches from traditional wood, in a range of finishes to the more contemporary metal and concrete, our benches can be either stand-alone or linear (connected to each other), circular (around a tree), multi-use (eg. Wi-Fi, mobile charger, etc.) with a range of anchoring options to enable stability.



Betla



Bordo

At GreenBlue Urban we strongly believe that everybody should have access to nature to enjoy the range of benefits it brings!



Borola



Radiano



Vega



Berga



Robusta



Nisha



Scan QR Code
View our full range
of park benches.



Bicycle Stands



More and more people are using bikes as their preferred method of travel, cycle lanes are on the increase and investments are being made into local infrastructure for parking and stands.

Bicycle stands are not just required for use on playgrounds and schools but also commercial buildings, restaurants, bus and train stations, public buildings and of course, shops. For active travel to be seen as the new normal, as it is across Europe, it is necessary to park bicycles safely and securely to protect them and promote continuous use.

Our stands meet the basic requirements for bicycle protection: No damage possibilities to frames or wheels fully supporting extra loads such as shopping and child seats, protection from the elements and capable of all locking solutions.



Velone



Sandwich



Bikeme



CBD



Santo



Rubig



Weldi



Probike



Scan QR Code
View our full range of bicycle stands.



Litter Bins



Keep Britain Tidy is a motto we have had for years doing our bit for the environment and our public spaces to encourage cleanliness and return use is a must for our local communities and the economy.

Incorrect disposal of litter is harmful not just to the environment but to wildlife, with millions being spent on clearing litter which could have been used to help enhance our spaces for all to enjoy.

GreenBlue's selection of litter bins include varying designs, construction, materials, shapes and sizes. With options for inner removable containers, an integrated ashtray and cigarette extinguisher, containers for dog waste and multi-chamber designs for recycled waste.



Bas



Koln



Mag



Raila



Zet



Robust



Stadium



Raila Ash



Scan QR Code
View our full range
of litter bins.



Tables



Tables are becoming a more and more popular item in our selection. We create sets combined with benches (either with or without backrest) that are used for relaxation, enjoy picnics or social gatherings in nature. There are currently several types of table in our selection, each for a different purpose.



Jura



Mat



Vega



Betl



Sibela



Sibelo



Sadko



Vega



Scan QR Code
View our full range of tables.



Bollards



Bollards are a simple yet effective way of protecting people and property.

Pedestrianisation of our towns and cities is becoming ever more popular and it is therefore necessary to separate these areas, often known as “Shared Spaces”.

Bollards come in a range of styles dependant on use be it, heavy duty, decorative, illuminated, multi-functional, can be both fixed and tilted. They can be stand-alone, or they can be connected by a chain.



Katao



Jeko



Aluso



Simple



Scan QR Code
View our full range
of bollards.



Information Boards



Information boards are an essential element for the location of both temporary and permanent information for a given location. The poster boards are especially suitable for temporary information – both two-dimensional and spatial. Boards can be one-sided or double-sided manufactured in contemporary aluminium or traditional timber.



LXL



CYLINDRUM



UNITAB



K.D.K.



Scan QR Code
View our full range of information boards



Multifunctional Tree Surrounds



Along with standard GBU and bespoke tree grilles, we continue to look at innovative solutions that create the wow factor on any public realm development. This is why we have enhanced our supplier offering to bring a further range of grilles that are both extravagant in design and provide long term value.



Scan QR Code
View our full range
of tree surrounds.



ReLuminate

Standalone Off-Grid Streetlight



Features

- Vertically oriented and 360° deployed Solar PV Panels.
- 300w peak output wind turbine.
- Efficient LiFePO4 battery technology.
- Highly functional programming controller system.
- IK10 rated vandal-resistant Solar PV Panel and luminaire housing.
- High efficiency focused LED optics.
- 5.0m height luminaire.

Benefits

- 100% Off-Grid – zero carbon - zero emissions.
- Proven 100% energy availability during dark hours all year round, without requiring movement sensors to save energy.*
- Optimum solar harvesting from surround Solar PV Panel design.
- Self cleaning vertical solar PV panels.
- Provides sufficient lighting for P3-P1 lighting classes defined by the 1995 issue of CIE115
- Cost and time savings due to no power infrastructure requirements.
- Easy installation with various ground situations.
- Ecosystem sensitive / wildlife friendly LED colour adjustment available.
- IOT connectivity option available.
- Maintenance-free.

GreenBlue Urban are delighted to introduce the Standalone Off-Grid Streetlight. Combining solar and wind power to provide the most effective Off-Grid lighting system on the market, users can be confident in 100% energy availability* during dark hours, all year round. This highly engineered product is solid and durable enough for the most demanding environments.

As completely Off-Grid, this provides a true net-zero carbon solution, not only eliminating any use of grid energy but also eliminating the expense and inconvenience of power infrastructure installations. Being cost effective to install, and zero maintenance costs, going Off-Grid means it will quickly pay for itself.



ReLuminate is available in a variety of finishes and styles.

*Installation to be in area not subjected to localised shade and with open wind flow.



Code	Description
RLOGS16A	OffGrid Streetlight Standard in ground mount
RLOGS16B	OffGrid Streetlight Relocatable with concrete movable base

Solar PV Panels

Relative efficiency at low light 97.3%
Si Polycrystalline
0.4% annual degradation
Mounted on 1K1O rated support

Wind Turbine

300w PH peak output
Marine grade
UK Manufactured

Luminaire

12 VDC
3000Lm, highly focused streetlight
Luminaire telemetry available

Battery

30Ah
95% Round Trip Efficiency
LiFePO4 technology
3 day power back up + safety margin

Programmable controller

99% efficiency
Programmable timing function
Stepped control
Auto turbine cut-off
Battery safety cut-off



View Product Online
Scan the QR code to view online.

Air

Trees and other green infrastructure elements are able to help clean the air and absorb harmful airborne particulates and gaseous pollutants. This includes toxins such as nitrogen oxides, ammonia and sulphur dioxide which can be absorbed through their leaves and roots.

This helps improve the air quality in the micro climate adjacent to the planting and contributes to a healthier and cleaner environment for everyone. The catch, of course, is that our modern city tends to be designed around the demands of the built infrastructure and transport, along with multiple utilities below ground – which makes the successful implementation of trees and green infrastructure a challenge.

GreenBlue Urban's innovative products allow for healthy and rapid establishment and long term continued growth of green infrastructure in urban areas, and we are developing future capabilities to monitor environmental improvements through IOT - providing tangible and quantifiable benefits.

131	ArborCharge
133	Air Cleaning Planter



ArborCharge

With local authorities and developers under pressure to provide dwellings and developments in our urban areas, the need of maximum space utilisation becomes of great importance.

There are many, varied and sometimes competing objectives that need to be met, meaning that often compromises have to be made in our towns and cities.

The need of additional tree canopy cover has never been more clear; from helping mitigate the effects of climate change, and providing food and shelter for biodiversity, most local authorities have tree planting targets in their local policies. Constraints to planting are myriad, from the lack of room below ground, to challenges above ground, to get healthy thriving trees into engineered surfaces can be difficult – but GreenBlue Urban can help.

Many of our older towns and cities are finding that the combined sewer networks are at capacity, limiting new developments. But utilising the GreenBlue Urban SuDS features, hard surface runoff can be slowed and cleaned using the range of nature based solutions, including the ArborFlow tree pit system, where the rooting volume can treat and store stormwater, reducing the pressure on the sewer network.

But whilst we are excavating the pit for the tree and SuDS system, why do we not incorporate an electrical supply to feed electric vehicle (EV) charging points? Most streets will have an electrical supply running beneath the paving, and if of sufficient capacity could be used to charge electric vehicles.

One excavation, one disruption, one intervention, ticking multiple boxes. The ArborCharge concept can use EV charging equipment from a wide range of manufacturers, and can be installed in a number of ways, to meet current regulations.

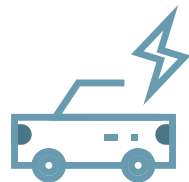
GreenBlue Urban – saving space, saving money, saving the world.



Smart & connected EV chargers with market leading reliability.



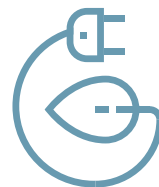
Smart & connected EV chargers with market leading reliability.



Ideal for use in areas where above ground space is at a premium.



EV Charging system is scalable and modular, making future expansion simple.



Save money on costly excavation for either tree pits or EV charger installation by combining both.



Combine EV charging with long term urban tree planting & SuDS systems for stormwater management.



Air Quality Planter

Trees and green infrastructure have long been known to help clean and cool the air; in our forests the air is cooler and there is less pollution. Partly, of course, this is because there are less sources of pollutants, but a large part is the combination of the flora and fauna which naturally breaks down pollutants and disposes of them.

For the past five years, GreenBlue Urban have been researching and testing different nature based solutions to bio-remediate and phyto-remediate poor quality air, and are close to completing extensive tests to guarantee effectiveness.

Using proven technology in a miniaturised format, polluted air is drawn into the system and filtered through a number of different natural mediums, each removing or converting the particulates and harmful gases into harmless inert elements which can be used by the tree, and form part of the growing medium.

This revolutionary design means that our urban green infrastructure can function to maximum benefit for all – helping with our air quality issues in our urban zones where the levels of pollution are at times life threatening.

GreenBlue Urban – creating healthy urban spaces in harmony with nature.



Support & Advice

GreenBlue Urban offer an easy to access support service, tailored to provide the back up and assurance specifiers need. We appreciate that many of today's building projects can be very involved and complex; involving many fields of expertise of which the actual tree planting may be just a part.

Many professionals involved in tree planting benefit from our easy to use CAD series of ArborSystem tree pits, thus saving themselves many hours of design time and at the same time giving peace of mind that the key features of successful tree pit design have been covered.

Alternatively, you can email enquiries@greenblue.com, your own tree pit detail through to our team of specialists for a detailed appraisal. We can then advise you, without obligation to purchase, on what we feel the best option is for you, or of potential opportunities on your drawing for improving the trees' long term chances of thriving.

137	How we work with you
139	Specification Support
140	ArborSystem Configurator
141	Continuing Education
142	Resources
143	Tree Species Selection
147	Maintenance
149	CAD Drawings



Support & Advice
How we work with you
Specification Support
ArborSystem Configurator
Continuing Education
Resources
Tree Species Selection
Maintenance
CAD Drawings

How we work with you

Enjoy peace of mind that we will support you with advice, specification and product suggestions that are compliant with industry standards, meet the end-user’s expectations and aide seamless installation of our ArborSystem products.

GreenBlue take pride in building lasting partnerships founded on mutual trust and values. Our support team is here to guide you every step of the way to ensure your project is one to be proud of.

Planning	Supporting Local Authorities, Developers & Engineers our specialists can support with applications and guidance on local or national policy and design codes.
Design	Using our datasheets, online resources, standard CAD packages or custom designs anything is possible.
Calculations	Experts in soil volume calculations, having also developed our own drainage tool to calculate SuDS.
Solutions	Industry leading engineered product solutions that have undergone rigorous testing to suit your needs.
UK Manufacturing	Our own manufacturing is on-site with full control of materials and outputs.
Timely Delivery	Meeting the customer demands with preferred carriers with extremely short lead times.
Pre-Install Guidance	Dedicated easy to use installation instructions are supported with hands on videos for each product to help you every step of the way.
On-site Support	Our dedicated team offer free site support and technical advice for any installation any size.
Maintenance Advice	We quash the myths of long-term maintenance with advice to support from planning to post installation.
Long Term Projects	Our ArborAdvance warranty ensures long-term health and confidence every time.



Support & Advice
How we work with you
Specification Support
ArborSystem Configurator
Continuing Education
Resources
Tree Species Selection
Maintenance
CAD Drawings

Specification Support

Working with a range of sectors we are familiar with government legislations that contribute toward planning and policy – from the recently updated National Planning Policy Framework 2021, The Environment Act 2021 and the newly published Levelling up Regeneration Bill 2022.

We are aware of how these affect policies at national and local level, keeping an eye on funding streams and how other parts of the UK operate in terms of Blue and Green Infrastructure.

Design Considerations



Always consider Right Tree, Right Place, Right Way, for the right reason.

First consider your tree species in the correct scenario and the benefits you wish to achieve. See our helpful tree species selection guide on P.143.

- Build outs
- Plazas Verges
- Parks, Pavements
- Pocket Parks
- Car Parks
- SuDS / Rain Gardens

Calculators



Following extensive research with universities, colleges and academia throughout the world, GreenBlue Urban has produced the Soil Volume Calculator, available in print and online, giving a simple guide to the soil volumes required to get trees chosen for long term canopy diameters. Whilst not totally prescriptive – different tree species have differing nutrient requirements – it has been proved very useful by practitioners all over the world.

Designing for SuDS



GreenBlue Urban Hydraulic Modelling Guidance – Causeway Flow

GreenBlue Urban Hydraulic Modelling Guidance – MicroDrainage

Written in collaboration with McCloy Consulting Limited. McCloy Consulting are Water and Environment Consultants whose core services include SuDS design, flood risk services, infrastructure design, contaminated land and water resources. They are recognised industry leaders in SuDS and hydraulic modelling and have written various guides on the design and evaluation of SuDS.

Standard Packages



Refer to our standard tree pit packages on P.149.

NBS Source

Get NBS specs for our products online.



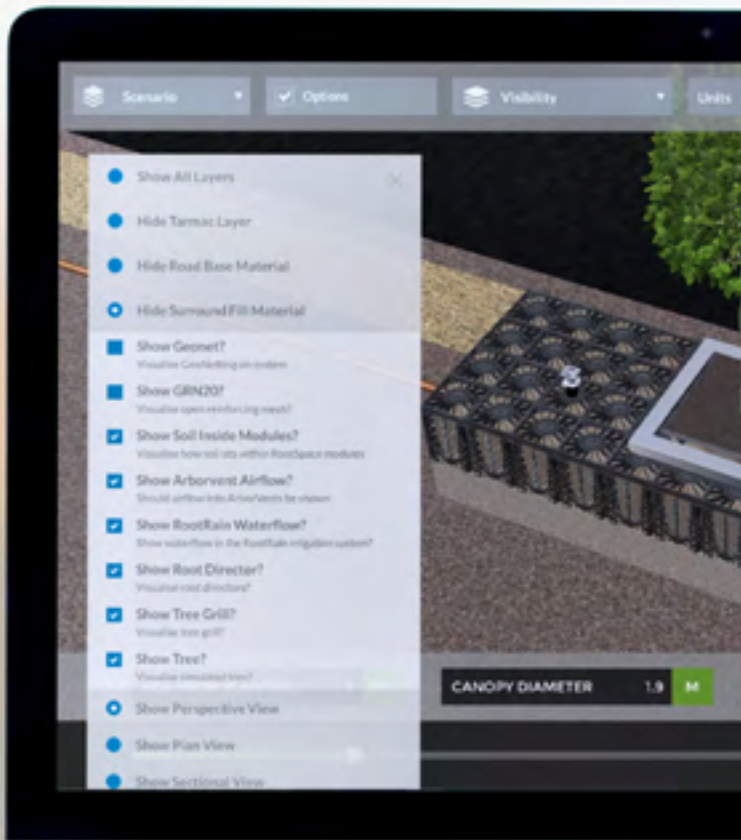
ArborSystem Configurator

Our ArborSystem Configurator is a free online tool that enables users to design a tree pit to their exact requirements, making it easier for clients to specify products and design a tree pit with ease.

The configurator hosts a wide selection of tree species to compliment designs with a range of infrastructure scenarios. Incorporating ArborFlow ensures SUDS tree pits are also an option for planners and designers.

Full specifications and drawings are distributed for ease of quotation and project estimation.

The main purpose of the configurator tool is to enable the right size tree pit using proven products for optimal tree growth. Thus, underlying the GreenBlue Urban mission of enabling sustainable cities through green and blue infrastructure.



Scan QR Code
Register for the
configurator tool

Support &
Advice

How we work
with you

Specification
Support

ArborSystem
Configurator

Continuing
Education

Resources

Tree Species
Selection

Maintenance

CAD Drawings

Continuing Education

Our passion is education – we care not just for the environment but for all who work, play and live in the urban environment

The better the understanding of green and blue infrastructure and the long term benefits will not only make a difference now but also for future generations.

Which is why GreenBlue pay meticulous attention at school level, supporting tree planting and delivering ‘SuDS is Fun’ presentations.

Our university programme supports students in landscape, architecture and planning even at PhD level – we are here to help.

The renowned CPD service is available in person or online, customised to suit your needs be it a specifier, planner, developer, engineer or contractor.

Covering a range of topics including:- Climate Change, Stormwater Management, Basics of Tree Planting, Cost Benefit Analysis, Root Morphology.

GreenBlue will even provide lunch and a CPD certificate – our feedback results speak for themselves, why not sign up today!



Howard Gray presents to students of Reaseheath College, presenting on best practice tree planting in the urban realm.



Students enjoy a live RootSpace tree pit demonstration.

Why not visit our Head Quarters?

Our doors are always open!

With so much to see at our rural headquarters in Sussex, we welcome pre-arranged visits to include a tour of our premises where you can meet the team and see our manufacturing and distribution facilities. Enjoy a dedicated presentation with Q&A, build a tree pit, a hands-on approach to see how quick and easily products fit together.

Refreshments are provided throughout – we will even offer a pub lunch in the picturesque setting of Bodiam castle.

Why not book a workshop visit today!



Visitors take a guided tour of our on-site manufacturing facilities.

Resources

Our website is full of industry-leading publications, datasheets and tools to enable the specification and successful implementation of Green & Blue infrastructure.



Scan QR Code
View our online resource centre



Datasheets & Install Guides

Download our product datasheets and installations guides.

Soil Volume Guides & Calculators

Work out recommended soil volumes for your urban tree planting projects with our useful guides and calculators.



Case Studies

View our full range of urban tree planting case studies, spanning more than 30 years.



Support & Advice

How we work with you

Specification Support

ArborSystem Configurator

Continuing Education

Resources

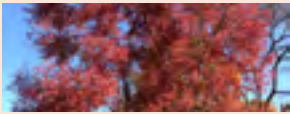
Tree Species Selection

Maintenance

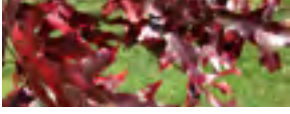
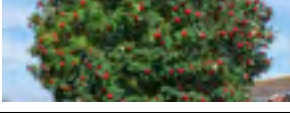
CAD Drawings

Tree Species Selection

Tree Species	Evergreen	Deciduous	Native	Autumn	Spring	Urban	Coastal	Suds
Acer campstre "Streetwise"		o	o			o		o
Acer negundo		o				o		o
Acer rubrum "Karpick"		o		o		o		o
Alnus x spaethii		o				o	o	o
Betula pendula		o	o			o		
Betula utilis jacquemontii "Jermyns"		o				o		
Carpinus betulus "Frans Fontaine"		o				o		
Cedrus deodara	o					o		
Cotoneaster frigidus		o				o		
Cupressus sempervirens var. pyramidalis	o					o	o	
Ginkgo biloba		o		o		o		
Liquidambar styraciflua "Fastigiata"		o		o		o		o
Liriodendron tulipifera		o		o				

Notes	Photo
Very good Urban tree with attractive ovoid crown. The Field Maple would usually be unsuitable due to wide spreading canopy, however the "Streetwise" cultivar provides a very good upright form that is ideal for urban development being both native for valuable fauna and also tolerable of both drought and water-logging. Used in SUDs applications.	
A broad crown feature tree with attractive leaf. Very suitable for SUDs applications. Not suitable for coastal applications but very good as a feature tree. Suitable for full sun applications such as public plaza areas.	
A superb tree with magnificent autumn colour and an upright form. Ideal for urban applications particularly as a feature tree or a feature avenue with an autumn blaze of orange and fiery reds. Not suitable for coastal applications.	
A hybrid of Alnus japonica and Alnus subcordata. Highly versatile but does require full sun. Ideal for urban, coastal districts and for SUDs applications. Capable of nitrogen fixing and so suitable for poor soils.	
A pioneer native and well known species and highly versatile with open foliage and very capable in poor soils but does require full sun. Fastigate versions are available.	
An outstanding award winning variant with beautiful white bark and long catkins with upright habit. An excellent medium feature tree for paved plazas.	
The Hornbeam is a substantial tree with very attractive bark. The cultivar "Frans Fontaine" is a narrow upright form making it ideal for urban avenue applications.	
A very elegant feature tree with attractive pyramidal form with open pendulous foliage. Tolerant of dry conditions but not suitable for water logged areas. Can become a very large tree with age.	
A small deciduous tree. Very good pollution absorbent. Ideal for roadside planting where a small decorative tree is required.	
A very ornamental mediterranean tree with a very narrow upright habit. Very suitable for urban area and suitable for coastal areas. A good option for planting as a feature tree to highlight a particular architectural feature.	
Distinctive tree of upright form with unique leaf shape and excellent autumn colour. Very versatile and adaptable to most applications but prefers dry soils.	
A highly versatile urban tree suitable for many urban applications, very tolerant of air pollution but not suitable for coastal districts. Prefers full sun. Excellent autumn colour.	
An excellent urban tree and very versatile with distinctive leaf shape and semi open crown. Prefers dry to moist soils. Very high ecology amenity value. Tolerates pollution but not suitable for coastal areas.	

Tree Species	Evergreen	Deciduous	Native	Autumn	Spring	Urban	Coastal	Suds
Metasequoia glyptostroboides		o			o	o		o
Paulownia tomentosa		o			o	o		
Pinus pinea	o					o	o	
Pinus sylvestris	o		o				o	
Platanus x hispanica		o				o		o
Quercus coccinea "Slendens"		o		o		o		
Quercus ilex	o					o	o	
Quercus palustris		o		o		o		o
Quercus rober "Fastigiata Koster"		o	o			o		
Sorbus aucuparia "Streewise"		o	o	o	o	o		o
Sorbus intermedia		o	o			o	o	
Tamarix ramosissima		o				o	o	o
Taxus baccata	o		o			o		
Tilia cordata "Greenspire"		o				o	o	
Ulmus "New Horizon"		o				o	o	o

Notes	Photo
Deciduous conifer. Very attractive tree with interesting autumn colour. Narrow pyramidical form. Highly versatile in urban areas but prefers moist or wet soils. Not very tolerant to drought.	
A very large decorative canopy tree with large cordate leaves. Very attractive blue-violet bell shaped flowers in spring. Extensive roots so considerable root space is required.	
Excellent and distintive broad crowned Pine. Very good feature tree. Suitable for coastal applications. Prefers sandy soils. Good habitat amenity value. Sensitive to water logging.	
Attractive well known native tree with orange/brown bark. Very good for coastal areas. Prefers dry sandy soils. Available in feathered or fastigiate forms.	
Highly veratile, tolerant and well known urban tree. Distinctive and attractive bark pattern. Open crown with large lobed leaves. Very tolerant of pollution. The leaf epidermis collects toxic pollutants from the atmosphere which can be irritant to asthmatic health. Potentially very large.	
An Oak with deeply lobed leaves of the most spectacular deep red autumn colour. Slow growing. Tolerant of dry conditions but not suitable for water logged conditions.. Outstanding autumn feature.	
A distinctive evergreen Oak with very attractive foliage all year round. Suitable for urban and coastal areas. Provides very deep shade from sun. Tolerant of drought but not suitable for water logged conditions.	
Available from nursery stock as a substantial feature tree. Very versatile with deeply lobed leaves and very good autumn colour. One of few Oaks that are reasonably tolerant of both drought and water logging.	
Distinctive upright narrow columnar cultivar of native Oak providing a very suitable tree for stree planting where space is limited. Very high ecology amenity value.	
A distinctive cultivar of the well known Rowan with a very neat upright form and a narrow compact canopy. Good flowering in May/June followed by bright orange berries. Highly versatile and tolerant of most soils and conditions.	
Very attractive and highly veratile and tolerant compact tree with attractive leaf form and white sprays of flowers in May. Very useful urban tree.	
A highly attractive and decorative tree. Excellent for coastal areas. Tolerates dryness, pollution and short term flooding. Very fine and delicate compound leaf. Attractive pink flowering.	
Common Yew. Well known native tree and highly veratile evergreen. Very dense canopy with deep shade. Very good ecology amenity. Excellent for a large variety of topiary designs.	
Very versatile select form of the small leaved Lime with broadly upright form and ideal for street planting. Very quick to establish.	
An exciting cultivar of the native Elm that is completley resistant to Dutch Elm Disease. Also of very high ecological value providing natural habitat to the increasingly rare White-letter Hairstreak Butterfly that is native to the UK. Fast growing and an excellent versatile choice for urban areas where substantial native canopy cover is desirable. Tolerant of drought, cold and periodical water logging. Excellent for coastal applications and SUDs schemes.	

Maintenance

Phase 1: The establishment phase

Watering

Even one instance of drought can have life threatening consequences for the tree. Waiting for leaves to show loss of turgor and drought stress before watering is too late. Ensure watering is proactive and applied deeply enough to be beneficial. The watering should be phased out over three years to encourage the tree to establish its own root system in relation to existing groundwater conditions.

Weeding

Competition for scarce water between trees and weeds can be intense. It is good practice to maintain a weed/grass free area around the tree. This will also keep damaging strimmers at a distance if in turf areas.

Regular inspection

Check for tree stability, loosen tree ties as the tree grows and remove at the end of three years. Countless trees have been strangled by ties. Check for early signs of disease, stress, chlorosis etc – quick action will be the most beneficial. Damaged limbs should be pruned carefully. Irrigation/ aeration inlets should be checked and cleaned annually.

Phase 2: Semi-mature trees

The tree is now semi-mature and establishing well – maintenance requirements should be low and relate mainly to crown raising if required by traffic constraints. Regular inspection by qualified personnel would be a great advantage addressing any needs.

Phase 3: Approaching full maturity

The final phase as the tree approaches the fully mature stage. Maintenance requirements for mature tree stock can be specialist and extremely varied so are not covered by this manual. Again if the tree pit has been carefully designed and the correct species chosen for the location, maintenance will be very low and the tree can be expected to provide wide benefits and pleasure, for a huge number of people, for many years to come.



To simplify the specification and installation of our range of products, we show in these pages a series of tree pit details.

These have been drawn in consultation with landscape architects and tree planting professionals. All GreenBlue Urban line drawings are available in CAD, DWG and PDF format.

GBU3102	Tree pit for semi mature tree in soft planting
GBU3104	Continuous tree trench in hard landscape RootSpace 600.
GBU3105	Tree pit for small tree species in hard landscape - RootSpace 400.
GBU3106	Tree pit for small/medium tree species in hard landscape - RootSpace 800.
GBU3107	Tree pit for medium species in hard landscape - RootSpace 1000.
GBU3109	Tree pit for small tree species with shallow build-up over podium - StrataCell 250.
GBU3111	ArborFlow SuDS tree pit for small tree species in hard landscape - RootSpace 600.
GBU3114	Soft bed with additional RootSpace volume on one side for medium to large tree species - RootSpace 600.
GBU3116	Tree pit for very large tree species in hard landscape - RootSpace 1200.
GBU3117	SuDS rain garden with RootSpace volume on both sides for medium to large tree species.
GBU3118	Kerbside SuDS tree pit for small tree species in hard landscape.
GBU3119	HydroPlanter installation build out option.



Scan QR Code

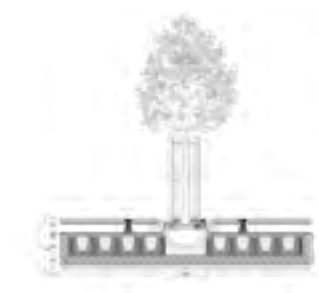
Download our CAD drawings and standard tree pit details online.



GBU3102
Tree pit for semi mature tree in soft planting



GBU3104
Continuous tree trench in hard landscape RootSpace 600.



GBU3105
Tree pit for small tree species in hard landscape - RootSpace 400.



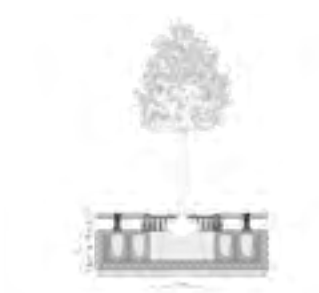
GBU3106
Tree pit for small/medium tree species in hard landscape - RootSpace 800.



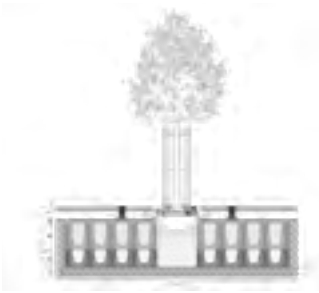
GBU3107
Tree pit for medium species in hard landscape - RootSpace 1000.



GBU3109
Tree pit for small tree species with shallow build-up over podium - StrataCell 250.



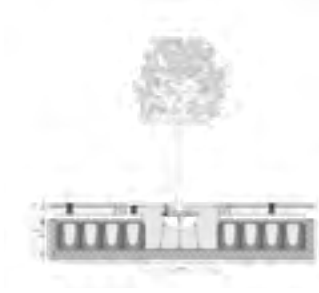
GBU3111
ArborFlow SuDS tree pit for small tree species in hard landscape - RootSpace 600.



GBU3114
Soft bed with additional RootSpace volume on one side for medium to large tree species - RootSpace 600.



GBU3116
Tree pit for very large tree species in hard landscape - RootSpace 1200.



GBU3117
SuDS rain garden with RootSpace volume on both sides for medium to large tree species.



GBU3118
Kerbside SuDS tree pit for small tree species in hard landscape.



GBU3119
HydroPlanter build out option.

Case Studies

Pleasing, beautiful and sustainable landscapes do not happen by accident, or by happenstance of nature. At GreenBlue Urban, this is an article of faith, because landscapes are our business, and the successful integration of trees into challenging and demanding urban environments is our mission.

Since 1992, the focus of our research has been collaboration with architects, designers and other tree-planting professionals. Our work has been to develop excellent tree pit designs that give newly planted urban trees the best chance and advantage for reaching their full maturity and potential.

We like to work with you – from the planning stages and beyond – to ensure you benefit from our ‘tree-literate’ design expertise and the technologies we have developed to provide long-term, urban-tree planting and management solutions. We will assist you in evaluating comprehensive tree pit designs, specifications and installations that are right for your needs, ambitions and budgets.

At GreenBlue Urban, we will also give you best practice guidance on tree pit layouts and tree-planting methods. We offer quality advice on practical and cost-effective products that promote tree establishment and maintenance, their compatibility and adaptability in different locations. Take advantage of both our on-site and telephone technical support service across the United Kingdom, North America, and around the world.

We are happy to work with your own architects, designers and building contractors to ensure you get the best design, installation advice and assistance. Dedicated to service excellence and product sustainability, GreenBlue Urban goes the extra distance in making sure your trees live – and thrive – in urban settings.



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Kings Crescent, Hackney

Greening Spaces, Joyful Places

Green Lanes, in north London, one of London's longest stretches of road with a single name, is a road of great antiquity. Probably dating back to the Roman times, it has been used for centuries as a drover's way, a wide thoroughfare down which cattle were walked into London. It was preferred to the other major arterial routes, also Roman roads, such as Ermine Street heading towards Lincoln (now the A10), a road heading eastwards to Chelmsford, and the north heading Watling Street, running to St. Albans.

Up until the 19th Century, much of this road running through the parish of Stoke Newington was rural, passing through farmland and small holdings. The coming of the railways revolutionised this part of London, as it meant that those working in the city could commute – a hitherto rarely used term. This migration from city centre to nicer outlying areas and mass house building became common.

Opposite the beautiful Clissold Park – then still in private hands – a new development was taking shape. This consisted of three roads containing a mix of terraced and semi-detached villas with decent gardens. It was the developer's intention to provide better accommodation for families than could be obtained closer in to the city,

and whilst the quality of the buildings would not impress us today, they were impressive at the time.

When men were first called up for military duty during the first world war, the Government found to its horror that many were unfit for service due to poor living conditions, and when the soldiers returned from the trenches, it began a policy of "homes fit for heroes", by clearing slum housing and rebuilding social housing to a better standard. What the Government did not finish then was assisted by bombing during the second world war, (Hackney losing approximately 4000 homes) which provided an opportunity to improve the housing stock.

The London Borough of Hackney became a laboratory for social housing experiments, trialling several different designs and options across the borough. Many of these particularly low-rise estates, have become popular, and are very much loved today. However, the Kings Crescent Estate, built on the land vacated by the demolition of the above three roads, consisting of two 20 floor towers, completed between 1969 and 1971 became problematic and disliked, and Hackney decided to demolish and replace the tower blocks with a stunning new development providing more homes, better accommodation and a fantastic public realm. Complex

planning of the first phase of this award-winning scheme was accomplished by Tibbalds Planning Consultancy designed by Karakusevic Carson Architects were completed in 2017, bringing 50% of the 700 planned high quality homes to Hackney residents.

The public realm areas, designed by Muf Architecture were based around the needs of the residents, centred around the main street, which has been designed to be a playable area and also a route to the Clissold Park. This park, now open to the public gives an unenclosed eastern vista for most of the residents, reducing the impact of the high-density development.

Muf Architecture, working with GreenBlue Urban, carefully designed the infrastructure so that the new trees can establish in a very heavily engineered environment; and by cleverly incorporating different natural elements around these trees, provide:



- A play space for children.
- An event area for the community.
- Benches for the elderly.
- Areas for socialising.

Completed in 2018 a number of key practitioners are proud to be involved in this brilliant design and build. RootSpace 600, ArborVent Aeration, Guying and Tree protection products will ensure maximum value is gained from the site, which will continue to become more and more effective as the 60 plus trees grow to reach their species potential – providing the multiple benefits that only mature trees can bring.



Scan QR Code
View the full case study online.



Fletton Quays, Peterborough

Effective SuDS, Preventing Floods

Situated on the edge of the historic Fens, Peterborough has a rich heritage. Settled by man over 3500 years ago, with a cathedral dating back to AD655, there are plenty of reminders of the past, and recognising this, the City has many listed buildings including the old railway sheds and the 19th Century Whitworth Mill on the banks of the River Nene.

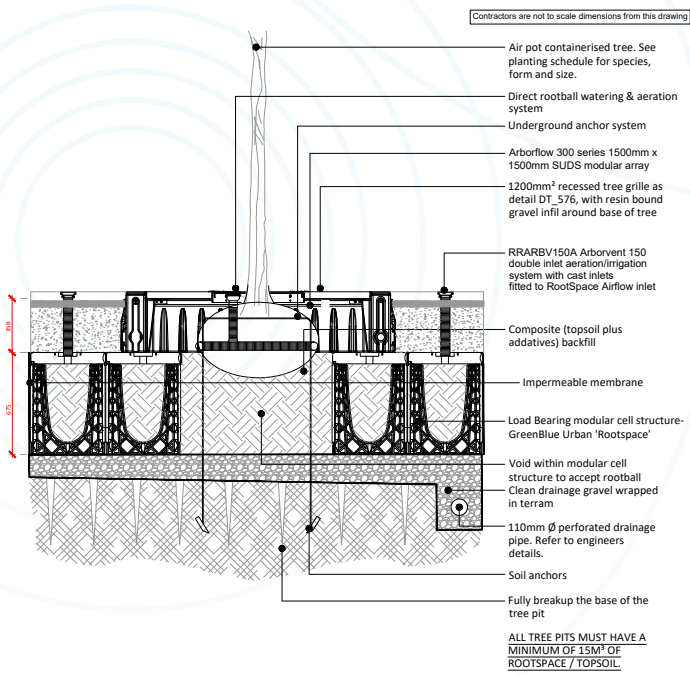
The clay sub-soil in the Fletton area proved perfect for brick making, and this became a major industry in the city - the beginning of the Fletton brick, now widely used across the country. The arrival of the railway in 1845 meant that transportation of the bricks became simpler and Peterborough East Station was built and a goods yard constructed on the south bank of the River Nene to service the city's expanding business trade. The station closed in 1970 and the land between the railway line and the river was used for various commercial purposes for the next 40 years.

Identifying the potential of this riverside site with amazing views to the Cathedral, Peterborough City Council allocated this area for high-quality mixed-use development. With views across the river to The Embankment open space, only a short walk across the Town Bridge to the city centre and less than a mile from the mainline railway station, the site was ripe for redevelopment – with the restoration of the old listed buildings and construction of new ones.

With much of the city low lying, stormwater management can be a challenge. Peterborough City Council encourages innovative thinking in the using of sustainable drainage systems, and the adjacent river available for water discharge made the new development an obvious good fit. Although the original plans were to use a conventional piped stormwater system, alternative methods were investigated and the GreenBlue Urban ArborFlow tree pit system was chosen.

Harrison Stevens, the landscape architects, worked closely with Peterborough Investment Partnership and their engineers and planning consultants to design a scheme that worked hydraulically as well as visually, and the whole development has won several awards for the quality of the project, which was constructed by Bowmer and Kirkland during the period spanning 2016-2020.

Sustainable drainage features were implemented across the whole development, using both rain gardens and tree pits between and around the buildings to attenuate and clean the rainwater from the hard surfaces and roofs.

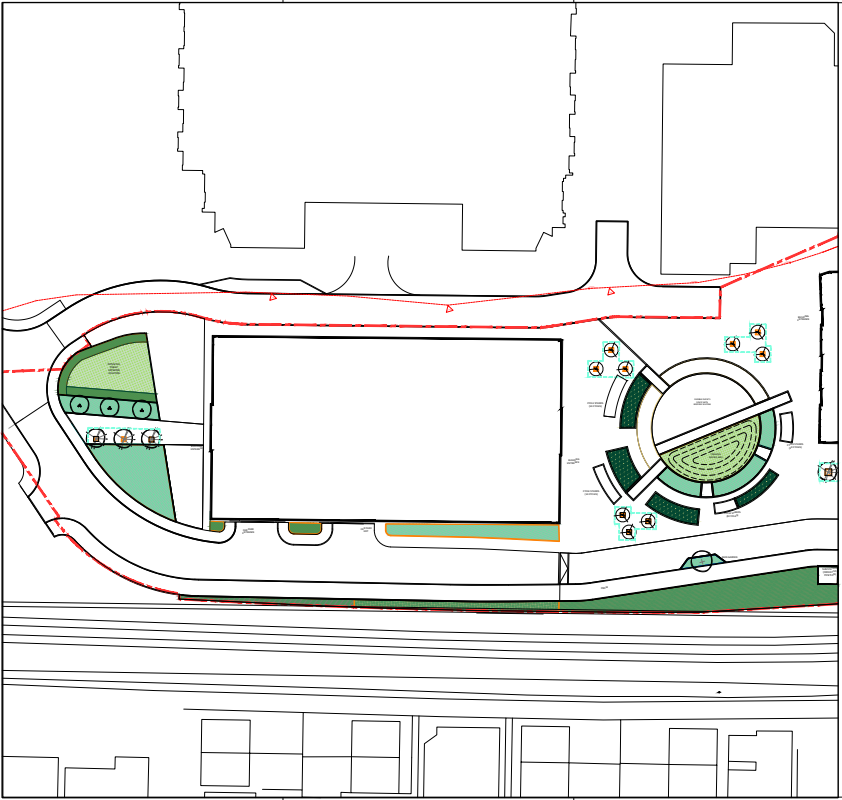


The GreenBlue Urban StormForm system allows for a fast inrush of stormwater preventing localised flooding, and directing the water down into the bio-remediation soil, allowing slow percolation giving optimum water treatment and pollutant removal. The trees are protected by the GreenBlue Urban Precast tree grille, allowing gaseous exchange for the soil, and giving additional drainage for times of exceedance flow.

The success of the project is obvious – Peterborough City Council has moved into the restored engine sheds, and the public realm has matured beautifully, offering green spaces for the enjoyment of all those who live, work and play here. As the trees grow, increasing in canopy size and density, they become more and more efficient in dealing with stormwater and in providing shade and heat mitigation – a truly resilient development, designed to cope with whatever climate change throws at it.



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View the full case study online.



Fletton Quays: Plot 5 (Drawing by HarrisonStevens)





St Paul's Cathedral, London

Place-making Through Long Term Canopy Cover

St Pauls Cathedral is one of the most recognisable and famous landmarks in London, offering a place of worship and prayer. This Grade I listed Anglian cathedral serves as the mother church of the diocese of London, sitting on the highest point of the city, Ludgate Hill. The dome of the cathedral has dominated London's skyline for more than 300 years.

From 1710 to 1963 the Cathedral's spire was the tallest standing at 365 feet high, this demonstrates how London's skyline and construction industry has drastically enhanced throughout the years.

St Paul's Cathedral is over 1400 years old and has had to be rebuild five times. The present cathedral, dating from the late 17th century, was designed in the English Baroque style by Sir Christopher Wren. The construction was challenging due to the largely dominant clay soils in the area. The project was completed in Wren's lifetime as part of a major rebuilding programme in the city, after the Great Fire of London. Unfortunately, the earlier Gothic cathedral was largely destroyed in the Great Fire.

The west front of the Cathedral has been the backdrop to many famous historical events, adopting major media coverage. Services held at St Paul's Cathedral have included the respectful funerals of Admiral Nelson, Winston Churchill and Margaret Thatcher. On a more joyous occasion, the Cathedral has also seen the jubilee celebrations for Queen Victoria; the wedding of Prince Charles and Princess Diana, peace services marking the end of the First and Second World Wars and the Silver, Golden and Diamond Jubilees for our Queen Elizabeth II.

In 2002, GreenBlue Urban were approached by the architect firm, Burns + Nice who had been commissioned by the client Corporation of London to improve the west front entrance of St Paul's Cathedral. Tree Planting

would allow this area to be an attractive place for tourists providing shade as well as offering a calming biophilia effect on the City's Corporate hub commuters.

Six beautiful *Platanus x Hispanica* (London Plane) trees were planted on 22nd May 2003. Today a plaque can be viewed under each tree in remembrance. The plaque states that the trees were planted by Tom Gough, The Master of The Worshipful Company of Gardeners to commemorate the formation of the fraternity of Gardeners 1345.

Burns + Nice allowed enough soil volume below ground to encourage the London Plane's to grow to maturity. Specified were the worlds very first load bearing soil cell; RootCell. With vast amounts of uncompacted soil to grow into and a steady flow of air and water through GreenBlue's Hydrogrille inlets and irrigation, these trees have thrived and evidently grown to over 3 storeys high. The success of this case study is evidenced in that the original Tay tree grilles used had to be removed, due to the trunk diameter out growing the above ground infrastructure.

St Paul's cathedral will always be a high talking point within the landscape industry. The impact the trees have had on the location aswell as showing the success soil cells have on our green infrastructure in phenomenal. The magnificent height and trunk diameter of these London Planes speak for themselves.



Wapping Wharf, Bristol

Harbouring biodiversity in the heart of Bristol

This ongoing phased public-realm scheme has transformed a much-loved section of Bristol City, adding a vibrant feel to this community overlooking the floating harbourside, with passing boats following the opening of Gaol Ferry Steps. This has opened the pedestrianised route flowing through the heart of Bristol, allowing easy access from South Bristol through the tree-lined street down to the City Centre's waterfront and public green space.

Heading the project is a joint venture between Landowners: Muse Developments and Umberslade, a family-owned property developer that has a record of accomplishment in developing a variety of different properties, from residential, industrial, and commercial across the UK and Overseas. Awarded £12 million through the Homes & Communities "Get Britain Building" initiative in 2013, this triggered the first phase of homes including a multitude of affordable housing.

'Wapping Wharf Phase One was announced as the residential award winner in 2017 at the Michelmores Property Awards'

The land chosen to develop once stood derelict, therefore the restoration of this area has allowed regeneration of the city docks and brought the area back to life with a modern touch. The project encompasses a host of independent eateries, shops, and 'CARGO' pop-ups. This new concept is made entirely from shipping containers converted into mini restaurants as part of the Wapping Wharf experience. Collaboration between businesses is key within the Wapping Wharf community, sharing local produce between stores allows the area to remain authentic and adaptable.

Independent shop owners pride themselves on being freethinking, unique and affordable. Wapping Wharf is a shared community supporting a range of important charities and initiatives including: 'Bristol 24/7's Better

Bristol Campaign, Art Galleries and Museums, Bristol Children's Hospital campaign 2021: Light up the Night and so many more. Working alongside one another; architects Alec French and Landscape Architects: Gillespies worked to develop the landscaping masterplan phase one.

The design included green corridors to enhance pedestrian footfall and cycleways for active travel, allowing this area to become socially inclusive for all.

Seamlessly, this passage successfully connects many Bristol locations further enhancing a sense of community among residents, retailers, and visiting tourists. GreenBlue Urban supplied and supported the appointed Landscape Contractors: Charlton Abbotts during the tree pit installations. Using the specified soil cell solution: StrataCell, the tree pits have a 600m depth of uncompacted forest floor soil hidden below the cobbled streets at Wapping Wharf. The Root Directors below the surface will encourage the tree roots to grow down into the open soil void, eliminating any opportunity for pavement heave.

The trees had one last high-quality addition to complete the look, custom roundel designed tree grilles with uplights framing each tree adding character to the completed feel of the scheme.

'Sunday Times has cited Wapping Wharf as the 'best address' on the Bristol harbourside'

Bristol City Council is enthusiastic about the positive feedback this development has received across the UK, attracting many visitors to the city across all months of the year.



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The Old Vinyl Factory, Hayes

Where long playing records were produced for our enjoyment, now long living trees are establishing in a place of life and employment.

With over 100 years of history in the making, The Old Vinyl Factory - as it's now known - located in Hayes, West London has a wonderful story to tell. Originally built in 1907 the then Gramophone Company started to make its name, not only from producing gramophones, to which Captain Scott used during his Antarctic voyage but also manufacturing 78 rpm records for the record label His Master's Voice (HMV). The iconic logo of a Jack Russell called Nipper listening to a gramophone is still renowned to this day.

Going from strength to strength, expansion was necessary, and the services of Architecture firm Wallis, Gilbert & Partners were secured. This company were later acclaimed for their work on Victoria Coach Station and the Hoover Building, both in London. Their designs were innovative for the time; all the three monumental buildings being open plan inside, with reinforced concrete floors, plenty of natural light and an art deco flair.

The best was yet to come; in 1932 the Gramophone Company merged with its competitor Columbia - creating EMI. With in-house Research & Development - The Central Research Laboratory - the breakthrough was made into high-definition TV and stereo sound securing the world's first stereo recording. Along with pioneering the airborne radar for the second world war, technology had certainly triumphed.

Swinging into the sixties many great music artists (including an unknown Liverpool band!) signed for the label, with every chart success produced and digitally mastered in Hayes. Further well-known UK artists were to follow over the next two decades, keeping EMI at the forefront of British music; at its peak, the plant had 22,000 employees!

Sad to say, this didn't last; the record was no longer the preferred choice for music: the cassette was born, and the Walkman was the must-have new gadget. Included a link for those too young to remember, think clunky box

clipped to your belt, flimsy felt earphones, sometimes donned with leg warmers and roller boots - (Retro 80's). With operations moving away from Hayes many of the factory buildings were left empty, having a devastating effect to the local community. Thankfully the site was purchased by property developer U+I who are visionaries in regeneration, seeing the huge potential with the expansive site.



RootSpace
Pavement
Support Systems



RootSafe
Root
Management



ArborGuy
Underground
Guying

Renamed The Old Vinyl Factory, Architects Studio Egret West were instructed to re-imagine the entire site for the digital age: providing sustainable development for the future whilst preserving its famous historical value.

In 2011 a £250 million masterplan was submitted to Hillingdon Council to cover the 17 Acres of regeneration, with emphasis on place-making. Plans included 642 new homes, 550,000 sq ft of office space, 70,000sq ft of retail and leisure space including a cinema, cafes, restaurants and a climbing centre. Central to this and in keeping with past innovation the Central Research Laboratory building was restored in partnership with Brunel University; the hub will be a spearhead for manufacturing magnates using the latest technology supporting entrepreneurs and start-ups.

With such a vast site to soften, in 2018 GreenBlue Urban was honoured to supply tree planting products to contractor Landscape 2000 for phase 2 development. Products included RootSpace 600, Geonet, Root Management, RootRain Urban's and ArborVent's. All will assist the carefully selected trees in the hard and soft landscape to thrive by permitting uncompacted healthy aerated soil, carefully directing roots from paved surfaces and utilities, as well as ensuring regular irrigation in the crucial early planting stages.

The landscaping of the once again iconic site plays testament to the vision of U+I who aptly use the Re-imagined & Remastered slogan for this unique development.

“The scheme has completely rejuvenated a previously underutilised yet culturally significant site while delivering hundreds of much needed new homes and jobs for the Hayes community”. – Richard Upton Chief Development officer U+I

Congratulations to all involved in a fantastic example of collaboration with a clear vision from the outset. The site will continue to flourish and once again be the hub of Hayes as it was some 100 years ago.



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View the full case study online.



Chase Farm Hospital, Enfield

Healthy SuDs promoting healing

Chase Farm Hospital has been an NHS hospital since the advent of the NHS in 1948 – but was already over 50 years old by then. Begun as an orphanage to hold 500 children, by 1930 it was underused and was being used in part as an infirmary for sick children from the North Middlesex Hospital. Middlesex County Council decided to adapt other parts of the orphanage to hospital use, and by 1938 the site was known as Chase Farm, an old peoples home.

The Second World War caused many changes, Chase Farm became Chase Farm Emergency Hospital as part of the Emergency Medical Scheme, and prepared to accept patients suffering after air raids on the London area.

For the rest of the century, the hospital continued to grow, absorbing other medical centres and building new wards and specialist wings, serving a wide area and population across Northern London.

By 2008, the mix of building ages and styles, some intended to be temporary, made the continuation of service as a hospital under current conditions impractical. Other newer hospitals took over some of the departments, meaning that some of the units became redundant. The Royal Free Hospital took over the running of the hospital and a review of the site showed that much of the site was not needed anymore, and a new hospital could be built on the site, releasing land for residential development, which helped with the costs of a new hospital.

The new Chase Farm Hospital was constructed at an unprecedented speed for a project of this size and complexity. In only four years, a new hospital has been built, opening better spaces for all those who use the facility, with the latest technology available to patients, excellent access for disabled visitors and built with sustainability in mind. Excellent road and bus links mean that nobody is out of reach of the hospital, and a multi-story car park on-site looks after those who drive also. One exceptional feature of the hospital is the use of

sustainable drainage systems (SuDS). Using a mixture of swales in soft areas, and GreenBlue Urban ArborFlow systems in hard areas, stormwater is checked and held on-site for as long as possible.



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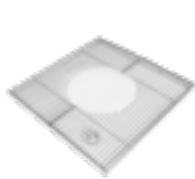




Trees in the main concourse are planted in the GreenBlue Urban RootSpace soil cell system, and the rainwater flows into the cells via the ArborFlow panel system surrounding the rootball and offering root management as well. These roots are directed down below the paving level into the optimum soil conditions for root growth, maximising water take up (evapotranspiration) and canopy interception.

Thanks to IBI Group, Vinci and Cultura Group - the finished look speaks volumes and are topped off with wonderful-looking custom Clyde Tree Grilles and up lighters to give the wow factor.

As these trees grow, their efficiency will grow, not only dealing with water, but providing shade and cooling, which will help make Chase Farm Hospital resilient for the future – caring for patients comfortably in prime conditions, whilst the trees give us canopies for centuries.



FTS Clyde
Tree Surrounds



RootSpace
Pavement Support Systems



RootSafe
Root Management



StormForm
ArborFlow Inlets



Hessian
Geotextiles



ArborCell
Water Storage



Sauchiehall Street, Glasgow

Landscape at the heart of urban regeneration

This long highway, heading out of Glasgow towards the west, has long been a major thoroughfare in the city. Built up from 1800 onwards as wealthy citizens wanted to build themselves homes on the outskirts of the city, it was straightened and named properly in the 1840s.

The street was regenerated in the 1860s, at the turn of the century and during the 1960s. Interestingly, although the name "Sauchiehall" actually comes from the Scots word meaning Willow Meadow by the river, the road has not had street trees before.

There was considerable decline in the road since the middle of the last century, as the retail and entertainment worlds have changed, and the main shopping areas have consolidated in the heart of the city. There have been many efforts to turn this around, and the awarding to the Glasgow City Region Deal funding meant that a proper scheme of revitalisation could be planned.

Central to the Green Avenues plan was to increase canopy cover in urban areas; Sauchiehall Street being the pilot scheme to showcase how green infrastructure can be used to change human behaviour by challenging the dominance of vehicles in the public realm. Twenty eight specimen trees have been planted in full GreenBlue Urban ArborSystems, providing a strong visual segregation between vehicles and pedestrians/cyclists.

The tree pits are linked together, providing maximum rooting space in uncompacted aerated soil, giving the trees the best opportunity of attaining species potential. As well as the aesthetic attractiveness, (encouraging a pavement café culture atmosphere) these trees also provide a measure of pollution absorbance, and help cope with stormwater management by treating water run off from the paving areas through the tree pit soil.



These trees are a variety of species, chosen to give visual interest all of the year round, with different leaf colours, blossom and shape, carefully selected to enhance the street scene.

GreenBlue Urban worked closely with recent Landscape Award winners; Glasgow City Council, Civic Engineers, Landscape architects Urban Movement & Tree Consultants Ideverde Ltd to ensure that the scheme was simple to specify, easy to install and requires minimal maintenance – guaranteeing long term canopy cover for future Glaswegian generations.



StrataCell
Pavement
Support Systems



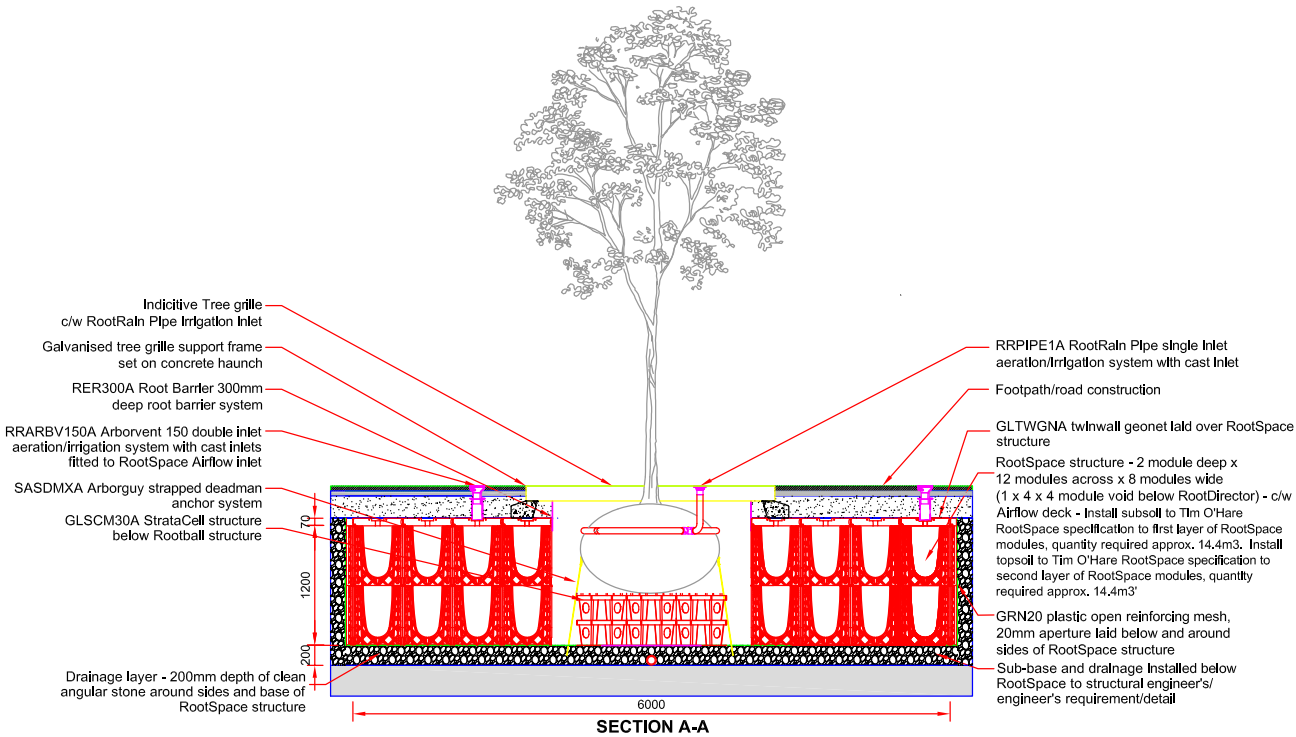
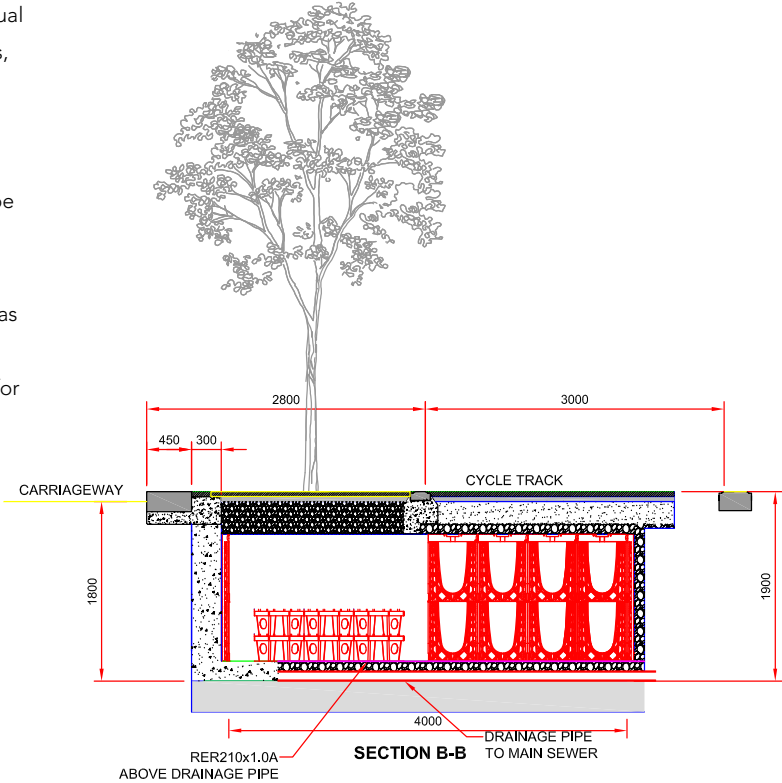
RootSpace
Pavement
Support Systems



RootSafe
Root
Management



AnchorPlate
Underground
Guying





Cheltenham Race Course

A winning scheme, galloping to success

Cheltenham has long been associated with horse racing – in fact the first organised flat race meeting happened in 1815. It became increasingly popular over the next decades, with tens of thousands of spectators crowding the Cleve Hill track, but racing was violently opposed by the local parish priest, with meetings being disrupted and the grandstand destroyed by fire.

Cheltenham Racecourse, based at Prestbury Park in Gloucestershire since 1831, is a venue that is unique and can be adapted to various events. Cheltenham has seen many large events over the years televised to the nation such as, The National Hunt Horse Racing, The Cheltenham Festival and the Queen Mother's Champaign Chase.

The easily accessible racecourse in a South-West location of the UK, just off the M5 has a beautiful backdrop of the Cotswolds hills and greenery as far as the eye can see. Built on a stunning natural amphitheatre arena, the venue offers the highest-quality action and thrilling racing opportunities throughout the Horse Jumping season, holding a capacity of 67,500 spectators.

From 1999 to 2013, the racecourse was the key venue for the annual Greenbelt festival and still to this day is the home to Wychwood Music Festival. For many lucky young Gloucestershire graduates and entrepreneurs, the racecourse has been their graduation ceremony placement and summer ball celebrations for many years.

In 2015, Cheltenham Racecourse opened the £45m Princess Royal Stand, which completed the redevelopment of inside the racecourse. The grand entrance of the venue was also in need of improvement

to memorise the experience for excited spectators that arrive for each race and event. Ultimately, GreenBlue were pleased to be involved in the urban tree pits design implementing best practice planting alongside the designers, Illman-Young.

Kier construction and Charlton Abbotts were advocates in constructing the implementation of soil cells beneath the trees on site to allow for mature canopy cover. The Stratacell 30 series with extra support from the Anchor system and RootRain Precinct Grille with Aeration inlets has allowed a high-quality finish on site.



StrataCell
Pavement
Support Systems



RootSoil 20
Soil & Aggregates



RootSafe
Root
Management

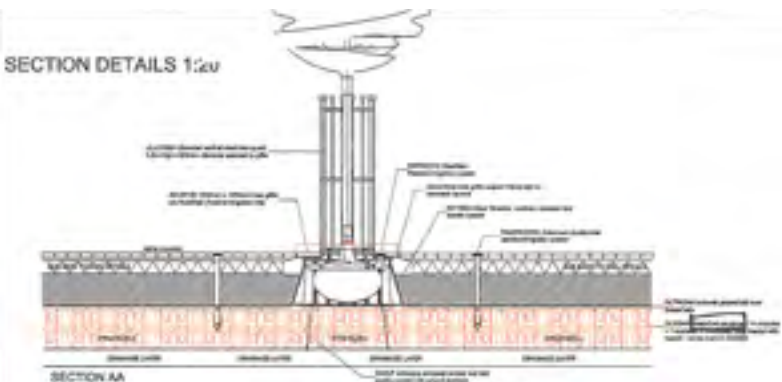
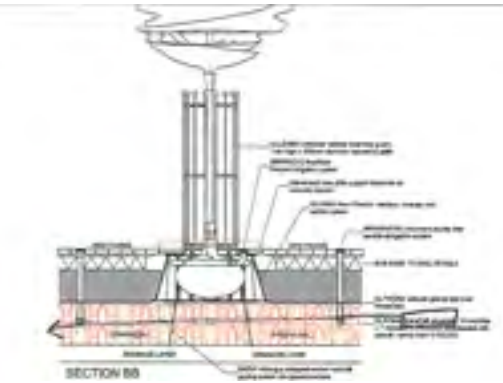


RootRain Civic
Irrigation &
Aeration

Seating areas around the trees provide a natural protection barrier for the trees and add a communal hub for visitors, over-looking the famous horse statue: Dawn Run, sculpted with bronze in memory of the famous jockey, Jonjo O'Neill.

With a large volume of uncompacted soil beneath ground, these trees have been able to grow extensively since they were planted in 2015 to present day. These trees provide a multi-functional use for the area such as beauty, biodiversity and stormwater interception. The growth speaks for itself in that soil cells work extremely well.

The Stratacell is a soil cell that takes a large load bearing volume and was specifically chosen to allow for emergency vehicle overrun that may need to gain access to the stadium. GreenBlue are thrilled to be included in the history of the famous redevelopment scheme to improve Cheltenham racecourse for future generations. We look forward to visiting the stadium to see how these trees offer shade and protection for spectators now face to face events have positively commenced once again.



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London Wall Place

Green in the Ancient Heart of the City

This multiple award-winning development right in the heart of the City has released a new piece of public realm in the most ancient part of London. Previously the modern concrete and glass commercial building dominated the adjacent St Alphege Gardens, the site of the pre-Norman St. Alphege Cripplegate church, and public access was difficult. Make Architects won the project to create new commercial space in this historic area, with new public space available to all by opening up the central area of the site, including the remnants of the Roman London Wall. This landscape design was led by Spacehub of London.

The street now named "London Wall" shadows the course of the original city wall that was constructed by the Romans around 200AD; apparently built to protect the new capital of Britannia, Londinium, from attacks by invaders and angry Picts. Made largely from Kentish Ragstone, held together by mortar, it was originally 2.5 – 3.0m wide at the base and up to 6m high, and was complete with gates, towers and defensive bridges. It was probably the biggest building project in Roman Britain, which, and until the Middle Ages defined the limits of the City of London. A few parts of this original wall still remain, many of them having been protected by their inclusion in other buildings over the past 1800 years. Notable in this regard is the section to be now seen at London Wall Place, which formed the northern wall of the original St. Alphege church.



RootSpace
Pavement
Support Systems



RootSafe
Root
Management



ArborGuy
Underground
Guying



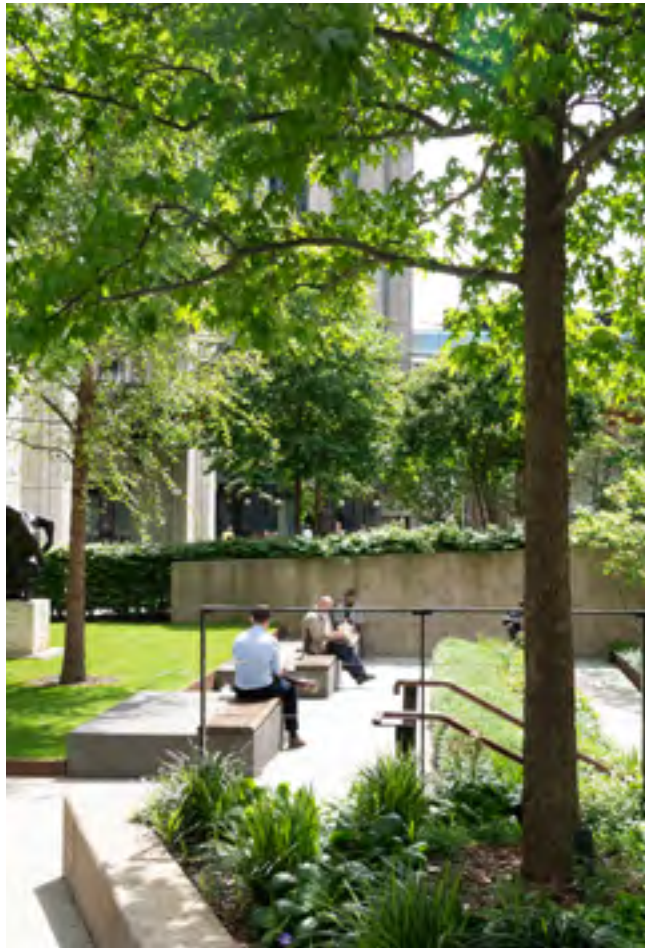
Aeration Manifold
Irrigation &
Aeration



RootRain Civic
Irrigation &
Aeration

The new open central core of the development has reinstated the historic grid as pedestrian routes through a series of new landscaped gardens, both at street level and on bridges at high level and has provided a pleasant retreat formed by a series of pocket gardens, just waiting to be discovered.

Bearing in mind that this development is just the latest layer in the history of the site, establishing healthy trees amid the complex below ground works was never going to be simple. Many of the chosen planting positions were very limited in soil volume, and GreenBlue Urban were asked to suggest ways that good tree canopy cover could be provided.

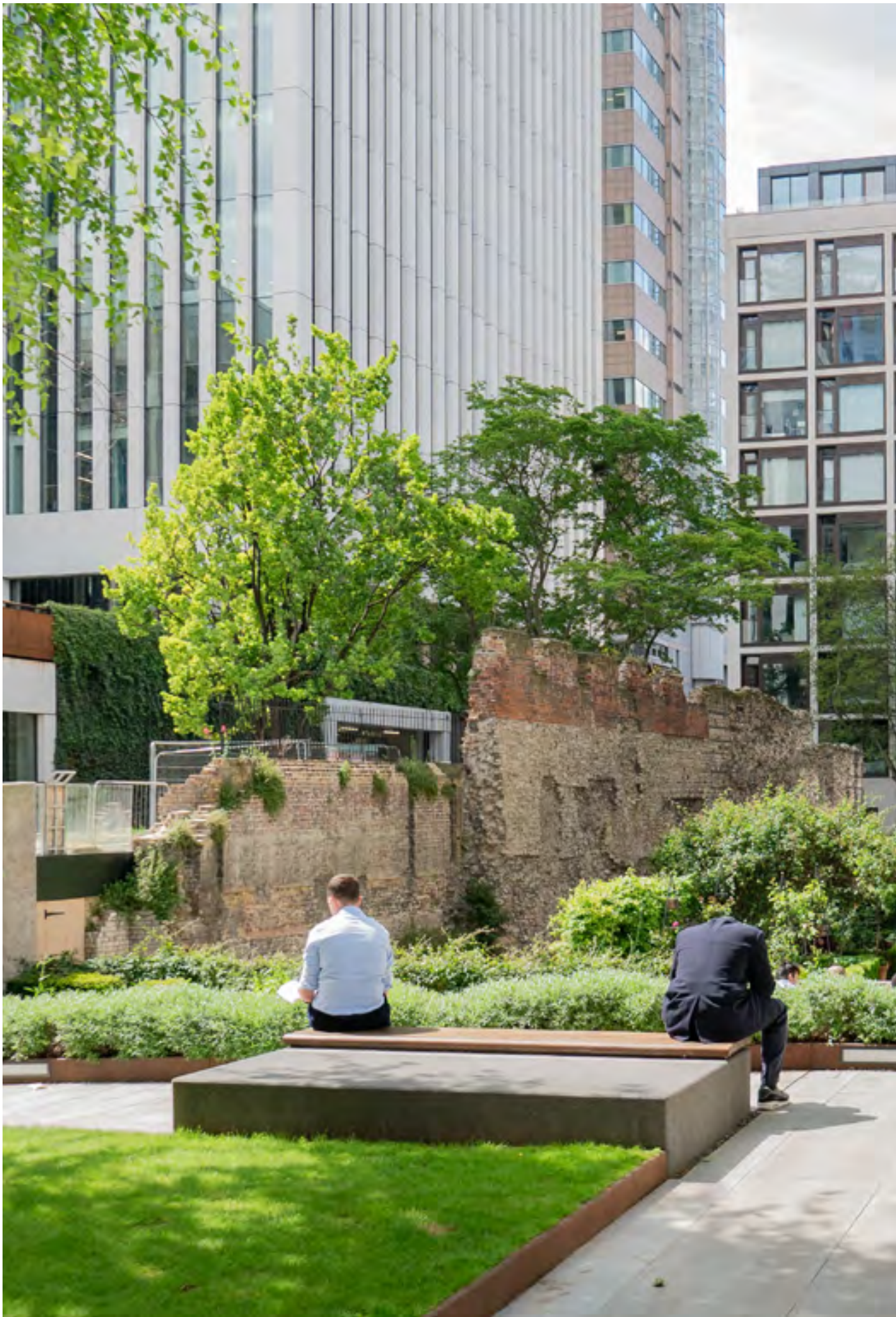


Having carefully considered the tree species requirements and taking into account the unusual microclimates that exist in the City, the use of the ArborSystem consisting of soil support cells to connect discrete soil areas, a soil aeration system and root management has enabled the trees to establish in a very satisfactory way without causing any difficulty with surfacing or below ground utilities.

In such schemes it is always helpful to include the landscape architect in early masterplanning: the London Wall Place scheme has again proved the value of collaboration, leading to the new urban park known as the “Sanctuary in the City”.



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View the full case study online.





Haskins Garden Centre, Snowhill

The garden centre showing good practice tree planting

Having established itself as one of the leading garden centres in the area, Haskins Garden Centre Chain recognised the need to redevelop its Snowhill centre due to a number of ageing on-site buildings inherited when it took ownership of the site in 2003.

In order to maintain its upstanding reputation, the garden centre undertook a £15m redevelopment programme, temporarily scaling down the centre and continuing to trade on a site adjacent to its main premises as of March 2019 whilst construction commenced.

An enhanced shopping experience, including a large outdoor sales area, outdoor terrace area and restaurant serving coffees, snacks and meals were planned, as well as new and improved car parking facilities to offer 346 spaces in total across the new 11,800 sqm / 8-acre site.

Working closely with Chartered Landscape Architect Floyd Matcham, GreenBlue Urban were able to assist with the planting of 20 trees of a variety of species, planted in the full RootSpace ArborSystem, complete with Root Management products, irrigation, aeration and above ground protection, an essential component to protecting newly planted urban trees in a car park scenario.

Specifying the full ArborSystem® ensured product compatibility and that above ground finish was not compromised. The new centre opened in Spring 2020, creating 70 new jobs in the area and bringing the centre up to the same standard as its other stores. Another successful urban tree planting project that will ensure these trees create a lasting legacy.



RootSpace
Pavement
Support Systems



RootSpace
Irrigation &
Aeration



RootSafe
Root
Management



ArborGuy
Underground
Guying



Aeration Manifold
Irrigation &
Aeration



RootRain Civic
Irrigation &
Aeration



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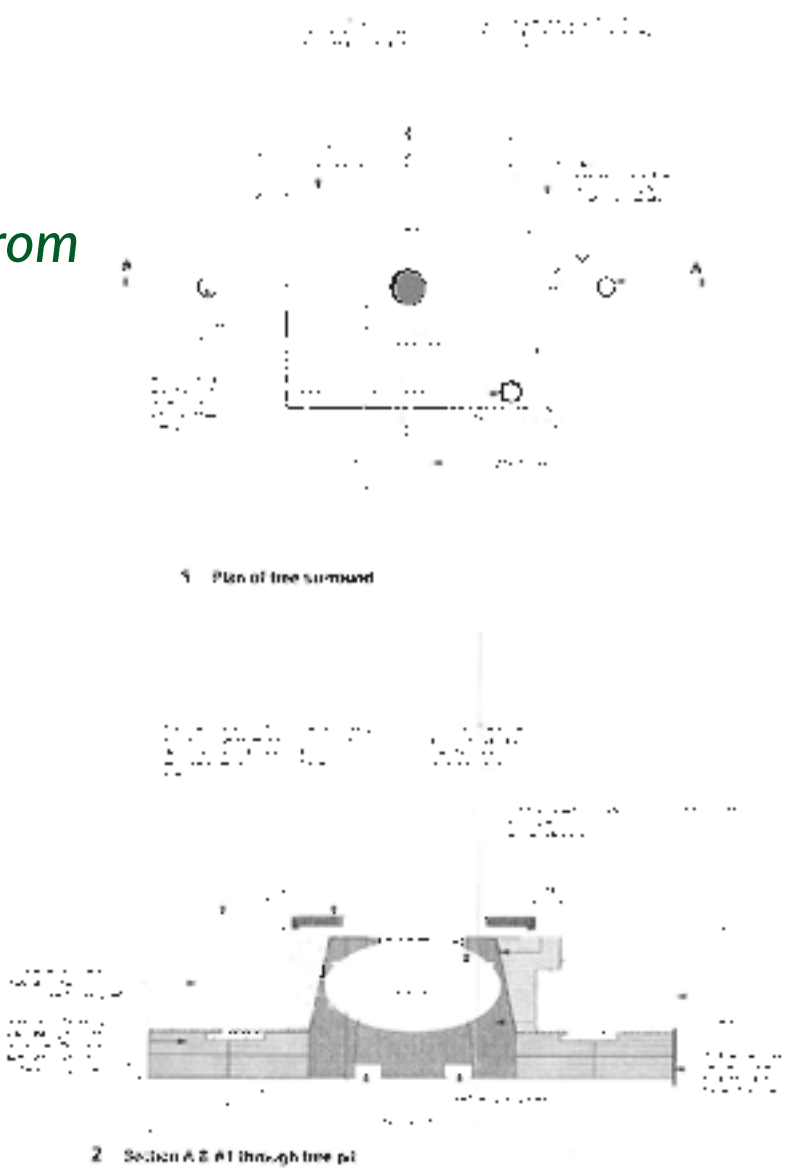
The Old Bailey, London

The healthy nature based solution, cleaning the air from traffic pollution

Two London Plane trees were planted during 2004/05 planting season outside the Old Bailey in limited volume tree pits. The tree pits incorporated tree grilles, root direction products, irrigation and aeration – and a limited volume of load bearing soil cells at the base of the root direction system. The trees pits were constructed 3.3m square and 1 metre deep. The tree planting location is over 16m from the nearest building and the surface around the tree is continuously paved, with a 1500mm square cast iron tree grille.

The concept here was to provide a high quality start in life for the trees, directing the establishing roots away from vulnerable paved surfaces to reduce the likelihood of paving heave and associated trip hazards. Having been directed downwards to an appropriate level below the paving, the roots grow into the high quality uncompacted soil within the load bearing soil cells which are capable of withstanding heavy loading and vehicle overrun. The soil merely within the cells was not intended in this instance to provide for the complete life of the tree, but to provide a good start – for long term successful establishment the roots need to be able to grow beyond the cell system to locate additional soil volumes.

This sub-optimal volume type of tree pit is designed for constricted space applications where it is not possible to provide large volume ‘complete life’ soil cell structures. The City of London has experienced centuries of habitation, often affording pockets of air, water and nutrition within the ground build up – up to 3m of made up ground in some parts.



Over the years, these trees have shown regular consistent growth. Investigations have included visual assessment, new shoot extension, colour, girth measured and height calculated. The inspector then selects five sample leaves from different aspects of the canopy and these are removed for leaf chlorophyll fluorescence testing. The five leaves are tested to arrive at a mean average to give us a good overall measure of the trees health and vitality.

Overall, the results have been extremely positive. The trees are healthy and vigorous with excellent new shoot extension. In the 18 years since planting, both trees planted have attained a height of over 20m and a trunk diameter at 1.5 m above ground of 400mm dbh. The Leaf chlorophyll fluorescence mean average reading result was 0.836 – this indicating that the trees are in good health and by this measure not under any significant latent stress.

Close assessment of surface surrounding the planting location confirmed that there was no pavement deflection evident at this site attributable to surface root heave, even though these trees are in a challenging urban environment. We anticipate that these trees should have another 200 years life left in them, subject to pest and disease or unforeseen circumstances.

The lack of hard surface disruption is very noticeable. The London Plane tree is known for its ability to surface root, causing trip hazards across the city. As can be clearly seen at this location, the dual benefits of root management and root baiting combined prevent this liability occurring.



Scan QR Code
View the full case study online.





Mile End Shaft, Crossrail London

The new Elizabeth Line, formerly known as Crossrail will connect the east London boroughs with the west, as far as Reading and Heathrow. This huge project, the largest infrastructure project in Europe will have the capacity to carry 200 million passengers annually, through 41 stations, and runs for more than 60 miles, much of it underground.

When designing an underground railway, one of the vital considerations is emergency access and allowing adequate ventilation. To ensure that this first new underground line since 1979 is fit for purpose, not only now, but well into the future, six ventilation/access shafts were created along the underground portion of the railway, designed to blend in with their surroundings.

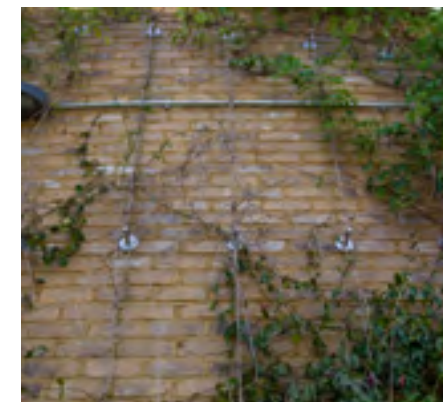
Mile End, in the east of London, has one of these shafts, constructed at the southern end of Mile End Park – a linear park created in the 1990s from land devastated by the bombing in World War 2. This park runs along the Regents Canal and provides a welcome green space in this heavily built-up area.

The shaft was built by the Costain Skanska joint venture team (known as C360) and has 124 steps from the street down to pavement level. Positioned on the site of an all-weather playing pitch, which had to be relocated. The shaft has carefully designed by Jacobs UK Ltd to add biodiversity to the area. The main feature wall was planted with climbing plants, utilising the GreenBlue Urban Series 10 Stainless Steel climbing wall system, specified by Jacobs, the main designer on the scheme. The multi-disciplinary design team that oversaw both the design and construction of this complex project was Weston Williamson + Partners.

The plants have grown well and will continue to do so as long as they have access to water, uncompacted soil and air. Being mainly east-facing has led to some plants not growing as fast as others, as it is protected by the shaft from rainfall coming on the prevailing winds. In addition to the green wall system, other bio-diverse elements have been added including a wildflower meadow covering the

headhouse, with 35 species of flowering plants, and five Hornbeam trees (*Carpinus betulus* “Frans Fontaine”) and a couple of apple trees (*Malus Elstar*) which apart from the autumn fruits, are great for pollinators.

The design life of this shaft is anticipated to be at least 120 years. With careful protection and some maintenance, there is no reason why this attractive green wall should not continue to thrive for as long as it is needed, bringing benefits to all those who live work and play in Mile End.



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View the full case study online.



VerdeÇade
Green Wall
Climbing
Support Systems

Newmarket, Grosvenor Road

Helping slow the water flow, plants established as they grow

Grosvenor Yard Car Park is in the town of Newmarket, Suffolk, approximately 65 miles north of London.

Back in late 2019 we were in direct contact with Andy Bird and Emma Richardson from Anglian who were working collaboratively with West Suffolk Council to develop a long-term strategy to manage the stormwater flows of Newmarket.

Initial meetings ascertained that this particular car park had an approximate catchment area of 1,960 square meters and the amount of attenuation required was 33 cubic meters based on a 1:30 year event.

After preliminary Tree Pit discussions with the project designers Groundwork, it was soon suggested that Anglian consider the soon to be launched Rain Garden solution the HydroPlanter. All workings regarding the HydroPlanter were discussed including correct depths, the correct use of soil, protection against vehicle overrun and pedestrian hazard. GreenBlue were also able to assist with flow rates using the hydraulic modelling guidance as supported by MicroDrainage.

Unfortunately, the installation was put on hold, however, we were pleased that the scheme had been passed to tender by the local authority.

GreenBlue were delighted that the council had agreed with the recommendation of the use of HydroPlanters and at the end of April 21 for 4 weeks the car park was closed for the new drainage system to be incorporated along with resurfacing, relining and a new footpath.

Assisting with the installation GreenBlue supported contractors DW Surfacing with the rain garden solution that 4 starter, 4 End and 7 continuation modules, specialised ArborSoil Hydro for SuDS pits along with required Weir walls for onsite safety and protection. Also onsite was a representative from West Suffolk County Council, overseeing this exciting new drainage

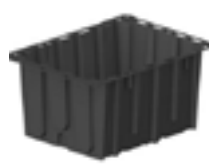
installation, who asked if there were any constraints on site:

"Yes, digging down we found an old Well which we left alone and covered the hole back over. There were several utility services within the car park and near to the new planters. Hand digging was carried out and the planters made to fit around these."

On the plans the scheme looked complicated but when the works were carried out, the installation was quite simple.

Complementing the final look of the scheme and recommending for future use, the client commented that *"The raingardens have made the car park more appealing and broken up the expanse of tarmac."*

Commending Anglian Water and West Suffolk for pursuing a new and innovative solution we recommend others to follow suit – there are more options available than just storage, let's soften our environments and consider amenity and biodiversity moving forward.



HydroPlanter
Rain gardens



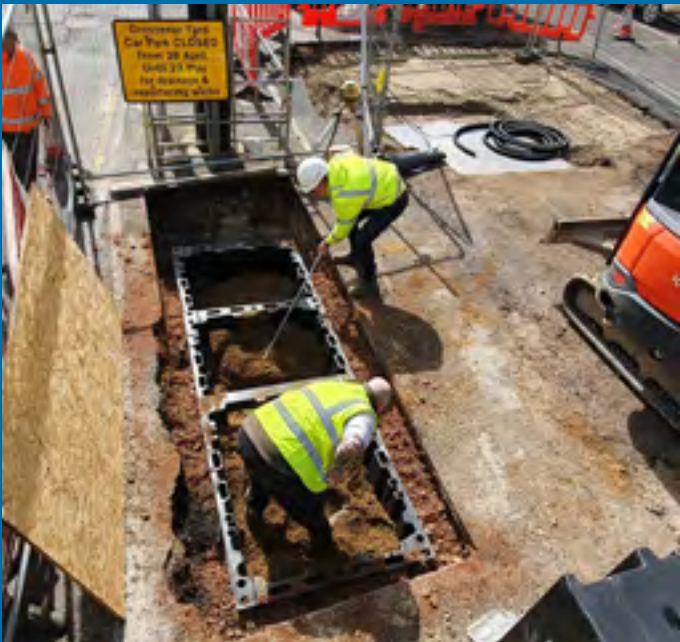
RootRain Urban
Irrigation



Hessian
Geotextiles



ArborSoil Hydro MAX
Soils & Aggregates



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View the full case study online.



Research and development have been fundamental to the progress at GreenBlue Urban. Multi-disciplinary collaboration with universities, laboratories, engineers, industry specialists, end users etc, provides a solid foundation for research and testing. Long term, real-life monitoring of controlled systems provides invaluable data to improve the efficiency of green-blue systems and support further growth and success. Recent studies and research include the below.

203	IOT enabled tree pits
205	Cool Towns Project Monitoring
207	Soil Cell Testing
209	University of Greenwich Tree Pit Trials
211	North Street, Keighley

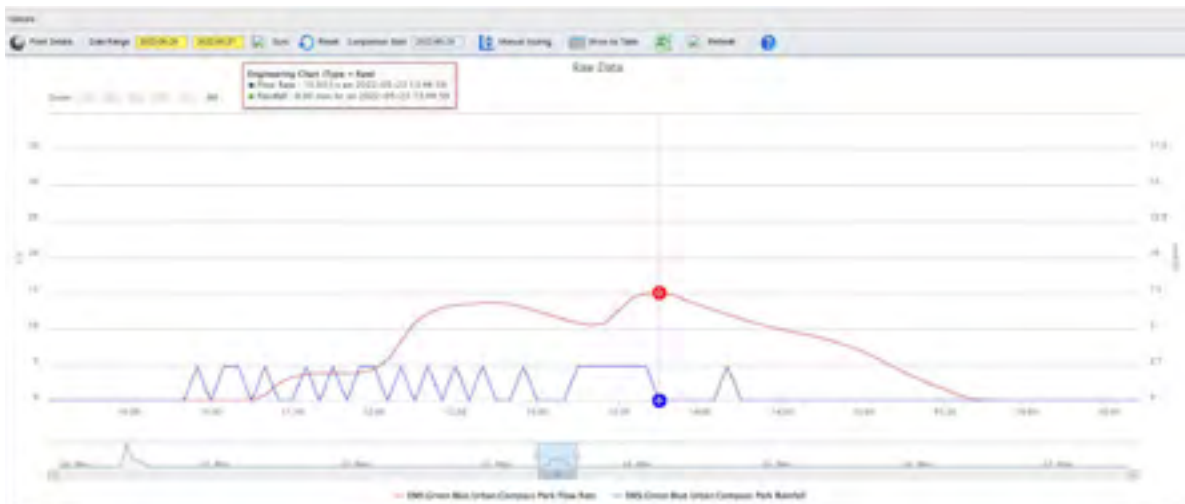


IOT enabled Tree pits

It has historically been difficult to reliably assess what is happening in the rooting zone of a tree. Whilst core sampling can be useful, it only gives us information at a point in time, rather than informing us of the changes over time, and during different seasons. Modern sensor technology, with state of the art communication equipment has been installed at the Gospel Hall development adjacent to our HQ in East Sussex.

Rainfall data is collected at a weather station, with monitoring points within the soil, and at the outfall point, allowing us to calculate both the attenuation volume and discharge reduction from the ArborFlow tree pit systems.

This data assists with Sustainable Drainage calculations, informing us of the different evapo-transpiration rates for each season, and confirming the efficacy of green infrastructure when used as part of a drainage system.



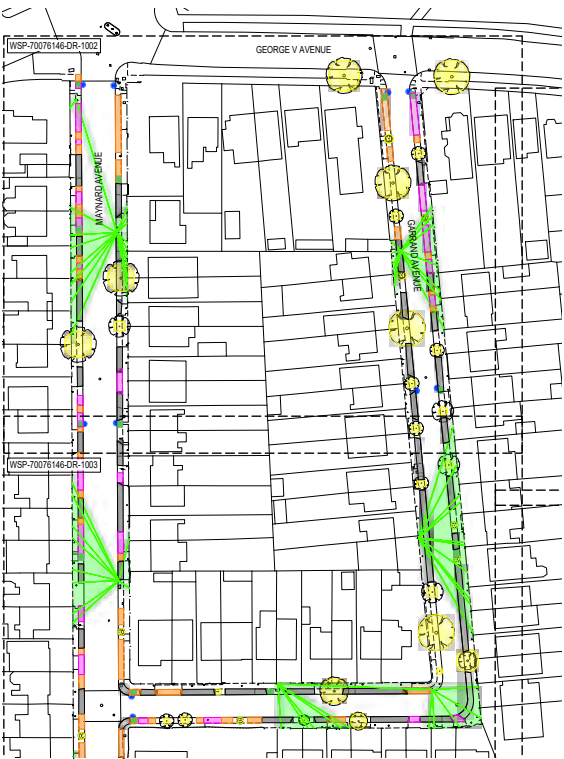
One important part of the GreenBlue Urban philosophy is to be able to prove from data that the solutions we provide are efficient and cost effective. At the Gospel Hall site adjacent to our Head Office we have installed rain measurement equipment, as well as outflow monitors to the ArborFlow SuDS tree pit system. The graph shows how the rain events (Blue line) are recorded, and how the outflow water responds (Red line). The lag time is clearly demonstrated – attenuating as well as treating the water, and making it clean enough to discharge it into a nearby watercourse.



Cool Towns Project Monitoring

The tree pit installation at Maynard Avenue, Margate, Kent was carried out as part of the Cool Towns pilot study, designed to evaluate different options to help reduce the effects of Heat Stress in urban areas. Whilst the trees and the cooling effect are being monitored by the EU Interreg program and participating universities, GreenBlue Urban have invested in below ground water outflow monitoring equipment.

This measurement enables us to map the drainage discharge rates, and compare them with rainfall data, thus increasing our knowledge and ability to accurately design SuDS enabled tree pits that will be resilient to climate change.

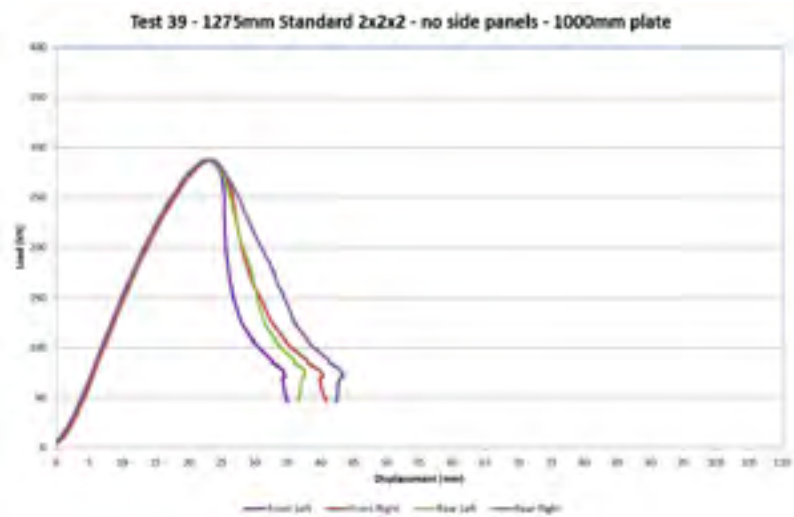


Drawing by WSP



Soil Cell Testing

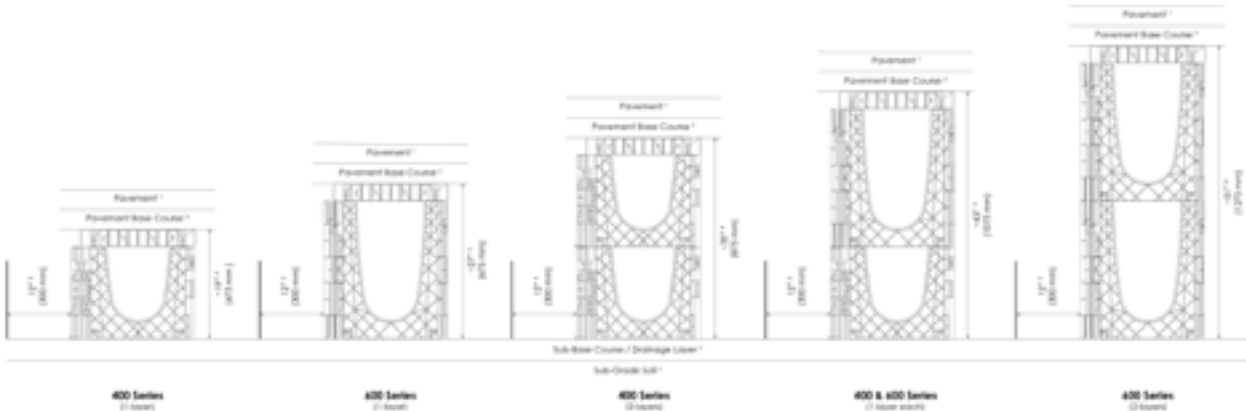
Extensive compression testing of RootSpace units has been carried out at highly reputable independent testing laboratories under the control of qualified engineering consultants. The complete test of each size and configuration is repeated several times to ensure reliability of data and confirm consistency of the unit's structural performance.



Photograph of RootSpace 600 (double height) being tested.

RootSpace configuration	Height	Subbase Type 1 depth	Macadam depth *	Total cover depth
400 single	475mm	200mm	150mm	350mm
600 single	675mm	300mm	150mm	450mm
400 + 400	875mm	300mm	150mm	450mm
400 + 600	1075mm	325mm	150mm	475mm
600 + 600	1275mm	325mm	150mm	475mm

* Total depth of bound bituminous layers
(Minimum construction depths for a full range of wheel loads are available separately)



University of Greenwich Tree Pit Trials

Back in 2014, the University of Greenwich began running a University Urban Tree Pit Comparative Study, looking at the various tree pit systems available in today's marketplace, and evaluating their efficacy and cost-effectiveness. Space and assistance was provided by Hadlow College and its ground crew, led by head gardener Alex Rennie.

"For trees to become functionally useful within our urban landscapes, they need to establish and reach a state of healthy, productive maturity. Unfortunately, tree planting is often seen as a piece of 'window dressing' to assist a design scheme through the planning process." commented Duncan Goodwin, Senior Lecturer of Landscape Architecture.

During 2014/5, 20 trees were planted in the different systems, including GreenBlue Urban soil cell solutions, DeepRoot soil cells, CU soil, Raft systems and other structural soil options. 3 trees were planted in the natural soil environment as control trees. These included a sand based compacted medium, a mid-sized stone type and a mixed large aggregate and topsoil "Stockholm Mix" type.

The results in year four, have been very informative, pointed strongly towards the benefit of initial tree establishment of using an uncompacted soil media. The trial site has enabled us to compare this methodology with both 'control' (a normal agricultural 'field' situation) and rock soil mixes etc. Working with assistance from Sharon Hosegood Associates, and the University, GreenBlue Urban have been active in commissioning a root radar survey on samples across the trial site.

Unfortunately, due to financial pressure, Hadlow College had to sell the trial land for development, and any further testing and excavation had to be completed by the end of August 2020. This short window of opportunity gave the college and GreenBlue Urban a chance to extract as much data as possible from the trial. Originally intended to be a 25 year trial, only 6 years of data was available, and although shortened, the results were still extremely interesting.

GreenBlue Urban again hired a root radar detection system, an arborist with sap flow monitoring equipment, excavation machinery, a truck mounted crane and a vacuum excavator. Sample leaves/twigs were taken from each tree, and sent to

testing to the Forest Research laboratory, and to Hansatech, manufacturers of Leaf Fluorescence testing equipment, indicating the health of the tree.

The plan was to excavate a number of the trees in the different growing media, and compare both root system extents, and the correlating canopy size. The University of Greenwich used laser technology to measure canopy growth, measured new shoot extension and stem girth, and finally weighed the biomass of each tree from 1m above ground. This comprehensive testing regime meant that every possible parameter was captured, giving a fair comparison of tree health and growth.

The summer of 2020 was hot and dry. These extended climatic conditions made the Root Radar survey, sap flow monitoring and leaf testing extremely difficult, as the soil was so dry that little water was available for the trees. The extreme heat also meant that some of the computerised technology overheated and the results were not complete. However the excavation and bio-mass weighing gave us some fascinating insights into what planting methodologies worked.....and what didn't.

The final University report is yet to be published but initial results showed clear evidence that a good imported topsoil in a soil cell system was by far the best medium for tree growth; one of the GreenBlue Urban tree pits weighed 35% more than the next best alternative! The canopy density as well as dimensions showed how trees in favourable conditions exhibit strong growth rates, with fast establishment and lower level of transplant shock. Conversely, in some of the other sample tree pit types, particularly the more compacted mediums, the trees showed extreme stress in the canopies, with little or no growth over the years since planting, and some of them would not have survived the next few years.

The hard soil conditions prevented GreenBlue Urban removing as many trees as were planned, and the whole rooting systems could not be retrieved. This was disappointing, but the operation was well worthwhile as evidence collected confirmed the superiority of a good uncompacted aerated topsoil as a tree growing medium.



Employing a vacuum excavator to expose roots in view of excavation and removal of rooting system for investigation.



Tree planted in GreenBlue Urban StrataCell showing extensive root plate formation, with a healthy balance of structural and fibrous roots, reaching to the limits of the surrounded tree pit.



This shows the different root types – the large structural roots, the brown fibrous roots and the small ephemeral "white" fibrous roots. These often initially form around available sources of air and water; shown here adjacent to the aeration loop.

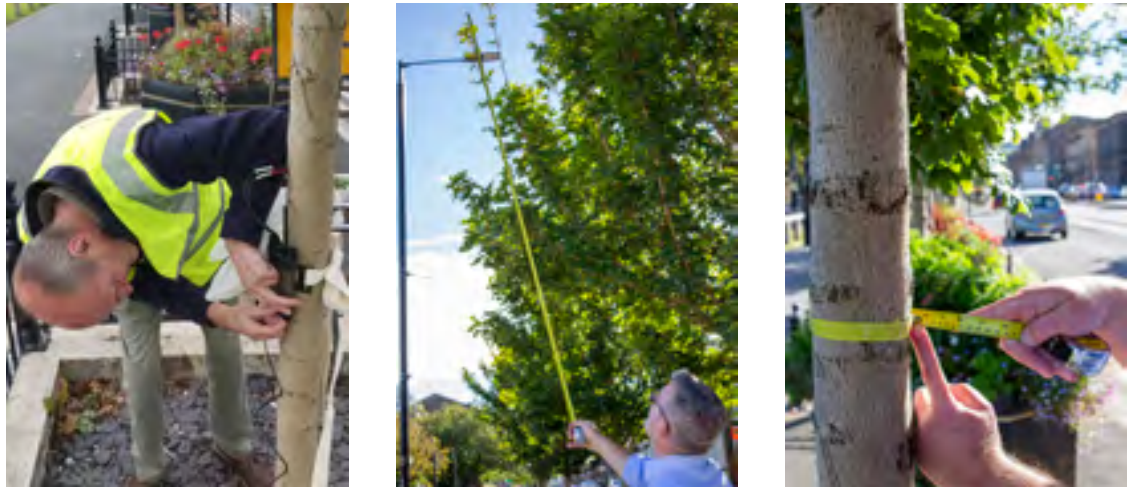
North Street, Keighley

The SuDS Arborflow installation at North Street, Keighley, West Yorkshire has proved to be a huge success: reducing pressure on the combined sewer network by draining the highway, and showing phenomenal tree growth.

To fully understand how the availability of water in the soil affects tree evapo-transpiration, GreenBlue Urban commissioned IrosARB, an independent arboricultural consultancy to measure the sap flow of these trees, and report on the efficiency of the tree in water uptake.

The results were stunning – these trees had the ability to draw up to 4.0 litres per hour each – 90% of which can be used by the tree for evapo-transpiration. This not insignificant volume directly affects local air conditions, bringing down the temperature, but also significantly cleaning the air.

These tests will be repeated in following years, with regular measurement of the tree growth to acquire data that enables us to accurately predict the water draw figures, with possible reduction in below ground water storage requirements by local authorities.



Information

215	Policy & Legislation
217	ArborAdvance
219	FAQ's
221	International Partners
225	How to order
226	Useful Organisations
227	Glossary



Policy & Legislation

Local planning frameworks to achieve well designed sustainable developments not only require the effective use of land but ensure sufficient supply of homes, healthy, safe communities, a competitive economy with sustainable transport and high-quality communication infrastructure, all the while protecting green belt and enhancing the natural and historic environment. Most importantly meeting the current challenges of climate change through mitigation measures to reduce flooding and the urban heat island effect.

National Legislation and Regulations		Institution Bodies
England	– Climate Change Act 2008 – Planning Act 2008 – Planning and Compulsory Purchase Act 2004 – Flood and Water Management Act 2010 – Levelling up and Regeneration Bill – 2022 – National Planning Policy Framework (NPPF) – Technical Guidance Updated 2021 – Planning for the Future – White paper 2021 – DEFRA – Non-Statutory technical standards for sustainable drainage	Department for Levelling up, Housing and communities, Department for Business, Energy and Industrial Strategy, Environment Agency, Department for Environment Food and Rural Affairs.
Wales	– Planning (Wales) Act 2015 – Active Travel (Wales) Act 2013 – Environment (Wales) Act 2016 – National Planning Framework Planning Policy Wales (PPW), Edition 11 2021 – Wellbeing of Future Generations Act Wales (2015). – Statutory standards for SuDS 2019	Climate Change, Energy and Planning Directorate, Natural Resource Wales
Scotland	– Climate Change (Scotland) Act 2009 – Town and Country Planning (Scotland) Act 1997 – Planning (Scotland) Act 2019 – Flood Risk Management (Scotland) Act 2009 – Scottish Planning Policy 2020 – National Planning Framework 2021 (NPF4) – Sewers for Scotland 4th edition	Local Government and Communities Directorate, Energy and Climate Directorate, Scottish Environment Protection Agency.
Northern Ireland	– Climate Change Bill 2 2021 – Planning Act (Northern Ireland) 2011 – Stretegic Planning Policy Statement for Northern Ireland (SPPS) 2015 – Flood Risk Management Plans 2015 – The Regional Development – Building a Better Future 2010 – The Water Environment (Floods Directive) Regulations (Northern Ireland) 2009	Department for Infrastructure, Department for the Economy, Northern Ireland Environment Agency, Department of Agriculture, Environment and Rural Affairs.



ArborAdvance

As a mark of our confidence in the ArborSystem tree pit package, GreenBlue Urban can offer a 15 year tree health warranty for every tree planted in accordance with our ArborAdvance tree planting methodology.

What does this mean?

If a tree is planted within the approved system, and in certified accordance with our structured tree planting methods, and maintained as per our guidance, we will guarantee that this tree will be alive and healthy at the end of the 15 year guarantee period.

Why 15 years?

Our research has indicated bands of mortality for newly planted trees – the first three years see the biggest losses, principally through lack of watering and vandalism. Years 8-12 show another band of failure as trees typically exhaust inadequate soil volumes or suffer from compaction and anaerobic soil conditions. A tree growing well at 15 years has a very high chance of staying healthy for many further decades.

And if it fails?

We will supply a new tree of the same species to replace the tree, and replace any defective product used from our range with the equivalent current product.

How will it work for clients?

The client will specify and submit their drawings to GreenBlue Urban at the design stage, to verify that the tree pit design is in accordance with best practice. GreenBlue

Urban will revise the drawings to ensure adequate soil volumes and drainage aeration and other details are correct.

GreenBlue Urban will then visit site to take account of the environment and open up a project record file for the tree. During installation, GreenBlue Urban will have a site engineer available to inspect key stages of the construction – these will be photographed and stored.

At planting completion, a GreenBlue Urban ArborAdvance 15 year warranty certificate will be issued to the client verifying that the tree has been planted in accordance with the drawings. Maintenance watering as required must be carried out by the client or a chosen contractor, digitally photographed on each visit, and emailed to GreenBlue Urban for the record, for the first 2 years.

Additional watering may be requested in the event of exceptional drought conditions. GreenBlue Urban will visit the tree location on an annual basis until the 15 year period expires.

Warranty Exceptions

GreenBlue Urban will not be held liable for tree losses due to vandalism, vehicular damage or acts of God. In the event of a species specific disease we may reserve the right to replace the species with a more tolerant variety.



FAQ's

What is the lead time for your products, and what is the warranty period?	For stock items, delivery is usually 3- 5 working days; for non-stock, usually 6-8 weeks. Most of the products supplied by GreenBlue Urban are covered by a 10 year warranty. Please contact the Technical Dept for further details.
Are geotextiles included in the quotation?	Yes, where soil cells are included, all other accessories are too, including geotextiles, underground guying, irrigation and aeration, and root managment. Unless otherwise stated on the quotation, all quotations are valid for 3 months from quotation date.
Have you quoted this project for anyone else?	We may have quoted other contractors, but as project names vary, we may not always know.
Should we use Root Space rather than StrataCell?	RootSpace offers the latest in simplicity of installation, and maximum soil ratio, and therefore is more cost effective. Where higher loadings are required, the Stratacell may be more suitable.
What size tree pits and root directors should we allow for?	It depends on the evetual desired size of the tree. Please see our soil volume calculator on the website for guidance. It is always best to call the nursery you expect to buy the tree from and query the diameter of the root ball. This will help guide the choice of Root Director.
How many square metres of RS can be installed in a day?	Installation time does depend on various scenarios, particularly the depth of the pit, but as a rule of thumb, 2 men and a machine can install 1m³ in 20 minutes from excavated and stone base tree pit.
What are the loadings that the RS system can handle?	The RootSpace soil cell system is designed to support vehicle overrun loadings, where installed with suitable layer works buildup. A minimum loading rating is 25 tonnes/m3, but can take far greater loads depending on the sub-base build up - please contact our technical team for more information.
Installation guides and videos show optional side panels, should we include them?	Side panels are not normally required. They are installed where higher than normal lateral loadings are expected.
Can you do custom tree grilles?	Custom size and design tree grilles are available, in a wide range of designs,materials and finishes, and can incorporate uplighters and other options. Please ask for details. All grilles come with an irrigation system as standard for tree root balls up to 5m in circumference. Many of the range of GreenBlue Urban tree grilles can be manufactured to be heel-safe, but as standard, the Pre-cast range and the Zeta grilles are heel safe.
Do you offer a design and installation service?	No, GreenBlue Urban does not install the solutions directly, but can recommend and work with a wide range of installers. Please contact our sales team for recommended installers in your area. We also are pleased to be able to offer a full support package for all stakeholders, from design, through to on-site support during installation to recommendations for maintenance for final clients.
Do you have stockists of your products around the country?	GreenBlue Urban supply from our own large stockholding, but can supply via various merchants across the UK.
Do you manufacture inhouse, and are the products recycleable, or made from recycled material?	Most of our below ground products are manufactured in-house in East Sussex, with other products mainly manufactured in the south of England.All GreenBlue Urban products are fully recyclable, up to 5 times, and most are manufactured from 100% recycled material.
Do I need the 75mm air flow deck?	Yes, the Air Flow deck is an integral part of the RootSpace soil cell, giving vertical loading capacity as well as ensuring even air distribution and gaseous exchange across the soil volume.
What is the difference between soil cells and compacted mediums?	In numerous trials, uncompacted soil has been proven to be the best growing medium by far. Compacted materials do not allow roots to establish in the same way, and often become depleted of soil and water quickly. There are no independent trials which show compacted mediums as effective in the medium to long term.

What sized utilities fit within the RootSpace system?	Duct/pipe sizes up to 300mm diameter can pass through the RootSpace system, and are specifically designed to work around below ground constraints.
How far beyond the eventual canopy of a tree should root barrier extend?	Whedn designing root management systems, we recommend that the barrier should extend 250mm below the service or surface to be protected, and 3m beyond the anticipated canopy spread of the tree.
What is the percolation rate of your ArborSoil Hydro Max bioretention soil?	Percolation rate, or Saturated Hydraulic Conductivity of a soil is the speed at which water passes through a soil. The ideal compromise for root growth and filtration is 80-100mm per hour.
How many aeration inlets should I use for a tree?	To allow effective cross-aeration, and full gaseous exchange, a minimum of two aeration inlets should be used, with an additional inlet per every 10m3 of soil volume.
What concrete should I use to fill the RootForm product?	RootForm can be filled with a pre-mixed standard concrete to a minimum standard C10. ALternatively, a bagged mix can be used with water added later.
How to I underground guy a very large tree?	Large trees can be difficult to anchor effectively. Depending on the rootball size, two or three standard guying systems can be used to make sure that extra security is achieved.
How should I profile soil within RootSpace units bearing in mind they are more than 600mm deep for a standard tree pit	The GreenBlue Urban RootZone soils can be installed to a depth of 600mm. Any deeper than this should be installed with a sub-soil such as ROOTSOILSUBA.
What diferentiates between a standard tree pit and a SUDS tree pit?	The main differences are the provision of water inlets, ensuring that infiltration or positive drainage is available and that the relevant SuDS soil is installed correctly - the ArborSoil Hydro - Max soil mix has been specifically mixed to give the best performance in both tree growth and filtration efficacy.
If I reduce recomendated soil volumes what impact will this have, and can I reduce volumes if tree pits are linked?	Reduction to sub-optimal soil volumes will result in a smaller tree at maturity, but does not seem to affect tree longevity. Small volumes artificially “bonsai” trees, which can lead to greater liklihood of pest and disease. When sharing tree pits, a reduction of 20% of the soil volume is recognised in the industry as acceptable.
How much should I water a newly planted tree?	Newly planted trees need regular watering for the first three years, tailing off in the third. After planting the tree pit should be saturated, and according to the weather conditions and tree species and size, a minimum of 10 litres a week should be given to the tree, with 76% down the irrigation tube and the balance on the rootball. In warm or breezy weather, more will be required.
What maintenance is required with your tree pits	No additional maintenance is required with a GreenBlue Urban ArborSystem tree pit than for any conventional tree pit. Visual inspection, regular watering and light pruning are needed. Tree ties should be removed when no longer necessary - usually at the end of the second full year. The soil never should need replacement under normal conditions, as once the tree is established, the soil maintains itself.
What additional maintenance is required with your HydroPlanters and ArborFlow Tree Pits?	The HydroPlanter/ArborFlow Solutions are designed to be minimal maintenance - twice annually the units should be visually checked, inlets cleared, weeds removed, and plant choice dependent, a light trimming may be required.
Do you have planting suggestions for rain gardens and ArborFlow tree pits?	GreenBlue Urban have lists of appropriate plant and tree species that can be used in SuDS.

Partner Companies



Arboring

Based in the town of Jastrebarsko, Arboring distribute and supply products for urban tree planting across Croatia.

☎ +385 (98) 411 43
 🌐 www.arboring.hr



Green City Life

Green City Life have been distributing GreenBlue Urban products throughout Poland and some of the neighbouring east European counties for several years.

☎ +48 (022) 616 41 70
 🌐 www.gcl.com.pl



Gumi Mix Group

GreenBlue urban maintain a direct presence in Latvia, and supply root management and tree planting products to a wide variety of projects.

☎ +371 26440247
 🌐 www.gumimix.lv



Internaco

Formerly GreenBlue Cities – the team at Internaco offer the full suite of GreenBlue products, supported technical expertise and a wealth of resource.

☎ 981 680 101
 🌐 www.internacogroup.com



Joosten Kunststoffen

A leading distributor of Green Infrastructure products. Joosten Kunststoffen, based in the Netherlands are experts in their field with many outstanding public realm developments.

☎ 0481 424721
 🌐 www.joostenkunststoffen.nl



GreenBlue Canada

Longest serving distributor of all GreenBlue products based in Woodstock, hugely successful case studies, knowledgeable employees and great service!

☎ 1-866-353-2072
 🌐 www.greenblue.com/ce



GreenBlue USA

Based in Knoxville, Tennessee, offer local manufacturing for shorter lead times to support a growing market.

☎ 1-866-282-2743
 🌐 www.greenblue.com/na



Manada Trading

The company MANADA Trading s.r.o. deals with the process of adaptation to climate change, especially in the areas of rainwater use, green roofs and tree life in the built-up area.

☎ 046/543 95 76
 🌐 www.manadatrading.sk/gbu



Milford Denmark

Greenblue Urban have enjoyed a long relationship with Milford in Copenhagen, our Scandinavian partner company. Milford enjoy an excellent reputation in Denmark, Norway and Sweden, and are able to offer product and design support across these countries for specifiers and urban planners.

☎ (+45) 44 97 10 99
 🌐 www.milford.dk



Terracel

“Innovative construction products” Leading supplier in Hungary, offering Soil Cells, Gravel rings, ArboResin and Street Furniture.

☎ +36 1 78 78 868
 🌐 www.szikkasztas.hu



Greenleaf Deutschland

One of our principle European trading partners, Greenleaf Deutschland has supplied many projects across Germany and also into Austria.

☎ 02261 920 28-0
 🌐 www.greenleaf-deutschland.de



Greenleaf Ireland

Greenleaf Ireland have worked closely with GreenBlue Urban for many years. Their office and warehouse are based in Londonderry, and they have supplied many projects across Ireland.

☎ +44 (0)28 7134 5620
 🌐 www.greenleafireland.com



Topiodomi Ltd

Topiodomi distribute GreenBlue Urban's products across Greece and have worked on some fantastic urban tree planting projects.

☎ +30 210 6017402-3
 🌐 www.topiodomi.gr



Urbencea

Our newest edition to the distribution network due to the grown needs of the market.

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 🌐 www.urbencea.com

International Projects



Breda, Cool Towns



Parque Gallarza, Logroño Spain



Dubrovnik, Croatia



Molenwater, Middleburg



Mechelen, Belgium



Fuggerstrasse Schwabmünchen



A prestigious project in the UAE.



KO Brogen Dusseldorf



Zoetermeer Station, Lansingerland



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Wilhelmstrasse Heiligenstadt

How to Order



When ordering please remember that we need the following:

- 1. Invoice address
- 2. Delivery address including POSTCODE
- 3. Name of person placing order
- 4. Order number required
- 5. Telephone number for order queries and email address
- 6. Site contact and number if applicable
- 7. Full payment unless established account holder
- 8. Site restrictions/site opening times and special delivery requirements for deliveries



You can send your order by:

E-MAIL - enquiries@greenblue.com
PHONE our sales staff on 01580 830 800



First orders & new accounts

Payment is required with all first orders. A pro-forma invoice can be issued through email. The order will be released on receipt of payment.



Local Authorities

An order number is usually sufficient to commence trading with payment of accounts due 30 days nett as per our normal conditions of sale.



Delivery

Schedules of delivery are estimates only. We will use our best efforts to deliver at times stated but shall not be liable for any delays due to causes beyond our control. Goods shall be deemed to be delivered once handed over to the carrier. See price guide for delivery information/details.



Payment

Full payment is due 30 days after the date of the invoice for all credit account holders.

Disclaimer

Trees are living organisms whose growth cannot always be predicted. Accordingly, GreenBlue Urban makes no warranties on its products either expressed or implied concerning the effects of the products on tree root growth, their merchantability or fitness for a particular purpose. GreenBlue Urban recommends that an arborist with knowledge of local conditions be consulted.

Useful Organisations

Association / Charity	Website
Academy of Urbanism	academyofurbanism.org.uk
ADA (Association of Drainage Authorities)	ada.org.uk
ASA (Association of SuDS Authorities)	suds-authority.org.uk
Arb Association	trees.org.uk
BALI	bali.org.uk
Central Scotland Green Network	centralscotlandgreennetwork.org
CIEEM (Chartered Inst Ecology & Env Mgmt)	cieem.net
CIWEM	cieem.net
CIHT (Chartered Inst Highways & Transportation)	ciht.org.uk
CIRIA	ciria.org
City of Trees	cityoftrees.org.uk
Design Council	designcouncil.org.uk
Ecosia	ecosia.org
Ecosystems Knowledge Network	ecosystemsknowledge.net
Forestry Commission	gov.uk/government/organisations/forestry-commission
Green Infrastructure Partnership	tcpa.org.uk/collection/green-infrastructure-partnership
HBF (Home Builders Federation)	hbf.co.uk
ICE	ice.org.uk
International Charters Forest	charteredforesters.org
Institute of Highway Engineers	theihe.org
Landscape Institute	landscapeinstitute.org
Mersey Forest	merseyforest.org.uk
Natural England	gov.uk/government/organisations/natural-england
Nine Trees	9trees.org
NHS Forest	nhsforest.org
RIBA	architecture.com
RICS	rics.org/uk
RTPI	rtpi.org.uk
Susdrain	susdrain.org
TCPA	tcpa.org.uk
TDAG	tdag.org.uk
Trees for Cities	treesforcities.org
The Tree Council	treecouncil.org.uk
UK Green Building Council	ukgbc.org
Urban Design Group	udg.org.uk
Urban Design London	urbandesignlondon.com
Woodland Trust	woodlandtrust.org.uk

Glossary

Adaption - Adjustment in natural or human systems to a new or changing environment.

Adoption of sewers – transferring responsibility for the upkeep and maintenance of a sewerage system(s) to a sewage undertaker.

Afforestation – Planting of new forests on lands that historically have not contained forests.

Amenity – Quality of place being pleasant and attractive, a feature that increases attractiveness and value

Ancillary benefits – Complementary benefits of a climate policy including improvements in local air quality and reduced reliance on imported fossil fuels.

ArborFlow – GBU’s SuDS tree pit solution

Attenuation – Reduction of peak flow and increased duration of flow event

Balancing Pond – A pond designed to attenuate flows by storing water run off and releasing at a controlled rate.

Basin – A ground recess normally dry that is designed to detail water temporarily.

BBA – British Board of Agrément, Construction Industry recognised certification

Biodiversity – The diversity of plant or wildlife in its natural habitat

Bioretention area - A landscaped area that is allowed to collect run off, percolating through the soil and into an underdrain, collecting pollutants.

Blue-Green Infrastructure – BGI is an approach to working with urban green spaces and naturalised water-flows to help flood resilience.

Blue Roofs – Designed for the retention of rainwater above the waterproofing element of the roof.

BREEAM – Building Research Establishment Environment Assessment

Brownfield site – a site which is being redeveloped as a result of pollution issues.

Capacity Building - a process of developing the technical skills and institutional capability in developing countries and economies to participate in mitigation and adoption measures.

Carbon Footprint – The amount of carbon an entity of any type (person, vehicle, building) emit into the atmosphere.

Carbon Neutral - Calculating your total climate-damaging carbon emissions, reducing them where possible, and then balancing your remaining emissions, often by purchasing a carbon offset.

Carbon Offset - Investing in “green” technologies such as solar and wind power, planting trees or a monetary donation to an environmental fund and/or endowment.

Climate Change - a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.

Co-Benefits - The benefits of policies that are implemented for various reason at the same time — including climate change mitigation.

Catchment area – Contributing to surface water flow to a point on a drainage or river system.

Combined network – a sewer network collecting foul water and rainfall from both impervious surfaces and domestic and commercial sources.

Deforestation – Conversion of a forest to a non forest.

Ecosystem - The benefits of policies that are implemented for various reasons at the same time — including climate change mitigation

Ecosystem services – Services provided by the natural environment that benefit people.

Energy Efficiency - Ratio of energy output of a conversion process or of a system to its energy input.

Erosion – the movement of sedimentary deposits or soil caused by the flow of water, such as within a pipe or over the ground surface, for example.

Evaporation – the process which dries out the ground surface.

Evapotranspiration - The combined process of evaporation from the Earth’s surface and transpiration from vegetation.

Event (rainfall) – a single occurrence of rainfall both before and after a sufficient dry spell, therefore having an effect on certain sewer systems.

Extreme event – an event which occurs infrequently (such as large storms or long droughts).

Greenhouse Gas - absorb infrared radiation, emitted by the Earth’s surface, by the atmosphere itself due to the same gases, and by clouds.

Green Infrastructure – Planned network of natural and manmade spaces that assist in greening our grey environment.

Greywater – wastewater coming from domestic appliances, baths, showers and sinks.

Groundwater – Water that is below the surface of ground in the saturation area.

Heat Island - An area within an urban area characterised by ambient temperatures higher than those of the surrounding area because of the absorption of solar energy by materials like asphalt.

Highway – any road, public-footpath, track or bridleway, either in public or private ownership, which isn’t associated with one single property.

HydroPlanter – GreenBlue Urban Modular raingarden solution.

HydroPlanter Flex – GreenBlue Urban’s Flexible lined raingarden solution.

Impermeable surface – a surface which resists water infiltration.

Infiltration – the movement of water be it to a sewer, ground, basin/trench, storage device.

Inlet – a connection joining the catchment area and a drain for surface or stormwater to enter. It’s also used to describe a structure which sits at the entrance of a conduit.

Inspection chamber – provides access to the sewer or drain in order to service it. This is done using equipment that’s remotely operated – no personnel access.

Mitigation - An intervention to reduce the sources or enhance the descends of greenhouse gases.

Model – mathematical computer-generated equations that were developed and used to replicate the behaviour of a certain system.

Ozone Layer – This layer is being depleted by human emissions of chlorine and bromine compounds and metrological conditions caused by climate change.

Percolation – Water movement through a porous substance or small holes

Pervious surface – ground surface that allows the infiltration of water to occur, although it’s still subject to some surface runoff.

Permeable surface – Impervious to water formed with voids to allow infiltration.

Raingarden – a planted basin designed to collect and clean run off.

Reforestation – Planting of forests on lands that have previously contained forests but that have been converted to some other use.

Regeneration – The renewal through either natural or man-made implementation.

Renewable Energy - Energy obtained from sources such as geothermal, wind, photovoltaic, solar, and biomass.

Resilience - Amount of change a system can undergo without changing state.

Source control – reducing pollutants and runoff in order to prevent them from entering drainage systems.

Surface run off – rainfall runoff carries surface debris, dissolved pollutants and sediments into the sewer system or drain.

Sustainable development – An economic development meeting the needs of current and future users without depletion of natural resources.

Sustainable drainage – drainage techniques that are beneficial to the environment.

Swale – A shallow channel, allows infiltration and removal of pollutants.

Water quality – chemical, physical and biological properties of water to determine its suitability for varying purposes.

Watercourse – either a natural or artificial channel allowing water to pass through.

