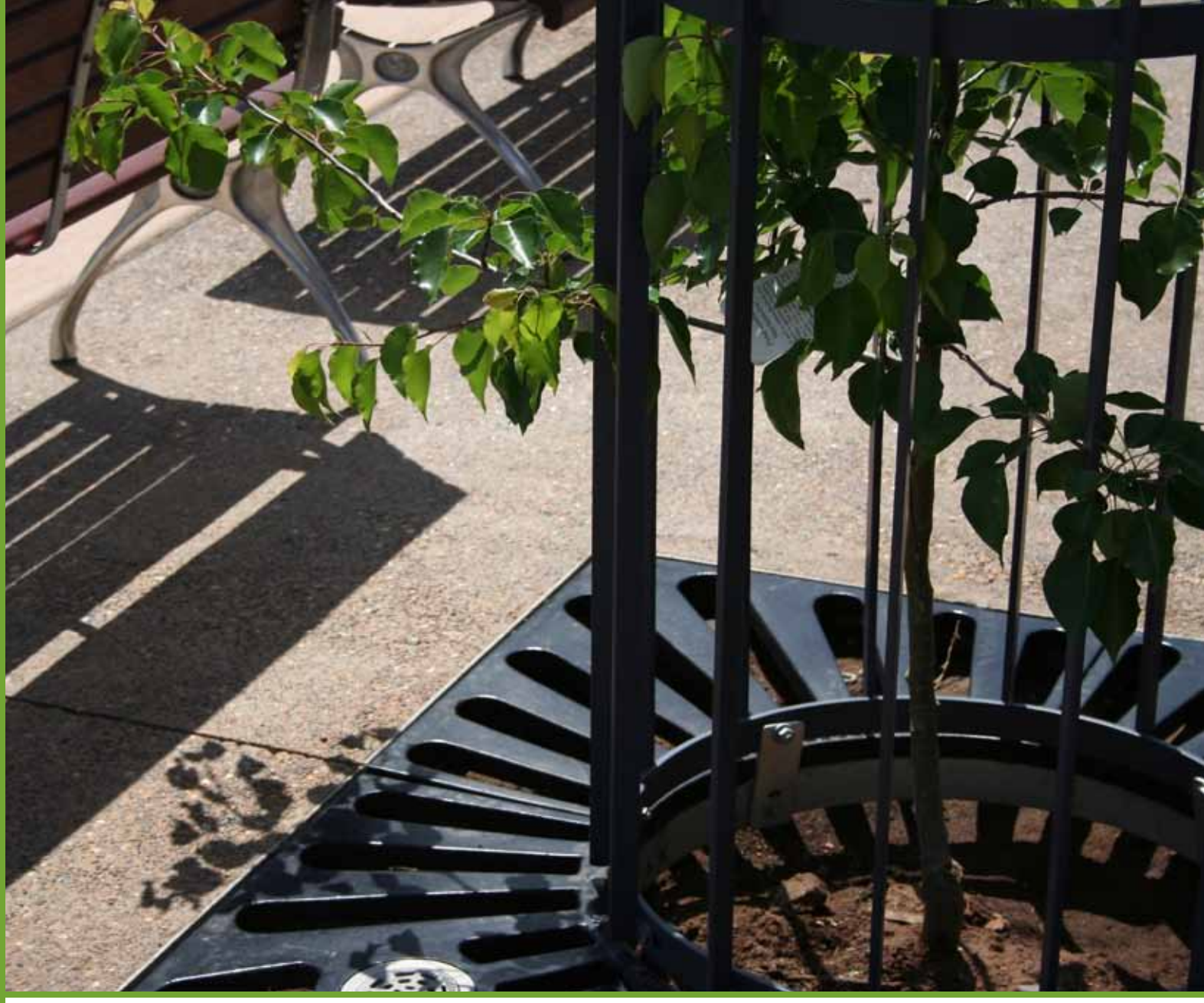


5

GREEN BUILDING REFERENCE MANUAL

TREE PROTECTION & FURNISHINGS

A publication by GreenBlue Urban

GreenBlue® URBAN

Establishing the future urban landscape

This booklet forms part of the **Green Building Reference Manual** for promotion of sustainable urban spaces

Designed to assist landscape architects, civil engineers and consulting arborists, each b addresses a key aspect of achieving healthy tree growth in urban contexts. Scientific and technical issues are outlined then linked with available solutions and implementation.

5.1 TREE PROTECTION

Key issues

Young trees in urban and regional areas need protection from wind, vermin, vandalism and urban traffic. Ideally tree protection methods will maintain healthy tree pit conditions and at the same time, complement urban design. Fig 5.1.1

Fig 5.1.1 - protection for young trees in densely populated areas is often one of the keys to survival.

Protecting trees

Trees protected by treeguards require periodic inspection to ensure that wind throw is not causing damage to the tree cambium layer.

Noise abatement—
"Properly designed plantings of trees and shrubs can signifi cantly reduce noise (Anderson et al. 1984). Wide plantings (around 100 ft) of tall dense trees combined with soft ground surfaces can reduce apparent loudness by 50 percent or more (6 to 10 decibels)."
(Cook 1978).
Sustaining America's Urban Forest

A wide range of tree protection products are available including the following.

Fig 5.1.2 - With correct treepit design, and the appropriate level of protection, trees can bring beauty to every venue.

Treeguards

Fig 5.1.3 - In areas of potential vandalism, a robust and well designed tree guard is a wise investment.

In areas of high pedestrian and vehicular traffic or in formal or prestigious areas, metal tree guards offer the same protection to trees as staking and add a decorative urban element. Such tree guards need to be large enough to avoid impacting or inhibiting the growth of the trees and be compatible with the precinct streetscape and street furniture.

The durability required for the tree guards depends on tree growth and the level of traffic or vandalism of the location. The tree guard design should signal weight and strength to pedestrians and motorists. The attachment of guards to the grate or below ground needs to be secure.
Fig 5.1.3

Tree grates

Tree guards may be complemented by the use of tree grates. These are available in many designs to suit the streetscape and street furniture of the precinct. The grates are placed around the trees at the level of the surrounding surface paving to reduce soil compaction and root zone damage caused by pedestrian traffic. Well designed grates enable a tree to receive natural water and add architectural flair to the paved surface. They will retain planting material but allow the free passage of pushers, wheelchairs and supermarket trolleys.

The tree pit opening must accommodate expected taper in primary structural roots and the tree grate is often required to bridge over this area. Where used in conjunction with a tree guard, the guard and grate should be an integrated design which in turn may include other components such as irrigation and aeration.

Traditional cast iron treegrates remain popular globally. The better quality brands provide a rugged, durable furnishing that will function perfectly for decades. A properly designed cast treegrate, with a high grade paint finish, will enhance and beautify a streetscape upgrade. An increasing trend in some regions is to install unpainted cast iron treegrates and allow the natural surface corrosion create a charming, aged effect. **Fig 5.1.4 & 5.1.5**

Fig 5.1.4 - Aged, rusty finish on a cast iron tree grate.

Treegrates are often fabricated from stainless or mild steel to provide a thoroughly modern, highly functional product that integrates with other treepit components. Some of these models can be classed as heel safe (5mm apertures) while others are constructed to be wheel safe – ideal for inner city areas with concentrated pedestrian or light vehicle traffic.

Tree guard designs must permit simple removal once the tree is large enough to no longer require protection.

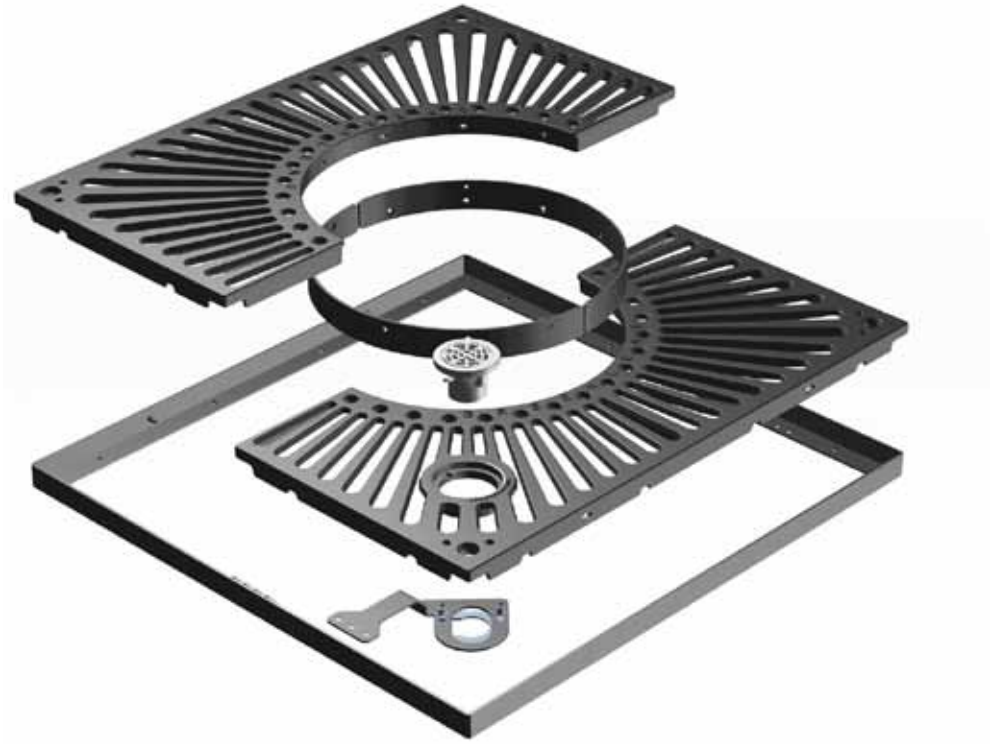


Fig 5.1.5 - Correctly designed tree grates make provision for relevant loads, as well as incoporating simple installation, watering apertures, and provision for vertical guards.

Tree roots will grow as deep as soil type, oxygen levels, or available moisture permit.

Real estate and business—"Landscaping with trees—in yards, in parks and greenways, along streets, and in shopping centers—can increase property values and commercial benefi ts (Anderson and Cordell 1988; Corrill et al. 1978; Donovan and Butry 2008; Dwyer et al. 1992; Wolf 2003, 2004). One study found that on average, prices for goods purchased in Seattle were 11 percent higher in landscaped areas than in areas with no trees." (Wolf 1998).
Sustaining America's Urban Forest

Many designers and planners are incorporating some of the newer plate design treegrates into their projects. These high class treegrates provide ultimate flexibility for innovative landscape architects through the use of CNC programmed laser technology for cutting decorative and functional designs into the surface of the treegrate. Heel safe apertures in constrained or free flowing designs may be featured to provide a distinctive finish for a contemporary streetscape upgrade project. Coupled with the large range of standard and custom patterns available is the opportunity to feature different metals in the design. Properly designed treegrates are engineered to meet or surpass the required load standards, integrate with other treepit components including tree guards, deep watering and aeration, root management and structural soil cells. **Fig 5.1.7 & 5.1.8**

Fig 5.1.7 - Treeguards can also be unobtrusive and discreet, besides robust.

Fig 5.1.6 - Healthy Trees planted with best management practises.

Fig 5.1.8 - By coordinating designs and finishes, a treeguard can become an attractive feature in s streetscape upgrade.

In some situations, it is desirable to conceal the treegrate and continue paving over the tree's root ball up to the trunk. This situation is ideal for footpaths, outdoor dining areas, cafes and podium precincts, and where tables and chairs are placed beneath a tree's canopy. Standard treegrates are available with recessed support frames that permit paving stones to be inserted. These designs should be engineered to provide a high strength framework and load capacity with some patterns being removable for inspection or cleaning of the treepit. **Fig 5.1.6**

Another innovative and attractive option is the use of porous stone treegrates. This system incorporates genuine graded and washed stone in a range of natural colours bound together by a strong resin. A highly permeable stone treegrate is created enabling oxygen movement and high water infiltration.

Fig 5.1.9 & 5.1.10

Fig 5.1.9 - Permeable cast stone with growth ring.

Fig 5.1.10 - Arboresin showing RootRain Inlet.

Permeable paving

Tree grates are only one option for protecting trees from soil compaction and root damage. Other options include the use of cobblestones or permeable paving. Resin bonded gravel has been developed to provide a hard wearing, attractive, porous tree pit surface. This avoids the problem of loose stones in pedestrian environments and tarmacadam or conventional paving creates an impervious cap over the tree pit.

With a resin bonded gravel surface, stones are bound together and prevented from migrating beyond the tree pit area. Rotary pavement sweepers can easily run over resin bound surfacing without displacing the stones.

The root system of a tree may extend up to two to three times the area of the tree canopy.

"The most effective way to reduce urban air temperature is to maximize the amount of vegetation in the city with a combination of tree planting and green roofs."
American Meteorological Society

ARBORESIN POROUS STONE FINISH

Benefits

- **Surface structure allows free flow of air and water to the root zone**
- **Will support light vehicular traffic**
- **A choice of aggregates for different applications, please phone our support line**
- **Avoids problems associated with loose gravel**
- **COSHH: hazard data sheets are supplied with each delivery and should be in installer's possession for the duration of the installation**

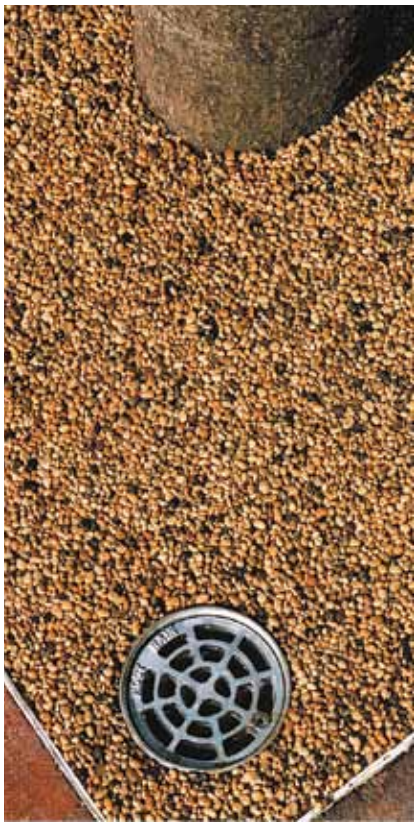
For a hard wearing, attractive, porous tree pit surface, Arboresin is clearly the way forward for economical and tree-friendly surrounds.

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, preventing the gravel migrating beyond the tree pit.

Rotary pavement sweepers can easily run over the surface without displacing the stone.

Standard galvanised frames are available to provide a paving/bound gravel edge and help support paving loading for light traffic.



Precinct Watering Inlet, set in Arboresin

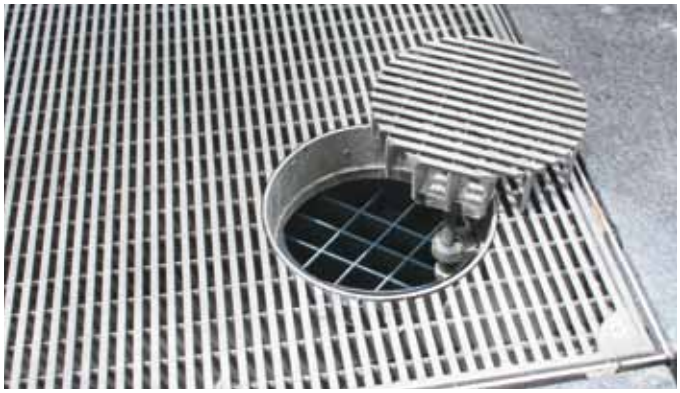
Arboresin Treepit surface showing growth ring, watering point and uplighter

Air and water pass through the porous stone layer

BRADFORD TREE GRATE

The smart looking Bradford grille is made to the highest standards.

The heel-safe apertures are perfect for those busy urban streets allowing pedestrians to safely walk across the entire frame. The Non-Slip texture is another essential feature keeping the surface safe in all weather conditions. Designed with watering grate set flush into the surface of the grill and in the same material it is almost invisible to the passer by. You can also choose for the option of uplighters in case your particular streetscape has night traffic. Using a robust support frame, and tamper-proof fasteners, this is the ideal compliment to any upper-class streetscape or mall.



Discrete watering aperture in chosen positions

Bradford Treegrille

Quality and precision, with the durability of Stainless Steel

Custom sizes and configurations available to order

Product Code	Dimension A	Dimension B	Dimension C
GLBRAD120SS - Stainless steel	1200mm	1200mm	600mm dia. opening

DURAPLATE II TREE GRATE

Benefits

- **Total design flexibility**
- **Six standard patterns (plus custom design service)**
- **Choice of four metals**
- **Durable Baked Enamel finish in full color spectrum**
- **Safe for areas of highest pedestrian usage**
- **High load capacity**
- **Integrated watering inlets (optional)**
- **Arborsystem approved**

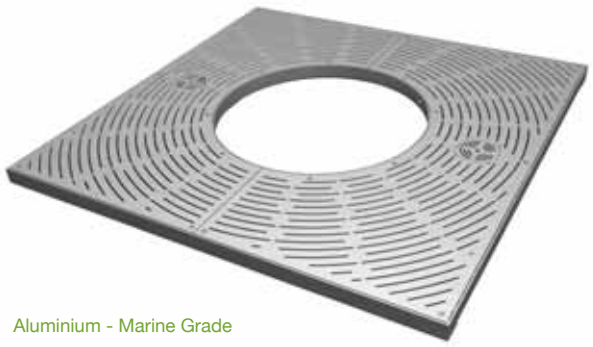
Many designers and planners are now incorporating the new DuraPlate II plate design tree grille into their projects. These high class tree grilles provide ultimate flexibility for innovative landscape architects through the use of CNC programmed laser technology for cutting decorative and functional designs into the surface of the tree grille.

Heel safe apertures in constrained or free flowing designs may be featured into the DuraPlate II surface plate to provide a distinctive finish for a contemporary streetscape upgrade project. Coupled with the large range of standard and custom patterns available is the opportunity to feature different metals in the design, such as corten (rusty) steel, stainless steel, and mild steel.

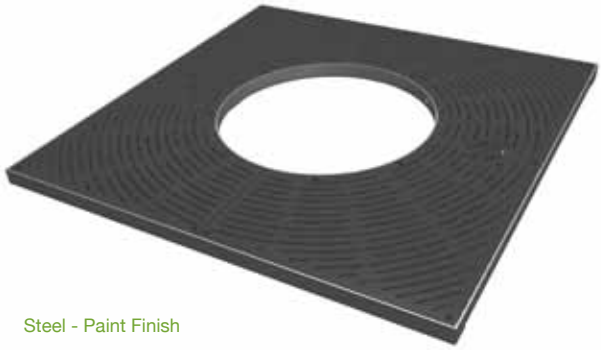
GreenBlue's distinctive tree grilles are engineered to meet or surpass the required load standards, and also integrate with other treepit components including tree guards, deep watering and aeration, root management and structural soil cells.

Corton Steel

Stainless Steel



Aluminium - Marine Grade



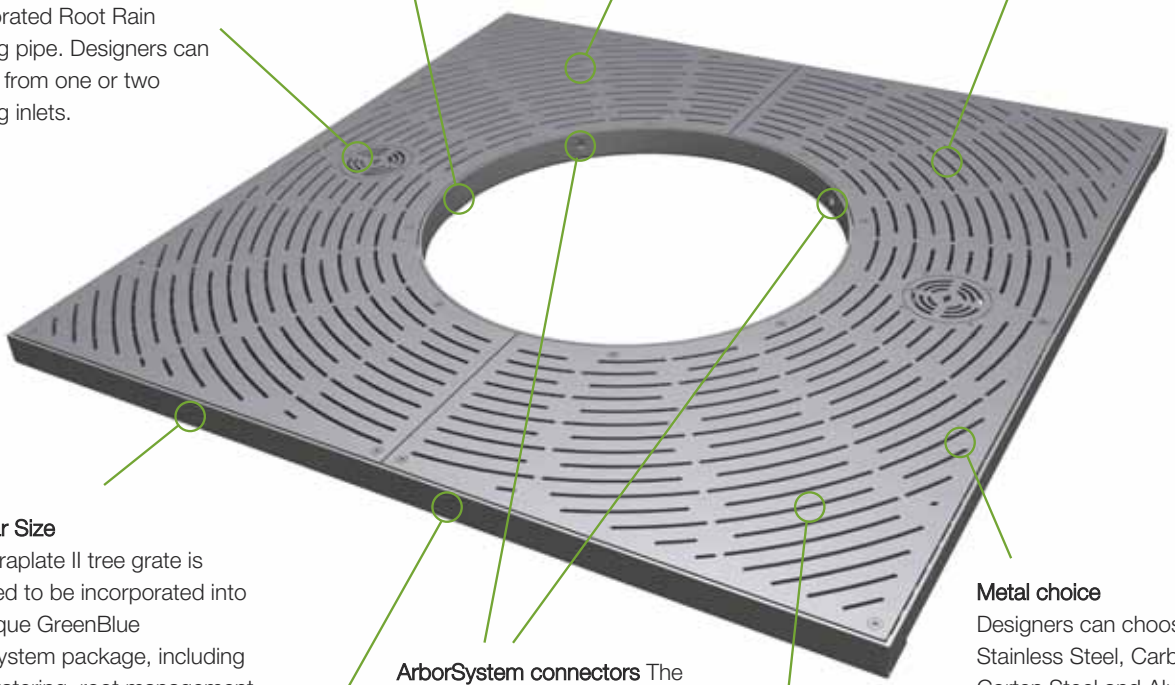
Steel - Paint Finish

Rigid support bars High strength transverse bars impart additional support and structural integrity to the sub frame of the Duraplate tree grate.

High strength plate surface Duraplate tree grates feature a durable top plate with a variety of brilliant 'Heelsafe' patterns – custom patterns are also available to order.

Narrow Apertures The design engineering and computer aided machining of this unique Duraplate II design permit apertures and tolerances to be tightly controlled and highly accurate.

Optional watering inlets Swivelling grating set flush with Duraplate surface, with key slot for opening. Finish to match plate surface, with ventilation slots of 5mm. The housing connects to perforated Root Rain watering pipe. Designers can choose from one or two watering inlets.



Modular Size The Duraplate II tree grate is designed to be incorporated into the unique GreenBlue ArborSystem package, including deep watering, root management, aeration, structural soil cells. However, this tree grate is an extremely attractive addition to any project.

ArborSystem connectors The reinforced central ring incorporates mounting points for vertical treeguards. No additional drilling is required to fit GreenBlue guards.

Metal choice Designers can choose from Stainless Steel, Carbon Steel, Corten Steel and Aluminum for the top plate, to suit their streetscape project. The Carbon Steel and Aluminum options can be finished in a huge variety of colors and finishes.

Separable outer frame The outer support frame can be separated for installation around existing trees, and is also designed for installation in both precast and wetcast openings.

Composite support grating One of the cutting edge 'design secrets' of the Duraplate II is the ultra-strong composite grating that forms the core of the frame. This space age material is non-corrosive, stronger than steel, light weight and easier to handle.

DURAPLATE II TREE GRATE

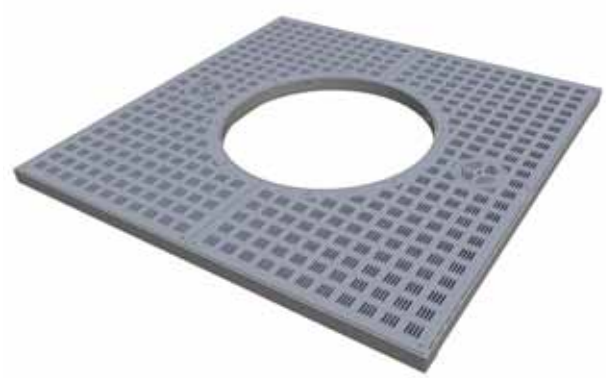
Product Specification and Codes

Product Code	Description	Dimension A	Dimension B	Dimensions C
GLDPPR120SS	**DuraPlate II Praxis** – Stainless Steel	1200mm	1200mm	600mm dia. opening
GLDPPR120C	**DuraPlate II Praxis** – Corten (Rusty)	1200mm	1200mm	600mm dia. opening
GLDPPR120CS	**DuraPlate II Praxis** – Coated Mild Steel	1200mm	1200mm	600mm dia. opening
GLDPPR120AA	**DuraPlate II Praxis** – Anodized Marine-grade Aluminium	1200mm	1200mm	600mm dia. opening
GLDPAL120SS	**DuraPlate II Alcott** – Stainless Steel	1200mm	1200mm	600mm dia. opening
GLDPAL120C	**DuraPlate II Alcott** – Corten (Rusty)	1200mm	1200mm	600mm dia. opening
GLDPAL120CS	**DuraPlate II Alcott** – Coated Mild Steel	1200mm	1200mm	600mm dia. opening
GLDPAL120AA	**DuraPlate II Alcott** – Anodized Marine-grade Aluminium	1200mm	1200mm	600mm dia. opening
GLDPHA120SS	**DuraPlate II Atterbury** – Stainless Steel	1200mm	1200mm	600mm dia. opening
GLDPHA120C	**DuraPlate II Atterbury** – Corten (Rusty)	1200mm	1200mm	600mm dia. opening
GLDPHA120CS	**DuraPlate II Atterbury** – Coated Mild Steel	1200mm	1200mm	600mm dia. opening
GLDPHA120AA	**DuraPlate II Atterbury** – Anodized Marine-grade Aluminium	1200mm	1200mm	600mm dia. opening
GLDPKE120SS	**DuraPlate II Hawthorne**– Stainless Steel	1200mm	1200mm	600mm dia. opening
GLDPKE120C	**DuraPlate II Hawthorne** – Corten (Rusty)	1200mm	1200mm	600mm dia. opening
GLDPKE120CS	**DuraPlate II Hawthorne** – Coated Mild Steel	1200mm	1200mm	600mm dia. opening
GLDPKE120AA	**DuraPlate II Hawthorne** – Anodized Marine-grade Aluminium	1200mm	1200mm	600mm dia. opening
GLDPPA120SS	**DuraPlate II Kendall** – Stainless Steel	1200mm	1200mm	600mm dia. opening
GLDPPA120C	**DuraPlate II Kendall** – Corten (Rusty)	1200mm	1200mm	600mm dia. opening
GLDPPA120CS	**DuraPlate II Kendall** – Coated Mild Steel	1200mm	1200mm	600mm dia. opening
GLDPPA120AA	**DuraPlate II Kendall** – Anodized Marine-grade Aluminium	1200mm	1200mm	600mm dia. opening
GLDPPA120SS	**DuraPlate II Kendall** – Stainless Steel	1200mm	1200mm	600mm dia. opening
GLDPPA120C	**DuraPlate II Kendall** – Corten (Rusty)	1200mm	1200mm	600mm dia. opening
GLDPPA120CS	**DuraPlate II Kendall** – Coated Mild Steel	1200mm	1200mm	600mm dia. opening
GLDPPA120AA	**DuraPlate II Kendall** – Anodized Marine-grade Aluminium	1200mm	1200mm	600mm dia. opening

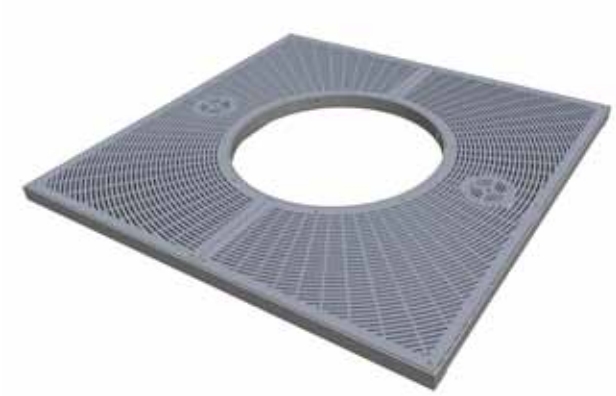
Product Specification and Codes

DuraPlate II Praxi

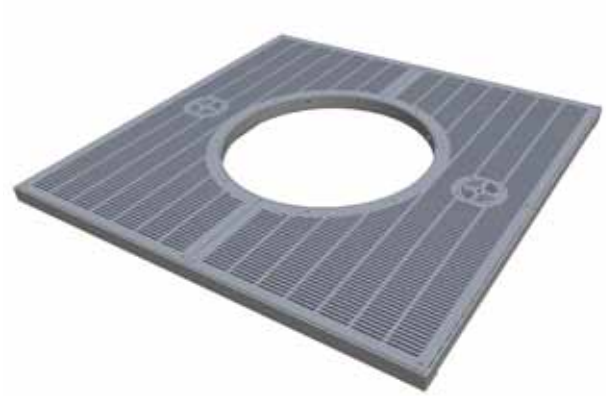
DuraPlate II Alcott



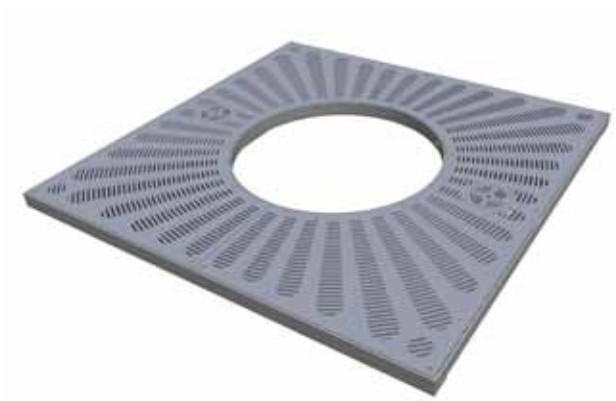
DuraPlate II Atterbury



DuraPlate II Hawthorne



DuraPlate II Kendall



DuraPlate II Paseo

CAST IRON TREE GRATES

The majority of our traditional tree grilles are manufactured from heavy-duty cast iron, with the most fashionable styles being the Tay and the Avon (shown)

These grilles are designed to withstand the rigors of streetscape thorough fare, and can be upgraded to withstand high traffic loads by incorporating a heavy duty support frame. A deep watering aperture is included in the standard design, however this can be omitted if desired.

GreenBlue vertical tree guards may be mounted securely into the central circle of both the Tay and the Avon. The benefit of this design is that there is no need to cast extra mounting points for tree guards, and the tree root system is protected.

The standard paint finish is matt black. This high quality finish is an extremely durable two-pack epoxy paint. Any colour from the RAL range is available as an option. For extra protection on mild steel products zinc galvanising is standard, followed by a high quality coating to any RAL colour. These grilles are provided complete with support frame and fasteners. Contact our friendly staff for assistance with prices and availability.

Tay Tree Grate is a traditional favorite, with tapering radial openings

Avon Tree Grate maintains excellent air movement for the rootball, with attractive square apertures

Product Code	Dimension A	Dimension B	Dimension C
GLTAY120 - Tay	1200mm	1200mm	600mm dia. opening
GLAVON120 - Avon	1200mm	1200mm	600mm dia. opening

CASTLE TREE GRATE

Paver Support Tree Grate

In situations where presentation is of highest importance, the Castle pave-over grille is the answer. Designed by professionals, this invention allows the surrounding pavement to continue right up to the tree trunk. This method eliminates any trip or slip hazards pedestrians often encounter, and gives a clean style to the pavement. All the essential irrigation inlets, uplighters, and check points can still be incorporated into the pavement, with this sub-surface grille.

- **Heavy duty recessed tree grille**
- **Allows specifiers to continue their choice of paving over the tree pit area**
- **Built-in tree irrigation/ventilation inlets**
- **Removable inner section allows for tree growth**
- **Robust galvanised construction**
- **Available in different sizes**
- **Available to comply with regular load specifications**

Product Code	Dimension A	Dimension B	Dimension C
GLCA150 - Castle Paver Tree Grate	1500mm	1500mm	500mm opening

CLYDE TREE GRATE

- **High Strength**
- **Optimal aeration**
- **Minimalist**
- **Arborsystem compatible**
- **Modular**

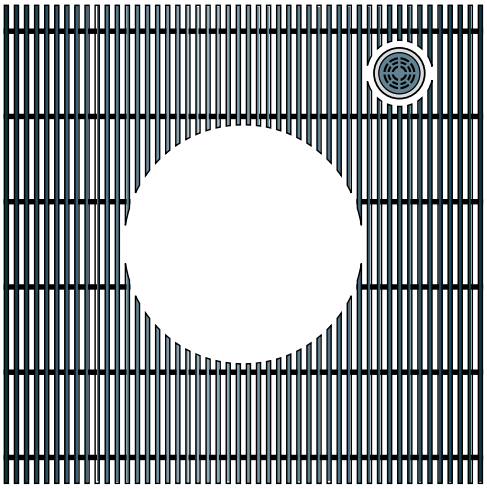
A strong, functional, linear design tree grate.

The Clyde Tree Grille is one of the most popular grilles in the GreenBlue range. This is a modern, minimalist design with sleek lines that coordinate and elevate contemporary streetscape projects. The Clyde has been engineered to the highest standards, to ensure that stringent strength requirements are met and exceeded. Surface members and structural support members are placed to contribute aesthetically, but also functionally to the performance of this tree grille. A deep watering aperture is included in the standard design, however this can be omitted if desired.

The Clyde structural panels are designed to assemble around the tree, locking securely into the heavy-duty angle support frame, and bolting together for durability. An added feature of the Clyde, is the fact that GreenBlue tree guards may be mounted securely into the central circle. The benefit of this design is that there is no need to cast extra mounting points for tree guards, and the tree root system is protected.

NOTE: Clyde Tree Grates are available to custom sizes, in selected paint finishes, in unpainted HD Galvanised finish, or in Stainless Steel

Sleek and timeless, the Clyde is one of the most popular GreenBlue Tree Grates



Product Code	Dimension A	Dimension B	Dimension C
GLCLYDE120 - Clyde	1200mm	1200mm	600mm dia. opening

ARBORESIN TREE GRATE

Precast Arboresin

Precast Arboresin is a significant new development from GreenBlue. This system consists of precast resin bound segments that are manufactured off-site in a quality-controlled environment. On-site mixing is no longer required – segments are simply located into the standard 1200mm square DTS tree grate frame.

Cast within each segment is a specially designed, preformed matrix of steel reinforcing rods. These add significant strength, as well as providing a fixing point for the inner ring. GreenBlue vertical steel tree guards can then be bolted to this ring. Additionally, cast into one of the precast segments is a GreenBlue Arborvent irrigation inlet. This durable cast aluminium inlet is simply connected to a 60mm diameter perforated pipe system surrounding the root ball.

- **Simple and clean installation**
- **Pre-manufactured for installation in all weather conditions**
- **Strong construction to support tree guard**
- **Resists light vehicle overrun**
- **Grille is part of our DTS fully integrated system**

Precast Arboresin

PREMIUM TREE GUARDS

Exceptional guard focused on aesthetics and strength

When this attractive guard was designed, the two most important objectives were aesthetics and strength. To say the least – this guard exceeds in both these areas, plus many more.

The striking, broad design of the four vertical members provides a clean and inspiring element, adding style and class the surrounding streetscape. A great design feature of this guard is the modern conical shape, being narrower at the base and wider at the top, fitting in perfectly with the growth pattern of the tree and allowing wider pedestrian space at the base of the tree. Protecting the newly planted tree from surrounding traffic elements, such as passing vehicles, bicycles and pedestrians are key to the functionality of a guard, and the Bellview is the ultimate in street tree protection.

With its durable baked enamel finish this guard is the designer's choice for long-lasting strength and tasteful design. Custom designs are available in a range of varying finishes and colours. Combined with the Duraplate II Tree Grate, this duo are definite award winners.

Bellview Treeguard is distinctive and functional

A focal point in this streetscape upgrade

Product Code	Dimension A	Dimension B	Dimension C
GLBEL18560-1 - Bellview	1850mm tall	600mm base dia.	800mm top dia.

TRADITIONAL TREE GUARDS

Coniston, Derwent, Ullswater

Tree guards designed by GreenBlue, are designed to the highest standards. With many years of experience in the streetscape area, the design experts understand the importance of functionality and aesthetics these guards must have to not only withstand the rigor of public open space but also compliment any streetscape or shopping mall.

In an urban setting, young and newly established trees in particular are vulnerable to damage from bicycles and other equipment, as well as gratuitous vandalism. These well-built tree guards are of sturdy construction and pedestrian-safe design to provide the ideal answer to such problems.

Tree guards can uniformly make a high quality visual design statement on public realm landscape schemes. These guards shown may be fitted to medium or heavy duty frames, or ground fixed when used in parkland. The simple adjusting mechanism allows guards to be easily set on most gradients.

Each guard type is manufactured in a number of standard sizes to fit all grilles. Phone our sales line for prices and availability.

The standard range comprises of four popular styles – the Coniston, the Derwent, the Ullswater, and the Ullswater with Spheres.

These four guards are the choice for many landscape designers due to their strong, durable construction, fashionable look, and great value for money. They usually come in powder-coated black/dark grey finish or galvanised. They are provided with complete fasters and setup instructions for a quick and easy installation.

Coniston

Derwent

Ullswater

Ullswater with spheres

Product Code	Dimension A	Dimension B
GLCON18060 - Coniston	1800mm tall	600mm dia.
GLDER18060 - Derwent	1800mm tall	600mm dia.
GLULL18060 - Ullswater	1800mm tall	600mm dia.
GLULSP18060 - Ullswater with spheres	1800mm tall	600mm dia.

THE GREENBLUE STORY

GreenBlue was established to provide engineered green building solutions based on sound research into urban sustainability. Our solutions have proved to be current best practice in their field, endorsed by professional organizations around the globe.

The GreenBlue Name

Our name reflects our passion – to help make our cities more sustainable. From our dedication to research and development and hands-on experience in the field has come a firm belief that there are ways of successfully integrating 'green utilities' – trees, soil and water – into urban design to make our cities greener and more liveable.

The GreenBlue Vision

Our company vision embraces a world where sustainable green space is within reach of every person, every day – and natural resources are utilized (not wasted) for the benefit of mankind.

Trees in Cities

One of the key focus areas of GreenBlue is green utilities. Trees as green utilities play a major role in maintaining sustainable ecosystems in our cities and should take precedence in urban planning and design if we, and our generations to come, are to reap the benefits.

Aiming to significantly improve urban planting success and increase urban forest canopy, GreenBlue researched the reasons for premature mortality in urban trees and poor tree growth in urban environments. We identified the key issues, devised solutions and designed practical products and systems. Successfully!

Green Walls

Included in the GreenBlue range of green building products is the European brand of green wall trellis systems – Brandmeier Green Walls. This innovative range opens up a whole new dimension to your urban landscape designs.

Greening of facades, pergolas and garden spaces is an ecologically sound method of taking your project beyond the ordinary. Greening of compacted urban landscapes and brownfield sites has an ever increasing importance.

Global Partners - Combined Experience

Collaboration with global research and distribution partners over the last two decades has placed GreenBlue systems at the cutting edge of sustainable tree pit solutions for cities. GreenBlue works closely with renowned European organizations such as Greenleaf (United Kingdom, Germany, Ireland, and Spain) and Scandinavian company Milford (Denmark) and is quickly becoming the North American and Australasian market leader in specialist green technology systems.

Local authorities, arboriculturists, landscape architects, civil engineers and other related professionals increasingly collaborate with GreenBlue in implementing current best practice in green technology. As the industry market leader in specialist green building products, we are able to offer the results of 18 years of frontline experience in the field, exhaustive research, product development and field trials. Our support service, unrivalled in the tree planting world, can help you to achieve your vision.

Testing of pavement above and adjacent to structural soil cell treepits. 400 passes on pavement and 200 passes on sidewalk failed to induce any measurable pavement collapse.

Research and Development

Ongoing research and development is a key to the growth of GreenBlue, with knowledge gained in laboratories and field collaboration construction sites being shared with industry partners. As a company, GreenBlue pursues the current boundaries of design relentlessly to bring to the market proven engineered green building systems that provide optimum solutions for urban planners.

Trees with aggressive root systems have been planted in GreenBlue root management and soil cell systems, and excavated for research.

Training and Accreditation

Long term success of engineered green building systems is directly impacted by the quality of installation. Not only is the health of trees and shrubs but also pavement integrity and storm water function in danger of compromise, with potentially dire consequences, if installers are not competent in best practice installation.

For this reason, GreenBlue has developed a unique accredited e-learning program. Installers may complete this comprehensive training course online to gain Arborsystem accreditation. This accreditation status is part of the prerequisite package for product warranty recognition and is further evidence of the dedication of GreenBlue to the Green Building Industry.

GreenBlue invests in physical, laboratory testing - for verified structural data, and development of cutting edge green building systems.

Technical Support

GreenBlue strives to provide world class support for designers and installers of the various green building systems available. Complete suites of drawing files in 2D CAD format and PDF are available to designers, free of charge.

Detailed product and installation specifications are available for inclusion in project designs, many of which are fully editable. GreenBlue consultants are also able to obtain independent engineering advice on behalf of clients, utilizing qualified engineers with key experience in the use of GreenBlue green building systems.

GreenBlue® URBAN

Establishing the future urban landscape

GREEN ACCREDITATION—

EARN LEED POINTS BY USING GREENBLUE STRATACELL® MODULES

Leadership in Energy and Environmental Design (LEED) is an internationally recognized green building certification system, providing third-party verification that a building or community has been designed and built using strategies intended to improve performance. Metrics used include the following: energy savings, water efficiency, CO2 emissions reduction, improved indoor/outdoor environmental quality, and stewardship of resources and sensitivity to their impacts.

Developed by the U.S. Green Building Council (USGBC), LEED is intended to provide building owners and operators a concise framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions.

Widely accepted in North America and Canada, LEED uses a points-based system to guide design and measure performance. The higher the number of points awarded to a building or community, the higher its assessed sustainability. Not only is this expected to increase asset value and reduce operating costs, in many cities, LEED ratings qualify for tax rebates, zoning allowances and other incentives.

Using GreenBlue StrataCell® Modules can help clients earn additional points in the categories of: creating sustainable sites, water efficiency, energy and atmosphere, material and resources, indoor environmental quality, neighbourhood pattern and design and green infrastructure and buildings.

If your building project is a candidate for LEED credits, review our LEED Rating System Checklist. Your project is a viable candidate for certification if it meets all prerequisites and can achieve the minimum number of points necessary to earn the credits.

ArborSystem

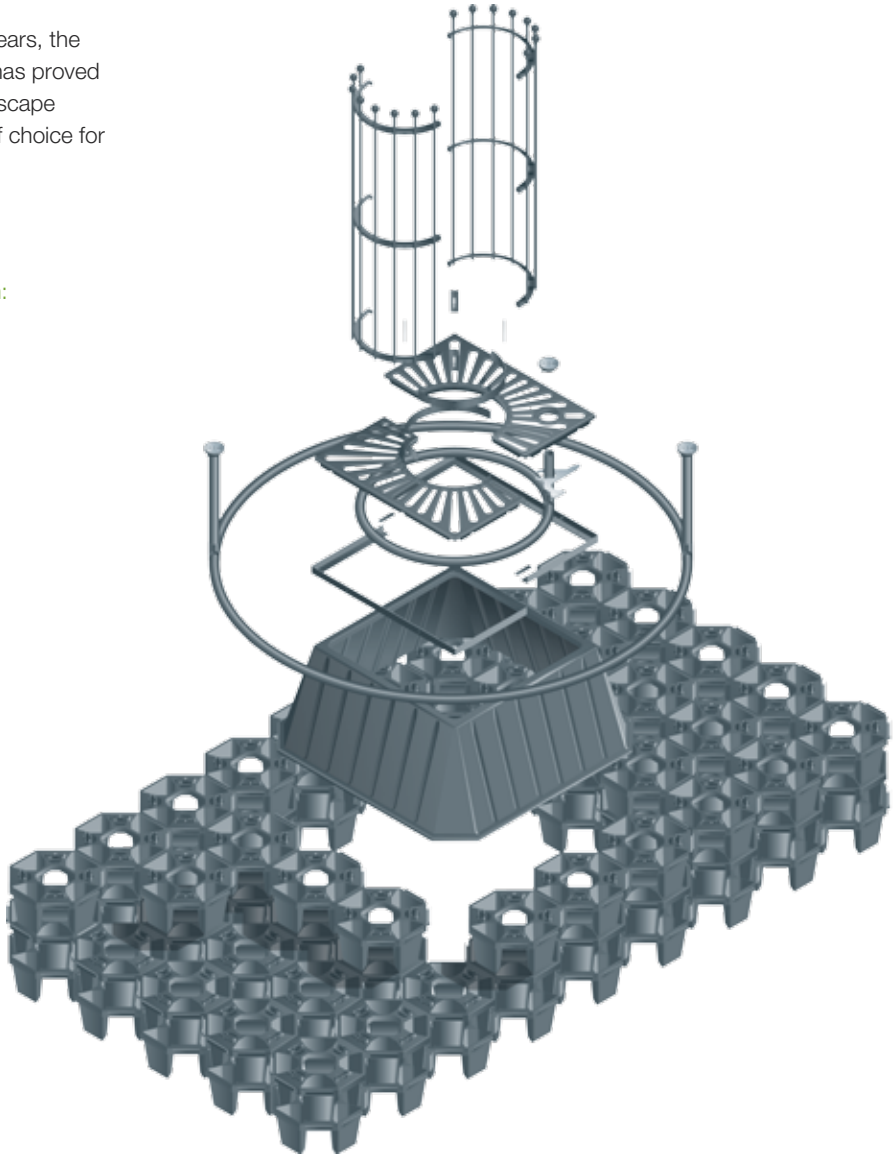
The definitive urban tree pit package

The GreenBlue ArborSystem brings together the key elements of successful tree pit design and simplifies the design and installation process for specifiers and installers. By utilizing our ArborSystem CAD library (within the resource section of the GreenBlue website), landscape professionals can combine root management, structural soil components, aeration, and irrigation - in a single package – and then choose an appropriate above ground surface grille and vertical guard to match their project.

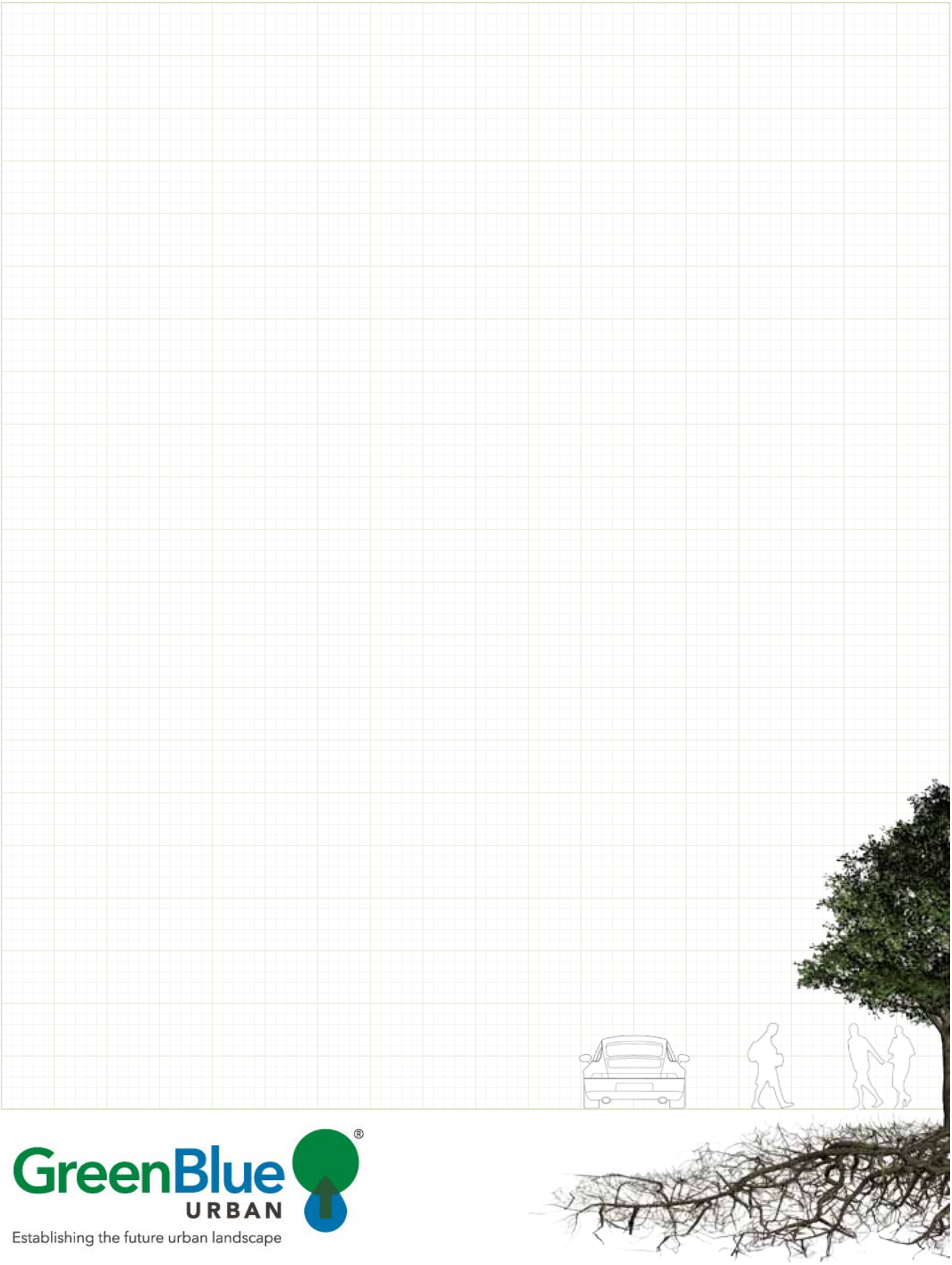
Since its inception and development over recent years, the Arborsystem integrated tree pit product package has proved itself in many demanding locations. For many landscape specifiers, Arborsystem has become the system of choice for integrating trees into the urban environment.

By utilizing ArborSystem, landscape designers can:

- **Ensure product compatibility**
- **Drastically reduce time spent on specifying, quoting and ordering**
- **Adapt a system to suit differing location and budget constraints**
- **Demonstrate to clients a professional long term approach to tree planning and management issues**
- **Benefit from our onsite support service for peace of mind.**



Sketch Grid



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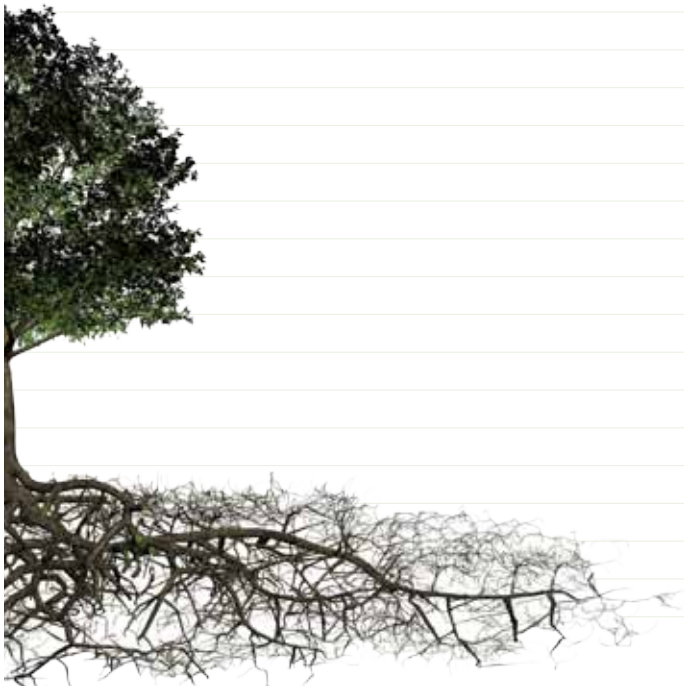
Notes



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greenblue.com

Global Offices

Head Office - North America
GreenBlue Infrastructure Solutions
71 Bysham Park Drive
Woodstock, ON N4T 1P1
Sales & Service: 1 866 282 2743
greenblue.com

Also Represented in

United Kingdom
Australia
Germany
Ireland
France
Spain
Poland
New Zealand
Scandinavia

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