INFRASTRUCTURE MANUFACTURING SPECIALISTS IN THE ROAD, RAIL AND MARINE & COASTAL SECTORS

WITHIN THE UK AND EUROPE

Asset International Structures supplies solutions for the road, rail, marine and coastal sectors. With an international reputation spanning over six decades.
Asset has provided design solutions across the UK & Ireland, Europe, GCC Region, Africa and Australia.

Helping to build a sustainable planet

Our products help infrastructure become more sustainable by providing

OFF-SITE MODULAR CONSTRUCTION

MINIMISING EMBODIED CARBON
MAXIMISING SAFETY









Product Brochure Vol.03.1





Over 65 years of expertise in supplying infrastructure products



WHERE WE ARE TODAY

With over sixty-five years of delivering high-quality, innovative solutions across the infrastructure market, we have become one of the leading providers in the UK and Ireland. We have fostered excellent relations with the highways, rail, marine and coastal sectors over this period, providing bespoke deliverables for every project.

In 1954, ARMCO established its manufacturing plant in South Wales. With many years of trading success, ARMCO's UK arm was sold and purchased by Hill & Smith Holdings PLC in 1986 and began trading under the name of Asset International Structure (A Division of Hill & Smith Ltd).

CONTENT



02 - 03. asset MultiPlate® MP200

asset MultiPlate® is a construction system based around curved, corrugated, galvanised steel sheets bolted together to form durable structures, or part structures, of variable profiles that are deployed in various civil engineering applications. MultiPlate® is designed to CD375 and alternative European methods. It is approved by overseeing organisations in the rail and roads sectors.

04 - 05. asset StrenCor

asset StrenCor combines the advantage of lightweight construction with the superior strength and durability of galvanised steel. StrenCor has larger annular corrugations 381 mm x 140 mm or 500 mm x 237 mm.

06 - 07. asset BaFix® Ballast Retention System

asset BaFix® provides an innovative track ballast shoulder retention system designed for use in the rail industry. It is used and approved by Network Rail (PA05/06325), authorised by 'LU' (Reg No.3082) and Irish Rail.



08 - 09. asset BEBO® Arch System

asset BEBO® Precast Concrete Arch System is pre-engineered earth overfilled bridges, culverts, green bridges specified by consultants, local authorities, stakeholders, contractors, RDP partners and house builders.

10 - 11. asset VSoL® Retained Earth System

asset VSoL® retained earth system using polymeric reinforcing strips.

The retained earth structure is a stable, unified gravity mass that can be designed for use in a wide range of civil engineering applications.



12 - 15. asset FRP

asset FRP is composed of a protective polymer reinforced with high-strength fibreglass. Together, these materials create a premium composite with many potential construction applications. FRP outperforms wood and concrete for bridges, pedestrian pathways, and other structures, while holding up to decades of wear and tear.

asset FRP composite rail platforms provide the rail industry with a robust corrosion-resistant structure.

asset FRP bridges are suitable for pedestrian, cycle, equestrian and any other access requirements and are a perfect fit for areas with difficult access.

asset FRP pedestrian bridge decks can be installed as new footbridges or retrofitted to existing bridges.

asset FRP cantilever walkways allow extensions to existing road and rail bridges to create safe walking and cycling spaces.

OUR VALUE PROPOSITION

Our products minimise embodied carbon, maximising safety and speed of installation through off-site modular construction.





asset MultiPlate® MP200

Over **65** years experience in offering flexible steel designs in a variety of applications

The versatility of asset MultiPlate® in structure shapes and sizes offers the broadest possible choice to the designer addressing conventional design problems and considerable scope for originality when faced with one of the many unusual problems that arise in today's construction industry.

asset MultiPlate® (200 mm x 55 mm) corrugation is manufactured in various steel thickness's and plate sizes. The range of applied finishes available includes galvanising and other optional secondary coatings.

asset MultiPlate® provides high compressive strength creating a composite steel/soil structure by transferring imposed loads to the surrounding backfill. Structural load capacity is a function of structure span, wall thickness and backfill properties. Foundation loads are considerably reduced compared to those exerted by rigid structures under similar load conditions.

Our primary market in the UK is Highways England, Network Rail and other devolved agencies, local authorities, designers, and framework contractors. We work with HRE and local authorities in collaboration with Sustrans to develop greenways, pedestrian, and cycle routes. Other sectors including housing, aggregate industries, and private projects.

SUITABLE APPLICATIONS:

asset MultiPlate® is suitable for a wide range of projects, including:

- Cycleways and greenway structures
- Watercourse and flood relief culverts
- Bespoke re-lining and rehabilitation
- Haul road underpasses
- Pedestrian and golf buggy underpasses
- Ecology and bat crossings
- Stockpile and conveyor tunnels
- Extensions to existing structures

Features of the asset MultiPlate® MP200 1.8 m - 12.0 m span range

- Provides high compressive strength structures
- Available in a range of steel thickness's
- Lightweight; minimising foundation requirements
- Structure shape and size adaptable to site layouts

Benefits of the asset MultiPlate® MP200 1.8 m - 12.0 m span range

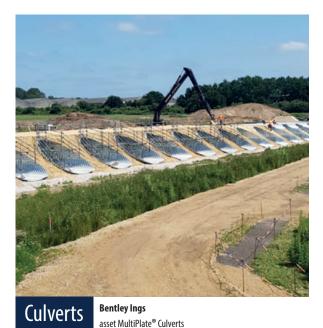
- Maximising safety and speed of installation through off-site modular construction
- 120-year design life with minimal maintenance, providing lower life cycle analysis
- Effective bespoke designs minimising embodied carbon
- Rehabilitating failing structures
- Supporting sustainable development
- Arch structures reducing the effects on the environment and disturbances to river bank works
- Buried structures with no bearings or deck slabs
- Adaptable in many applications

OFF-SITE MODULAR CONSTRUCTION | MINIMISING EMBODIED CARBON | MAXIMISING SAFETY





asset MultiPlate® MP200



Designed to:

Our principle design method is the UK Highways CD375 design, considering the normal and abnormal traffic loads. The design programme also ensures a 120-year design life that is fully compliant with modern-day applications. Our engineering team can design to alternative European methods.

Using our extensive knowledge and experience, we can look into the key parameters of the design to find efficiencies and potential cost savings.

asset MultiPlate® is niche due to the scope of varying solutions that the product can provide.

Approvals and Certifications







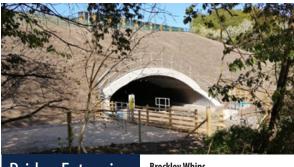






Restrengthening

Graig-Y-Rhacca
Restrengthening of the Addison Way overbridge and preserving the National Cycle Route 4 (London to Fishguard Harbour)



Bridge Extension

Brockley Whins

13 m long, 9.3 m span asset MultiPlate® culvert installation. Located 300 metres west of Brockley Whins Metro Station

Approvals for MP200 asset MultiPlate®

- Highways Agency Type Approval Certificate
- BBA HAPAS Certificate 18/H282
- CE Marking to Harmonised Standard EN 1090



asset StrenCor

Versatile deep corrugated structures for the road and rail sector designed for a range of applications

StrenCor represents asset's commitment to bringing the latest development in the field of vast span corrugated metal structures to our customers. StrenCor is a deep corrugated structural plate (DCSP). As with our MultiPlate® product range, StrenCor combines the advantages of lightweight construction with galvanised steel's superior strength and durability.

asset StrenCor has larger annular corrugations (381 mm x 140 mm or 500 mm x 237 mm) than MultiPlate® which is 200 mm x 55mm. The additional stiffness of this larger corrugation means that greater spans can be achieved compared to asset MultiPlate® or even SuperSpan® asset MultiPlate®.

The lightweight modular panels can be efficiently and economically shipped to even the most remote locations. They can be assembled adjacent to the job site, then moved into place using relatively light equipment.

SUITABLE APPLICATIONS:

asset StrenCor is suitable for a wide range of projects, including:

- Green bridges and ecological crossings
- Vehicle and railway structures
- Cycleway and greenway structures
- Pedestrian underpasses
- Watercourse and flood relief culverts
- Box culvert
- Bespoke relining and rehabilitation
- Haul road underpasses

Features of the asset StrenCor

- Provides spans above 20 m
- Large corrugation for extra strength
- Lightweight; minimising foundation requirements
- Structures shape and size adaptable to site layouts

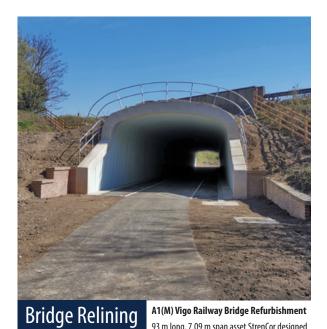
Benefits of the (DCSP) 381 mm x 140 mm and 500 mm x 237 mm. asset StrenCor spans from 6.0 m - 20.0 m(plus)

- Efficient design
- Sustainable design minimising embodied carbon
- Lightweight design providing easy site access
- Optimising steel strength
- Ready for use immediately after backfilling
- Wide-span low rise bottomless structures reducing the effects on the environment and disturbance of any river bank works
- 120-year design life with minimal maintenance providing lower life cycle analysis





asset StrenCor

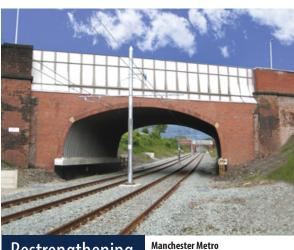


93 m long, 7.09 m span asset StrenCor designed to support the existing bridge and to provide a pedestrian and cycleway structure

We use our extensive product knowledge by combining the advantages of lightweight construction with superior strength and durability, maximising safety and speed of installation through off-site modular construction.

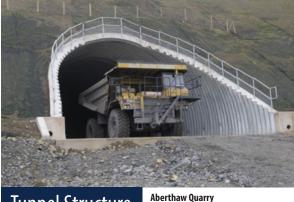
Structure design:

- **CAN/CSA-6 Canadian (CHBDC)**
- **AASHTO LRFD Design Specification**
- **CD375 and Durability Clauses**
- Eurocode



Restrengthening

Restrengthening of the existing rail structure above the rail line



Tunnel Structure

75.7 m long,11.18 m span asset StrenCor tunnel

Approvals and Certifications









asset BaFix®Ballast Retention System

The innovative asset BaFix® ballast retention system has a design life of up to **120** years

The patented **asset BaFix**® is used and approved by **Network Rail (PA05/06325)**, authorised by **'LU' (Reg No. 3082)** and **Irish Rail**. It provides an innovative track ballast shoulder retention system for the rail industry. The key benefit of installing the system is retaining the loss of ballast over time whilst creating a long-term stable border for the ballast.

Ballast retention saves money, eliminates damage to cable troughs or ducts, maintains acceptable levels of safety and line speed and maximising safety.

In addition, the **asset BaFix**® system offers future improvements to track when an existing bridge requires lifting or raising in flooded areas. The system can be used to support the National Electrification programme **OLE** and retaining ballast around cantilever masts.

asset BaFix® can be earthed by the railway contractor. The terminal contact for the system connects the individual elements allowing the contractor to join the asset BaFix® to the grounding system at any point.

ADVANTAGES OF USAGE:

Features of the asset BaFix®

- Fully used and approved by Network Rail, LU and Irish Rail
- Supplying groundworkers and civil engineering contractors with lightweight ballast retention units in 6m lengths,
 BaFix 100 - 61.1 kgs, BaFix 70 - 45.8 kgs and BaFix 50 - 39 kgs
- Creates a position of safety from the nearest line
- No expensive plant/piling
- Can be filled using automatic conveyor systems
- Allow cable troughs or ducts to be installed and maintained within the system
- Supports handrailing systems anchored within the supported BaFix structures using the fence post anchoring system Sleeve-It.

Benefits of the asset BaFix®

- Increase safety for both public travelling and rail employees by offering a stable ballast shoulder
- Reduced life costs by maintaining ballast
- Quick and easy, reducing installation time whilst backfilling compared to gabion baskets or ballast board
- Reduce the number of line speed reductions with cost benefits to the rail operators and reduced timetabled disruptions.

Why use asset BaFix®

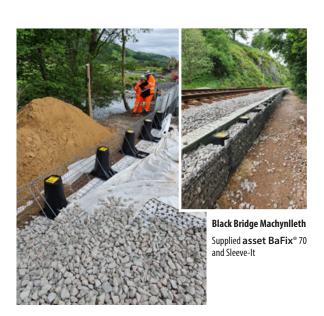
The asset BaFix system will reduce the levels of maintenance caused by the loss of the ballast shoulder over time and assist in the following situations by reducing:

- Lateral stability caused by ballast tamping
- Loss of ballast during flooding or on soft ground
- Loss of ballast at the intersection of the rail overbridge with a road underbridge





asset BaFix® Ballast Retention System



Sleeve-It

When using the asset BaFix® system there may be a specification to supplying a fully load tested pre-engineered foundation fencing solution. Sleeve-It can support this requirement.



Securing the Ballast

Installing asset BaFix® provides a robust solution to long-term railway maintenance issues.

The product is available in three heights, including **500 mm**, **700 mm** or **1000 mm**. The front panel is made of high-quality aluminium - zinc alloy coated mesh formed with an inclination of 80°.

Approvals and Certifications













Colas Rail / Network Rail - East Somerset Junction, Down Westbury

The performance benefit of the asset BaFix®

The performance benefits of using a lightweight containment unit in 6 m lengths is that it is more economical, it maintains a long design life and it's fast installation method is a benefit against most conventional rail retaining methods.







asset BEBO® Concrete Arch System

Over **50** years of experience in the field has resulted in over **1200** structures built worldwide

The asset BEBO® Arch System is a standardised patented precast concrete arch system for the design and construction of earth overfilled bridges, tunnels, culverts and other underground structures. The fully pre-engineered asset BEBO® Arch System features the world's most significant precast concrete arch structures, offering spans from 3.7 m to 35 m.

Used and Approved by:

- Consultants
- Public authorities
- Local government
- Property developers
- House builders and contractors in the road, rail and water sectors within the UK and Europe

Designed to:

Compliant to the latest Eurocode standards

SUITABLE APPLICATIONS:

The best-overfilled arch structures worldwide

- · Highway under and overbridges
- Rail structures
- Pedestrian underpasses and non-motorised user (NMU) routes
- Green bridges and ecological crossings
- Watercourse and flood relief culverts
- Flood balancing and causeways

Features of the asset BEBO® Arch System

- Provides spans up to 35m
- Slender arch units
- Modular construction for ease of installation
- Off-site manufacturing, eliminating health and safety issues of on-site casting
- Extremely durable no approach slabs, transition joints and moving bearings
- Robust design minimising engineered fill material
- Variety of shapes, spans and end treatments

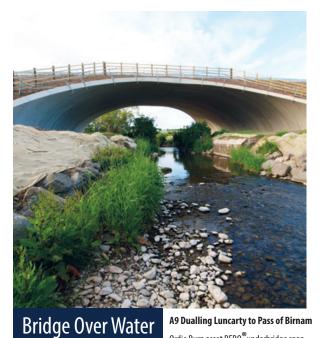
Benefits of the asset BEBO®Arch System

- Aesthetically pleasing structure with low visual impact on the surrounding environment
- Minimising embodied carbon through slender units with reduced structural fill requirements
- Reduced installation through simple modular construction
- Maintenance-free lowering whole life costs
- Short lead times and delivery to expedite programme





asset BEBO® Concrete Arch System





friendly green bridge in Arborfield. Span 20.093 m,

rise 6.299 m, length 32.858 m

Ordie Burn asset BEBO [®]underbridge span 29.259 m, rise 6.842 m, length 39.250 m

The asset BEBO Arch Types

The asset **BEBO®** Arch System consists of a series of predefined highly efficient and optimised arch shapes. The different standard spans and rises allow for the design to be adapted into different layouts such as shallow and high-grade separation applications. This allows for the accommodation of various clearance profiles for highway overpasses as well as the fulfilment of stringent flow capacity requirements for river crossings.



Approvals and Certifications











asset VSoL® Retained Earth System

Over **30** years experience in providing versatile solutions for retaining wall construction

Since its development in California in 1981, the asset VSoL® Retained Earth System has proved its performance as a cost-effective construction technique in a variety of retaining wall applications. The modular, easy to install system can be used for a range of backfill soils and foundation conditions. Straight, curved, tiered, superimposed or back to back walls can all be accommodated by design due to the flexibility of the BBA certified asset VSoL® Polymeric Strip Reinforcement System.



SUITABLE APPLICATIONS:

The asset VSoL® Polymeric Strip Reinforcement System is suitable for a wide range of projects including:

- Highway and rail bridge abutments
- End treatments to the asset BEBO® arches and portal structures
- General retaining structures
- Temporary retaining structures
- Culverts and wing walls

Features of the asset VSoL®

- Modular construction for ease of installation
- BBA polymeric reinforcing strap
- No reinforced foundation required

Benefits of the asset VSoL®

- Aesthetically pleasing panel designs
- Program savings through efficient modular construction
- Lower embodied carbon and colour consistency through high quantities of Ground Granulated Blast furnace Slag (GGBS)
- Polymeric strap reduces the risk of failure due to soil corrosion compared to steel strap
- Advanced engineering
- Reliable performance 120-year life cycle
- Provides an economical wall solution







asset VSoL® Retained Earth System



asset VSoL®design and supply package

In support of the asset VSoL® system, asset can provide full design calculations to accommodate local design standards. By the use of comprehensive software for wall design, drafting and project costing, asset International Structures can provide rapid and cost-effective design evaluations as part of its' asset VSoL® supply package.

Proven standard components

asset VSoL® design solutions are tailored to individual project requirements. By using this approach with proven, standard components, a bespoke cost-effective design is achieved for each project. asset can provide full engineered solutions including the asset BEBO® arch combined with asset VSoL®.

Approvals and Certifications





VERIFIED
Suppliers Number: 221198







asset FRP - Fibre Reinforced Polymer

asset FRP is a world-renowned pultruder, providing FRP material, to a wide range of projects, with environmental considerations and budgetary constraints

asset FRP is an innovation leader in the design and manufacturing of FRP Composite Products. We provide off-site modular construction delivering sustainable engineered solutions that are lightweight, corrosion-resistant, minimising embodied carbon, long-lasting using advanced manufacturing processes for today's infrastructure market.

asset International Structures offers a full design service, manufactures and supplies FRP composite rail platforms, footbridges, and bridge decks. We will work with you to provide bespoke designs that address all specific project requirements if you can imagine a product or project. Our engineers, technology will turn your concept into reality for projects of any size, shape, or scope.

Benefits of FRP Over Traditional Materials

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	STEEL	FRP is highly corrosion-resistant, whereas steel is susceptible to rust from chemicals & weather exposure. FRP is as strong as steel & weighs significantly less; for a great strength-to-weight ratio.
	ALUMINIUM	Unlike aluminium, FRP has low thermal conductivity, meaning it serves as a great insulator. It's also corrosion-resistant, non-conductive, and won't deform under impact.
	WOOD	Wood components are prone to warping, decay, and rot. FRP exhibits excellent resistance to corrosion, mildew, mold, and other conditions that timber cannot stand up against. FRP delivers extreme durability without the need for environmentally hazardous coatings.
	CONCRETE	FRP panels are 80 % lighter than reinforced concrete. There is no

spalling, cracking or damages from moisture, salt or chemicals.

FRP is an ideal choice for a wide range of products due to its core components and performance; the material is:

LIGHTWEIGHT MATERIAL

Components are incredibly lightweight compared to other construction materials; this makes them safer, easier to work with, reduced transport costs, and require smaller cranes to install.

CORROSION RESISTANCE & LOW MAINTENANCE

Highly durable, making it suitable for heavy-duty usage in a wide range of environments. Its corrosion resistance makes FRP capable of withstanding salt, water, chemicals, and other harsh weather conditions without deterioration; this means it can last for up 100 years with very little need for maintenance or rebuilds.

LIFE CYCLE COST SAVINGS

Built from our high-quality components to offer long-term cost savings (LCA), low operating costs, minimal maintenance, and service disruption.

FLEXIBLE DESIGN

Engineered to meet the exact application requirements where factors such as size, shape, colour, and functional features can be customised to ensure smooth and easy installation.

FASTER INSTALLATION TIME

Prefabricated, allowing crews to install each part much faster; this makes FRP ideal for construction projects in public areas with tight timelines and limited construction hours.

LOW CARBON FOOTPRINT

Less energy in the manufacturing process.

OFF-SITE MODULAR CONSTRUCTION | MINIMISING EMBODIED CARBON | MAXIMISING SAFETY





asset FRP - Rail Platforms











asset FRP composite rail platforms provide the rail industry with a robust corrosion-resistant structure. The platform's high specification is designed to perform under all weather conditions and, in addition, will not deteriorate during chemical de-icing and high levels of foot traffic at stations.

For ease of installation, the panels are lightweight, reducing construction time during train schedules and decreasing the inconvenience to commuters.

The system's available design options are the moulded slab system at 4.5m long or the double tee at 10.4m long. Typical widths 3.3m can go wider in multiple panels.

Features of the asset FRP Rail Platforms

- High-quality FPR materials
- Non-slip surface and tactile paving
- Design flexibility with a range of panel sizes
- Lightweight structure for easy installation

Benefits of the asset FRP Rail Platforms

- Highly corrosion-resistant
- Minimal maintenance lower life cycle costs analysis
- Speed of installation reducing construction time
- Can be installed where foundations are either concrete or piled systems.
- Fewer components reducing health and safety risks on site

Additional Platform Options

- Attachment points for the back fence, benches, lamp posts end of platform fencing and underside utilities/services
- Speed lines
- Rainwater gutter





asset FRP - Access Bridges













asset FRP bridges are suitable for pedestrian, cycle, equestrian and any other access requirements and are a perfect fit for areas with difficult access. FRP will not corrode, rot or leach chemicals into the environment; it maintains long durability and has been used for over fifty years within the infrastructure industry. The lightweight bridges are easily assembled and installed on-site from modular components.

With spans from 6m to 52 m, these bridges give many benefits over traditional structural materials.

Features of the asset FRP Access Bridges

- Sustainable low maintenance
- Lightweight structure for easy installation
- Manufactured standard components

Benefits of the asset FRP Access Bridges

- Standardised bridges delivering cost-effective solutions
- Corrosion and weather resistant
- Bespoke bridge designs
- Speed of installation
- Lower life cycle costs
- Smaller foundations required compared to other materials
- Fewer components reducing health and safety risks on site

FRP Bridges used by:

- Network Rail Rural or Station Bridges
- Highways England
- Local Authorities
- Water Companies
- Sustrans Cycleways and greenways
- Canal and River Trust



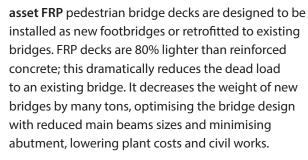


asset FRP - Pedestrian Bridge Decks & Cantilever Sidewalks









Features of the asset FRP Pedestrian Bridge Decks and Cantilever Sidewalks

- Sustainable and low maintenance
- High-quality FRP materials
- Design flexibility with a range of panel sizes pultruded of vacuum moulded
- Extremely durable











asset FRP cantilever walkways allow extensions to existing road and rail bridges to create safe walking and cycling spaces. Their inherent lightweight properties minimise additional deadweight being applied to existing bridges reducing the need for additional bridge reinforcing.

Benefits of the asset FRP Pedestrian Bridge Decks and Cantilever Sidewalks

- Corrosion and weather resistant
- Non-slip surfaces applied to decks
- Speed of installation reducing construction time
- Reduced loads in the underlying construction
- Off-site modular components maximising safety on-site
- Minimising embodied carbon



Infrastructure Project Engineering Solutions

Project Application Summary:



Cycleways

NMU structures

Watercourse & flood relief culverts

Bespoke relining & rehabilitation

Haul road underpasses

Pedestrian & golf buggy

underpasses

Ecology and bat crossings

Stockpile and conveyor

Extension to existing structures

Green bridges & ecological

crossings

Vehicle & railway structures

Ballast shoulder retention system used for:

- Track renewals
- Raising track level in flood areas to run in/off to bridges
- Creating a position of safety from the nearest line
- Preventing ballast loss



Highway under & over bridges

Rail structures

Pedestrian underpasses

& NMU routes

Green bridges & ecological

crossings

Watercourse & flood relief culverts

Flood & balancing causeways

Highway & rail bridge abutments

General retaining structures

Temporary retaining structures

Culvert wing walls

End treatment to asset BEBO® arch & portal structures



Modular rail platforms

Pedestrian bridge decks & cantilever sidewalks

Access bridges, crossing points of safety

Station bridges

Accommodation bridges

Custom FRP bridges

Pedestrian & cycle bridges

Bridge renovation replacing wooden, concrete & steel decks.

Asset International Structures Approvals and Certifications



























OUR TEAM

Combined with a wealth of knowledge and years of experience, our management team, qualified engineers, and sales experts strive to find the right solutions for our clients. Our approach is not just about selling products, it is about finding the best possible outcomes for our clients. Tell us your infrastructure problems and we will find innovative solutions. This success is achieved by investing in our employees, encouraging positive reinforcement and open communication.

We consistently focus on building a positive workplace that is driven by possibilities resulting in a rewarding working environment for all.







asset INTERNATIONAL STRUCTURES (A Division of Hill & Smith Ltd) and a member of the Hill & Smith Holdings PLC Roads and Utilities.

We're committed to providing a "cradle to cradle" service to our customers. Ensuring we offer the best possible products and standards whilst using all reasonable skills and care to avoid harming the environment, our stakeholders, and anyone affected directly or indirectly by our activities.

PLEASE SCAN THIS CODE TO VISIT OUR WEBSITE





asset international structures

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