

Water Management Solutions



Pipe Attenuation Solutions for Section 104 Adoption

Residential attenuation and Section 104 adoption:

Developers in England and Wales are facing many changes to the way in which both surface water and foul sewers are designed, constructed and adopted over the next few years.

The implementation of Section 42 of the Floods and Water Management Act 2010 limits the existing rights of a developer to connect to a public sewer system and establishes new requirements for the construction and adoption of sewers. More specifically, the act contains a provision for Government to introduce new build standards for sewers and sustainable urban drainage systems (SUDS).



In return, the act mandates that Water and Sewage Companies have to adopt sewers serving more than one property that meet those standards and sets out how this should be achieved.

The following pages explain what is expected of developers under the proposed changes and the assistance available from Polypipe in planning and installing attenuation and large diameter pipe systems that accommodate them.





Contents

Sewer Design	4 - 5
Polypipe Residential Sewer Solutions	6 - 7
Ridgistor-XL	8 - 9
Case Studies	10 - 11
Service, Support & Technical Literature	12 - 13
Polypipe Overview & Sustainable Building Technology	14 - 15

How changes to the Section 104 process

In the future a Section 104 agreement on attenuation systems and sewers intended for adoption must be in place before building can begin.

This will be a legal requirement that needs Developers to submit a full set of plans for approval, meeting the Government's National Build Standards and Water Company criteria.

The new rules have been in place in Wales since 1st October 2012 and are expected to come into force in England sometime in 2013/2014. As a result, the S104 approval process, if not done correctly, has the potential to extend the project timescale.



Involving us early will help save time and money

Detailed planning and design is crucial for the successful adoption of your attenuation and sewerage system. Speak to us at the earliest design stage and we can look at suitable systems and suggest ways to add value based on our clear understanding of water company requirements for dependable, low maintenance assets that are more likely to satisfy the approval processes.



could affect your project

Our input throughout the project, but particularly at the early stages, can help contribute to time and cost savings in a number of key ways:

- **By assisting with your initial system designs**

Our experts can work with you to make sure your system is optimised for performance and cost while meeting both current and forthcoming Build Standards. As well as bringing their expertise and experience in dealing with Water Company approval processes to bear, they are also able to provide supporting structural calculations, CAD drawings and standard details for your project.

- **By speeding up installation**

Plastic pipe systems are easier to handle because they are up to 94% lighter in weight than the concrete equivalent. This reduces the need for heavy lifting equipment on site and speeds up the rate at which pipes and pre-fabricated chambers can be laid and joined together.

- **By creating culverts more quickly**

Pre-fabricated off-site and delivered when required, our engineered plastic solutions

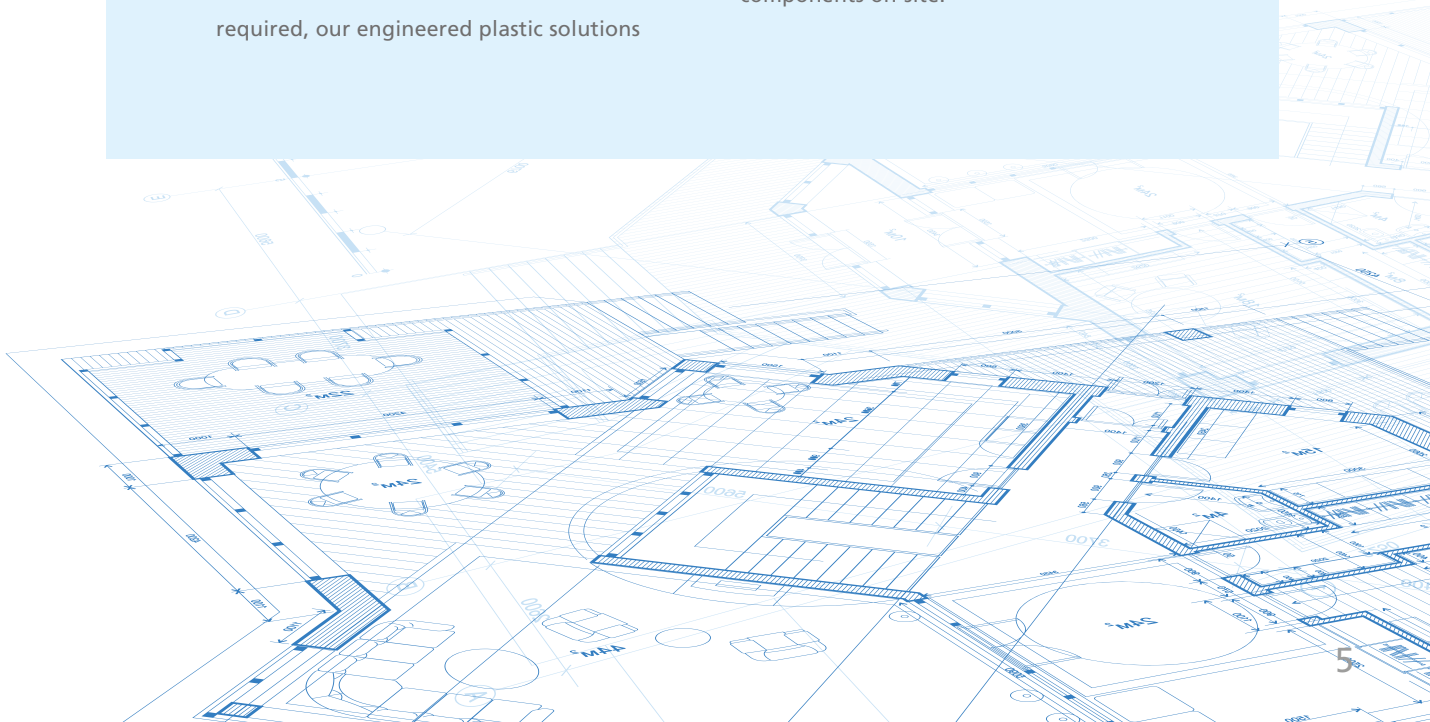
are easier to handle and much quicker to install than traditional systems. A concrete box culvert can take weeks to install, whereas our pre-fabricated plastic alternative can be in place within days.

- **By providing Water Company accepted products**

Water Companies are increasingly accepting plastic systems for attenuation and sewerage solutions, allowing developers to take advantage of the inherent speed, adaptability and savings they offer while also meeting expected performance requirements.

- **By supporting you on-site**

We can provide comprehensive assistance during your system installation. This ranges from technical advice on installation, to order call-off and scheduling services that offer 'just in time' delivery to reduce the safety and security risks involved in storing large numbers of system components on-site.



Saving time, materials and money in re

Polypipe offers a wide range of products, services and bespoke solutions to help you reduce costs, speed up installation and bring your housing development onto the market sooner.

Why plastic systems?

Concrete and clay drainage systems have traditionally been specified in residential developments, largely because adopting Water Companies are familiar with their performance characteristics. Water Companies are now increasingly accepting plastic piping systems for sewerage and attenuation systems, due to the performance of engineered plastic solutions such as our Ridgistorm-XL. Engineered plastic systems offer a strong, flexible alternative to concrete and clay that satisfies the requirements of Water Companies while saving Developers and Groundworkers time and money.



Quicker installation saves time and money

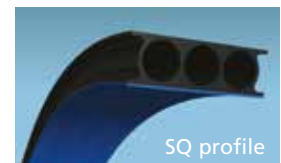
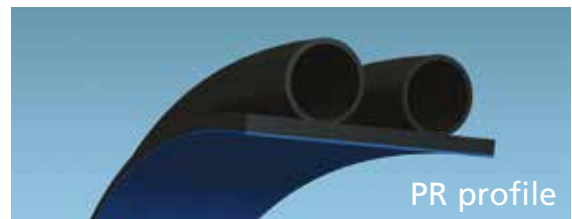
The complex nature of attenuation structures proves that pre-fabricated solutions, produced under factory controlled conditions, greatly reduces the time and amount of labour required to install on site. Our engineered plastic products are typically just 6% of the weight of their concrete equivalents. A metre of 1800mm diameter plastic pipe is, for example approximately the same weight as a metre of 300mm diameter concrete pipe. This lighter weight makes them easier to transport and handle on site.

This weight difference is evident when installing larger items such as concrete culverts, which are so heavy that they cannot be installed without heavy lifting gear leading to longer lead times and added plant hire and transport costs.

idential attenuation & sewerage

Value engineered solutions for performance

As each pipe system is tailored to exact site conditions, we are able to engineer components to match any ground conditions and loadings, from pedestrianised and lightly trafficked surfaces to car parking areas and heavily trafficked roads. This allows us to create solutions that perform to the project requirements without wasteful over-engineering.



Our design and support services

Polypipe work closely with both the Developer and Design Consultant to provide:

- System planning and design advice
- General arrangement drawings
- Structural calculations to BS EN 1295-1
- Standard details
- Technical support
- On-site support during installation



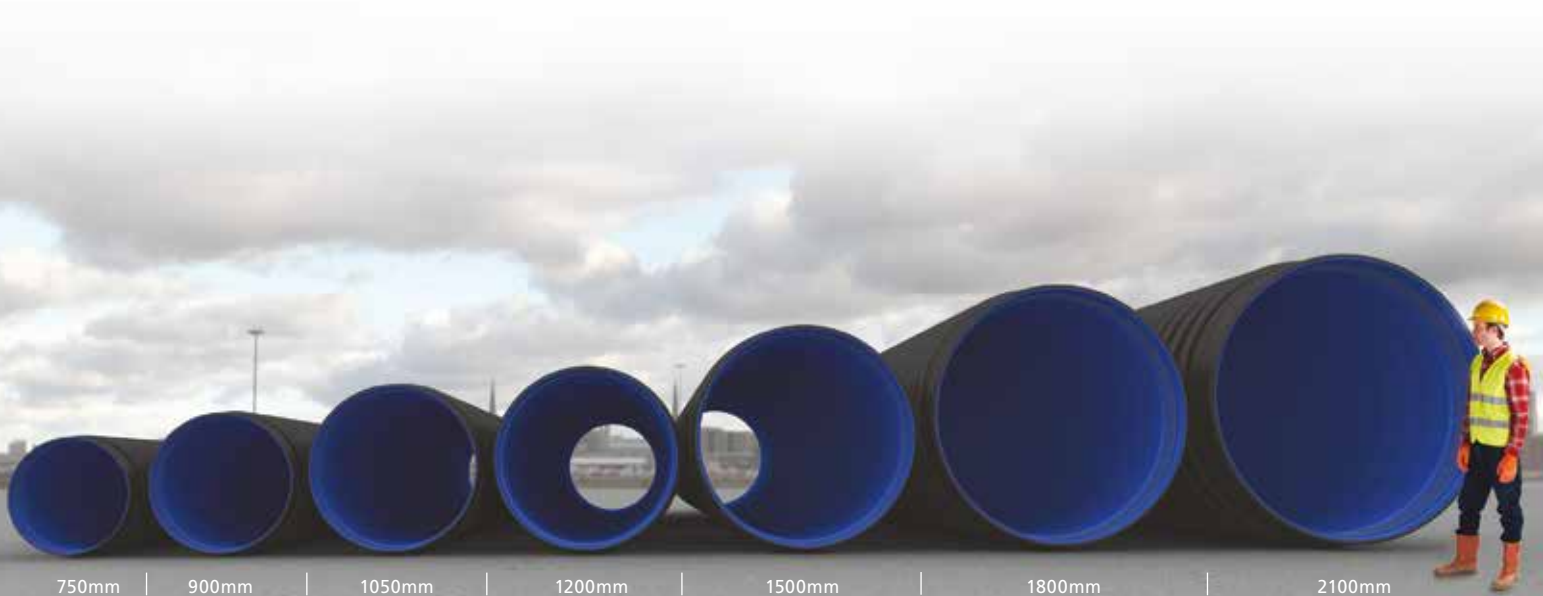
Ridgistorm-XL

Our advanced, large diameter pipe is available in a range of sizes from 750mm to 2100mm, making it ideal for residential attenuation and sewer systems, satisfying Section 104 criteria for adoption.

Ridgistorm-XL Large Diameter Pipes

The wide choice of engineered pipe wall structures available within the Ridgistorm-XL range means you can be confident it offers the performance you need in any adoptable application. Inherently strong yet flexible, it sheds applied loads to surrounding backfill, removing the risk of leaks and ingress.

There are two jointing options available providing exceptional joint integrity. Our unique electro-fusion process offers improved health and safety by reducing the need for jointing teams to work inside the pipe itself and our rubber seal system uses socket and spigot jointing with two rubber seals installed into the spigot end of the pipe fitting. Both jointing methods are quick and easy to install and do not require any specialist skills.



750mm | 900mm | 1050mm | 1200mm | 1500mm | 1800mm | 2100mm

Large Diameter Manholes

Bespoke system designs means man-access chambers can be incorporated at precisely the right points in your attenuation and drainage solution. It also means that because of the flexibility of our in-house fabrications department, if the precise locations of these items have not been fully finalised, we can still carry on supplying you with the main structure and add the other elements later.

In contrast to concrete manholes and culverts, which have to be built up and cast in situ, our products are fabricated off-site and delivered when required. This not only speeds up installation but provides products that have been manufactured under carefully controlled factory conditions ensuring guaranteed quality.



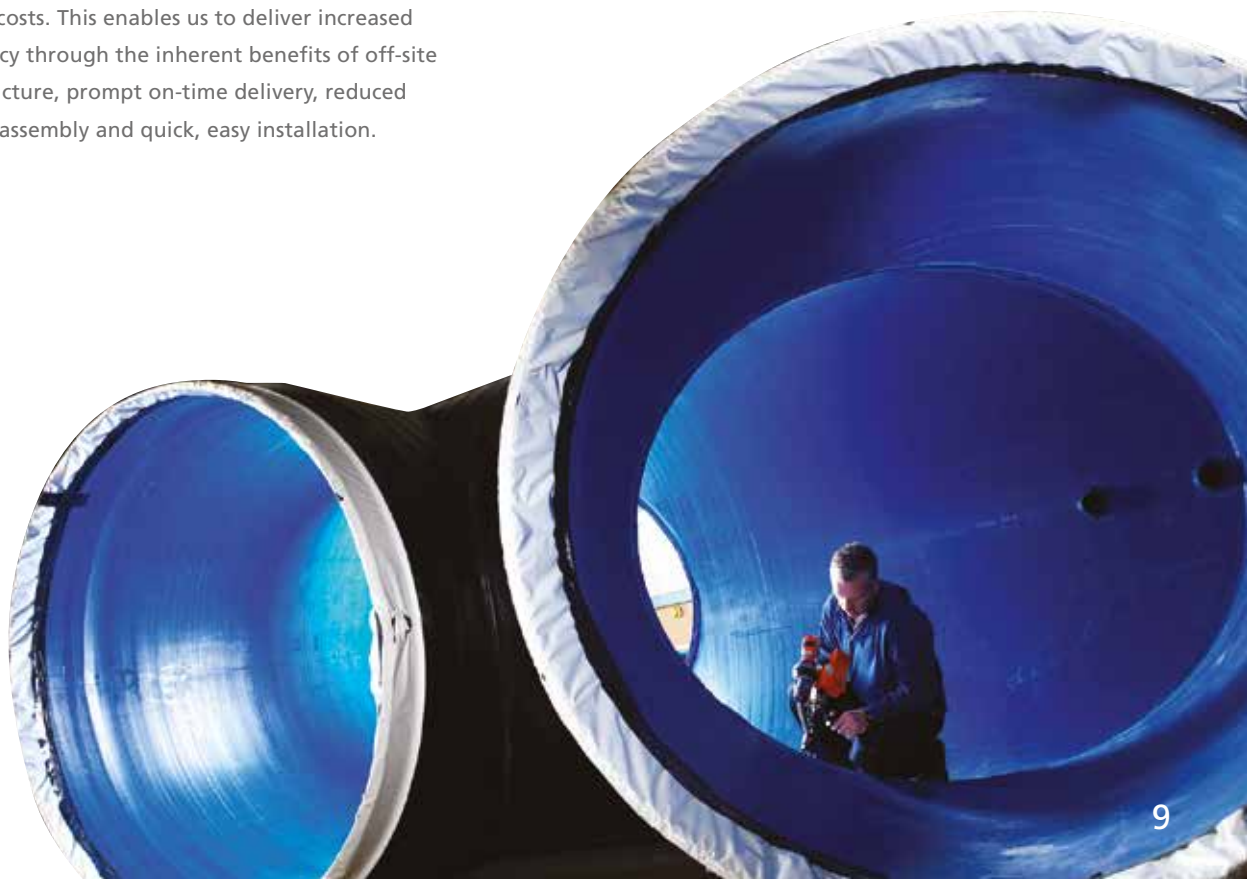
Bespoke Fabrication

Polypipe's bespoke fabrications facility offers a unique service to developers and drainage contractors. It is here that your bespoke system design is converted into a robust Water Company accepted attenuation or sewerage solution.

This ability to create a 100% bespoke system offers unrivalled flexibility, saving time and money by eliminating wasteful, over-engineering and on-site labour costs. This enables us to deliver increased efficiency through the inherent benefits of off-site manufacture, prompt on-time delivery, reduced on-site assembly and quick, easy installation.

Accessories and Fittings

We provide a complete range of customised fittings, reducers and bends for use with the Ridgistorm-XL system. The result is added design flexibility and easier integration with existing sewerage structures.



Case Studies

Developer benefits from Polypipe's drainage engineering expertise

A bespoke drainage solution provided by Polypipe helped the Developer on a scheme in Castleford achieve a fast Section 104 approval.

The client required a drainage solution which could be installed under the main access road of the new development in Castleford, West Yorkshire, whilst conforming to the requirements set by Yorkshire Water and the Specification for Highway Works (SHW). The original design incorporated a concrete box culvert which would have required a long lead time and substantial equipment to install in the form of a crane and lifting platform.

By turning to Polypipe's water management specialists the Developer achieved an easy to install solution which was a mere 6% of the weight of the specified concrete culvert, aiding workers on-site and saving on cost.

The Polypipe solution fitted within the same footprint as the original specification, incorporating a dual run of 1200mm large diameter Ridgistorm-XL pipe and bespoke pre-fabricated manholes, chambers and fittings, all produced at Polypipe's state-of-the-art facility in Loughborough.

Polypipe's Technical team took the drawings and soil investigation report with associated loading information and were able to calculate the exact structural strength of the pipe required. They worked with the Design Consultant to undertake hydraulic checks to prove the integrity of the system.

The work completed on this development showcases the time, installation and cost savings Developers and Groundworkers can achieve by working with Polypipe from early design stage.



Polypipe meets attenuation needs of Kent housing development

Experts at Polypipe helped to create an innovative attenuation system for a housing development in the Chartham countryside to help the Developer meet Section 104 requirements at their Kingfisher Place site. The Developer required a drainage solution which controlled water discharge at a rate of 4 litres per second into an Environment Agency managed watercourse. Working together from the early design stage, Polypipe's water management specialists were able to utilise their market-leading 1500mm Ridgistorm-XL large diameter pipe to create a bespoke 303m³ attenuation tank, complete with pre-fabricated dry weather flow channel and a Stormcheck Vortex Flow Control Chamber to collect and restrict water in a public open space (POS). Polypipe's ability to pre-fabricate the Ridgistorm-XL system off-site allowed for a speedier installation. The light weight nature of plastic pipes over traditional materials meant that a smaller 13.5 tonne excavator could be used, reducing installation costs and working around the access constraints of the restricted site. The system also benefitted from Polypipe's unique electro-fusion jointing process, which ensured that the tank could be installed on-site and removed the need for a potentially laborious welding process.

With a wide variety of products available and an expert team providing an in-depth knowledge of meeting Section 104 requirements, Polypipe was able to provide a bespoke solution that added real value to the development.



A development in Cumbria makes savings with bespoke attenuation system

Polypipe's water management specialists were called upon to design a bespoke underground attenuation solution which met the exact needs of a development in Penrith, Cumbria.

The system was quickly adopted by United Utilities as a Section 104 agreement. Polypipe offered a value engineered attenuation tank for the project, designed within a Public Open Space to create a storage capacity of 95m³. The multi-leg attenuation tank was created from Polypipe's 1200mm Ridgistorm-XL large diameter pipe system, incorporating a range of pre-fabricated fittings including a 1500mm diameter off-set chamber and a 1500mm diameter Stormcheck Vortex Flow Control Chamber set to the site's required discharge rate.

The Ridgistorm-XL system was installed using Polypipe's unique electro-fusion welding process. Whilst the original specification required the manufacturer to join the pipes once installed, Polypipe's electro-fusion jointing method negated this need and the Groundworker's on-site team were able to carry out the welding process themselves, speeding up the installation and reducing the work that needed to be undertaken within the confined space.

Polypipe's experts were able to design-out several separate concrete chambers and incorporate a high-quality plastic solution into the tank, which was quicker and easier to install while creating several cost-saving opportunities.

Polypipe Service and Support. Saving y

Polypipe's product design and support teams are dedicated to helping Developers with the advice and expertise they need to help deliver Section 104 compliant attenuation and sewer systems.

Value Engineering

By designing and fabricating a SUDS system to the specific requirements of each individual project, we are able to provide solutions that represent the very best performance and value for money. Precise value engineering means less waste, optimum efficiency and improved sustainability at every stage of the process.



Design

Polypipe provides a full in-house design facility. Our designers, engineers and drainage specialists provide guidance on the most appropriate, value engineered solution for your Section 104 compliant attenuation or soakaway project, which will be manufactured by our fabrications team and delivered to your site, ready for installation.

UKAS accredited laboratories

The in-house Polypipe Research and Development facility is one of the best of its kind and includes the independent UKAS accredited Berry & Hayward laboratory. That gives us the body of knowledge and expertise needed to produce the most advanced range of water management solutions available to the construction industry.



ou money from the very start

Planning

Changing legislation and ever more demanding planning processes all add to the workload for Developers seeking approval for their projects. Our planning teams have the technical and regulatory knowledge to help you meet the broad range of demands needed for project approval and will advise you at every stage on satisfying their requirements.

Technical and installation support

Right from your initial design consultation, your project couldn't be in safer or more experienced hands. Our full project co-ordination service will help you manage and prioritise your resources and your dedicated Project Co-ordinator will oversee the delivery of components and services in line with your project timescales.

At any stage you can call our technical helpline for a rapid response to all your enquiries on:

+44 (0)1509 615100

www.polypipe.com/wms

Literature

Product Literature



WMS Sector
Brochure



Water Management
Solutions Product
Selector



Polypipe Civils
Product Selector

Market Sector Literature

Additional market sector literature is available please visit www.polypipe.com.

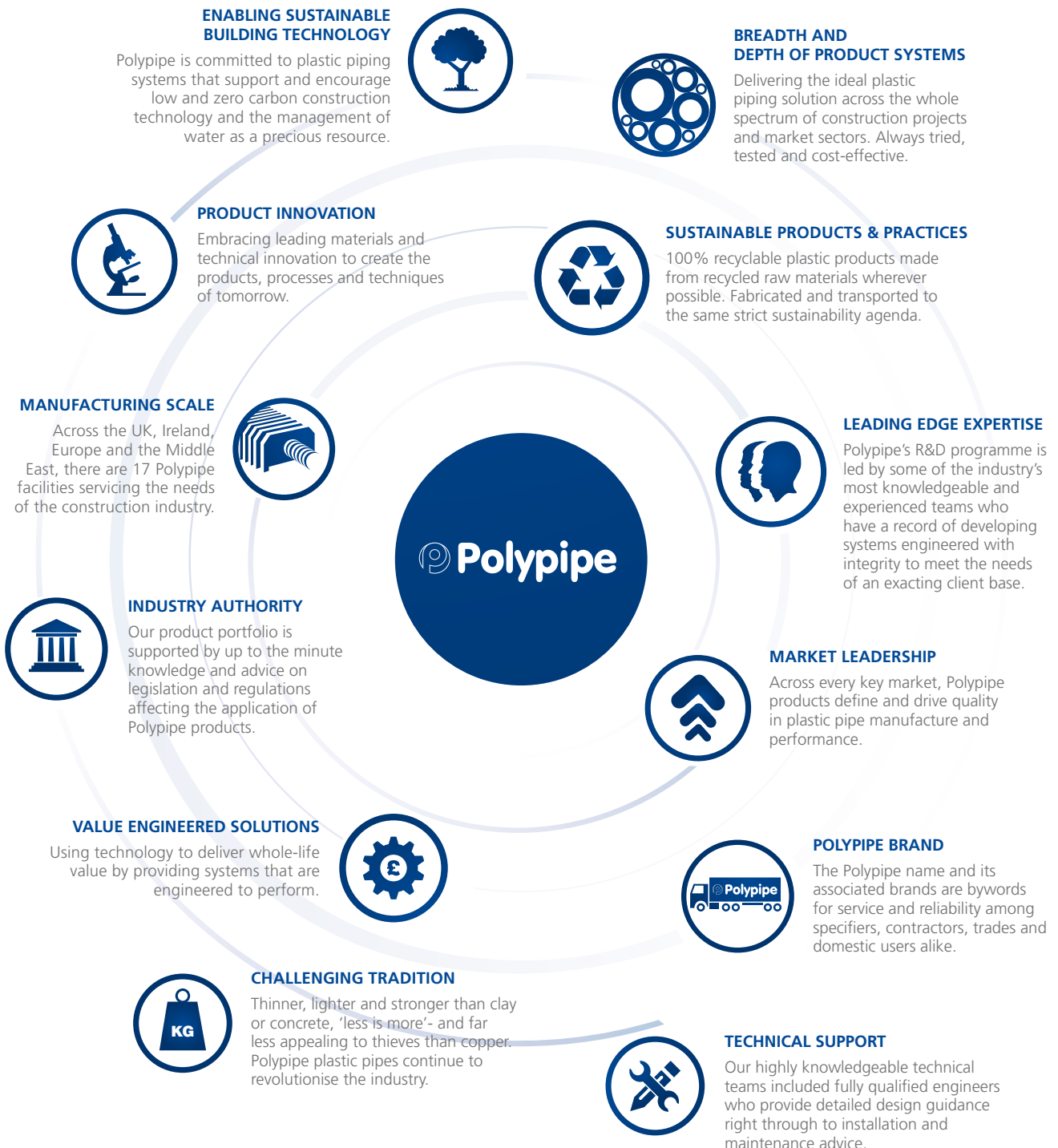
All literature available at:

www.polypipe.com/wms



Polypipe

We design, develop and manufacture the widest range of plastic piping products, with over 20,000 product lines available. Our primary focus is on developing and supporting pragmatic product systems through specific knowledge and understanding of the residential, commercial, civils and infrastructure market sectors. We ensure that customers can trust our unrivalled expertise to provide value engineered, fit for purpose piping solutions for the growing diversity and complexity of construction and building technology challenges they face.



Polypipe enabling sustainable building technology

Polypipe provides plastic piping systems that enable the effective installation and performance of sustainable building technology, meeting the twin global challenges of carbon reduction and water management.

CARBON EFFICIENT SOLUTIONS *'SUSTAINABLE INDOOR ENVIRONMENTS'*

Ever stricter building regulations and ever more environmentally conscious customers are driving the demand for greener building products and technologies. Polypipe fulfils that demand with a full range of systems that enable collection, transmission, emission and control in heating, ventilation and cooling systems.

WATER MANAGEMENT SOLUTIONS *'ROOF TO RIVER'*

Offering a comprehensive range of standalone and modular SUDS products, rainwater harvesting and surface water treatment solutions plus legislative and technical support services, Polypipe's water management solutions team address the surface water requirements of every construction and civil engineering project.



Sector Focus

Our product systems respond directly to sector-specific requirements thanks to focused technical and development teams with hands on expertise in the following areas.

CIVILS AND INFRASTRUCTURE

Delivering performance and sustainability, Polypipe's surface water drainage and cable management systems, supported by our in-house fabrications team, offer civils and infrastructure project planners a complete suite of solutions.

COMMERCIAL

Major commercial projects from car parks and high rise office blocks to hospitals, educational premises and shopping centres have all benefited from Polypipe's range of value engineered products and comprehensive service support.

RESIDENTIAL

Polypipe offers the broadest range of residential product and service solutions for both new build and RMI applications, as well as innovative solutions in response to legislative and industry targets for more sustainable housing.

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