WEHOLITE

Lifelines for the Nation

PLASCO LTD

LIFELINES FOR THE NATION

Manufacturers of HDPE and uPVC Pipes

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WHY WEHOLITE

Plasco Ltd had, as far back as 2014, already began its efforts to look for innovative products and solutions for the growing need of Water, Sanitation and Drainage networks within the East African Region. The urgent requirement for better systems, that would be able to cope with larger volumes of waste and stormwater, in fast-growing urban environments; led us to study new large diameter pipe technology, already widely used with big success in other parts of the world. Plasco Ltd made the visionary decision to opt for Weholite HDPE structured wall pipes, manholes, chambers and tanks based on the following selection criteria:

- *To be able to improve the Water, Sanitation and Hygiene of the African people using environmentally friendly solutions with proven carbon footprint benefits over traditional materials*
- *A durable solution that would provide a reliable system with a longevity (over 100 years) that would be far greater than traditional materials*
- *An offering that would, because of its lightweight nature, cause far less disruption to the local communities and sensitive conservation areas.*
- *A wide diameter range of pipes from 350mm up to 3500mm that would in turn allow us to factory build products of far higher quality than are currently available.*
- *To manufacture products that would provide the local community with skilled employment for decades to come.*
- *To finally bring Excellence to East Africa*

By choosing Weholite technology, under license, from Uponor Oy of Finland we have found the perfect partner. Weholite creates endless opportunities to provide best value solutions for drainage pipes, manholes, chambers, tanks and packaged water and wastewater treatment systems that attend to the growing need for such products in East Africa.

With Weholite we shall achieve our Vision to become the leader in innovative stormwater, sanitation and water storage solutions across the East African Region; providing innovative world class technology with systems holistically designed to meet customer needs. The purpose of this manual is to provide the reader with an insight into Weholite. Please read on and discover our conviction for innovation and sustainability.

Jürg Flühmann

Chief Executive Officer
Plasco Limited

Managing Director
Megapipes Solutions Limited

CONTENTS

1. PLASCO LIMITED, THE COMPANY

Founded in 1992, Plasco Ltd officially commenced operations in 1993, producing drinking straws with a single refurbished extruder from its site in Dar es Salaam, Tanzania.

Through steady growth over the course of decades, Plasco is now able to produce HDPE & PVC pipes on a vast scale, by running nine extruders, as well as other modern plastic processing equipment in Dar es Salaam. Together with trading of related fittings, Plasco also specializes in site welding of HDPE pipes using highly trained and certified welders and supports a multitude of applications in Tanzania and East Africa.

With the objective to have a local solution for the growing requirements of Stormwater, Sanitation and Water Storage solutions, Plasco Ltd made a further investment to introduce innovative WEHOLITE Structured Wall HDPE Pipe technology to the East African region, under license from Uponor Infra Oy of Finland. Weholite is the preferred solution for many municipal and industrial applications.

Plasco Ltd is fully certificated to ISO 9001:2015, this being the universal quality management standard that ensures we meet statutory and regulatory requirements. As a member of the Confederation of Tanzania Industries (CTI) and the Tanzania Chamber of Commerce, Industry and Agriculture (TCCIA), Plasco's commitment to excellence is exhibited across its purchasing, manufacturing and customer service processes.

Vision

Be the leader for innovative water supply, storage and sanitation solutions in Africa

Mission

Manufacture high quality plastic piping solutions for water supply, storage, sanitation, gas distribution and telecom networks using innovative world class technology.

Values

- Reliability
- Fairness
- Respect
- Innovation


uponor

2. WEHOLITE, WHAT IS IT?

The technology of Weholite was developed in 1983 and since then it has provided great value to the construction industry. You can choose between customized and holistic designs or standard product solutions.

With Weholite, raw material properties have been combined with advanced production technology to create a lightweight engineered solution with superior loading capacity that is chemically inert and provides over 100 years design life. This means that designers, owners and operators can be confident that Weholite HDPE buried systems will have an in-service life of at least 100 years when materials, products and installation practices meet the appropriate requirements.

In the design of water distribution systems, Weholite HDPE structured wall pipes represent an interesting alternative because of their excellent physical, hydraulic and mechanical properties. Manufactured from corrosion-resistant HDPE, Weholite pipes behave differently to traditional steel, ductile iron, concrete and other pipe systems

With the largest range of diameters and the most sophisticated fabrication facilities in East Africa, the benefits of using Weholite are evident and are in line with East African Governments Infrastructure Strategies.

Weholite is manufactured and certificated to meet the material and performance requirements of ISO 21138 (part 1 & 2) and EN 13476 (part 1 & 2), Plastic Piping Systems for Non-Pressure Underground Drainage and Sewerage.

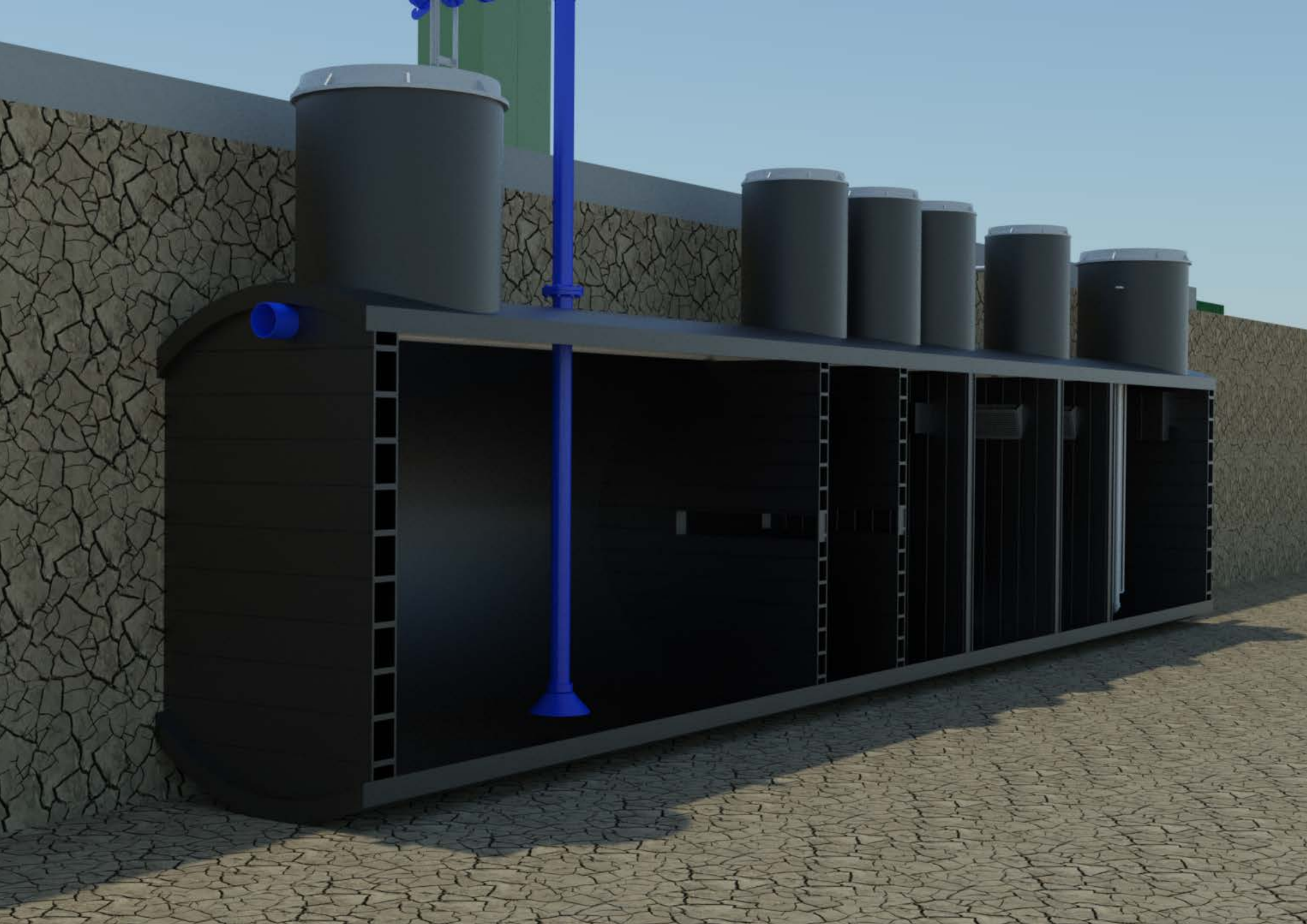
Internal Diameter (mm)	Standard Pipe Lengths (mtrs)	Pipe Stiffness Class (kN/m^2)*
350	6, 12	4, 8
400	6, 12	4, 8
450	6, 12	4, 8
500	6, 12	2, 4, 8
600	6, 12	2, 4, 8
700	6, 12	2, 4, 8
800	6, 12	2, 4, 8
900	6, 12	2, 4, 8
1000	6, 12	2, 4, 8
1050**	6, 12	2, 4, 8
1200	6, 12	2, 4, 8
1500	6, 12	2, 4, 8
1800	6, 12	2, 4, 8
2000	6, 12	2, 4
2200	6, 12	2, 4
2400**	6, 12	2, 4
3000**	6, 12	2, 4

** Stiffness class as per ISO 21138-2/EN 13476-2*

*** Sizes available in 2021*

The uniqueness of the Weholite production process means that pipes can be run in ANY length from 300mm to 30m in one piece. All projects are designed to optimise pipe length to ensure efficient installation and value engineering. Pipe stiffnesses below above SN8 and special designations in between the sizes above are available by special request.

All dimensions are subject to change. Please contact us for technical assistance.

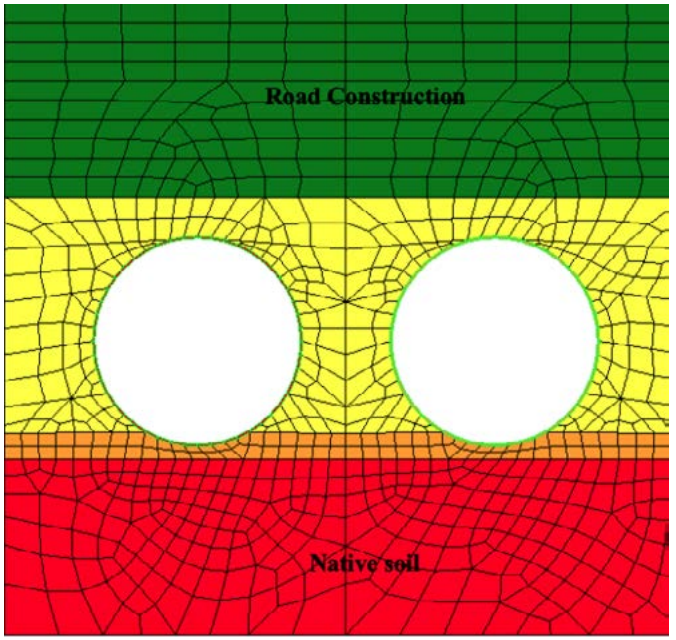


3. WEHOLITE LEADING IN DESIGN SOLUTIONS

Our philosophy of designing in confidence is equalled by our ability to partner with end users and provide unrivalled design capability. This extends to modelling of product behaviour during installation and when in service, identifying and reducing residual risks and fully collaborating with project stake holders in the important aspects of structural design.

We offer confidence and experience in the form of fully qualified engineers, the ability to design to industry standards for different sectors, understanding of water authority and municipality needs; but by far the most important quality of this whole company is the aptitude to listen.

The values of our engineering design people simply reflect the philosophy of the business; that is, to provide satisfaction by showing passion, creativity, fairness and respect. Innovative design is about trust. This we can offer you in abundance.



4. WEHOLITE PIPES

Reliable piping is fundamental to the functioning and economy of any community. Whether it is freshwater distribution, highways drainage or for storm and wastewater management, these networks must be durable with a maintenance-free life expectancy running into decades. A properly installed Weholite piping system can easily pass 100 years without any detrimental effect on its integrity.

We provide Weholite drainage pipelines and structures for virtually any requirement in civil construction. One of its main properties is the ability to work in synergy with the surrounding soil. In fact, Weholite pipes and the enveloping soil mass, working in tandem as a composite unit, is one of the most remarkably synergistic systems in engineering. When the soil is properly compacted around the pipe, the load-carrying capacity of the pipe-soil system far exceeds the individual capacity of either component by itself. This gives Weholite distinct advantages when used under road.

Highway construction is not only a means of constructing a surface to carry vehicles, but in many cases, provides a route for all forms of water distribution services, The piping that is buried under the surface of the roads has to have unique properties to withstand the continual dynamic pressures of heavy traffic passing on the road above. Weholite pipes are designed specifically with this in mind.

Weholite is used in a variety of pipeline applications from simple road or rail culverts, to the more demanding sanitary networks. When used in conjunction with the endless array of bespoke chambers, manholes and fittings the Weholite system offers users opportunities to excel.

- *Available in sizes from DN350mm to DN3000 (Refer to chapter 2)*
- *Fully compliant with ISO 21138 (Part 1&2) and EN 13476 (part 1&2)*
- *Value engineered for each and every project*
- *Gravity and low-pressure applications*
- *Available in lengths from 300mm to 30m in one piece*
- *Lightweight for superfast installation*
- *Variety of jointing systems to meet specific project requirements*
- *Totally resistant to Hydrogen Sulphide – H2S*
- *Excellent abrasion resistance*
- *Ultralow roughness coefficient. Ks value – 0.03*
- *Resulting in very low maintenance*
- *100+years design life*

WEHOLITE PIPES CASE STUDY

Application	Road culvert
Project name	Kibada road project
Consultant	TARURA Kigamboni
Project owner	Tanzania Rural & Urban Roads Agency (TARURA)
Project contractor	Balcon Construction LTD
Location	Kigamboni, Dar Es Salaam, Tanzania
Product specification	30m x DN600 SN4 pipes
Site services	Installation supervision

"TARURA have an innovative and forward-thinking approach to project management and were early adopters of Weholite technology. We look forward to working with them on future projects."
Alimiya Osman – Chief Operating Officer, Plasco Ltd.

WEHOLITE PIPES CASE STUDY

Application	Road culvert
Project name	Kidatu to Ifakara road
Consultant	Nicholas O'dwyer Limited
Project owner	Tanzania National Roads Agency (TANROADS)
Project contractor	Reynolds Construction LTD
Location	Ifakara, Morogoro, Tanzania
Product specification	120m x DN1500 SN4 pipes
Site services	Installation supervision

"We managed to install 120 linear meters of Weholite DN 1500 culvert in just two days. The pipes were manufactured in 10m lengths as per our design requirements".
Dragan S. Neskovic – Materials Engineer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WEHOLITE PIPES CASE STUDY

Application	Road culvert
Project name	Double stack culvert
Consultant	Geita Gold Mine
Project owner	Geita Gold Mine
Project contractor	Geita Gold Mine
Location	Geita, Tanzania
Product specification	840m x DN1200 SN4 pipes
Site services	Fusion jointing and installation supervision

"The approach necessary to meet the challenges set by the client, site layout, delivery restrictions and programme restraints required radical proposals and innovative design. The result, based on a double layer of Weholite culverts is, as far as we are aware, a world first."

Jürg Flühmann – Chief Executive Officer, Plasco Ltd.


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WEHOLITE PIPES CASE STUDY

Application	Road culvert
Project name	Access road culvert
Consultant	Shanta Gold Mine
Project owner	Shanta Gold Mine
Project contractor	Shanta Gold Mine
Location	Chunya, Mbeya, Tanzania
Product specification	120m x DN600 SN4 pipes
Site services	Installation supervision

"Our experience has shown that larger diameter plastic pipes and systems can provide better performance, but also offer a range of added benefits. Made from high-density polyethylene (HDPE) resin, Weholite pipes and structures are extremely tough, flexible, and chemically resistant, with a design life in excess of 120 years. Their superior loading capacity means they are ideally placed for use in highways and are more than capable of withstanding the extreme loading conditions placed upon them in these applications."

Ali Gulamhussein - Sales Manager, Plasco Ltd.

WEHOLITE PIPES CASE STUDY

Application	Road culvert
Project name	Chene village access road culvert
Consultant	TANROADS - Dodoma
Project owner	Tanzania National Roads Agency (TANROADS)
Project contractor	Tanzania National Roads Agency (TANROADS)
Location	Dodoma, Tanzania
Product specification	24m x DN1800 SN4 pipes
Site services	Installation supervision

"Installation, back filling and compaction took us only 3 days. But we could have done it much faster than that"
Mgesi Nyahende – Highway Engineer, TANROADS.

WEHOLITE PIPES CASE STUDY

Application	Road culvert
Project name	Installation of Culverts at the Ngorongoro Crater
Consultant	Ngorongoro Conservation Area Authority (NCAA)
Project owner	Ngorongoro Conservation Area Authority (NCAA)
Project contractor	Ngorongoro Conservation Area Authority (NCAA)
Location	Arusha, Tanzania
Product specification	140m x DN1200 SN4 pipes, 70m x DN900 SN4 pipes
Site services	Fusion jointing and installation supervision

"Using Weholite has brought a new dimension to the installation of drainage in such sensitive areas of natural beauty. We were able to see fast and efficient installation which mean no environmental disruption or stress to wildlife."
Eberhard Weiss - Technical Project Specialist, Plasco Ltd.

WEHOLITE PIPES CASE STUDY

Application	Road culvert
Project name	Kiluvya to Kisarawe road culvert
Consultant	TANROADS - Coast Region
Project owner	Tanzania National Roads Agency (TANROADS)
Project contractor	Wright Construction LTD
Location	Visegese, Dar Es Salaam, Tanzania
Product specification	30m x DN1500 SN4 pipes
Site services	Installation supervision

"There was a need to upgrade the existing system to mitigate flooding in the area. As always, the customer has seen numerous benefits to using Weholite over alternatives including quicker installation, resulting in reduced disruption for members of the community, as well as cost savings and improved performance."
Morgan Jones - Technical Project Specialist, Plasco Ltd.

WEHOLITE PIPES CASE STUDY

Application	Road culvert
Project name	Parc La Vérendrye culvert replace-ment
Consultant	Quebec MTO
Project owner	Quebec MTO
Project contractor	Rouyn Noranda
Location	Quebec, Canada
Product specification	47.5m x DN2100 SN4 pipes
Site services	Pre-installation training and fusion jointing

"Once again, Weholite was selected for its durability, ease of installation and quick availability."
Rouyn Noranda – Project Contractor.


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WEHOLITE PIPES CASE STUDY

Application	Road culvert
Project name	Europe's largest thermoplastic road culvert
Consultant	Norwegian HA
Project owner	Norwegian Highways Authority
Project contractor	Geosynthia
Location	Northern area, Norway
Product specification	50m x DN3500 SN4 pipes with bevelled ends
Site services	Pre-installation training and fusion jointing

"Customers generally don't find talking about culverts is very interesting, but as we present the benefits of Weholite, they usually get excited once they realize that we can help them lower lifecycle costs and drastically shorten the installation time. Frankly, most of them didn't even know that polyethylene pipes of this size existed!"
Terje Ottesen - Managing Director, Geosyntia.


VOLVO
VOLVO

WEHOLITE PIPES CASE STUDY

Application	Road culvert
Project name	407ETR annual culvert relining and rehabilitation program
Consultant	Terrafix Geosynthetics
Project owner	407ETR Limited
Project contractor	Aecon Limited
Location	Toronto, Ontario, Canada
Product specification	10 culverts from DN1050 to DN2000 SN4 pipes
Site services	Pre-installation training, installation supervision and fusion jointing

"The construction work was completed with minimal disruption to the motoring public while avoiding future post-installation road problems that are common with traditional "dig & replace" methods. The project was a resounding success as the 407ETR plans to expand the culvert rehabilitation program in the coming years."
Aecon Limited – Project Contractor.


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WEHOLITE PIPES CASE STUDY

Application	Stormwater drainage
Project name	Stormwater drainage line for Julius Nyerere International Airport, Terminal 3
Consultant	Howard Consulting Limited
Project owner	Tanzania Airports Authority (TAA)
Project contractor	BAM International
Location	Dar Es Salaam, Tanzania
Product specification	104m x DN1200 SN4 pipes
Site services	Fusion jointing and installation supervision

"Weholite's Innovative technology enabled a speedy installation amid the rainy season. All project stakeholders including the consultants and clients were very satisfied with the product quality and workmanship."
Osman A. Osman – Superintendent, BAM International.


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WEHOLITE PIPES CASE STUDY

Application	Stormwater drainage
Project name	Stormwater outfall
Consultant	TANROADS - Kurasini
Project owner	Tanzania Rural & Urban Roads Agency (TARURA)
Project contractor	Hypertech LTD
Location	Kurasini, Dar Es Salaam, Tanzania
Product specification	60m x DN600 SN4 pipes
Site services	Fusion jointing and installation supervision

"The brief was to provide a cost-effective alternative to traditional materials that was both easy to install and would last for more than 50 years. Weholite has developed an excellent reputation for its ease of use, cost saving capabilities and environmental benefits due to its lightweight design, so we were a good match."
Edith James - Sales and Marketing Manager, Plasco Ltd.

WEHOLITE PIPES CASE STUDY

Application	Stormwater drainage
Project name	Relocation of stormwater line along Arusha Krokon road
Consultant	UWP Consulting Limited
Project owner	Tanzania Rural & Urban Roads Agency (TARURA)
Project contractor	Sinohydro Corporation LTD
Location	Arusha, Tanzania
Product specification	1km x DN700 SN4 pipes
Site services	Fusion jointing

"Weholite has many benefits. The pipe's lightweight design enabled the contractor to reduce the amount of lifting equipment required and as a result they were able to keep disturbance to a minimum, which was vital because of the market adjacent to the site. All in all, I would say that Weholite proved to be a highly cost-effective solution."
Ma Yuqiu - Sales and Marketing Manager, MegaPipes Solutions Ltd.

WEHOLITE PIPES CASE STUDY

Application	Sanitary network
Project name	Extension of sewerage network
Consultant	Cheil Engineering Co. Limited
Project owner	Arusha Urban Water Supply & Sanitation Authority
Project contractor	Beijing Construction Engineering Group
Location	Arusha, Tanzania
Product specification	1,980m x DN800 SN4 pipes, 7,776m x DN700 SN4 pipes, 35pcs x Weholite backdrops - DN700 SN4 X DN355, 13pcs x Weholite backdrops - DN800 SN4 X DN400
Site services	Fusion jointing and installation supervision

"During the planning process – and every subsequent stage of the project – Plasco provided a full and detailed design service, technical support and advice to ensure that it ran smoothly. We also supplied a site services team to assist Beijing, and to conduct extrusion jointing using our latest specialist equipment."

Jürg Flühmann – Chief Executive Officer, Plasco Ltd.


SCANIA

WEHOLITE PIPES CASE STUDY

Application	Sanitary network
Project name	Relocation of existing concrete pipeline
Consultant	Tanga Urban Water Supply & Sanitation Authority
Project owner	Tanga Urban Water Supply & Sanitation Authority
Project contractor	Macarious Hotel & Company LTD
Location	Tanga, Tanzania
Product specification	408m x DN400 SN4 pipes
Site services	Fusion jointing

"The project has been implemented successfully due to the use of Weholite pipes. The pipes are light in weight, making it easy to install, handle on site and has a longer lifespan compared to concrete pipes. We also made an additional saving on the project cost as the pipes were installed in 3 days and involved less labour."
Abubakari Mtili - Sewerage Network Technician, Tanga UWASA.


RITHI TANGA MUSEUM

5. WEHOLITE MANHOLES AND CHAMBERS

If ever there was a flagship product that truly represents our innovative values, it is Weholite HDPE manholes.

It has long been a dream of the construction industry to be able to replicate the lean, efficient and precision-built principles of factory manufacturing into the sector and the benefits they would bring.

Whilst it is difficult to challenge the benefits of this philosophy, there is also an industry mindset to overcome. The decision to take the factory-built route involves a value judgment on behalf of the buyer. He or she must take into account the whole project cost and the benefits that these products can bring; such as superior quality, programme reductions, consistency, sustainability etc.

Weholite HDPE manholes and chambers are revolutionary for this region. They represent the epitome of sound value engineering. They are truly bespoke products, delivered in quick time, that can be installed and connected in minutes. At last authorities, municipalities, specifiers and installers can provide factory-built quality to the user, that has been designed and tested and is manufactured offsite using the latest state of the art technology available anywhere in the World.

- *Major savings on programme*
- *Available in sizes from DN350 to DN3000*
- *Fully compliant with ISO 21138 (part 1&2) and EN 13476 (part 1&2)*
- *Value engineered for each and every project*
- *Gravity and low-pressure applications*
- *Lightweight for superfast installation*
- *Totally resistant to Hydrogen Sulphide – H2S*
- *100+years design life*
- *Designed to resist groundwater pressures*
- *Available in any orientation*
- *Fully tested, factory-built components*
- *Complete with lifting points*
- *Concrete surround not required*
- *Rocker pipes not required*
- *Ready to use immediately upon delivery*
- *Lighter plant and less labour required*
- *Best abrasion resistance*
- *Better flow properties*
- *Low maintenance*


PEINTRE

WEHOLITE MANHOLES AND CHAMBERS CASE STUDY

Application	Sanitary network
Project name	Relocation of concrete manhole
Consultant	Tanga Urban Water Supply & Sanitation Authority
Project owner	Tanga Urban Water Supply & Sanitation Authority
Project contractor	Tanga Urban Water Supply & Sanitation Authority
Location	Ngamiani, Tanga, Tanzania
Product specification	DN1500 SN4 x 160mm connection with backdrop
Site services	Installation and supervision

"Thanks to our superb design team and manufacturing expertise we are able to fabricate products off site and supply them in modular form so they can be installed safely and efficiently on site. This enables us to deliver one of our key customer promises – better value."

Ali Gulamhussein - Sales Manager, Plasco Ltd.


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PLASCO LIMITED WEHOLITE
MANHOLE DN/ID 1500mm
SN4 x160mm www.Plasco.co.tz

WEHOLITE MANHOLES AND CHAMBERS CASE STUDY

Application	Stormwater drainage
Project name	Stormwater drainage for London Heathrow Airport expansion - Terminal 5
Consultant	Black & Veatch
Project owner	BAA (Ferrovial)
Project contractor	Laing O'Rourke (Designed by Black & Veatch)
Location	London, UK
Product specification	475m x DN1200 SN2 pipes and chambers, 750m x DN1350 SN2 pipes and chambers
Site services	Pre-installation training, fusion jointing and air testing of pipelines

"Because Weholite is lighter than the concrete equivalent, the required working area is reduced, which has produced a much more cost-effective solution. Weholite's flexibility meant that it was much easier to follow the road curvature."
Terminal 5, Design Engineer, Laing O'Rourke.


L.A.LOCKHART

WEHOLITE MANHOLES AND CHAMBERS CASE STUDY

Application	Stormwater drainage and sanitary network
Project name	Marsh Lane stormwater and sanitation drainage network
Consultant	Richard Jackson Consulting Ltd
Project owner	Lovell Homes
Project contractor	Bowie Construction
Location	Norwich, UK
Product specification	840m x DN400 to DN900 SN2 pipes with 75 manholes from DN1200 to DN3000, fully benched with HDPE anti-slip flooring and channel
Site services	Pre-installation training

"Weholite provided an effective solution to the threat of settlement and their team played an important part in supporting us to tackle some of the intricate challenges that this project presented."
Groundworks Manager, Lovell Homes Ltd.

6. WEHOLITE POTABLE (DRINKING) WATER TANKS

When it comes to providing factory-built products Weholite really soars. The benefits of Weholite pipes can be utilised for potable water storage both above and below ground for uniquely designed applications or in standard product applications.

All Weholite products, combine advanced HDPE material properties with advanced production technology to create a lightweight engineered solution with a superior loading capacity. Weholite is chemically inert and provides a 100-year below ground and up to 60-year* above ground design life.

Weholite has been used to provide offsite build solutions from packaged pumping chambers; to chlorine contact tanks and many other similar products including balance and filtration tanks. We are able to undertake design, produce drawings, manufacture and deliver these types of vessel to site as completed units ready to simply connect up and commission.

Items are prefabricated at our automated production facilities in Dar es Salaam and Nairobi using computer-controlled technology. All products are pre-slung and lifted straight from the lorry and into place, saving time in design, construction and in the plant required; eliminating the need for largescale construction and shortening programme time.

- *Major savings on programme*
- *Available in sizes from DN350 to DN3000*
- *Value engineered for each and every project*
- *Gravity and low-pressure applications*
- *Lightweight for superfast installation*
- *Totally resistant to most chemicals*
- *100+years buried design life*
- *Up to 60years* above ground design life*
- *Designed to resist groundwater pressures*
- *Available in any orientation*
- *Fully tested, factory-built components*
- *Complete with lifting points*
- *Concrete surround not required*
- *Ready to use immediately upon delivery*
- *Lighter plant and less labour required*
- *Low maintenance*
- *Major savings on programme*
- *For use as storage, contact and inter-process pipework*
- *Bespoke designs and full structural design service*
- *Best abrasion resistance*
- *Better flow properties*

Dependant on climatic conditions

WEHOLITE PORTABLE (DRINKING) WATER TANKS CASE STUDY

Application	Storage tank
Project name	10m3 water tank
Consultant	Tanga Urban Water Supply & Sanitation Authority
Project owner	Tanga Urban Water Supply & Sanitation Authority
Project contractor	Tanga Urban Water Supply & Sanitation Authority
Location	Tanga, Tanzania
Product specification	Weholite Reservoir - DN1200 SN4
Site services	Installation supervision

"The benefits of utilising Weholite pipework have to be the reduced lead times for fabrication and its low overall weight, when compared to that of traditional materials."
Eng. Mafikiri C. Mushi – Technical Sales Engineer, Plasco Ltd.


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WEHOLITE POTABLE (DRINKING) WATER TANKS CASE STUDY

Application	Storage tank
Project name	64m3 potable storage tank and 17m3 pumping station
Consultant	Aquardia Limited and Hydrotec Consultants
Project owner	United Utilities
Project contractor	MMB Limited
Location	Lancashire, UK
Product specification	10m x DN3000 SN4 pipes with 54l/s pumping station
Site services	Pre-delivery route survey, delivery and positional offloading, installation and hydrostatic test

"Spreading awareness about the capabilities of Weholite and making believers out of those in charge of construction projects across the UK is something we are passionate about. And so, it is hugely gratifying to see the people behind projects like this really assessing the options available to them and coming to the conclusion that Weholite really is the best product for the job."

Simon Thomas – Managing Director, Asset International.


KYLES TRANSPORT SERVICES
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WEHOLITE POTABLE (DRINKING) WATER TANKS CASE STUDY

Application	Storage tank
Project name	64m3 emergency water tank
Consultant	Aquardia Limited
Project owner	United Utilities
Project contractor	Farrans Construction
Location	Bridgend, Lancashire, UK
Product specification	10m x DN3000 SN4 with PN16 connections
Site services	Pre-delivery route survey, delivery and positional offloading, installation and hydrostatic test

"Weholite proved to be the perfect product to efficiently deliver this major maintenance scheme, and effectively solved any challenges faced by this project."
Dr Vasilios Samaras - Technical Director, Asset International.


aquaria
Water & Wastewater
Storage Solutions

WEHOLITE POTABLE (DRINKING) WATER TANKS CASE STUDY

Application	Contact tank
Project name	950m3 contact tanks
Consultant	Sweco
Project owner	Yorkshire Water
Project contractor	Morgan Sindall
Location	Irton, North Yorkshire, UK
Product specification	6 pieces 18m x DN3500 tanks with PN16 pipework connections and 1200mm hinged manways
Site services	Pre-delivery route survey, delivery and positional offloading, installation and air testing

"This has been an ambitious project, vital to the region. The scheme will ensure that a safe water supply in the Scarborough area is safeguarded and crucially, will also allow for growth in the area. Having previously worked with the team, we were aware of the advantages of selecting Weholite tanks and have yet again seen the benefits within this project. Using Weholite has helped us to effectively meet our timescale and delivery targets, while also cutting our outgoing spend thanks to the reduced whole life cost of the product. The product has also helped us to achieve our environmental objectives."
Batch Manager, MS2 Joint Venture.

WEHOLITE POTABLE (DRINKING) WATER TANKS CASE STUDY

Application	Balance tank
Project name	50m3 balance tank
Consultant	Aquardia Limited
Project owner	Southern Water
Project contractor	Trant Engineering
Location	Isle of Wight, UK
Product specification	10m x DN3000 with PN16 pipework connection
Site services	Pre-delivery route survey, delivery and positional offloading, installation and hydrostatic test

"We have been extremely impressed with the quality of the Weholite product, which has not only effectively addressed our project requirements, but saved us time and provided excellent value."
Project Manager, Aquardia Ltd.

7. WEHOLITE STORM AND WASTEWATER TANKS

Weholite is at the forefront of technological innovation and development. The core competencies within our business, such as production and fabrication, transport, design and installation, give us a strong competitive advantage over other materials. One of the most common questions asked about Weholite is how long will it last? The simple answer is that the design life of Weholite in standard gravity applications is well in excess of 100 years.

Using the latest manufacturing methods within our automated factory to produce Weholite storm and wastewater tanks, allows clients to save on time by improving site productivity whilst also reducing risks, thus enabling significant savings from a more streamlined installation process and reductions in the construction materials used, the off-site manufacturing process also eliminates the need for confined space entry to complete the works. These systems are manufactured for varying depths and can be fully assembled in the factory with all the internal pipework and valves. The system simplifies the installation process, reducing overall cost whilst ensuring each assembly is functioning correctly.

This gives end users true benefits when it comes to reducing the overall capital cost of construction and installation of the tank itself as well as contributing to significant improvements in the reliability of the system with the corresponding reductions in operational running costs.

- Available in sizes from DN350 to DN3000
- Fully compliant with ISO 21138 (part 1&2) and EN 13476 (part 1&2)
- Available for both buried and above ground applications
- For use with storm water, wastewater and combined (CSO) systems
- Full structural design package available
- Designed to resist groundwater pressures
- Spatial optimisation on each and every project
- Concrete surround not required
- Major programme savings
- Fully tested, factory-built components
- Pre-installation meetings and site services
- Designed in line with specific requirements
- Major savings on programme
- Value engineered for each and every project
- Gravity and low-pressure applications
- Lightweight for superfast installation
- Totally resistant to Hydrogen Sulphide – H2S
- 100+years buried design life
- Available in any orientation
- Complete with lifting points
- Ready to use immediately upon delivery
- Lighter plant and less labour required
- Best abrasion resistance
- Better flow properties
- Low maintenance

WEHOLITE STORM AND WASTEWATER TANKS CASE STUDY

Application	Attenuation
Project name	10,000m3 Meadowhead combined sanitary/stormwater flood control tank
Consultant	Black & Veatch Ltd
Project owner	Scottish Water
Project contractor	MBV (Morrison Const. and Black & Veatch)
Location	Kilmarnock, Scotland
Product specification	2km x DN2600 & DN2100 SN2 pipes with manifolds and access shafts
Site services	Pre-installation training, fusion jointing and air testing

"The design solution offered by Morrison Black & Veatch using Weholite plastic pipes was instrumental in moving this part of the project forward into the delivery phase. The construction of the storage tank has been impressive in the speed and ease of installation. The tank meets our need for stormwater storage in this important environmental improvement project."
Senior Project Manager, Scottish Water Ltd.

"Ultimately, both Morrison Black & Veatch and our client, Scottish Water, were delighted with the end product. We were assisted greatly along the way with the expertise of the technical and sales staff as well as the professionalism and enthusiasm of the on-site installation team. This ensured a good working relationship and the right first-time approach."
Project manager, Morrison Black & Veatch.

WEHOLITE STORM AND WASTEWATER TANKS CASE STUDY

Application	Attenuation
Project name	300m3 combined sanitary/storm-water flood control tank
Consultant	Hyder Consulting Ltd.
Project owner	Welsh Water
Project contractor	Morrison Construction Ltd
Location	Neath, South Wales
Product specification	45m x DN3000 SN2 pipes with prefabricated manifolds and access shafts
Site services	Pre-installation training, fusion jointing and air testing

"The use of 3m diameter WEHOLITE meant that the number of deliveries to site was cut by more than two thirds. The impact of lorry movements on the local residents played a part in the decision not to specify concrete pipes or box culverts. As there was no on-site storage, pipes had to be delivered to site as they were required in a 'just in time' operation. The site was very tight and Weholite proved to be the ideal solution."
Works Manager, Morrison Construction Ltd.

WEHOLITE STORM AND WASTEWATER TANKS CASE STUDY

Application	Attenuation
Project name	3000m3 stormwater flood control tank
Consultant	Peter Brett Associates
Project owner	Lindum Homes
Project contractor	Daniel Charles Construction
Location	Saxilby, Lincolnshire, UK
Product specification	900m x DN2100 SN2 pipes with prefabricated manifolds and access shafts
Site services	Pre-installation training, fusion jointing and air testing

"Previously a project of this nature would usually have been installed using concrete, however, we were able to put forward a proposal which outlined the added benefits of a quicker and simpler installation thanks to Weholite's lightweight quality and pre-fabricated components. The result is a success for all concerned."
Jonny Johnson - Technical Engineer, Asset International.

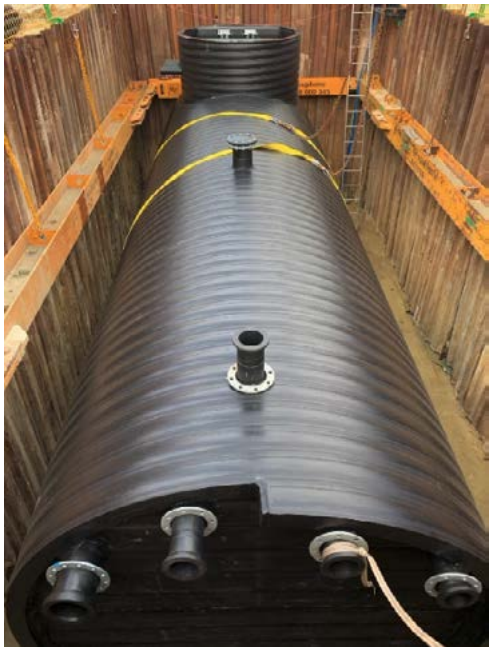
WEHOLITE STORM AND WASTEWATER TANKS CASE STUDY

Application	Rainwater harvesting
Project name	400m3 rainwater harvesting tank and vertical pumping station
Consultant	Jacobs Engineering
Project owner	US Federal Government
Project contractor	Clarke Construction GB Cooke designed by Jacobs
Location	Los Angeles, California, USA
Product specification	46m x DN3300 SN4 pipes with 6m deep pumping station
Site services	Pre-installation training, fusion jointing and air testing

"Weholite provided tremendous value to this project by developing the right solution and delivering a superior quality system. Their support and service of our project has been exceptional."
Project Manager/Owner, G.B. Cooke, Inc.

WEHOLITE STORM AND WASTEWATER TANKS CASE STUDY

Application	Septic tank
Project name	350Pe septic tank
Consultant	Aquardia Limited
Project owner	Essex & Suffolk Water
Project contractor	Integrated Water Services Ltd.
Location	Syleham, Suffolk, UK
Product specification	10m x DN3000 SN2 pipes with all connections
Site services	Pre-delivery route survey, delivery and positional offloading, installation and hydrostatic test



"The ambition of the water company is admirable, and we were only too happy to lend our engineering expertise and top-notch product knowledge into developing a foul water storage solution, to aid the water management needs of this expansive project."
Simon Wild – Director, Aquardia Ltd.

8. WEHOLITE – ENDLESS SOLUTIONS

Weholite has the potential to be transformed into a myriad of different solutions that contribute to what can only be described as true innovation. The list below and the case studies following give an overview of just some of the potential it has to offer. Mindful of this, before you start your next project, I would urge you to contact us, arrange a visit and indulge your inventive spirit. Weholite exists for you, the customer, and together we make sustainability a passion.

WEHOLITE PIPES

- *Culverts for road and rail*
- *Slip lining obsolete culverts*
- *Stormwater drainage*
- *Sanitary networks*
- *Surface water run off*
- *Perforated pipes*
- *Sewer relining*
- *Inter-process pipework*
- *Marine pipelines*
- *Hydro-electric pipeline*
- *Ventilation pipework*
- *Cooling water intake lines*
- *Above ground pipework*
- *Sea outfalls*

MANHOLE & CHAMBERS

- *Oversize stormwater manholes*
- *Oversize Sanitary manholes*
- *Access shafts*
- *Inspection chambers*
- *Flow control chambers*
- *Flow meter chambers*
- *Valve chambers*
- *Wet wells*
- *Concrete chamber relining*
- *Collection chambers*
- *Static screen chambers*
- *Backwash chambers*
- *Duct and cable pits*
- *Separator chambers*
- *Soakaway chambers*

POTABLE WATER

- *Potable water tanks*
- *Balance tanks*
- *Disinfection tanks*
- *Buried tanks*
- *Above ground tanks*
- *Flow control chambers*
- *Flow meter chambers*
- *Valve chambers*
- *Wet wells*
- *Concrete chamber relining*
- *Aeration tanks*
- *Packaged pump chambers*

STORMWATER & WASTEWATER

- *Septic tanks*
- *Storage tanks*
- *Packaged treatment plants*
- *Buried tanks*
- *Above ground tanks*
- *Stormwater retention tanks*
- *CSO retention tanks*
- *Rainwater harvesting tanks*
- *Wet wells*
- *Concrete tank relining*
- *Packaged pumping stations*
- *Lift stations*
- *Effluent tanks*
- *Chemical tanks*
- *Flocculation tanks*
- *Biogas and anaerobic digestion*


WARNING
FAYMONVILLE

WEHOLITE – ENDLESS SOLUTIONS CASE STUDY

Application	Pumping station with backup storage
Project name	Kidderpore Green packaged pumping station
Consultant	Tulley De'Ath Consultants Ltd
Project owner	Barratt Homes
Project contractor	Willow Pumps
Location	Hampstead, London, UK
Product specification	15m x DN1800 SN4 pipes with integral pumping station, anti-slip benching integral pipework, pump guides and pedestals and dry weather flow channel
Site services	Pre-installation training and fusion jointing

"Working on a landmark project of such scope and ambition was as challenging as it was rewarding. The demanding logistical conditions, certainly allowed us to flex our engineering expertise and provide our client with a bespoke Weholite solution that ticked every box."
Technical Engineer, Willow Pumps Ltd.


JASP

WEHOLITE – ENDLESS SOLUTIONS CASE STUDY

Application	Water balance tank
Project name	Catterick balance tank
Consultant	Sweco
Project owner	Yorkshire Water
Project contractor	Morgan Sindall
Location	Yorkshire, UK
Product specification	L12m x W4.5m x H4.5m modular tank with PN16 pipework connections and internal plastic wall, anti-slip apex roof, handrails and security covers
Site services	Pre-installation training, fusion jointing and water testing (In collaboration with Aquardia Limited)

"The approach necessary to meet the challenges set by the client, site layout, delivery restrictions and treatment obligations required radical proposals and innovative design. The result, based on a Weholite vessel is, as far as we are aware, a world first."

Simon Wild – Director, Aquardia Ltd.

WEHOLITE – ENDLESS SOLUTIONS CASE STUDY

Application	Bio energy tank
Project name	3,500m3 Dunsfold biogas tank
Consultant	GT Design Solutions Ltd
Project owner	DBE Energy Limited
Project contractor	Fox Owmby Limited
Location	Cranleigh, Surrey, UK
Product specification	372m x DN3500 SN2 with integral plant rooms, PN 6 access shafts and stub connections, interconnecting manifold sections and internal support brackets
Site services	Pre-installation training, Installation supervision, fusion jointing and air testing

"We had used Weholite on previous projects and had no hesitation on using it for this, our biggest system to date. The system was delivered in 15m lengths and installed in a very quick time."
Site Manager, DBE Energy Ltd.

WEHOLITE – ENDLESS SOLUTIONS CASE STUDY

Application	Packaged treatment plant
Project name	Åminne village
Consultant	Uponor Infra Oy
Project owner	OSAB Östra GotlandsSchakt AB
Project contractor	OSAB Östra GotlandsSchakt AB
Location	Gotland, Sweden
Product specification	A wastewater treatment plant for 550 to 960 people
Site services	Installation supervision and commissioning

"A shared Weholite Treatment Plant is an excellent solution for local conditions, and it is easy for residents. The plant is dimension to treat the wastewater of 550 residents and can be expanded later to 960 people. It is a fully modular system."
Product Manager, Uponor Infra Oy.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WEHOLITE – ENDLESS SOLUTIONS CASE STUDY

Application	Infra culvert/service tunnels
Project name	Vallastaden 1.3, Linköping
Consultant	Tekniska Verkin
Project owner	Municipality of Linköping
Project contractor	Tekniska Verken
Location	Linköping, Sweden
Product specification	168 m x DN2200 SN4 prefabricated Weholite Infra culvert with media pipes
Site services	Project management, design and calculations, material deliveries and prefabrication

"All pipes and cables in the new residential area will be located in the Weholite infra-tunnel. Water, sewage, district heating and district cooling pipes, as well as electricity and data cables will run through the tunnel. An infra-tunnel is a slightly more expensive solution than simply installing pipes and cables directly into the ground in the traditional manner. However, because of very low maintenance costs, extending lifetime and the ease of adding more infrastructure, the whole life costs of the tunnel are greatly reduced."

Christian Vestman – Vice President, Uponor Infra Project Services.


334
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Lambertsson

WEHOLITE – ENDLESS SOLUTIONS CASE STUDY

Application	Marine outfall
Project name	Relocation of existing concrete sea outfall
Consultant	Tanga Urban Water Supply & Sanitation Authority
Project owner	Tanga Urban Water Supply & Sanitation Authority
Project contractor	Macarious Hotel & Company LTD
Location	Tanga, Tanzania
Product specification	190m x DN600 SN4 pipes 1pc x DN 600 Bend 90 Degree
Site services	Fusion jointing and installation supervision

"This unique project really allowed us to showcase the impressive capabilities of Weholite and the results speak for themselves."
Alimiya Osman – Chief Operating Officer, Plasco Ltd.

WEHOLITE – ENDLESS SOLUTIONS CASE STUDY

Application	Soakaway Chambers
Project name	Topsham Road
Consultant	TWP Consulting
Project owner	Persimmon Homes
Project contractor	CJL Construction
Location	Exeter, United Kingdom
Product specification	75 soakaway systems from sizes DN1000 to DN3500 SN2
Site services	Delivery and installation training and supervision

"Weholite was the ideal choice of pipe for our soakaway system at the Topsham Road site due to it being lightweight and fast to install. We pride ourselves on building housing developments that are well protected against the elements and Weholite has played a vital part in making this possible."
Robin Milliner – Construction Manager, CJL Construction Ltd.

9. WEHOLITE JOINTING SYSTEMS

It is important that the most efficient method of jointing is used to ensure the pipeline remains watertight, durable and effective for potentially excessive movement in poor ground conditions; and depending on application, there are different methods of jointing Weholite.

Heat Extrusion Jointing

This process, carried out by direct Weholite personnel, provides an economical and fast method of delivering a complete, long, continuous length of pipeline, which allows the joint to be as strong as the pipe itself. Extrusion welding is a semi-mechanical process for thick-walled pipes where a higher level of joint integrity is required.

Extrusion welded joints are proven in tests to be the industry's strongest and most reliable method for joining structured wall pipes. The German DVS standard tests them to a 50% greater force than other welding processes such as electrofusion.

The fusion welded jointing system is not susceptible to root intrusion or breakages and behaves homogeneously with excessive ground movement.

Extrusion welding has a proven track record globally for large diameter pipes up to 3500mm diameter, providing the safest and most versatile solution on the market whilst still improving the efficiency and adding value to the overall project.

Flexseal Couplings

Flexseal Extra Wide Couplings are used principally for connecting Weholite internal diameters of DN350 to DN2200. Weholite Flexseal Couplings are 300mm wide, which allows for greater tolerance in the cutting of the ends of the pipe as well as providing for the movement of pipes due to settlement or thermal effects.

Lateral connections

The Water Research Council approved, Universal Adaptor Saddle; manufactured by Flexseal, can be used with Weholite. When used in conjunction with a Flexseal coupling it is an easy to fit product for connecting 160mm laterals into Weholite post installation.

**Please contact us for advice on the most suitable system to fulfill your requirements.*

10. WEHOLITE, A WORLD OF ADVANTAGES

In order to protect us all from the old “cheap and nasty” adage there are numerous international and national standards and, in many cases, national regulations and requirements. The water and construction industries, and the products and services used therein are no different and compliance with applicable standards ensures that customers can be safe in the knowledge that money has been spent on products that comply and are approved to applicable standards.

ISO 21138 (part 1&2) and EN 13476 (part 1&2), Plastic Piping Systems for Non-Pressure Underground Drainage and Sewerage covers all aspects of the system for foul and surface water sewers, some of the main points that provide comfort and reassurance to the end users are raw materials, wall thicknesses, impact resistance, ring flexibility and structural design requirements.

Weholite pipes, manholes, fittings and systems do not suffer the same effects that other materials and types of systems do. They are manufactured in the factory and fully tested prior to delivery. Weholite adds value to the overall system by extending service life and lowering operating costs. It also reduces the risk of flood events to local communities.

Across the East African region, only Weholite can offer such innovative systems in HDPE. It is time for progress and innovation. It is time for Weholite.

WEHOLITE ADVANTAGES

- *Light weight*
- *Flexible*
- *Easy to Handle and Install*
- *Impact Resistant*
- *Durable*
- *Superior Hydraulics Properties*
- *100% watertight jointing systems*
- *Fusion Welded Joints*
- *Abrasion Resistant*
- *Corrosion Resistant*
- *Environmental Deterioration Resistant*
- *Non-Toxic*
- *Much lower carbon footprint*
- *Environmentally Friendly Production*
- *UV-Resistant*
- *Reliability*
- *100+ year design life when buried*

PLASCO LTD

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WEHOLITE

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