

Construction of the N-S road in the area of mining damage



Uponor involvement

- ✓ WehoPipe pipes PE100 PN12,5 SDR13,6 DN 1370; Weholite pipes SN8 DN300-DN600mm; retention tanks DN2000 - DN2400
- ✓ Extrusion welding of elements of Weholite tanks and pipes, butt welding of pressure pipes by the Uponor Infra Service Group

Problem-free operation in areas with mining damage

Problem-free operation in areas with mining damage in the Upper Silesia Industrial District thanks to the Uponor Infra pipe systems and retention tanks.

A key traffic route in the Upper Silesia Industrial Region in southern Poland, an area affected by mining damage, will be protected by a Weholite stormwater system to ensure decades of problem-free operation. Thanks to the use of PE-HD pipes and retention tanks, the investment has strong sustainability credentials.

The new North-South (N-S) route will connect two of the Upper Silesia Industrial Region's most important roads: the A4 motorway and the Cross Regional Highway (DTS), which run parallel to one another on opposite ends of the city of Ruda Śląska. The A4 is a major Polish motorway – and part of the European east-west corridor – but it's the DTS that plays a key role in the region's transport system. With more than 20 junctions, it offers direct access to many cities and villages of the Upper Silesian Metropolis, a conurbation of 41 municipalities and home to 2.3 million people. It's a comprehensive project that includes the construction of a new road, a series of access roads along with footpaths and bike lanes, as well as the remodelling of existing overpasses, bridges, underground walkways and culverts. There will also be a two-storied flyover and a turbo roundabout.

Project Facts:

Location	Completion
Ruda Śląska, Poland	2022
Building Type	Product systems
Transportation	Potable water, Storm water

Partners

Investor:
UM Ruda Śląska

General contractor:
Drogopol sp. z o.o.

How to ensure the durability of water and sewage systems in mining damage areas?

In order to ensure the new road and engineering structures are protected from water damage, the route is being equipped with a bespoke drainage system comprising five batteries of PE-HD retention tanks DN2,000mm and DN2,400mm with a total capacity of 1,000m³, Weholite pipes SN8 DN300–600mm as well as no less than a hundred manholes and chambers supplied by Uponor Infra. Uponor has also delivered 1.35km of pressure pipe DN1,370mm for the construction of a brand-new water main, which will replace an old steel pipe DN1,200mm running in close proximity of the new route.

Uponor Infra has extensive experience in supplying gravity and pressure pipe systems for installations in difficult terrain, including areas affected by heavy industry, floodplains or seismic zones. The company's broad offering of individual products and systems, including turnkey solutions, is rooted in the high quality, versatility and reliability of Uponor's PE-HD technology. The benefits of PE-HD pipes, tanks and fittings include resistance to abrasion, corrosion, high resistance to chemicals as well as a low roughness coefficient ($k=0.01$), which prevents encrustation and enables self-cleaning of the pipeline. Due to their homogenous joins and monolithic surface, achieved in the process of butt welding (pressure systems) or extrusion welding (gravity systems), the PE-HD systems transmit axial forces. This makes them exceptionally robust and durable with a life expectancy of over 100 years. Add flexibility and low weight into the mix, and you get a product that is quick and easy to install while at the same time being long-lasting and able to withstand dynamic ground movements.

Ready, set, install

The contractor of the N-S investment was on a tight schedule – and challenging winter weather conditions ramped up the challenge. Uponor made the first deliveries of pipes, fittings and tank elements to the construction site at the beginning of 2021. Pressure pipes were delivered in 12.5-metre sections, while tank elements were prefabricated into 15-metre modules and fitted with manhole chimneys, ladders and inlets at Uponor's production facility in Kleszczów. The option of prefabricating larger elements together with fittings is another benefit of using PE-HD solutions, as it saves both time and transport costs. Once on site, the elements are welded by Uponor's service team, who can carry out the job in virtually any weather conditions.

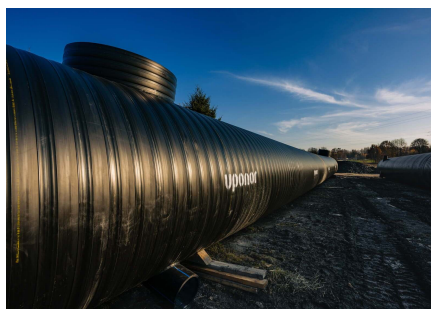
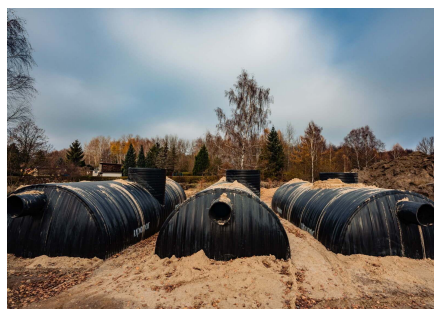
The highlight of the project was the installation of a single 400-metre section of the new pressure pipeline DN1,370mm in an

open trench as a one-hour operation. This was possible due to the pipe's natural flexibility and bend radius, which allow for the safe handling of long pipe sections as well as adjusting them to the trench's profile. In total, Uponor has made 103 deliveries for the N-S route project, with the last shipments planned for mid-2022.

Sustainable means lasting

Commitment to progress and innovation with the aim of achieving a sustainable living environment for future generations has been at the heart of Uponor's philosophy for years. The long-appreciated benefits of PE-HD technology – such as high resistance to chemicals, easy and quick installation, a 100-year life span and maintenance-free operation – translate into strong sustainability credentials. Energy-effective and lasting PE-HD solutions implemented in infrastructure projects such as the N-S route near Ruda Śląska ensure we've taken good care of both people and the environment.

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