



Northumbrian Water supplies 2.6 million customers in the North East of England with water and wastewater services, trading as Northumbrian Water, and 1.7 million customers in the South East of England with water services, trading as Essex & Suffolk Water. Northumbrian Water is investing to upgrade the North East's vast sewerage network between 2005 and 2010.

FLOOD ALLEVIATION SCHEME
FEATURING **bespoke
solution**



An improvement scheme delivered by Seymour Civil Engineering Contractors Ltd (Seymour) on behalf of Northumbrian Water Limited (NWL) is using an innovative water management solution to reduce the risk of flooding in North Tyneside, UK.

The 12-month flood alleviation project at a residential development in the village of Shiremoor will feature a bespoke solution manufactured by Asset International Limited, KWH Pipe's Weholite licensee in the UK. The low pressure – high technology pipe offers the construction and water industries a low overall cost solution across a range of applications, including surface drainage, foul sewers, inter-process pipe work, culverts, attenuation tanks, ducting and outfalls and is recognized as a lightweight, durable, easy-to-install and abrasion-resistant product tolerant of ground movements.

Following periods of extreme rainfall in 2005, extensive property and curtilage flooding occurred on three occasions at a housing development, Park Estate, on the outskirts of the village.

Almost 150 homes on the estate were affected by the flooding; in February 2006, NWL added the houses to the DG5 At-Risk Registers created by the Water Services Regulation Authority (OFWAT) in September 1989 to catalogue all UK properties estimated to flood more than once in ten years.

Ian Davison, Project Manager for NWL, explained how Park Estate was considered a priority area for flood alleviation work. He said: "Removing properties in the area we serve from the DG5 At-Risk Register by sourcing and using sustainable solutions to combat flooding has been one of our key priorities in the wake of such adverse weather conditions."

"There are many homes estimated to be situated in areas of high flooding risk in the county, and researching all possible options before we deliver a flood alleviation scheme is essential if we are to find a long-term solution."

Design consultants Mott MacDonald Ltd (Mott MacDonald) presented 14 possible design options to NWL. The innovative high-density polyethylene pipe, Weholite, offered by Asset was

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All 15 parallel Weholite pipe runs, each measuring 2,100 mm in diameter and 114 m in length, are installed. The Weholite solution is backfilled by Seymour Civil Engineering Contractors Ltd.

deemed the most suitable solution for this specific project.

Mr Davison added: "This is the first time Northumbrian Water has used Weholite in one of our flood alleviation schemes, and we have calculated significant benefits in using this innovative solution, including potential time and cost savings."

Mott MacDonald worked in collaboration with Asset on behalf of NWL to design a unique tank system consisting of 15 parallel pipe runs. Each pipe measures 2,100 mm in diameter and 114 m in length. In addition, several existing sewers were increased in size and re-directed into the new Weholite tank system, which has a capacity of 6,000 cubic metres.

Upon project completion, rainwater will enter the tank system via a large inlet manifold. The water will then be stored in the tank and gradually released through a smaller outlet manifold into the existing sewer system downstream.

David Holloway, Site Agent for Seymour, commented on the ease of installation using Weholite. He said: "Compared with other projects we have worked on, Weholite proved very efficient in terms of reducing the project delivery time, which is an important factor in ensuring that a scheme involving numerous partners is delivered within the agreed time-frame."

"Asset manufactured and later delivered the pipes to the site, which caused less disruption to the surrounding communities and also reduced the amount of time spent in the ground by workers during the installation process. This ultimately decreased health and safety risks for all."

Simon Thomas, Managing Director of Asset, based in Newport in South Wales, commented: "With the recent flooding crisis at the top of the public agenda, this scheme demonstrates how an innovative and bespoke design can provide a long-term solution to water infrastructure issues."

"We are delighted to have been given the opportunity to act as the partner of choice in this project and hope to work with NWL on other similar schemes in the future."