Don Street,
Rotherham

Xylem pumps bolster Rotherham flood resilience

A strategic response to flooding challenges

The challenge

The centre of the town of Rotherham in South Yorkshire suffered significant flooding following extreme rainfall in June 2007 and November 2019, affecting hundreds of homes and businesses.

In response, Rotherham Metropolitan Borough Council is undertaking a significant package of flood defence measures to protect the community from future events and to reduce the risk of flooding from the River Don and its tributaries.

The programme includes construction of a major new stormwater pumping station in the car park of Rotherham United Football Club in Don Street.

Don Street Pumping Station

The solution

The council's main project contractor, Breheny Civil Engineering, selected Xylem technology for the station's pumping system:

- Three Flygt CP3501 stormwater pumps
- One NP3153 jockey pump

The pumps perform the critical task of pumping excess surface water downstream to a new outfall, where it is returned to the River Don during periods of heavy rainfall.

The pumping station powers-up when the water level in the River Don, behind the football stadium, rises above 24m during storms. On these occasions, a penstock located within an existing outlet chamber closes to prevent water flowing into the flood-risk area.

A penstock located upstream of the new pumping station opens, with flows diverted into a new chamber constructed next to the river. When stormwater in the chamber reaches a set level, the CP3501 pumps power-up to send flows via a concrete culvert to the new outfall and into the river downstream, away from the at-risk areas.

End user
Rotherham Metropolitan Borough Council

Client
Breheny Civil Engineering

Xylem's role
Pump supplier and service and maintenance contractor

Project results
Installation of high volume Xylem pumps was a significant milestone for the project, with each main pump capable of discharging 1,000 litres per second in full flow.

Each Flygt CP3501 pump is designed to manage 1,000l/s of stormwater and operates on a duty/assist/assist basis. When all three pumps are in operation, they can discharge at a rate of 3000l/s and could empty an Olympic-size swimming pool in 13 minutes. Each of the three main pumps discharge via 800mm internal diameter ductile iron pipework.

The NP3153 jockey pump removes small ingress flows from the chamber. The pump can discharge a minimum 100l/s per second and will power-up when water reaches a set, lower level. If levels keep rising, the main pumps will automatically kick in.

Xylem has been appointed by Rotherham MBC as the service and maintenance contractor for the pumping station and outfall.

> “The new pumping station is a major asset that will safeguard Rotherham town centre from future floods.
>
> This important infrastructure project is an example of great teamwork between the client, contractor and supply chain to deliver for the local community.”

John Coyne, Project Manager at Breheny Civil Engineering

Helen Wilson, Industry & Infrastructure Sales Manager at Xylem, said: “Xylem is proud to have been selected by Breheny Civil Engineering to supply the pumping system for this critical pumping station asset, infrastructure that is already reducing the risk of flooding to Rotherham town centre.”

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