Barhale

Silverstone Booster Pumping Station

Client: Anglian Water (IOS Framework)

Location: Silverstone, Northamptonshire

Duration: 1 Month

In Brief...

As part of Anglian Water's Integrated Operational Solutions (IOS) programme, Barhale have delivered a new Booster Pumping Station in Silverstone, Northamptonshire. This is to help meet the increased demand in water supply that occurs intermittently throughout the year when events are held at the nearby race circuit.

This is especially important during the British Grand Prix weekend in July. Each year the drastic increase in water demand puts a tremendous strain on the existing water network. This is caused by nearly 400,000 members of the public who visit the circuit over the three days and the many thousands more who camp in the surrounding areas in the week leading up to the event.

Network pipes connnected under the new pump station location

Technical Features...

To cope with the demand Anglian Water's @one Alliance installed a booster pumping station in 2011, designed to deliver water to the surrounding area at 15l/s. Just 6 years later however the ever increasing number of visitors to Silverstone has rendered this installation insufficient for certain times of the year.

To deal with these instances of substantial increase in demand, a plan was devised to build a secondary booster pumping station adjacent to the existing one. This new station houses four additional pumps, each capable of supplying water at 25l/s. At maximum capacity the new station is able to supply water at up to 75l/s, with one of the four pumps acting solely as a reserve in case of break down.

4 new pumps installed in the station

The works comprised two parts, the installation of the underground pipework and the connection of the pump station kiosk.

The existing network pipework was only capable of facilitating flow rates of up to 35l/s. The team therefore installed larger diameter pipework to increase the mains from 150mm diameter to 200mm diameter, enabling flows of up to 70l/s. As well as providing added resilience to the network during event days at Silverstone, the increase in diameter and subsequent flow rate was also necessary to support a new main installation scheme, which is due to be laid as part of future growth in the area.

The pump station kiosk was manufactured entirely off site by FLI Water at their Bedford workshop. Once all elements were procured the construction of the kiosk took just 5 weeks. This included the fabrication of the suction and discharge manifold. The fully constructed kiosk was then delivered to site, lifted into place and connected onto the pipework below. The day after the kiosk was delivered to site, all elements had been connected and installed ready for testing to take place.

State of the art telemetry allowed interaction between the two kiosks

Technical Features cont...

The pre-existing kiosk (installed in 2011) is still used as the primary pumping station for the area. If the network requires an increased supply however (as it would during the British Grand Prix weekend), state of the art telemetry units mounted on each of the booster stations allow the kiosks to communicate with one another. At times of high demand, this would result in the primary pumping station shutting down, with flows being diverted and pumped solely through the new kiosk.

The pumps in the new station will turn over every day to prevent the water from stagnating when the kiosk is not in use.

The completed pump station

Customer Benefits...

The benefits of off-site manufacture have been twofold.

- Firstly, the client has received a perfect product, which has been constructed in a controlled environment, therefore reducing the risk of on-site defects or mistakes.
- Secondly, manufacturing the kiosk off site resulted in a substantial reduction of time to the overall programme of works. The actual time on site, including testing and commissioning was only 4 weeks. The manufacture period took an additional 5 weeks, however because this was done out of view of the public it minimised intrusion to the surrounding area. This in turn improved the public perception of Anglian Water, Barhale and the IOS programme.

The scheme was fully delivered to programme with no defects in time for the British Grand Prix in July 2017.