

Roydon Water Treatment Works

Client: Affinity Water

Location: Harlow, Essex

Value: £3m

Duration: 8 Months



Barhale were responsible for the overall design and construction of the works, taking the concept design from the client and developing the entire (MEICA) detailed design.



Barhale used submersible pumps in drinking water as part of their design

In Brief...

This contract consisted of the construction of a new Rapid Gravity Filter structure and associated ancillary plant to provide improved treatment of potable water supplies, which suffer from high contents of Iron and Manganese. The existing plant was fed from two local boreholes but was restricted in output due to the water quality issues. The new works will allow the plant to address both these issues.

Customer Benefits...

- Crushed concrete was 100% recycled and used as backfill material on site
- Barhale used submersible pumps in drinking water as part of their design. The pumps were a third of the cost of conventional pumps, would require less maintenance and could be removed far more easily
- Worked closely with the Affinity process engineers, with regular design review meetings as well as weekly construction look ahead meeting with Affinity's Project Manager
- Barhale liaised with the Highways Agency and ensured entry and exit to the site was in the Harlow direction, ensuring delivery lorries didn't have to pass through Roydon village

Technical Features...

Barhale were responsible for the overall design and construction of the works, taking the concept design from the client and developing the entire (MEICA) detailed design. Barhale's in house design team were responsible for the overall design management, providing the design for the main civil structures, pipelines, duct arrangements, hard and soft landscaping and security upgrades.

The project included these main elements of work:

- Construction of a new four-cell Rapid Gravity Filter structure with air scour and backwash facilities
- New steel frame and clad plant building, housing a new MCC, air scour blowers, polyelectrolyte dosing plant, instrument monitoring room and Customer Protection Panel
- Utilised in house tunnelling capability with the construction of a small shaft, using open cut excavation method
- Clean backwash tank and pumping system providing filter backwashing function
- New lamella plant for treatment of the filter backwash water
- New Supernatant storage tank and return pumping arrangements
- Upgrades to the existing dirty backwash tanks to support the new process streams
- Upgrades to the existing contact tank to provide increased chlorination contact retention time for the treated water
- New Sodium Hypochlorite Dosing unit for Pre Oxidation
- Replacement of the existing high lift pumps
- Upgrades to the site security and access arrangements.