

Case Study

Worthen Sewage Treatment Works



Client:
Severn Trent Water

Principal Contractor:
JN Bentley

M&E sub-contractor:
Colloide

Location:
Shropshire, England

Project:
Chemical Dosing

Colloide delivered the mechanical and electrical works as a subcontractor to principal contractor JN Bentley, supporting Severn Trent Water in the comprehensive upgrade of Worthen Sewage Treatment Works.

Scope of work included:

Colloide installed a 2m³ chemical dosing system featuring dual pumps to support the project's pH correction and phosphorus removal objectives. The system comprises a bunded chemical storage tank with integrated level monitoring, a secure chemical fill point equipped with spill containment measures, and a duty/duty two-pump arrangement housed within a weather-resistant dosing kiosk.

This project at Worthen Sewage Treatment Works forms part of Severn Trent Water's ongoing programme of investment and infrastructure upgrades across Shropshire. Building on a series of recent improvements, such as the £9.8 million enhancement works at Wem STW and a wider £11.5 million.

Technical information

The main components of the system

Fill Point Kiosk

The fill point kiosk controls chemical delivery to the storage tank. Delivery is only permitted when the green "Delivery Permitted" light is on. If the light is off, delivery is blocked regardless of tank level.

The kiosk features a beacon and sounder to alert if:

- The tank reaches its high (FULL) level
- The ultrasonic level transmitter fails or reads out of range
- There's a sudden level drop in the tank
- A leak is detected in the tank bund

If the red beacon is lit or the sounder is active, chemical delivery is not allowed.

Chemical Storage Tank

The tank sits within a bund equipped with a float switch that activates when ~1 inch of liquid is present, indicating possible leakage from the tank, outlet pipework, or dosing skid.

Tank components include:

- Fill and outlet lines (with isolation valve)
- Overflow and drain pipes
- Atmospheric vent
- Ultrasonic level transmitter (with remote displays)
- Pressure gauge (displayed in the fill kiosk)

Dosing Kiosk

The dosing kiosk houses a duty/duty pump skid, control panel, heater, and distribution board. Each pump draws from a shared suction line and includes:

- Flow switch on each outlet line
- Pressure relief valves (set at 3.5 bar)
- Individual leak detection float switches

Any internal leak overflows into the kiosk bund, then flows via dual-contained pipework to the main tank bund, which is also monitored.

To ensure compliance with health, safety, and environmental standards, the installation also includes an emergency safety shower, eye wash station, and hose reel, providing essential protection for safe chemical handling and operational integrity.



Why Choose Colloide?

Chemical Dosing Systems delivered by Colloide to meet your bespoke requirements using expert knowledge and design skills. Colloide design and build customised chemical storage and dosing systems for a wide range of chemicals and applications. These packages are tailored to suit our clients' requirements while adhering to European Standards, Ciria and HSE guidance. Chemicals we provide solutions for include sodium hydroxide, sulphuric acid, hydrochloric acid, ferric sulphate, aluminium sulphate, ferric chloride, antifoam and ortho-phosphoric acid.

Our Capabilities Meet Your Needs

Our experience is accumulated over a 20 year period. During this time, we have gained extensive experience in Design, Manufacture, Installation and Commissioning of Chemical Dosing Systems.

Capabilities

Location – We have the capability to deliver your requirements anywhere across the UK, Ireland, Scotland, and Wales.

Supply Chain – We have sourced suppliers and developed a reliable relationship, with suppliers based across the UK and Ireland. Our supply chain is accredited to high Quality, Health and Safety and Environmental standards.

Availability – We have the capacity to engineer equipment on a short lead time, due to our ability to design and build off-site.

Customised Requirements – Our standardised design can be adapted to meet bespoke requirements for drinking water sites and a range of industries.

