

CASE STUDY

Project: Ticehurst WTW
Location: Ticehurst, Kent
Client: Principal Contractor – CMDP (Costain/MWH Delivery Partnership)
Client – Southern Water
Value: £700k



Project Introduction

The awarded civil engineering sub-contract by Principal Contractor CMDP, was the first of two large wastewater civil engineering schemes in Kent secured off the back of Coleman Construction & Utilities Limited's progression and safety performance, as well as the quality of their workmanship.

Coleman Construction & Utilities Limited's contracted civil engineering scope comprised bulk excavation, new chambers, pipework, drainage and manholes, formation of new roadways and paths, site wide ducting, draw pits and new bases. These works were in support of Southern Water's wastewater directive to reduce the phosphorous from 1.0mg/l to 0.08mg/l in line with the new permit (Driven by Habitats 1 and No Deterioration 2) .

The contract was underpinned by a collaborative approach with CMDP and Southern Water, as well as other project stakeholders, providing the basis for proactive communication and highly coordinated activities, resulting in the safe and successful completion of this wastewater civil engineering project – meeting time and budget requirements.

Project Deliverables

- Provide a Ferric dosing package system including a 10 m³ integral bunded storage tank with level sensors, complete with 3no ferric dosing pumps duty/duty/standby serving two

points of application (POA1 and POA2). POA1 is into the inlet channel chamber downstream of the flume where the filter recirculation is returned. POA2 is into the static mixer of new rising main of tertiary feed pumping station upstream of new tertiary treatment (direct dosing)

- Alkalinity dosing (Sodium Hydroxide, 27% w/w Solution) package plant to be provided including 2no dosing pumps, duty/standby, and a 10 m³ Sodium Hydroxide Storage Tank. The point of application for the alkalinity dosing is into the secondary filter syphon chamber
- Provide new intermediate pH monitor in the humus tank distribution chamber
- Provide a designated combined delivery area for Ferric Sulphate and Sodium Hydroxide. Both chemicals to be housed completely separately but delivery for both will be on the same bunded apron area utilising a common interceptor chamber and safety shower
- Provide new potable water pipework connected to the existing site supply for emergency shower/eyebaths
- Provide new ortho-phosphate, iron and pH monitors along with sample feed pump in the existing Final Effluent Sample chamber
- Provide walk in sampling kiosk with heater along with Reinforced Concrete (RC) slab of sufficient size to accommodate kiosk

- Provide new tertiary feed pumping station with 2 No. VSD duty/standby pumps rated at 35l/s flow (FFT plus works returns) complete with high level overflow to the final effluent chamber and a flow meter which will also be used for controlling the ferric dose rate
- Provide a new secondary POA ferric mixing via static mixer directly into tertiary treatment feed rising main
- Provide 3 No. FilterClear tertiary treatment (TT) units of 2.04 m diameter (3V2040 tbc) to treat flows including works return complete with a clean water tank and a dirty backwash tank. Each tank shall be sized for 2 backwash volumes (43m³ each tbc).
- Provide flow control actuated valve in the dirty backwash tank to control effluent rate into new works return pumping station
- Provide new works return pumping station with duty/standby pumps rated at 10l/s. It shall receive flows from the interception chamber (dosing systems), dirty backwash returns from new dirty backwash tank, humus sludge, decant from sludge holding tanks and site drainage. The pumping station shall discharge to the existing balancing tank
- Provide a new filter recirculation pump in the existing recirculation sump, 1No. VSD duty pump rated at 12.6 l/s, with a new flow meter in the rising main for flow control
- Provide a new modulating Penstock in the outlet of the existing balancing tank and a new flume downstream of the existing screens to control the flow rate to the works
- Provide new sludge transfer pumping station with 2 No. duty/standby progressive cavity pumps to transfer primary sludge from primary settlement tanks airlift system to the existing sludge holding tanks
- Remove humus tank wedge wire
- The existing reed beds to be made redundant.
- Provide footpaths and bollards where necessary
- Supply and install road signage to direct the tanker driver to the dosing plant.
- Provide RC slab of sufficient size to accommodate package unit
- Provide pipework and connection to existing line to final effluent chamber

Challenges and Solutions

Several challenges have been met throughout the project by Coleman Construction & Utilities Limited, which are detailed below:

- Deep excavations were solved with a 2-part manhole box system of temporary works design and installation
- Pipes and manholes within the temporary works were installed using two systems of manhole boxes and trench boxes
- Congested areas of works within all new pipes, manholes, ducts, draw pits and chambers joining together – the team at Coleman undertook regular programme and sequencing reviews to enable all works to be carefully planned
- Deliveries were part of a co-ordinated plan of plant and equipment logistics to ensure works kept on track
- Interface with other contractors/stakeholders included collaborative early engagement meetings, regular planning, and liaison through weekly project meetings

Benefits

- We provide a non-confrontational approach to commercial and contractual matters, preferring to work collaboratively in the interests of the project. As a result, working relationships with the client at all levels and across all disciplines are at an all-time high.
- Collaborative working has become a daily norm for Coleman Construction & Utilities staff. We always offer a solution-based approach.
- We are always striving for best practice working especially where health, safety and wellbeing are concerned - we aim for zero harm every day.
- We take pride in our work and aim to leave our sites snag free. Our attention to detail is second to none.

Testimonial

“Thanks to the team at Coleman Construction & Utilities for delivering a first class civil engineering project at Ticehurst. Throughout, they provided a collaborative approach to all matters, working in the interests of the project, with a high attention to detail.”

James Irvine - CMDP JV