

CASE STUDY

Project: Rolvenden Lane WTW Civil Engineering Project
Location: Cranbrook, Kent
Client: CMDP (Costain/MWH Delivery Partnership)



Project Introduction

Coleman Construction and Utilities Limited has delivered a wastewater treatment civil engineering project covering the provision of a new ferric dosing area, de-sludging system, lamellas, and a new pumping station on behalf of client CMDP – a Principal Contractor delivery partnership between Costain and MWH.

Coleman Construction and Utilities contracted civil engineering project scope comprised bulk excavation, new chambers, pipework, drainage and manholes, formation of new roadways and paths, site wide ducting, draw pits and new bases.

The overall project aim is to reduce the phosphorous from no permit to 0.5MG/L and the FE to 4MG/L identified in the water industry national environmental programme (WINEP3) and required by 22/12/2024 on behalf of Southern Water - the private utility company responsible for the public wastewater system in Hampshire, the Isle of Wight, West Sussex, East Sussex and Kent.

Project Deliverables

- Site establishment works
 - > Including groundworks, foundations and ductwork
 - > Provision of temporary footpaths utilising reusable plastic gridded matting and its removal on completion
- Pipe and manhole systems
 - > Reinforced concrete bases poured, and precast concrete manhole rings installed
 - > Manhole surround shutters installed, and concrete poured to gain a watertight seal
 - > Core drilling of pipe penetrations
 - > Pipe runs excavated and installed using two types of temporary works: (1) sheet and frame in congested areas; and (2) trench boxes in areas of no obstruction
 - > Pipework installed as per manufactures guidelines, air tested for drain runs and pressure tested for pumping mains
- Ferric and Alkalinity area including lamellas (ferric dosing unit to dose ferric sulphate to the treatment works and remove phosphates from the treatment process) (Lamella Inclined Plate Clarifiers for Wastewater The Graver Lamella design utilises inclined plate clarification to separate solids from the water and clarify the water. The lamella is composed of a series of removable parallel plates commonly referred to as “lamella plates”.)
 - > Excavate and lower depth of entire footprint
 - > Installation of all required electrical and dosing line ducts
 - > Installation of ‘Cubis’ rapid stack draw pits

- > Installation of pipe work for drainage, including capturing any spill of ferric during delivery
- > Install 1No 1500mm diameter manhole (intercept chamber) to hold large spill of ferric when delivery is taking place
- > Cast a reinforced concrete slab to house ferric dosing unit, which was constructed on compacted type 1 and concrete blinding
- > Concrete access roads formed and poured with containment humps in case of ferric spillage
- > Installation of pipework for delivering water to the treatment plant from the pump station and then on to FE chamber for sampling before leaving site
- > Surface water drainage manholes and pipework
- New PST air lift de sludge
 - > Electrical ducting installed with cast in swept ducts
 - > Cast a reinforced concrete slab to house the de sludge kiosk
- New Intermediate pumping station
 - > Excavate a 4meter deep hole
 - > Install the temporary works system
 - > Cast in slab at the bottom
 - > Start building up sections
 - > Cast in pipework to the pumping station
 - > Slab around the top including footpaths, upstand

Challenges and Solutions

Several challenges have been met and solved throughout the project by Coleman Construction & Utilities Limited. In doing so, the team delivered the project on time and within its budget:

- Deep excavations for the ferric interceptor chamber and chemical dosing interception chamber were solved with an alternative sheet and frame temporary works design and installation
- Pipes and manholes within the temporary works were installed using two systems of manhole boxes and trench boxes
- There were congested areas of where all new pipes, manholes, ducts, draw pits and chambers joined together. Coleman Construction & Utilities Limited undertook regular programme

and sequencing reviews, which enabled all works to be planned in advance

- Plant deliveries required a co-ordinated plan of plant and equipment deliveries to ensure works kept on track
- Interface with other contractors/stakeholders was required throughout. The Coleman team engaged in collaborative early meetings, regular planning and coordination through weekly project meetings
- Unmarked services where located, were dealt with expediently and then marked onto as-built drawings to support as-built records and the health and safety file

Benefits

- Coleman Construction & Utilities Limited provided 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 were and remain at an all-time high.
- Collaborative working has become the daily norm for Coleman Construction & Utilities staff. The team always endeavour to offer a solution-based approach.
- The team were always striving for best practice working especially where health, safety and wellbeing are concerned. The team aim for zero harm every day.

The company takes pride in its project work, leaving sites snag free. Our attention to detail is second to none.