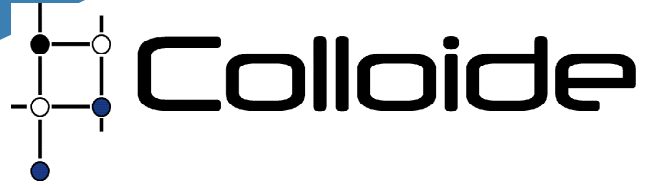


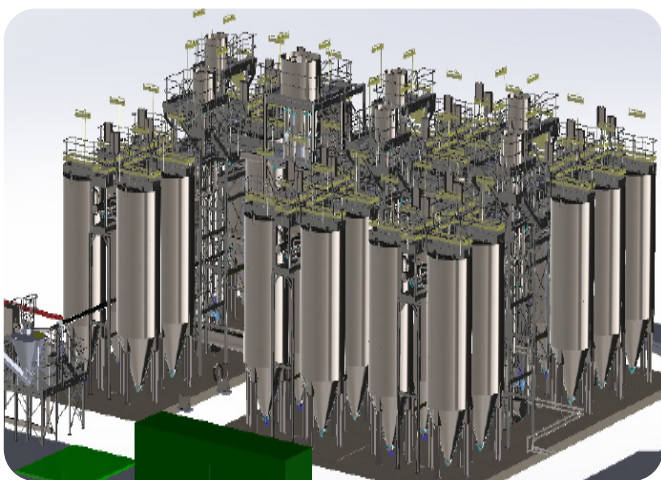
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Project Case Study: Chalton WRC

Our Client | Anglian Water
Project | Nitrifying Sand Filters
Location | Luton, Bedfordshire

Chalton Water Recycling Centre operated by Anglian Water, awarded Colloide the contract to design and build a new Tertiary Treatment Plant. The treatment plant, located in Bedfordshire serves half of Luton's sewage and was becoming a threat to a sensitive wildlife site within a close distance.



The Challenge

The challenge presented was to treat the waste water to a very high standard to remove ammonia and decrease consent standards from 8mg/l to a < 1mg/l ammonia.

Colloide took the challenge on board, and exhibited a solution that:

- Maximised off-site build
- Met the consent standard
- Delivered the project alongside an integrated and collaborative @One Alliance team

Tertiary treatment process

For the tertiary treatment process an extensive assessment of the available technologies was carried out with the following solution being confirmed as providing best value alongside process capability:

- Feed pumping station.
- Auto washing strainer with manual bypass unit.
- 30 (No.) continuously washing nitrifying sand filters.
- Process and motive air system, including 4 (No.) 35K compressors.
- Flow distribution system using passive weirs.
- Ammonia monitoring system.
- Flow recirculation system.
- Dirty washwater sand trap system.
- Automation, power and control.
- Interconnecting pipework and valves.
- New 11Kv transformer and compound.
- Standby generation with export facility.
- Power distribution.

The unusual element to this design was the number of filters used. A total of 30 (No.) filters, in six streams of five was proposed with a cascade flow distribution system. As with the other design on site decisions were taken with the core principles in mind, specifically:

- Pipework and cabling was to be above ground wherever possible.
- All 30 (No.) filters were exactly the same, pipework support gantries and access ways were all designed to be brought to site, as pre-assembled units in order to reduce site assembly time and reduce design time.
- Standard product MCC kiosks were used. Due to the amount of power cables from the generator and transformer and a necessary road crossing a standard product cable trench was used.
- The new generator was a standard product, supplied in a container for speed of assembly on site.

Through constructive collaboration the project has saved over 45% on embodied carbon and over 4 months on the typical assembly period.

The tertiary treatment plant was treating the effluent to the required ammonia standard by the obligation date of 1 April 2018.

Client Feedback
"The filters came in on the back of a lorry and they were fitted together like Lego".

