

## Glasgow's new screw pumps secure long-term sewage treatment

**ECS Engineering Services has recently commenced works as part of the latest phase of Scottish Water's £250m city-wide programme to improve sewage management in the Glasgow area. Over the next eight months ECS, in association with Landustrie, will be installing and commissioning 14 new screw pumps at the Shieldhall water treatment works, which serves most of the centre of the city.**

Shieldhall is the largest of the Glasgow area's waste water treatment works and serves a population of about 600,000 in the south of Glasgow, Newton Mearns and Renfrew areas.

The Shieldhall site has been modernised several times over the years to meet the growing demand of an ever-expanding population in Scotland's largest city. As part of the current programme it was realised that the 14 large Archimedes screw pumps that drive the process were getting towards the end of their service lives and needed replacing.

There are four low level and six high level screw pumps, each weighing 13 tonnes, being 16m long and 2.4m in diameter and capable of pumping 960 litres/sec. There are also four larger RAS (return activated sludge) pumps, each 16m by 2.6m with a flow capacity of 1580 litres/sec.

The recent contract award was to provide like-for-like pump replacements, but ECS realised that this would have meant service engineers working in the original concrete troughs, hand screeding the screw pumps for several weeks to create the formed pumping troughs. This process exposes the engineers to unnecessary risks, so in conjunction with Landustrie in the Netherlands the design team looked closely at the design of the equipment to eliminate as much of this as possible, whilst ensuring the client still received the best standard of equipment currently available on the market.

In conjunction with ESD, Scottish Water's supply partner, several design upgrades were made, the most significant being the alleviation of the requirement to hand screed the new machines into the concrete trough. The pumps were assembled in the factory complete with the new steel coated troughs, these can be moved into position relatively easily, without the fitters having to work in confined and potentially dangerous spaces. Upon successful installation of the new pump and troughs the whole machine will be backfilled with concrete giving both strength and durability far better than the original installations for many years to come. This design upgrade was a major health and safety gain that both Scottish Water, its main contractor ESD and ECS were keen to embrace.

Scottish Water specifications stated that a v-belt drive system should be used, with a direct-on-line drive configuration. This simple but efficient arrangement is appropriate because the slowly rotating pumps run continuously so there are no regular start-up impulses or shock loadings. To compliment this further, ECS has installed new high efficiency motors, which over the course of their long working life will save a considerable amount of energy.

ECS has also delivered further long-term savings thanks to the installation of Landustrie stainless steel ECO, sealed-for-life bottom bearings that are maintenance free for the lifetime of the bearing. Together, the complete installation will provide long-term reliability and efficiency for the treatment works for many years to come.

#### **Photo Captions:-**

**Pic 1:-** ECS Engineering Services, in association with Landustrie, will be installing 14 new screw pumps at the Shieldhall water treatment works.

**Pic 2:-** ECS Engineering Services has installed new high efficiency motors, which over the course of their long working life will save a considerable amount of energy.

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## **About ECS Engineering Services**

ECS Engineering Services has over 20 years experience in delivering high quality, reliable and cost effective engineering solutions, specialising in bespoke design and construction of water, energy and environmental processing and management projects.

In conjunction with key supply partners, ECS has the expertise and capacity to design and install a wide range of water control engineering projects. With in-house fabrication services, which have CE Marking approval to EXC3, well equipped and highly skilled engineers can also complete structural steelwork, bespoke fabrication work and access metalwork to the highest standard.

With a complete range of site services available, ECS offers a full turnkey project managed service for mechanical and electrical installations including managing civils contractors and supplying pipework, control and automation work to ensure that every installation is installed and commissioned to the highest standard. Existing clients include the majority of the UK Water Utility companies, Government Agencies and Internal Drainage Boards.

## Editor Contact

DMA Europa Ltd. : Selina Price

Tel: +44 (0)1562 751436

Fax: +44 (0)1562 748315

Web: [www.dmaeuropa.com](http://www.dmaeuropa.com)

Email: [selina@dmaeuropa.com](mailto:selina@dmaeuropa.com)

## Company Contact

ECS Engineering Services Ltd : Clark Williamson Contracts Director

Tel: +44 (0)1773 860001

Fax: +44 (0)1773 810003

Web: [www.ecsengineeringservices.com](http://www.ecsengineeringservices.com)

Email: [cwilliamson@ecseng.co.uk](mailto:cwilliamson@ecseng.co.uk)