



# Project: Thorne Moors

Location: Thorne, Doncaster

## Archimedean Screw Pumps

Client: North Midland Construction Civil Engineering Division



The area around Thorne Moors is a historically occurring raised peat bog, which is currently inundated with water, conserving the peatland habitat. Doncaster East Internal Drainage Board, working with JBA Consulting have recently commissioned a new pumping station, using an innovative new archimedean screw pump, supplied by Aquatic Control Engineering Ltd. The screw pump is the first of its kind in the UK, however it has already sparked a lot of interest due to innovative design and high specification.



The Fish Flow Innovations screw pump differs from other modern screws, in that it encloses the screw pump in a vinyl ester pipe, dramatically improving efficiency, design life and noise, and due to an innovative leading edge design, virtually 100% fish friendly. The pump uses a variable speed drive as standard, to ensure that the pump runs at its most efficient, ensuring it delivers the flow that is required at the time, without using surplus energy.



The pumping station is entirely off grid, using an intelligent renewable energy control system to trigger a generator when pumping is required, and providing feedback to the reserve manager on site data. The station has also been designed with energy consumption in mind, incorporating an ACE tilting weir as a gravity bypass to maintain levels for the majority of the time to keep pumping to a minimum, but to pump at maximum efficiency when it is required. Every drop of water that enters the pump is lifted to the outlet, as there is no leak path as found with most modern screw pumps.

North Midland Construction Civil Engineering Division were employed by Doncaster East Internal Drainage Board to construct the pumping station, with the pump, control system, tilting weir, flapvalves and isolation stoplogs being installed by ACE Ltd and Interlec, and integrated with the solar and wind powered telemetry system. ACE would like to thank all involved with the project.

**Aquatic Control Engineering Ltd**

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**Aquatic Control Engineering** are market leaders of innovative water flow control, maintenance and fish passage equipment. We are proud to supply our customers with high quality, innovative solutions and high standard installation services for over 20 years



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### - Variable Speed Solution

Due to rotating drum allowed for more flexible operating philosophy, improving efficiency and negating the requirement for a second screw pump.

### - Quick Installation

The screw pump, including all drives, is pre-fabricated onto a single frame allowing quick and safe installation

### - Low Rotation Speed

Reduces wear and maintenance whilst increasing longevity.

### - Composite Materials

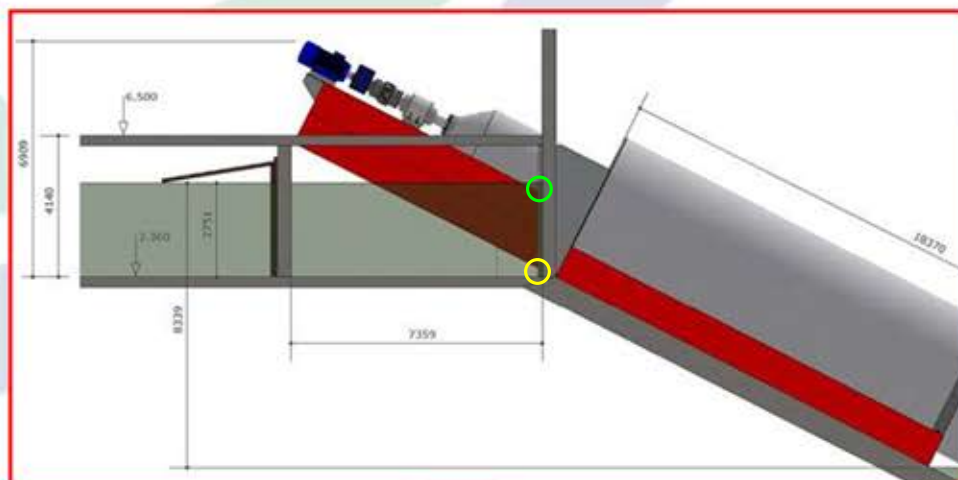
Due to the peatbog location, the water on site was acidic in nature, therefore the use of composites created a much more corrosion resistant solution than a traditional steel construction.

### - Renewable energy

The control panel was designed to harness renewable energy such as solar and wind.

### - Reduced Hydrostatic Head

The effective hydrostatic head was reduced by 250mm compared to traditional screw pumps due to the seal between the rotating drum and outfall.



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