

Case Study

High Spec Solution for Bentley Ings Flood Defence to WIMES Specification

Client: Bentley Ings

Sector: Utilities - Water Pumping Facility

Location: North Yorkshire



BACKGROUND

Bentley Ings is a vital flood defence in Doncaster North and helps protect 1,670 properties from flooding by diverting water away from local areas such as Toll Bar, Arksey and Bentley.

The defences were undergoing a significant upgrade, spanning over two years and costing £11m. The project was to replace the pumping stations 80-year-old pumps and to put an infrastructure in place to ensure that staff can safely access the site even in flooded conditions. Shenton Group were approached at the initial stages of design to assist with the sizing of the standby generator requirement.

This project not only bore the obvious challenges of working with electricity and water, but one that had

Products/ Services

- **1250kVA standby generator with a prime power output of 1148kVA**
- **Delivery, off-loading and positioning**
- **Bespoke acoustic container**
- **SR4 security rated**
- **WIMES specification**
- **Commissioning services**
- **Maintenance contract**



to adhere to the rigorous demands of the Water Industry Mechanical and Electrical Specifications (WIMES); a Pump Centre collaborative project that aims at providing common mechanical and electrical specifications for the UK Water Industry. Thankfully, Shenton Group was already well-versed in WIMES, having delivered a number of successful projects that adhere to this strict set of requirements.

PROJECT OVERVIEW

Working closely with the consultant and Bentley Ings Pumping Station, we provided technical support and a completely bespoke design.

Due to the large start-up current of the pumps on site, particular attention had to be paid to the generators step load capabilities. Shenton Group proposed a 1250kVA generator utilising an MTU engine capable of providing a prime power output of 1148kVA. Due to the site's location, the generator was enclosed in a bespoke acoustic container to achieve a noise rating of 75 dB(A) @ 1 meter at full load and had to be SR4 security rated. The container was fitted with external inlet and outlet attenuators, with the inlet attenuator having a motorised damper (spring open/motor close) and the outlet attenuator having a gravity damper. The container was painted to the client's colour requirement with a C3M finish to withstand the harshest of conditions.

To enable the generator to run for 72 hours at 100% load in the event of an emergency, Shenton Group also provided a 17,000-litre bulk fuel tank and installed the necessary interconnecting pipework.

It has been reported that flooding in the area has reached as high as 1.5 metres. With a combined total weight of 47 tonnes, the generator and fuel tank were installed on a bespoke steel gantry to ensure they were kept above water level.

During the project, Friday 8th November 2019, flooding hit once again. The new Shenton Group generator was operational around the clock, powering the pumps as they reduced the amount of water and minimised the amount of damage caused by the rising flood levels.





Following installation, Shenton Group carried out full commissioning and site acceptance testing demonstrating all necessary step loads, controls and alarms.

SOLUTION

The Shenton Group diesel generator produces a maximum standby output of 1250kVA at 415 Volts, 3 phase, 0.8-power factor, 50Hz at 1500rpm with a prime power output of 1148kVA to BS5000 & BS5514 standard. This size generator has been specified so that it can withstand the inrush current as the pumps startup.

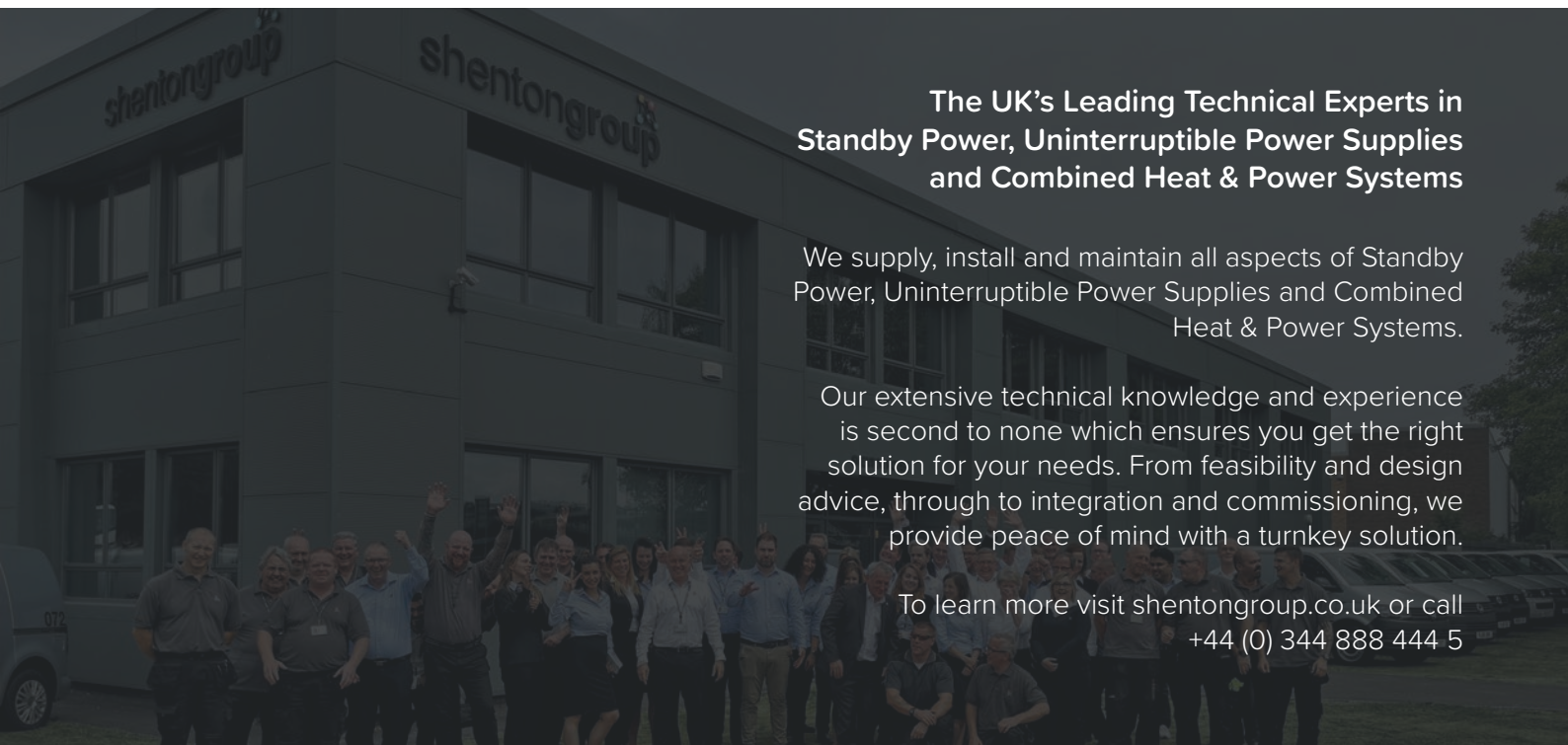
OUTCOME

The client now enjoys a system that guarantees the continual supply of power to the water pump—featuring bespoke security and monitoring systems and a control system that fully complies with WIMES. The generator solution is also supported by a Shenton Group maintenance contract, providing true peace of mind for the client.



“We have worked under WIMES specification many times before and understand the need for a reliable well designed solution. Bentley Ings pumping station and the surrounding areas will see a dryer future now this project is complete.”

Darby Thomas, Project Manager, Shenton Group



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