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Bedford Pumps Case Study

Bedford Pumps Clean Up for Don Valley

Bedford Pumps Ltd, a leading manufacturer of large submersible and conventional pumps to the water and wastewater industry, has just completed a contract in excess of £1.25M with Yorkshire Water for the refurbishment of the Don Valley Sewage Pumping Station. Don Valley SPS is part of a £78M investment from Yorkshire Water for Blackburn Meadows Wastewater Treatment Works. Blackburn Meadows is the second largest treatment works in the UK at a colossal 78 acres, treating 79M gallons of waste from a population of 457,000 daily.

The Don Valley Pumping Station site originally housed five A P E Allen mixed flow vertical spindle units to lift sewage 21.4m to the inlet works. These pumps were at the end of their working life and no longer able to cope with the demands of the pumping station. As a result sewage debris often entered the River Don during heavy rainfall. Bedford Pumps have replaced the original units with six conventional shaft driven volute pumpsets. The pumps are of a centrifugal, mixed-flow design and have far greater solid handling capabilities than their predecessors. The largest of the six pumps can handle up to 215mm spheres of untreated raw sewage.

The station has been designed within a wet well sump that is divided into two halves. Each half is a mirror image of the other and is designed to function with one half operational and one half isolated. Bedford Pumps units must therefore provide sufficient total pumping to achieve full FFT from one half of the wet well only.

Bedford Pumps achieved this criteria by suggesting that each half of the sump houses an identical set of three pumps, of varying sizes. The pumps are installed in a vertical configuration. The largest pump has a duty of 2000 l/s at 26m head driven by 645kW 6.6kV motors. The next size down operates at 1500 l/s at 27.4m head powered by 505kW 6.6kV motors. The smallest pumps run at 850 l/s at a head of 28.4m from 300kW 6.6 kV motors.

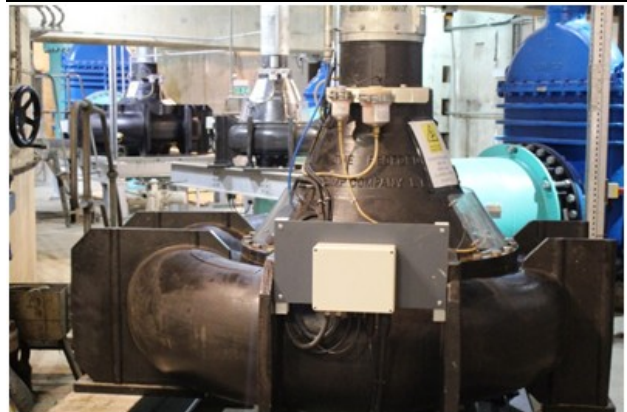
The full scope of Bedford Pumps contract included: removal of the five existing pumps; replacing them with six new pumps with high speed drive shaft motors; providing new steel supports for all pumps; galvanised shaft guards; bearing thermistors; vibration transducers and suction and discharge pipework, including 2 duckfoot suction bends. Bedford Pumps worked in close collaboration with ETM (j.v. Aecom & Galliford) to overhaul the Don Valley site. Yorkshire Water state that this investment will “treat more waste water, more efficiently and to a higher standard”.



Blackburn Meadows WWTW



Original pumps



Bedford Pumps' replacement pumpsets

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