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Bedford Pumps Case Study

Bedford Pumps and PBA save stakeholders £3m on fish-friendly scheme

Bedford Pumps, the UK's leading manufacturer of large submersible and conventional pumps for the Land Drainage industry, has delivered a Fish Friendly pumping station to Cambridgeshire District Council at Webb's Hole Sluice in the village of Over, Cambridgeshire.

Webb's Hole Pumping Station is unique in so far that each stage of the design process has been carefully considered with regard to its impact on the safety of eels and fish. This brand new station has been constructed with every element of the pumping station design, from the outfall to the pipe-work, evolved to mitigate any damage to the eels and fish that are present in the river. Webb's Hole Pumping Station is therefore the first in the country to fully embrace the Eel Regulations of 2009.

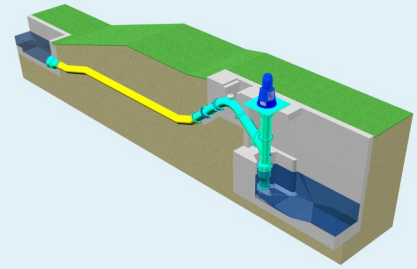
A new pumping station was required at Webb's Hole in order to lift flows from the upstream side of the sluice to the downstream/tidal side when the River Great Ouse is in flood. The pumping station, along with additional upgrades to the watercourse, will provide mitigation for the discharge of treated effluent from up to 10,000 dwellings in Cambourne and Northstowe which necessitate an expansion of the water recycling centre at Utton's Drove.

Bedford Pumps worked closely with design consultants and project managers Peter Brett Associates, contractor J Breheny, and delivery partner JJ Gallagher, from design to implementation. The innovative and efficient project design, and the strong team partnerships that have been formed over several similar projects, delivered £3m capital savings on the initial stakeholders' framework estimates. The final design contained the following characteristics: long radius bends on the pipeline; low velocity/low loss; submerged discharge; fish friendly siphon breaker valves with unique paddle arm meeting "streamlined" requirement; sub bell-mouth flow splitters and of course fish friendly pumps.

Bedford Pumps manufactured, installed and commissioned two DAF (Fish Friendly Direct Drive Axial Flow) pumps for Webb's Hole. The pumps, one duty and one assist, have been installed in a vertical suspended position with a 45 degree angle discharge. Each are powered by 30 kW 6 pole electric motors through a gearbox with an external PTO facility, which offers the ability to drive the pump by tractor in the event of a power failure. Each pumpset will discharge 534 l/s at 5.6m head.

Bedford Pumps Fish Friendly pumps have **proven** credentials awarded from independent research consultants in the field of water management, VisAdvies BV, following extensive and stringent trials. The tests prove conclusively that Bedford Pumps' range of submersible and direct drive pumps are fish and eel friendly with no direct mortality observed from exposure to the pump. Copies of the official report which state that Bedford Pumps have manufactured the "best fish friendly pump on the market" are available on request.

Bedford Pumps' Fish Friendly pumps cover from 400 to 9,000 l/s at 2m to 14m head. Fish Friendly pumpsets are available as submersible, mixed flow or direct drive variants.



A fully Fish Friendly pumping station design



Webb's Hole pumping station



Fish Friendly profiled siphon paddle