



Project: Cockerham

Amco Engineering Ltd, Environment Agency

Penstocks, Reset style flap valves

It has long been known that the tidal nature of the River Cocker makes it a prime location for flooding, therefore the Environment Agency have a long standing flood defence near Cockerham, protecting the Village and surrounding area. In 2014 the defence structure was starting to show its age and had just about reached the end of its operational life. The defences close proximity to the river's mouth meant that it was at a critical point for fish migration and for this reason the decision was taken to install two of ACE's innovative Fish friendly flap valves and two Penstocks. With the importance of the flood defence site in mind the team chose to go with the reset system in a 3m square flap valve which made it the biggest of its kind. The reset system has the advantage that, while being incredibly unlikely, if the flap were to fail it would default to being closed ensuring flood protection is never compromised.

The complexity of the project was significantly increased by the tidal nature of the site. This meant that there were strict tidal constraints that governed work schedules and that the whole project had to be planned meticulously.

The first stage of the operation was to de-water the working areas, using a custom manufactured stank plate which allowed pumping to commence for dry working. Once the site was dewatered the old timber flap valves could be removed to make way for the new large fish friendly replacement valves. Despite the size of the flap valves the team installed them both in just 4 days whilst working around the tide times. Once the new flap valves had been installed the old penstocks were then removed by ACE and disposed of by specialists. The new 3m ACE penstock doors utilise HDPE and stainless steel 316 which is not only sustainable for future generations but also minimises the need for maintenance.

While being comparatively light, the size of the penstocks also allowed ACE to supply a portable spindle driver which could be fitted directly to the actuators in case of power failure. This removes the need for manual operation and reduces the chance of flooding even further.



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