ECS
Engineering Services

Stroud Canal Lift Bridge

ECS Engineering Services has completed a complex, turnkey project to manufacture and install a new lifting road bridge over a canal that will increase the navigable length of the canal whilst also improving heavy goods access to local businesses. Stroud District Council awarded the entire project to ECS for the removal of the original as well as fabrication, installation and commissioning of the new bridge.

Stroud Canal Lift Bridge

Replacing a road bridge over a water course is already a complex task, and in this case there were additional factors such as a restricted work space and narrow access routes that would have to be used by the large plant equipment required for the project. In addition, the road approaches the canal at an angle and this had to be considered in the final design.

One of the major considerations in projects such as this is the potential to pollute the local water course. Demolition of the existing structure and the construction of the new bridge required careful planning and special measures to ensure that no material entered the watercourse. In this case a special pontoon was constructed below the original bridge and lined with an impermeable membrane to capture any falling debris.

Before the bridge could be placed in its final location, new abutments had to be cast onto a series of new reinforced concrete piles. Unexpected ground conditions and the discovery of a large void full of rotten timber, led to ECS implementing a revised pile design to ensure appropriate bridge foundations were established before the bridge was lifted into place.

Andy Swindells, Project Manager for ECS, explains: "For a project of this size we would normally have relied on using a larger piling machine, but due to the limited space that was available we had to develop another solution. Our design engineers reviewed the situation and recalculated the size and distribution of the piles before work restarted. In all, ten piles were installed, each 450 mm in diameter, which formed the base for the concrete abutments on which the new bridge would stand."

In the meantime the steel bridge deck, balance beam, support pylon and hand-rails were fabricated by ECS in its Sutton-in-Ashfield facility. The deck itself weighed 6 tonnes and was designed to have a safe working limit of 30 tonnes, a considerable improvement on the 8 ton limit of the old bridge. The balance beam was also designed so that the counterbalance could be fine-tuned on site by adding or removing weights. The entire construction is CE marked and classified under BS EN 1090-2.

ECS also supplied and installed the manual hydraulic system that pressurises the lifting cylinder to raise the bridge and allow the canal traffic to pass underneath. The project was completed on time, despite several complicating factors, and without any pollution of the waterway. The new bridge has expanded the future navigable mileage of canals in Stroud and improved access for local business.

Images courtesy of Michael Gallagher / Cotswald Canal Trust.

Landustrie InfraCore inside CE NICEIC UVDB empowered by Achilles UVDB verify CHAS BM TRADA CERTIFICATION RoSPA Member

ECS Engineering Services

Water Control Site Services
Environmental Fabrications

ECS Engineering Services Ltd • **T:** 01773 860001 • **E:** info@ecsengineeringservices.com • **W:** www.ecsengineeringservices.com