



## Middle Ouse Restoration of Physical Habitats (MORPH) Scheme

When civil engineer William Jessop and his team completed the canalisation of the River Ouse in 1812 to accommodate Britain's growing industrial might, little did he know that 200 years later work would begin to transform the area of natural beauty back to its original state.

But that was exactly the challenge facing Royal HaskoningDHV engineers Alexander Lee and Mark Casey who were charged with overseeing the project to reverse the ecological damage caused by work from a bygone age which stifled the natural functioning of the river.

Part of the EU Water Framework Directive (WFD) and funded by Department for Environment, Food and Rural Affairs (Defra), the multi-million pound project to improve fish passage, reduce flooding and restore the natural river and its floodplain started in 2009 with completion set for 2014.

The WFD states that EU member states must aim for Good Ecological Status (GES) by setting objectives for all ground and surface water areas. In 2009 the Environment Agency responded by identifying 15 sites on the River Ouse in Sussex - from Barcombe Mills in the south to Ardingly in

the north and including the River Uck which is the main tributary of the Ouse - where water level control structures, such as mills and weirs, were hindering the natural functioning of the river system.

In 2010 Royal HaskoningDHV completed the MORPH strategic pre-feasibility and action plan which identified solutions to river restoration and then, in partnership with the Ouse & Adur Rivers Trust (OART) and the Environment Agency, began an extensive public consultation which included an exhibition and drop-in session attended by an impressive 70 people.

Speaking about the project on behalf of Royal HaskoningDHV, Alexander Lee, said: "There was significant consultation with landowners, local residents and other interested groups to ensure the proposals met their expectations.

"The overall project aim is to improve the natural environment and enhance society, and through the consultation process we were able to listen, inform and educate the wider public about the far-reaching benefits of the project, its issues and solutions."

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Buxted School visit



Work on three of the 13 sites, at Sheffield Park, Sharpsbridge and Buxted Park, began in 2012. Each one was treated as an individual project and each presented its own challenges.

The Sheffield Park site was transformed by excavating a new 400m meandering channel partially along the alignment of an old meander, and reusing 4,000m<sup>3</sup> of excavated material to landscape an adjacent meadow. A ford crossing the new meander and an earth bund across the existing channel were also constructed.

At Buxted Park the existing weir was removed and the river bed regraded with gravel placement along a 160m stretch. In addition, willow spiling - a traditional form of riverbank stabilisation - was installed along 180m of the river bank to guard against erosion.

A key environmental benefit of the project is the protection of fish species identified by the UK Biodiversity Action Plan (UK BAP) as a priority.

Thanks to the construction of a rock ramp at the Sharpsbridge site, fish passage is now enabled through a road culvert previously impassable at low flows, allowing migratory species such as sea trout and eels to spawn in the upstream sections of the river.

The appointment of a project-specific communications officer ensured excellent levels of community and stakeholder engagement at each stage of the project.

Royal HaskoningDHV organised a primary school visit to the Buxted Park site during the construction stage and OART arranged for a group of local volunteers to help plant 1,500 trees on the newly created island between the new meander and old river channel at the Sheffield Park site.

Mark Casey, a project manager for Royal HaskoningDHV said: "The successful implementation of this pilot project will generate future opportunities for river and floodplain improvement works.

"The Environment Agency, OART and others plan for further improvement works in other catchments and the lessons learnt regarding the funding, appraisal, design, consultation, construction and ecological successes of this project will be invaluable for other catchment improvements."

The project was highly commended in the Sustainability and Environmental Management category of the ICE Awards in July 2013. These represent the highest honour for civil engineering excellence, and in this instance recognise the best civil engineering projects across South East England, according to their ability to deliver a real benefit to society through the knowledge, skills and professional expertise of civil engineers.





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MORPH received a second award in the Professional category of the Wild Trout Trust Conservation Awards in October 2013. A conservation charity, the Wild Trout Trust focuses on practical work to improve trout habitat across the UK and Ireland, and the awards celebrate the efforts, skills and ingenuity of projects carried out by professionals and grass roots voluntary organisations.

The Judges report said: “The project incorporated a strong ethos of pre-project consultation (with responsive adaptations to feedback) and diligent engagement initiatives. Clever cost controls by rescheduling and redistribution of asset deployment between parallel ongoing projects were also achieved in the face of inhospitable weather conditions during the works. A thorough understanding of river processes, key impacts and winning the support and acceptance from local stakeholders were all crucial factors in this project.”