

Stoke Brook Floodplain Restoration, Stoney Middleton

Techniques: Floodplain restoration

Project location: Stoney Middleton, Peak District

River: Stoke Brook (River Derwent)

County: Derbyshire

Project start date: June 2008

Project end date: September 2008

Length: 1.2 km

Cost: £500,000

Upstream grid reference: SK230754



Site background

Stoney Middleton lies within the Peak District National Park, with Stoke Brook flowing through the centre of the village, joining the River Derwent to the east. In January 2007 a major incident occurred at a mine operated by Glebe Mines, upstream of Stoney Middleton, in which a tailings lagoon burst its banks. Huge volumes of water and fine sediment were washed downstream, through the village and into Stoke Brook and the Derwent, leaving a trail of devastation. Stoke Brook and the Derwent subsequently became smothered with tailings, leaving a thick layer of fine material on the river bed and adjacent flood plain. In places gravel beds acting as spawning grounds for fish and Brook Lamprey became armoured and resulted in a loss of breeding habitat for fish and other aquatic species. As part of the remediation process following this incident, Penny Anderson Associates (Consultant Ecologists) were commissioned by the Glebe Mines' insurers to devise and implement a scheme to remove the tailings materials from the Brook and Derwent, without undue impact on the ecology and landscape of these rivers within the National Park.



Creation of floodplain habitat to act as further environmental buffer to the receiving water course

Objectives

To restore Stoke Brook and the River Derwent to their original condition prior to the January 2007 incident by removing the sediment, whilst providing additional floodplain wetland habitats a means of mitigation.

Design

In addition to the work to remove sediment deposited in Stoke Brook and the Derwent (see separate case study), wetland habitats were constructed at various locations on the floodplain. Alaska Environmental Contracting Ltd undertook the works, using specialized equipment including a 'walking excavator':

- Previous work in which a tributary stream to Stoke Brook was confined to a concrete channel was modified. This involved removing the stream from its concrete channel and creating a series of shallow channels across a lowered and widened floodplain;
- An existing pond was reconnected to the river by constructing a back-channel, whilst the original connecting pipe was blocked up and coir rolls placed on the banks;
- Offline ponds were dug out of the floodplain at varying levels, fed by a water meadow further upstream.



Floodplain dug out and reprofiled to create wetland habitat

Subsequent performance – RRC's views

In conjunction with the works to remove the sediment within Stoke Brook and Derwent, valuable wetland habitat has been created at a number of locations on the floodplain of Stoke Brook. By not over-designing, the work was completed quickly and efficiently, providing good quality habitat with high conservation value to a range of species, including dragonflies and damselflies. The specialised machinery was vital to the work, enabling varying levels in the wetland to be dug out.



the River Restoration Centre Case Study Series

This site was last visited by RRC staff on 18th August 2008

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