

# Ailsworth Backchannel

**Location:** Ailsworth, Peterborough

**Upstream Grid Ref:** TL 10390 97751

**Downstream Grid Ref:** TL 11289 97588

**Length:** 1.1km

**Completion date:** September 2019

**Cost:** £15,903 (plus volunteer time)

**Partners:** National Lottery Heritage Fund, Environment agency, Nene Valley Catchment Partnership, Nenescape LP, Nene Park Trust & Peterborough & District Angling Association.

## Summary of activities

The Ailsworth Backchannel scheme comprised of 4 activities. The activities were:

Activity 1 – Hinging and pinning overhanging trees and pleaching small riverside trees to increase in-stream woody habitat and create flow variation to improve the natural cleansing of the gravels.

Activity 2 - Tree planting to increase shade over the river and suppress the growth of emergent vegetation.

Activity 3 – Clean gravel introduction to improve the gravel bed topography and the quality of fish spawning habitat.

Activity 4 – Protect banks from future damage by erecting livestock fencing.



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## Location map

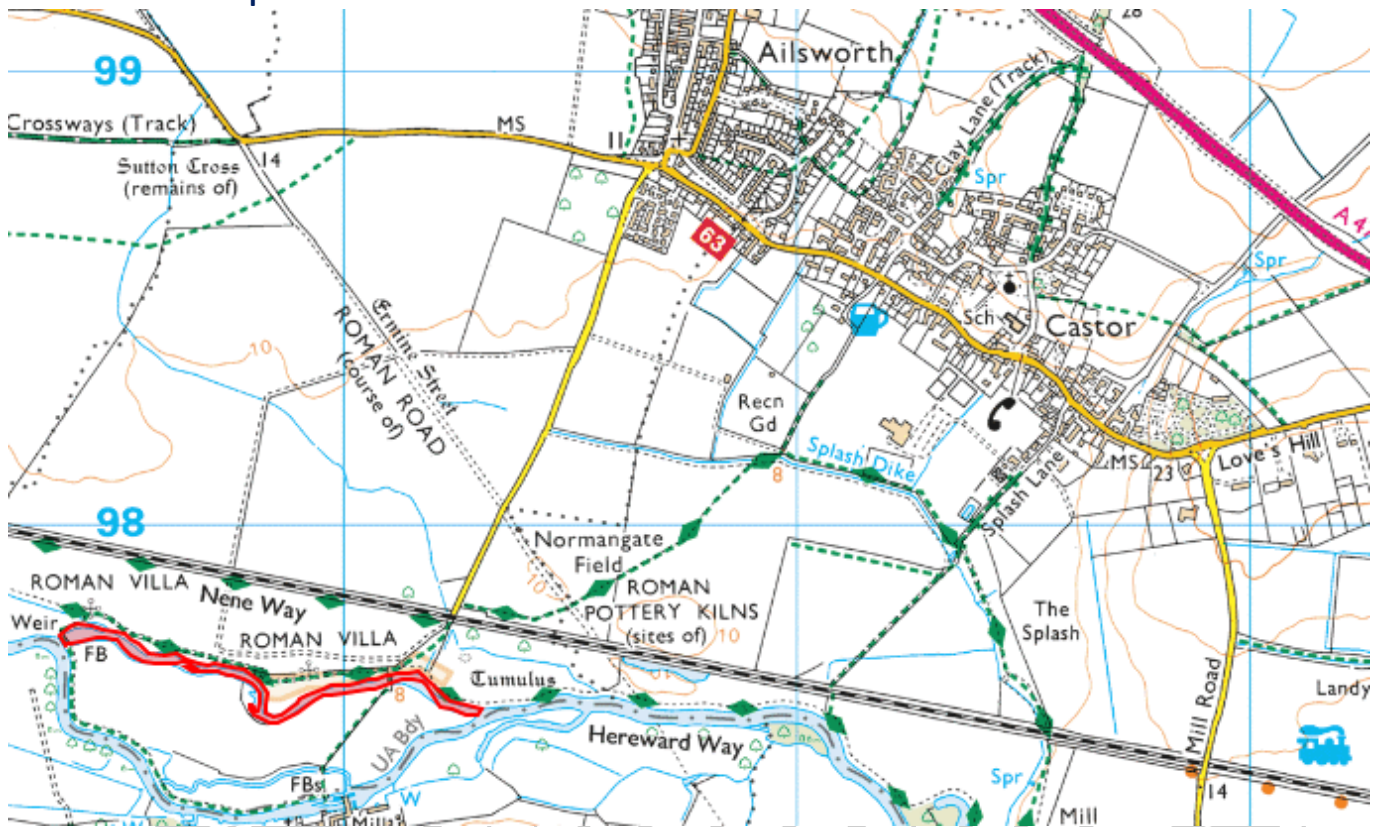


Figure 1 Map of Ailsworth Backchannel

## Background to project

This project was part of the Resilient River project, part of the Nenescape Landscape Partnership.

Ailsworth Back Channel, also known as Castor Back Channel, was the subject of an earlier enhancement scheme that was completed in spring 2012. The scheme transformed the fishery, which is controlled by Peterborough and District Angling Association, into a nationally renowned barbel venue.

The 1.1km long Ailsworth Backchannel bypasses Water Newton Mill and lock. Prior to the implementation of the enhancement scheme the back channel comprised sections of 1.5 to 2m deep channel with some shallower sections. Two low lying areas within the banks remained dry except during spate conditions. Dense in-channel aquatic and emergent vegetation created variations in flow during the summer months, but when this vegetation died back in the winter the flow was more uniform. Consequently, to create year-round variations in flow, ash faggot and hurdle deflectors were installed. As well as increasing the flow velocity, the deflectors will encourage siltation at the margins of the channel and this will allow the extent of the marginal vegetation to increase, whilst maintaining an

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open, energetic central channel. Initially a much larger number of flow deflectors were planned, however the number was reduced because the channel was too deep for them to be installed.

Occasional large collapsed willows provided some in-stream fish refuges. The southern bank had sections of heavy poaching and the only section that had been protected in the past, an area of wet woodland, was no longer cattle-proof. Cattle poaching (and dog access on the left bank downstream of the bridge) had led to significant bank erosion and there were also sections of steep, undercut bank as a result of water erosion during high flows. As a result of the bank erosion and the resulting siltation, areas of clean gravels, suitable for fish spawning, were minimal.

The scheme mentioned above however was not fully completed so the Resilient River project picked up the scheme to finish. After some minor re-designs of the original scheme and consultation with those involved a fresh scheme was drawn up to complete the restoration of Ailsworth Backchannel and further unlock the potential of superb fish habitat.

## Objectives

White Mills lock backchannel proposed a number of enhancement opportunities. The project will benefit fish, other wildlife including otters and diversify the river habitats. The Project contributes to delivery of Water Frame Directive, improving the ecological status of the river. It will also help the EA deliver the Eel Management Plan and meet its statutory obligations under the Eel Regulations.

- Improve the gravel bed topography and the quality of spawning habitat through clean gravel introduction in 2 locations.
- Increase in-stream woody habitat; provide fish and invertebrate refuges; improve conveyance; and reduce the risk of channel blockages by hinging and pinning selected riverside trees and securing fallen tree limbs.
- Protect marginal wetland habitats by completing the run of riverside fencing on the right bank.
- Reduce the impact of sediment inputs, in particular as a result of erosion caused by livestock and public access.
- Plant new trees to provide shade over the water to improve cover for fish and reduce water temperature.
- Improve access for anglers.

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## Activities

### Hinging & Pinning/Pleaching Overhanging Trees

10 trees on the low berm along the left bank, and 3 on the right bank, were selectively “hinged and pinned” to increase woody habitat and provide a refuge for juvenile fish and invertebrates. The limbs that were closest to the water and extended furthest across the channel at the time were selected to ensure that conveyance will be improved as a result of the works. Larger overhanging limbs/trunks were also selected on the basis that they were the most likely to collapse into the river with the potential to cause a blockage. As such hinging these larger 3 trees/limbs is effectively advance maintenance – removing the need for emergency action and also ensuring that beneficial in-stream woody habitat is retained. The trunks of trees were partially cut at the base, leaving a narrow bark and sapwood hinge, and then bent horizontally (pointing downstream) along the bank to create a tangle of twigs and branches extending to no more than 10-15% of the channel width.

Cut limbs were held between pairs of hardwood stakes, and then secured with short loops of plain fencing wire attached to the stakes with staples. The loops of wire were independent from each other, so if one fails, the whole structure will not. Wire loops were twisted tight and the stakes driven down further to securely hold down the limbs in place. Post tops and surplus wire were trimmed to length. For added security, particularly if the hinge was to fail, in addition to the wire bindings, the limbs were drilled through and secured using lengths of steel cable shackled to double hardwood stakes driven deep in the riverbank using a mechanical (compressed air) post driver. Also, on the basis of advance maintenance, where trees have already collapsed, they were pulled against the bank and secured in situ, to ensure that they do not wash away in high flows and create a blockage downstream.



*Figure 2 Hinging and pinning of a smaller tree at Ailsworth*

A variation to the permit was submitted just prior to the tree works on the request of the Peterborough & District Angling Association (PDAA). This included using the brush material generated on site to create a living ‘mattress’ as seen in figure 3 below, with the purpose of blocking off angling to an area nicknamed ‘The Nursery’ because the

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Barbel, and other fish species, favouring this area to spawn annually. In the past there have been a number of problems when fishing has been restricted in the swims so the PDAA decided to block it off completely to minimise stress n fish during spawning periods. Unfortunately the current river close season (16<sup>th</sup> March to June 15<sup>th</sup> inclusive) do not cover the main spawning period for fish in rivers in modern times.



**Figure 3** *Brush mattress blocking off the Nursery swim*

material. Washed (“clean”) gravel was used exclusively to minimise the introduction of fine sediment to the watercourse.

### **Tree planting**

Originally, there was limited tree stock along much of the right bank, and on the left bank too in the lower part of the reach, so 20 native trees, consisting of Alders, Blackthorn, Dog Rose, Elder, Hazel, Wild Cherry, Rowan and Hawthorns, were planted to, once mature, increase shade. The trees are staked and guarded to protect them from rabbit damage. Although the planting is protected by the riverside existing and new fencing, the trees may be in cribbed if necessary, to ensure that they are fully protected. Trees were planted by PDAA volunteers on the bank crest in pairs leaving sufficient room for machinery to work around them if necessary.

### **Gravel Introduction**

Clean gravel was introduced to modify the bed topography and improve spawning habitat in 2 locations. This completes the gravel introduction originally planned in 2011. Gravel introduction involves the top-dressing of existing 2 runs to create shallower riffles. Gravels was placed using a tracked excavator. The maximum height of the new riffles will increase the height of the existing runs by no more than 15cm. 100t 4-40mm clean gravel was introduced to top dress 2 existing runs to create shallower riffles and to dress an existing cattle drinker to avoid future sedimentation issues. Wolman “pebble counts” were undertaken during the summer of 2017 to determine the existing bed composition and the results were used to specify the pre-mixed gravel that was introduced. This ensured, as far as possible, the stability of the introduced

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Figure 4 PDAA volunteers planting trees



Figure 5 New fence line at Ailsworth backchannel

### Fencing

Much of the right bank had already been fenced as part of an earlier enhancement scheme and where necessary refurbishment took place. Along this section the pre-existing angler access points were upgraded from a “pipe” crossing to a simple treadle post and rail stile, one near each gate. Fencing of the entire right bank was completed by installing c230m of post and 3 lines of barbed wire fencing, with 2 treadles stiles, upstream of the bridge. The open fencing pattern will ensure that flood water flows under the fence, minimising the likelihood that the fence will collect debris that has been washed down river when in flood.

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#### Contact information

For further information regarding the restoration project that took place at Whitemills or any other enquires please contact the River Nene Regional Park:

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#### Contractor Information

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