# Whitemills Backchannel

***Location:*** Whitemills, Earls Barton

***Upstream Grid Ref:*** SP 85650 61858

***Downstream Grid Ref:*** SP 85785 61968

***Length:*** 250m

***Completion date:*** December 2018

***Cost:*** £18,695 (£4,500 staff in-kind time & £321 volunteer time)

***Partners:*** National Lottery Heritage Fund, Environment agency, Nene Valley Catchment Partnership, Nenescape LP, Wild Trout Trust & Landowner.

## Summary of activities

The Whitemills 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 – Bank regrading to repair banks badly damaged by cattle poaching, to reduce fine sediment inputs.

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

Supported by:

RIVER NENE REGIONAL PARK INSPIREDSPACES

Nene Valley Catchment Partnership

NENESCAPE Landscape Partnership Scheme

HERITAGE FUND

Environment Agency

## Location map

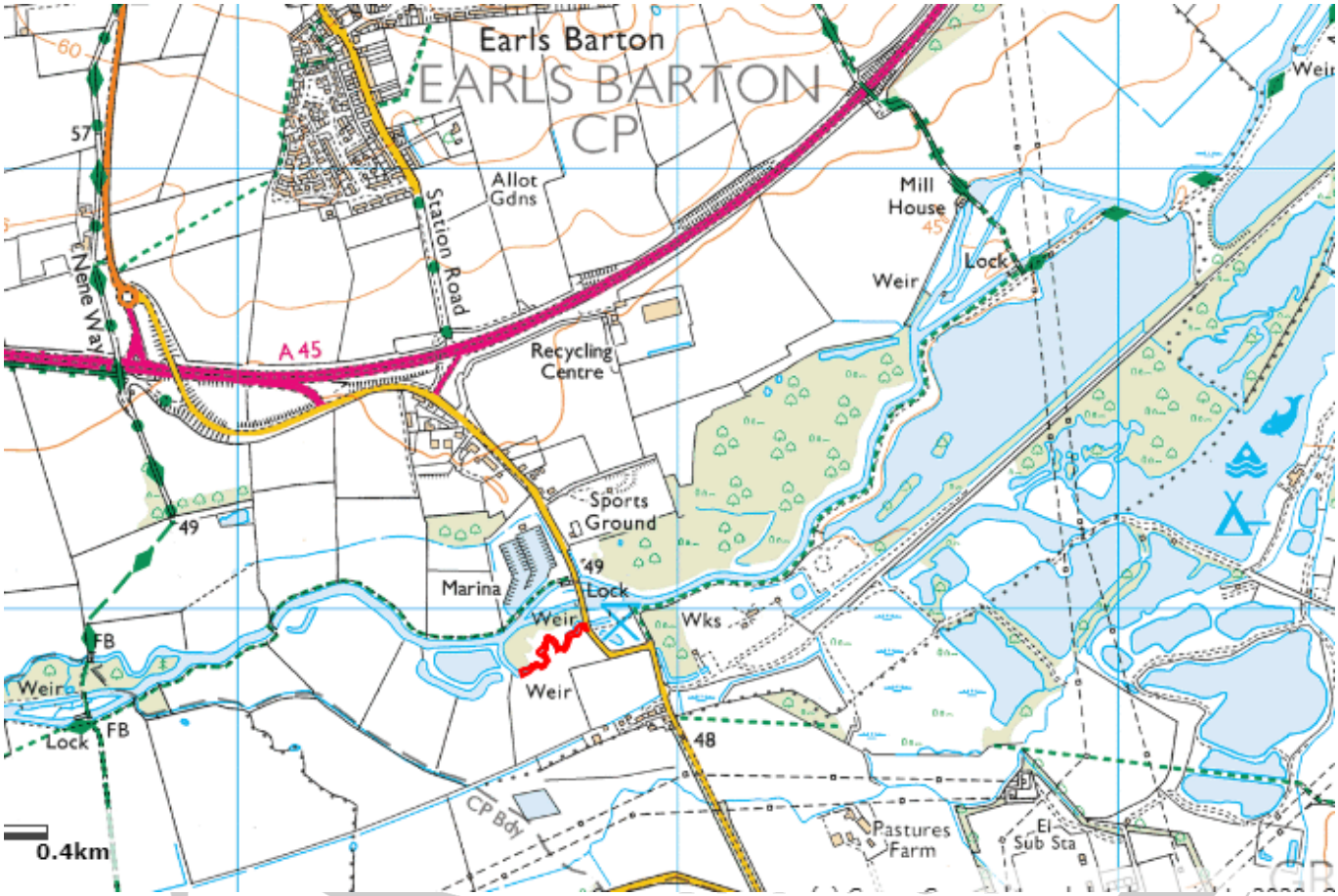


***Figure 1 Map of Whitemills Backchannel***

# Background to project

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

The banks of White Mills Lock Back Chanel had been severely damaged by cattle poaching and this resulted in significant fine sediment inputs to the River Nene. The primary purpose of the proposed works was to repair the eroded banks, prevent further erosion and improve marginal wetland habitat. Tree planting and tree management would enhance riparian and instream habitats with the bank re-profiling improving conveyance. Figure 1 is a map of the area where Whitemills back channel is and highlights the area where work was completed. Figure 2 shows the condition part of the back channel was in prior to the project being completed. It is clear to see the impact the cattle had whilst grazing on the bank. Due to grazing the bank had collapsed, erosion rate had increased, and the channel was widened. This also meant that lots of sediment was entering the backchannel, impacting the quality of the in-stream habitat.

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*Figure 2 Extent of poaching before the project*

## Objectives

White Mills lock backchannel proposed a number of enhancement opportunities with the primary focus of the project being to repair the eroded bank. This 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.

- Reduce sedimentation by repairing eroded sections of bank.
- Prevent future erosion by erecting livestock exclusion fencing.
- Increase in-stream woody habitat and create flow variation to improve the natural cleansing of the gravels by hinging and pinning or pleaching riverside trees and shrubs.
- Increase shade and reduce the growth rate of emergent weed beds by new tree planting.

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## Activities

***Hinging & Pinning/Pleaching Overhanging Trees***

This is where large limbs or whole small trees have a notch cut into the base of the trunk (a hinge) and are dropped on to the bank or into the water in a controlled way before being pinned into the bank using hardwood stakes and heavy-duty wire. This technique was carried out twelve times across the back channel to increase woody habitat, providing refuge for juvenile fish such as Chub and invertebrates as well as birds and mammals throughout the year. Figure 3 shows one of the fifteen trees that were hinged and pinned in to the back channel.

***Figure 3 Hinging and pinning at Whitemills***

***Bank Re-grading***

Using a 360° tracked excavator with a suitable reach, the steeply eroded banks were re-profiled to form a stable slope behind a wet berm on which a fringe of wetland vegetation can develop naturally. A berm is a flat strip of land, raised bank, or terrace bordering a river. During on-site consultation with the local Environment Agency Asset Performance Officer it was noted that for some time now, the Environment Agency has been planning to undertake works to improve conveyance and increase channel capacity immediately upstream of the culverts under the road at the bottom of the restoration reach. So, at the Asset Performance team's request, it was agreed that this project will take this extra work in partnership with the EA while suitable machinery was available on site. The additional works formed part of the

bank re-profiling activity whereby the height of the land enclosed by the meander at the downstream end of the reach was reduced to 30cm above normal water level in the back channel.
Topsoil was stripped and stockpiled for replacement after the re-profiling was completed. The arising sub-soils were used to infill a low area in the field and to reconstruct the earth bund on an alignment further south on the existing high ground. Following the replacement of the topsoil the area was grass seeded to restore the grass lost during the regrading. A single small tree, which was in poor condition, was removed to facilitate this operation, but additional planting further upstream will mitigate this loss.

***Note. There was existing low earth bund along the entire length of the right riverbank. It is not identified as a formal flood defence, but it does prevent early flooding of the field during very high flows. This was retained and where necessary any low spots were repaired during the bank re-profiling works.***

***Figure 4 Regraded banks at Whitemills 16 months after completion***

***Tree planting***

There were no trees on the southern side (right bank) of the back channel, so 12 trees were planted to increase shade coverage. Trees were planted on the bank crest in pairs leaving sufficient room for an excavator to work around them if necessary. Native British trees such as hawthorn, elder, blackthorn, hazel and dog rose were planted.

***Fencing***

The newly re-profiled banks and existing stable banks will be protected from future damage by post and 2 lines of barbed wire fencing on the right bank. The fencing was set back to create a buffer strip which is wide enough to allow machinery to operate. Field gates were installed at the upstream and downstream ends of the fence to allow machinery access and also to allow controlled cattle grazing of the buffer strip when ground conditions are suitable. As far as possible the new fence was aligned in the direction of flood flow and 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

Bank regrading & Fencing - Breheny Civil Engineering
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Website – www.breheny.co.uk



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