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Re-naturalising River Nairn

Salix worked on the River Nairn in an award winning project to renaturalise the river, allowing it to meander again and restoring river processes.

Project Background

The River Nairn at Aberader Estate had a long history of straightening, dredging and artificial embankments.
The channel had been straightened and constrained between embankments, becoming 'perched' above its floodplain due to aggradation of its bed.
The river corridor lacked the physical features and associated habitats that would naturally occur, mainly through the lack of morphological variability but also limited tree cover and large wood material in the active channel.
The perched channel was cut off from the surrounding floodplain. As a result, the water body was classified at less than good ecological status under EU Water Framework Directive (WFD) classifications.

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Case Study

Re-Naturalising River Nairn

Solution:

Cbec were appointed to undertake the detailed design with Salix appointed as the Principle Contractor to deliver this innovative process led restoration project.

The river was opened up, the embankments were removed and the river was allowed to meander again, allowing space for the river to deposit and re-establish the natural processes. River restoration like this is a low carbon solution that will provide resilience in the face of increased flooding.

Our solutions are always based on re-establishing the natural river process and we used a process based design, we ran a sediment transport model to ensure the design was appropriate given the amount of bed load in the river.

We realigned part of the river and added large amounts of woody structure, which hugely benefited the process of the river.

Large woody deposits are an excellent low carbon, natural solution which provide the potential for a high biodiversity response, and alongside the slowing of the river this is what we saw with increased numbers of fish fry and a general improvement in the ecology in and around the river.

Our aim was to create a better chance for the establishment of lateral channel variability by allowing the natural development of alluvial sediment bars and erosion of banks where the river's meanders naturally established themselves.

The large wood features help to "kick start" natural processes and dynamic channel changes

Due to availability of sufficient quantities of site won clay, one of the cells required the installation of a geosynthetic clay Liner.

Hazardous waste from GI data was trial holed, exposed, delineated, segregated and mucked away from site.

Outcome

Since the work was completed the river has evolved rapidly, two large online wetlands have been created.
Removing the physical constraints that had contained the channel for so long has allowed the new channel to evolve rapidly, creating far mor diverse physical habitats within the river corridor, whilst re-connecting the river back to its floodplain.
The river's fish numbers have been significantly improved along with other wildlife and the drainage of the agricultural land has been greatly improved without a cost to wildlife.
The results have exceeded expectations from the client and all the stakeholders involved in this scheme.
Our nature based solutions naturally ensure resilience in the face of climate change, allowing nature the space to adapt in our changing planet.

For further information, visit us at www.salixrw.com or contact:
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