

# In-Channel Works - Berm Creation



## Why does the channel need restoring?

In-channel improvements help to restore river channels that have been heavily modified and lack the habitat essential to support river species. Rivers naturally meander and overspill their banks, but over the years have been straightened and disconnected from their flood plains, especially in urban areas.

This strips the river of in-channel features, creates a uniform environment lacking habitat, and increases river water velocity,

in-turn potentially moving the flood risk downstream and increasing bank erosion and instability.

In-river enhancements will work with natural processes to reinstate more natural environments by adding variation to the river and helping to create habitats that increase species diversity and abundance, benefiting both people and wildlife.



## What works are we doing?

Throughout the River Witham, works will focus on improving the channel, with the intent to restore the straightened, over-widened and over-deepened sections of the river to a more natural state.

The River Witham as it runs through Grantham is restricted by hard banks. The introduction of berms will encourage the river to meander, whilst keeping it held within those banks. This way the river can behave as it would in nature, but without altering its course.

Berms have many advantages and uses; they protect the riverbanks, provide habitat and shelter, in over-widened channels they speed the water up which helps to oxygenate and clean the bed of fine silt deposits, and they work in both low flows and high flows.

In times of drought a narrower channel concentrates flow, helping to keep fish and other aquatic organisms happy, and during high flows, the works are submerged and don't impact on flood risk, but still provide areas of refuge for aquatic species.

Once established, berms create more natural river habitat that is more aesthetically pleasing and a more interesting area to visit and commute along.

## Tree hinging

Where appropriate smaller trees can be hinged to create the toe of berms. The benefit of this is twofold; not only is the natural process of tree fall replicated in a safe and controlled manner, but it also provides additional wood material to the berm, and the opportunity to allow light into the river channel.

## What are berms?

Berms are low level shelves constructed in a river channel to reinstate the natural sinuosity of the river and create a low inset floodplain. They are set at low flow levels to allow highflows to pass over them. Berm placement along the river is carefully identified, as is the level, choice of material and method used.

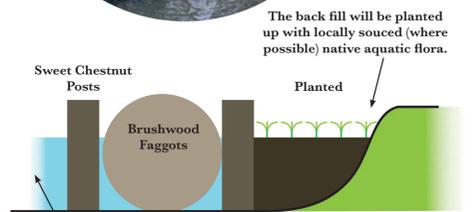
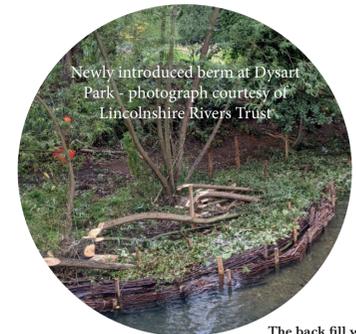
## How are they constructed?

Berms can be constructed from posts and faggots, or by hinging trees.

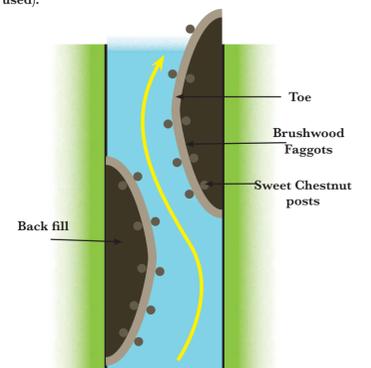
## Posts and faggots

Wooden stakes are driven into the riverbed next to the river edge, with brushwood bundles called faggots in between the posts. This forms the toe of the berm, which is then backfilled with materials such as soil or brushwood that will trap fine sediment that is transported by the river.

These berms can then be planted with native floral species, for example Water Cress, Purple loosestrife and Water Forget-Me-Not. To encourage optimum growth sympathetic works to surrounding riverbank trees may be undertaken to increase light into the channel.



The faggots and posts nearest the water form the 'toe' (or the hinged tree if that technique is being used).



Brown Trout - a powerful predator found throughout the UK hunting invertebrates and smaller fish.



Purple loosestrife

Grey Wagtail present along the River Witham in Grantham, named for its distinctive wagging tail movements. Steve Nesbitt



White Clawed Crayfish, the UK's only native crayfish, needing our protection to stop its national decline.

For more information visit our website:  
[www.withamsleabluegreencorridor.co.uk](http://www.withamsleabluegreencorridor.co.uk)

You can also scan this bar code using your mobile phone camera.



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