1.1 New meandering channel through open fields

**RIVER COLE**

**LOCATION** - Coleshill, (Oxon/Wilts border) SU 234935

**DATE OF CONSTRUCTION** - Autumn 1995

**LENGTH** – 500m

**COST** - £9k

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**DESCRIPTION**

A new river course was created to introduce a reach of free flowing water to a floodplain that hither to featured only a slow flowing mill leat. An existing mill by-pass channel remained in operation and was incorporated into the new design by extending it as far upstream as practical to create the additional meandering channel that was required. The River Cole is now diverted from the leat to flow in the new channel, which is small in size, to ensure seasonal inundation of the adjacent floodplain.

**DESIGN**

*Longitudinal profile (fig. 1.1.2)*

The new mean bed gradient was set at 1:1300 to match the mean floodplain gradient. The bed elevation was set to give the shallowest channel...
These techniques were developed to suit site specific criteria and may not apply to other locations.
The upper reach of the channel developed an intermittent bed substrate of gravel as well as small riffles of gravel below each meander. Limited supplies of gravel are derived from the clays exposed towards the bottom of the channel; none are carried down from the upper catchment. Additional gravels were imported to this reach one year after construction and ‘seeded’ into each pool for distribution by flood currents.

In the lower reach, where the new channel is less deep, gravels are less evident throughout. The drop weir at the lower end draws water noticeably faster as it approaches it. Downstream of this structure, the old by-pass channel has attracted substantial deposits of gravel, sand and silt derived from the new channel. These deposits are well sorted and have partially restored bed levels/profiles in the by-pass to historic levels, recreating variable flow depths.

The stiff clays in the river banks resisted erosion preventing cliffs from forming on the outside of meander bends where 1:1 batters were cut. Conversely, floodwaters were racing across the flat areas formed on the inside of each meander causing scour of the surfaces. The asymmetrical profiles were subsequently re-excavated as indicated on Section B. The profile was later modified (see below).

Since these modifications the channel has performed satisfactorily in all respects; a good range of flow currents, substrates and bank forms are sustained throughout the year.

No planting, or seeding of the channel was undertaken. Natural colonisation is occurring slowly. The channel is unfenced allowing cattle access at low density under Countryside Stewardship prescriptions. Cattle have effectively grazed a proliferation of willow seedlings. Both aspects are being monitored.
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