

## Revetting and Supporting River Banks

### 4.6 Hurdle and coir matting revetments

#### RIVER COLE

LOCATION – COLESHILL, OXON/WILTS BORDER, SU234935

DATE INSTALLED – AUTUMN 1995

LENGTH – HURDLES – 15 METRES. MATTING 3 LENGTHS OF 20 METRES

COST – APPROX £40/METRE



Construction of coir matting revetment  
– river being released

#### Description

The revetments were installed where an old, straight channel is crossed tangentially by a new, smaller, meandering channel at three separate locations. At each crossing point, the old channel was partially infilled and compacted and the new channel then excavated within this fill. As the new river flowed straight across the old, the risk of scour was not great, which suggested that only light revetments were needed, sufficient to protect the bank and bed until soils consolidated and vegetated over. Two bio-degradable materials were selected to line the newly formed banks, coir matting and dead willow hurdles. Stone lines the new bed in both examples.

Coir was installed on both banks at the crossing located mid way between the ford (ch. 280m) and the stock bay (ch. 100m), as well as opposite the large backwater. Hurdles were installed opposite the small backwater. A plan of the reach can be found in *Technique 1.2*.

#### Design

A primary consideration was achieving a satisfactory method of infilling and compacting the old channel such that the new channel could then be excavated within reasonably stable soils. The complicating factor was the need to work around a flowing river. Failure to achieve sufficient compaction would have required more robust and costly revetments.

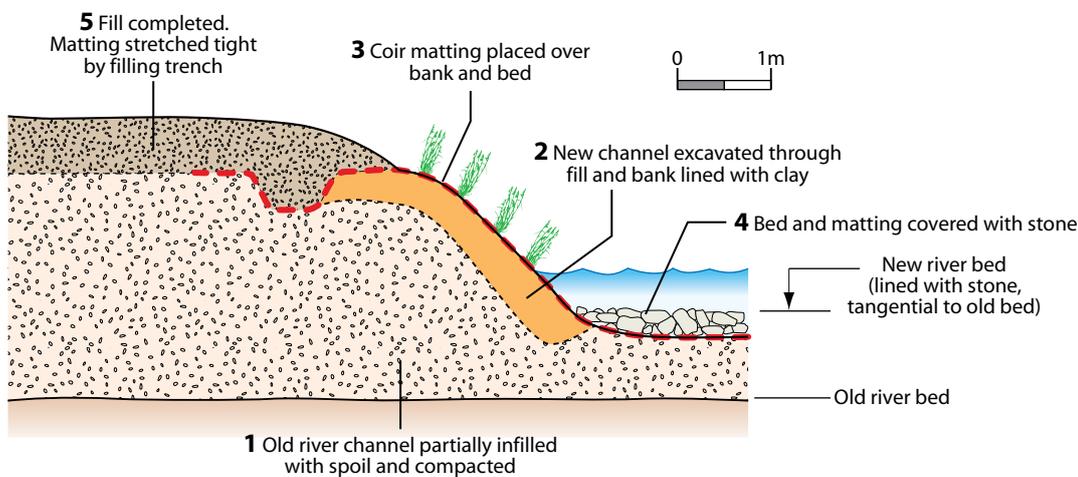
Two methods of managing the river flows were combined; pumping round the works and blocking off the flow creating a temporary lake upstream. This put great pressure on the contractors to quickly complete the work, but adequate compaction was achieved. Construction details are similar for both types of revetment (*Figures 4.6.1 – 4.6.2*).

Once the new river channel had been roughly formed (steps 1 and 2) it was relatively straightforward to complete the revetments as indicated by steps 3 to 5.

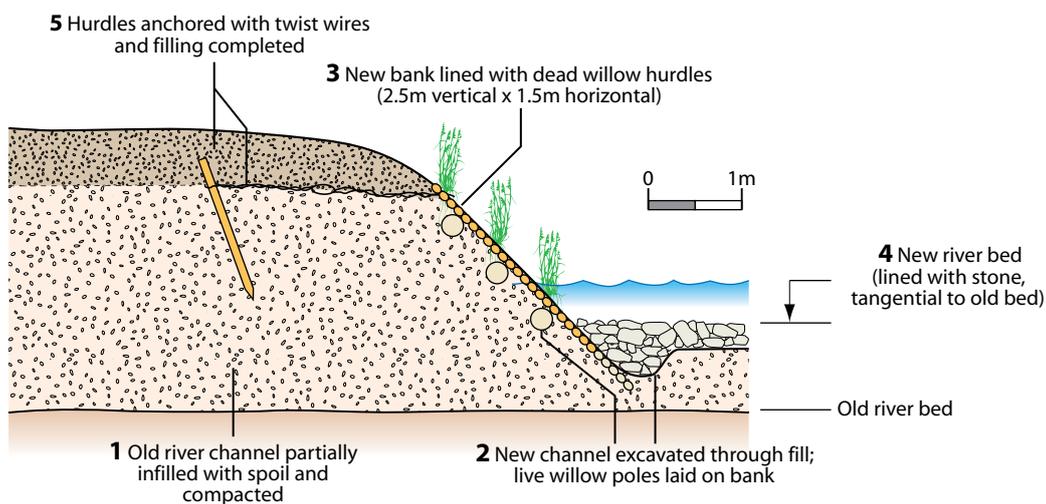
Points of note are that all joints between individual hurdles or matting were overlapped downstream to avoid lifting in high flows and each run of revetment was securely fixed within undisturbed soils at each end. A single willow hurdle was pegged down over each end of the coir matting for additional security, but some have washed away (without damage to the coir) suggesting they were not necessary. The stone bed was sized 0.1m – 0.15mm and spread up to 0.3m deep.

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# 4



**Figure 4.6.1**  
PROFILE OF COIR REVETMENT



**Figure 4.6.2**  
PROFILE OF HURDLE REVETMENT

### Subsequent performance 1995 – 2001

The revetments are all secure with no instability and are vegetated, particularly where turfy backfill was incorporated under the coir. Crack willow has successfully established from the live poles incorporated underneath the hurdles. None of the materials have seriously deteriorated in the three years since installation but will do so eventually.

In some places, the revetments have proved to be more secure than the adjacent undisturbed soil resulting in a hard 'engineered' line that contrasts with the subtle sculpting of the unprotected banks by river flows.

Alternative techniques for securing infilled river banks elsewhere on the same reach include bays, and backwaters (see *Technique 2.2*), and fords and stock drinks (see *Technique 8.1*). These alternatives have created much greater amenity/habitat value than the revetments and might, therefore, be regarded as preferable if circumstances permit.

