

Jack's Key Channel Erosion Protection



Salix lining the channel with Rock Mattresses

The Environment Agency have decommissioned two reservoir dams at Jack's Key and created an engineered channel between them that feeds into the River Darwen. The channel is spilt into 3 sections.

The middle section bed was protected with large logs but it was being heavily scoured by winter flows as its banks were created from site sourced materials from the removal of the dam.

This unstable new channel was a great concern as further downstream there is a sensitive flood risk situation.

The Environment Agency asked Salix for alternative ideas that would be robust, easier to green up and environmentally sensitive.

"The 2 Salix representatives we had at Jacks Key were Rhodri Henry & Jason Alford.

They were both a credit to Salix, worked meticulously in difficult conditions and nothing was too much trouble. Any issues were addressed immediately with a minimum of fuss.

Thanks Guys."

Ian Bolt **VBA**

Salix discussed the situation with the design consultants Acardis and CH2m and the new solutions were quickly approved by the EA.

Products Used

- **Rock Mattresses**
- **Rock Rolls**
- **VMax 350**

Our fix was robust and reliable on this upstream site.

The gabion interface in the top section with the natural soils was an erosion problem. Salix proposed restoring the intended channel profile, repairing the degraded gabion edges, and then butting up Salix pre-filled Rock Mattresses and stitching all units together.

The water from then on flowed on top of the Rock Mattresses downstream in a naturally shaped channel.

The log deflectors needed to be removed and the weak soil on the upper slopes was lined with our permanent turf reinforcement mat VMaxC350.

Natural River Banks.

Above average flow levels the mattress surface was dressed with 25mm seeded topsoil that has generated a bank that is in harmony with the environment.

This contrasts with the angular traditional look with lower colonisation prospects. A linear line of our pre-filled Rock Rolls was installed at the base of the gabion wall to reduce the scour potential.

Natural River Bed.

The standard stone fill in a Salix Pre-filled Rock Mattress results in a natural flow in the river as there is minimal loss in water depth in bed and normal sedimentation cycles expected from fluvial geomorphology.



Due to high energy water flows the stones within the gabions have moved leaving large voids



Looking upstream. Salix pre-filled Rock Mattress shaped and placed around the failing gabion mattresses. The flow now stays within the channel and on top of the Rock Mattress with its tighter stone fill.



Rock Mattresses through bed of channel and along the sides blending in well shortly after installation

Fluvial and Terrestrial Connectivity.

Salix pre-filled Rock Mattresses and Rock Rolls are filled off site to give a constant high erosion protection from high flow events and also facilitate local biodiversity.

Lindsay Ward

Senior Environmental Project Manager

"Salix were very helpful from our initial enquiry through to the construction works.

From a quick phone discussion and emailing some photos through we received some very good design options and sketches within a couple of days.

Following a site meeting we confirmed our preferred option and received a quote very quickly afterwards.

Salix were very helpful and easy to deal with and met our tight timescales throughout. The works were carried out safely and effectively on site, to programme, working well with our principal contractor. Their advice and design was very good and the constructed Rock Rolls are performing well on site."



Rock Mattresses being installed



A robust, natural and environmentally sound solution

