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Carbon Capture

GEORGE LESLIE

Natural Solutions on our Projects

Natural Solutions - Willow

At Bonny Water, the river bank was eroding and getting close to an important Scottish Water asset. Due to the local area being home to a kingfisher habitat, a green solution was required for the project.

The use of living willow in protecting embankments from erosion is a technique that has been used for centuries.

A spiling bank retainment system, as used in our Bonny Water project in 2021, uses live willow branches (withies) woven between osiers (live willow stakes) which are installed into the lake or river bed.

This creates a viable hurdle-like structure that, within months and depending on climate conditions, will form dense roots and vegetate top growth.

Photo 1 – install of willow along embankment

Install & Results

The install was carried out by Water Gems Ltd, from South Queensferry. The embankment was cleared and the willow osiers installed along the side of the river. There were two lines of osiers set out to give the embankment a stable structure.

The withies were then woven between the osiers, and behind these the area was backfilled. To maintain the kingfisher habitat, nesting tunnels were installed in the riverbank.

Photo 2 – near completion on embankment

The backfilling was compacted and then topsoil brought in to the same level as the top of the willow, and the area grass seeded.

On review of the works, the site team feel that given the right guidance that the willow osiers and withies can be installed by ourselves.

Have you worked with a natural solution or a low carbon product recently? Email supportservices@georgeleslie.co.uk with the info

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Natural Solutions – Flex MSE Bags & Plates

The Flex MSE bags and plates are an engineered solution for vegetated retaining walls and erosion control. The bags and plates are used to build a naturally resilient Geomodular structure.

The system provides the strength of interlocking parts without the need for concrete, rebar, mesh or other formwork.

Our project at Devonside made use of the Flex MSE system along the river bank to reinstate the erosion that had already taken place.

Photo 1 – Flex MSE system in place

The bottom four rows of bags will be immersed underwater, so were filled with gravel. The remaining rows above water were filled with soil and then hydroseeded.

Other benefits of the system include the growth of vegetation along the river bank, which will encourage wildlife to grow and live in the area.

Install & Results

Photo 1 – completion of embankment

The bags are laid in a brickwork fashion, and tamped into place. As shown in the photos, every two layers a layer of geogrid is added, along with a compatable layer behind the bags to add support. The geogrid is then wrapped up and over two layers of the bagging.

The Flex MSE system was installed by a sub-contractor, however the site team were of the opinion that, with training on the installation of the system, George Leslie would be able to install this in the future.