

Environment Agency Pilot – Flex MSE® Vegetated Wall System, 2016

Case Study: River Repair, Tadburn Lake, Jenner Way, Romsey, Hampshire

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Contractor: EA Field Team, Hampshire

Working with the Environment Agency's Hampshire Field Team, Flex MSE® Vegetated Wall System was applied to repair damage to a river bank on Tadburn Lake at Jenner Way, Romsey, Hants in Spring 2016. The GTX bags were filled on site and installed by hand. The aim was to use a sustainable, green soft-engineered product, built near-vertical, that could adapt to the contours of the original bank line and withstand significant flow rates preventing scour.



The challenge was to reprofile the bank at a bend that was seeing significant scour, at a point that risked undermining a pre-existing flood wall, public footpath and residential property.

Flex MSE® was selected, in addition to its longevity statement and green engineered properties, as the units could be transported to the site with ease, installed quickly and made structurally sound once completed.

The Flex MSE® nonwoven GTX bags were filled with a free-draining granular material on the first two courses, and with a proprietary mix (66:34) of clean sand & organic compost on the upper courses. This allowed for a geomodular block system that was free-draining, water & root permeable and stable over time whilst allowing for growth of native vegetation. Flex MSE® patented & engineered interlocking plates were placed between the bottom course of bags and the river bed, and every joint between the bags, creating a flexible & stable geomodular block structure that followed the original contour of the bank.

The bags, once fully installed, were live-staked with native aquatic plants by cutting up to three inverted T-cuts into the face of each bag to allow for plugs to grow within.

Approximately 12 months post-installation, the Flex MSE® installation was fully covered in vegetation, both proactively inserted and native plants that are typical of the local area.

The Flex MSE® GTX bags are both water & root permeable and UV-stabilised, acting as a scour protection at the face, withstanding high flow-rates during flood events.

Flex MSE® is a direct alternative to concrete, gabion baskets and timber revetment systems due to ease of installation, 120-year design life & 75-year warrantee, natural flood-management properties & habitat/biodiversity preservation. The Flex MSE® system can be vegetated in a variety of ways including hydroseeding, live-staking or brush-layering, either blending in with the natural environment or creating a living, breathing green space in urban environments.



Flex MSE® is unique in so much as that the system can incorporate the use of geogrids and other such reinforcement products, including earth/rock anchors.



The main USPs of Flex MSE® Vegetated Wall Systems include:

- 120-year design life with a 75-year warrantee
- Installed in less than 2/3 of the time compared to traditional systems
- Costs up to 60% compared to traditional systems
- Can be filled with site-won materials
- Can be vegetated with native plant species
- Recommended for use on SSSIs by the Environment Agency
- BREEAM compatible
- BBA Certification Stage 3 Reached
- Can be installed from horizontal (living roofs) to near-vertical (retaining walls & slopes)

Flex MSE® Applications & Uses Include:

- Retaining walls
- Riverbank/coastline erosion repairs
- Free-standing flood-walls
- Landscaping features
- Ditch lining & slope cladding
- Culvert headwall repairs