Canal Embankment Stabilisation in Llanfoist with Soil Nailing and SteelGrid HR

Avergavenny, Wales



TYPE OF PROJECT	YEAR OF CONSTRUCTION	CLIENT	CONTRACTOR	DESIGNER
Simple Drapery	**2018**	**Canal & River Trust**	**CPC Civils/Vertical Access**	**Kier**

PROD. RELATED
MacArmour & SteelGrid ()

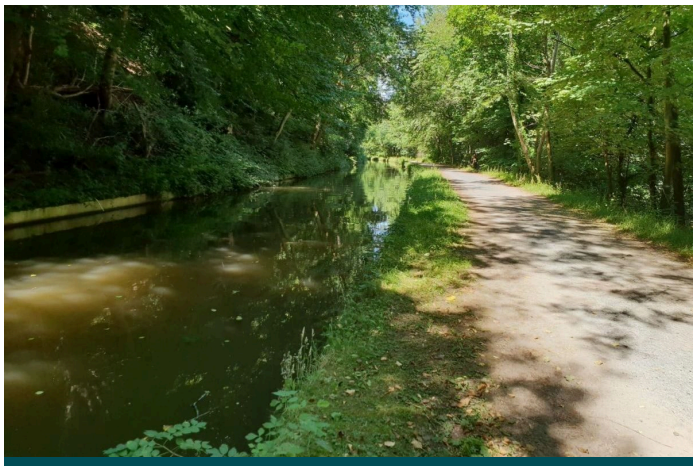
Challenge

Llanfoist, a village near Abergavenny in Monmouthshire, lies on the edge of the Brecon Beacons National Park and is closely associated with the River Usk, which flows for 63 miles to Newport. Running through the scenic Usk Valley, the Monmouthshire & Brecon Canal follows a similar route to the river but, at Llanfoist, is positioned along the side of a wooded hillside.

At this location, the canal sits on the crest of an embankment that began to show clear signs of structural instability. Progressive erosion of the embankment face further increased the risk, raising concerns about the long-term stability of the canal infrastructure. Given the canal's heritage importance and its role within the local environment, immediate stabilisation works were required.

The Canal & River Trust, working alongside specialist contractors CPC Civils and Vertical Access, identified the need for a robust embankment stabilisation solution. A soil nailing system was selected to provide deep-seated ground reinforcement. However, to ensure full protection, a high-performance surface stabilisation system was also

required. This system needed to connect soil nail heads while offering high puncture resistance and protection against rockfall and debris caused by ongoing surface erosion.



The Monmouthshire and Brecon Canal



Steelgrid HR in place stabilising the face of the embankment

Solution

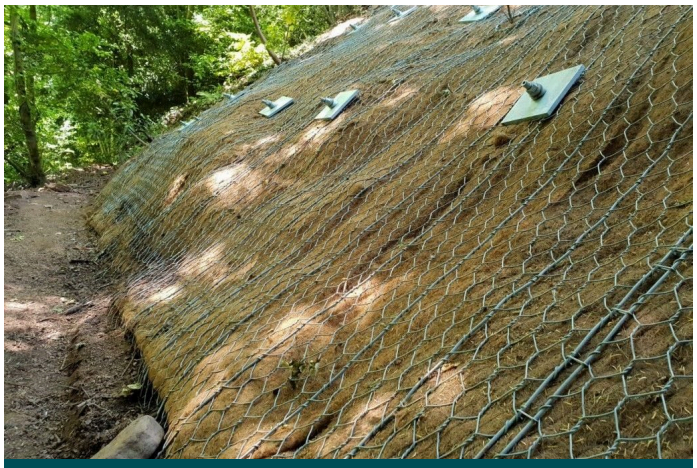
Maccaferri provided an engineered slope stabilisation solution using SteelGrid HR 30, a high-strength composite steel mesh designed for embankment reinforcement and erosion control. SteelGrid HR is a BBA-certified system with a design life of up to 120 years, making it ideal for long-term infrastructure protection projects.

The SteelGrid HR 30 mesh was installed as a drapery system across the embankment face and securely fixed using anchor plates, U-bolts, and mesh connectors. This created an integrated solution that worked in conjunction with the soil nails to deliver both deep and surface stabilisation. The system effectively prevents further erosion, controls loose material, and protects against falling debris.

SteelGrid HR represents an advanced development in high-strength mesh technology, offering high tensile strength at low strain, exceptional stiffness, and superior puncture resistance with minimal deformation. These properties ensure reliable performance even in demanding geotechnical conditions.

In addition to its technical performance, the system is quick and efficient to install, helping to reduce construction time and minimise disruption. Over time, natural vegetation will establish across the reinforced slope, improving visual integration with the surrounding landscape without compromising the mesh's performance.

This solution successfully stabilises the canal embankment, protects critical infrastructure, and preserves the natural beauty of the Usk Valley. As a result, this historic and environmentally significant waterway can continue to be safely enjoyed for generations to come.



Soil nails and Steelgrid HR



Steelgrid HR system securely in place, with vegetation

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