BORDERS RAIL

EDINBURGH - SCOTLAND - United Kingdom



TYPE OF PROJECT	YEAR OF CONSTRUCTION	CLIENT	CONTRACTOR	DESIGNER
Mass Gravity Retaining Walls	**2019**	**BAM NUTTALL LTD**	**BAM NUTTALL LTD**	**Donaldson Associates**

PROD. RELATED
Gabions (5490 Sq.M)

Challenge

The Waverley Route, now known as the Borders Railway, is a key rail infrastructure project reconnecting Edinburgh, Midlothian, and the Scottish Borders to Tweedbank. Originally closed in 1969 during UK railway rationalisation, the line remained inactive for decades, limiting regional connectivity and economic growth.

In the early 2000s, plans to reopen the northern section gained traction, culminating in the Waverley Railway (Scotland) Act 2006. Following its approval and rebranding to the Borders Railway in 2008, construction began in 2012. However, reopening the railway required extensive civil engineering works to upgrade outdated infrastructure to modern rail standards.

A major challenge involved widening existing cuttings along the 35-mile route to accommodate new track installations. These areas required reliable slope stabilisation and retaining wall solutions capable of handling ground movement, long-term settlement, and continuous vibration from rail operations. The solution needed to be durable, cost-effective, and suitable for large-scale railway construction.



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Gabion retaining wall

Solution

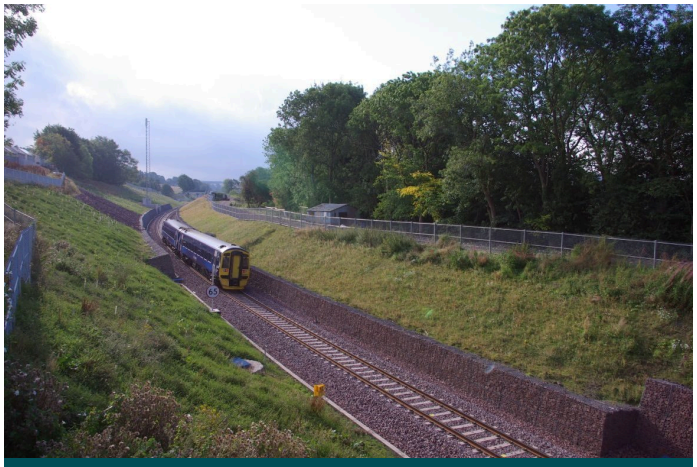
Maccaferri provided a high-performance gabion retaining wall solution to stabilise and support widened cuttings along the Borders Railway route. This project became the largest gabion supply contract in the UK, with over 35,000m³ supplied and 25,000m³ of polymer-coated woven double twist gabions installed.

Gabion retaining walls were selected due to their strength, flexibility, and proven performance in rail infrastructure projects. The double twist woven mesh design allows the structures to tolerate differential settlement and dynamic loads without failure, an essential requirement for railway environments subject to constant vibration.

Manufactured from steel wire with a zinc-aluminium heavy galvanised coating and additional polymer protection, Maccaferri gabions offer exceptional durability and corrosion resistance. The system is BBA certified with a design life of up to 120 years, ensuring long-term reliability and reduced maintenance costs.

The gabions were filled with locally sourced stone, improving sustainability and reducing transportation impacts. Hand-packed front faces created an attractive dry-stone wall appearance, blending the structures into the surrounding landscape while maintaining structural performance.

Maccaferri's gabion systems are supported by Environmental Product Declarations (EPDs), providing independently verified data on environmental impact. This enables engineers and project stakeholders to assess and compare sustainable construction solutions, aligning with modern infrastructure and environmental standards.



Area of Ladybray, installing the Gabion retaining structure



Ladybray completed structure and area

MACCAFERRI LTD. 9 Blenheim Office Park Fenlock Road, Long Hanborough, Oxfordshire OX29 8LN, UK
PH:+44 1865 770555 E-mail: info.uk@maccaferri.com



Completed retaining structure and railway line in Catcune



Retaining structure being installed at Gorebridge Station

MACCAFERRI LTD. 9 Blenheim Office Park Fenlock Road, Long Hanborough, Oxfordshire OX29 8LN, UK
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