

East Bay Link Cardiff Temporary Retaining Wall Solution with FlexMac DT

Cardiff, Wales



TYPE OF PROJECT

Mass Gravity Retaining Walls

YEAR OF CONSTRUCTION

2016

CLIENT

Welsh Government

CONTRACTOR

Dawnes Construction Holdings

DESIGNER

Capita

PROD. RELATED

FlexMac DT ()

Challenge

The East Bay Link in Cardiff is a major infrastructure project designed to improve transport connectivity in the Welsh capital. This new dual carriageway links Ocean Way to the Queens Gate roundabout, creating a continuous route from the M4 motorway into Cardiff Bay. With an estimated project value of £27.3 million, the scheme required the construction of a low embankment alongside multiple viaduct structures.

A key engineering challenge was the need for a temporary retaining wall solution to support the embankment during construction. Dawnes Construction required a system capable of handling heavy construction traffic loads while maintaining stability and safety on site. The solution also needed to be temporary, allowing for the later installation of a permanent retaining wall system without disrupting progress.



FlexMac DT temporary structure



Backfill placement behind the structure

Solution

Maccaferri worked in partnership with Dawnus Construction Holdings to deliver an effective and sustainable temporary works retaining solution using FlexMac DT. Commonly used in flood protection and embankment stabilisation, FlexMac DT was selected for its strength, flexibility, and rapid installation.

FlexMac DT units are manufactured from hexagonal double-twisted wire mesh, reinforced with vertical steel rods and lined with a non-woven geotextile. This design provides durability and structural integrity, making it ideal for temporary retaining applications. The system can be filled with a variety of materials, with a focus on locally sourced fill to reduce environmental impact.

For the East Bay Link project, approximately 175m³ of Type 1 slag material, recycled from a nearby steelworks, was used to fill the units. This approach supported sustainability goals while delivering a high-performance solution. The installation created a 77-metre-long temporary retaining structure, providing essential support for ongoing construction activities.

This temporary system enabled the safe and efficient installation of the permanent MacWall® segmental retaining wall system. MacWall® combines the aesthetic appeal of masonry with the strength of reinforced earth technology, offering a cost-effective, durable, and versatile retaining wall solution. Its modular design allows for quick construction and has contributed to the growing popularity of segmental retaining walls (SRWs) in modern infrastructure projects.

Keywords: East Bay Link Cardiff, temporary retaining wall, FlexMac DT, embankment stabilisation, geotechnical engineering, MacWall retaining wall, segmental retaining wall system, sustainable construction materials, recycled slag fill, Maccaferri solutions



Elevation of the Temporary Structure



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