

A40 Llanddewi Velfrey to Redstone Cross

Pembrokeshire, Wales

Phi Group's Textomur reinforced soil slope system has been used to great effect on a major highways scheme in West Wales. Principal Contractor Alun Griffiths (Contractors) Ltd. appointed Phi Group to supply and install Two Textomur reinforced soil slopes, whilst also providing design input for Jacobs, the scheme Engineers.



The project

The A40 between St Clears and Haverfordwest is mainly a single carriageway. Works to make improvements to the existing road between Llanddewi Velfrey and Redstone Cross to improve safety and to incorporate new cycling and walking routes. The scheme Engineer Jacobs contacted Phi Group at an early stage as the scheme required existing levels to be increased to enable the widening of the carriageway, resulting in some large reinforced soil slopes. Phi Group's Textomur system was identified as a suitable solution with our expertise and experience also a key driver for our appointment.

The challenge

As with and large reinforced soil project, access to the working area for the delivery of materials is key so careful coordination with Principal Contractor Alun Griffiths (Contractors) Ltd was key. There was also the added requirement to incorporate some large culverts through the face of the reinforced soil slopes, so how this interacted with both the face of the structure and the geogrid reinforcement needed to be carefully considered. This highlights the benefit of early engagement with a design and build specialist.

The solution

There were two Textomur reinforced soil slopes required on the scheme.

Wall 1 - 67m long, up to 9.60m max height, 555m² face area

Wall 2 - 150m long, up to 19.00m max height, 1,786m² face area

The Textomur slopes were designed in house by Phi Group, with geogrid lengths and strengths ascertained and the designs then adopted by Jacobs as part of their overall scheme design. Our experienced operatives on site had to contend with bad weather, sometimes restricted access to deliver materials such as the estimated 30,000m³ of granular fill material that we placed and compacted to form the reinforced soil mass.

The Textomur System involves the placement of prefabricated sacrificial steel mesh formwork to the face of the reinforced soil slope, a geotextile is placed to the inside face of the steel cage to enable a layer of topsoil growing medium. The geogrid soil reinforcement is then incorporated from the steel cage and extends back into the reinforced soil fill material.

The system has been widely used on a number of high-profile highways schemes but is also suitable for commercial and residential projects, especially where the re-use of site won material is an option.

Project facts

Owner(s)

Welsh Government

Keller business unit(s)

Phi Group

Main contractor(s)

Alun Griffiths (Contractors) Ltd

Engineer(s)

Jacobs

Solutions

Retaining structures

Markets

Infrastructure

Techniques

Textomur reinforced soil slopes

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