

WALTERS

A465 Heads of the Valleys Dualling - Section 3



Project:

A465 Heads of the Valley Dualling - Section 3

Client:

Welsh Assembly Government/
Carillion

Value:

£17.1 million

At-a-glance:

- 1.5 million m³ earthworks
- 7.5 km dual carriageway
- 8 no major bridges
- 4 no interchanges
- The largest earth retained structure in Europe at 28m high
- Blasting & processing of over 250,000 m³ rock

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Walters is accredited to ISO 9001 for Quality Management, ISO 14001 for Environmental Management and OHSAS 18001 for Occupational Health & Safety.

Challenges

The existing 3 lane Heads of the Valleys road was built during the 1960's across mountainous terrain, at over 1000ft above sea level, and along a narrow strip of land between the South Wales valleys and the Brecon Beacons mountain range. Increased traffic flows had made the road an accident blackspot and adjacent development meant that online widening was not a viable option.

Key to success would be dealing with extensive surplus material and efficiently crossing the 500 metre wide, 30 metre deep Carno valley.

Solution

The original design had over 1,000,000 m³ cut to fill with a surplus of 350,000m³ to be removed from site. In order to minimise road haulage along local roads and to reduce carbon footprint, a design change was required.

The Carno valley was originally planned to have a viaduct built to link two mountain ridges but with a large earthworks surplus it was suggested that the design be changed to a concrete arch allowing the valley to be filled with the surplus material. The net result of this change meant that no material was removed from site dramatically reducing road haulage on the public roads.

In order to link the two ridges together, maintain the river flow and accommodate the spillway from an adjacent reservoir, an 18m wide, 9m high and 150m long precast concrete arch was constructed to allow embankment construction above. The embankment's north elevation was constructed with earth retained panels spanning the full width of the valley and, with a height of 28m, are now the largest in Europe. Along the southern elevation, sections were constructed using slackened earthwork slopes and reinforced earth mesh.

In addition to extensive peat beds, over 250,000m³ of abrasive, sandstone rock was encountered along the route, much of which required blasting and all of which was further processed for use as Class 6 fills throughout the project.