



CASE STUDY

New Acland Coal Expansion

Darling Downs Region, QLD, Australia

Reinforced Earth Walls
TerraPlus®

Owner: New Hope Mining
 Consultant: Sedgman Pty Ltd
 Contractor: Reinforced Earth Pty Limited
 Construction: September 2006

Background

The New Acland open cut coal mine is located approximately 150km west of Brisbane in the Darling Downs region of South-east Queensland.

In 2002 a 533m², 14m high Reinforced Earth Dump Structure was constructed to enable Run of Mine (ROM) coal to be fed from ore bearing mine vehicles into the gravity fed primary crusher. The dump structure was constructed using the Reinforced Earth TerraPlus™ system, comprising reinforced concrete facing panels, galvanised steel soil-reinforcing strips and selected backfill.

This dump structure was designed to carry loads from a 280Tonne CAT 789B dump truck over a 25-year life.

Challenge

In 2006 New Acland Coal Pty Ltd wished to expand the production capability to match the maximum transportable limit for product from the mine site to points of sale and shipment. It proposed to increase production from 4 Mtpa up to 7.5 Mtpa ROM coal.

Appointed consultant and project manager, Sedgman Pty Ltd, was requested to evaluate upgrade options.

Solution

Sedgman determined the need to duplicate the existing Reinforced

Earth structure with an identical one nearby as part of the upgrade.

Sedgman appointed The Reinforced Earth Company (RECO Australia) to design, supply and construct the new dump wall and dump slab.

The specifications for the design of the new wall were almost identical to the previous one: A 503m², 14m high concrete faced panel wall.

Whilst the design was nothing new for RECO, the particular challenge here lay in the construction. Typically, RECO Australia is a “design and supply” company, preferring not to be involved with wall installation. On this occasion, due to the ongoing close relationship RECO has with Sedgman, RECO offered to construct the wall and was subsequently engaged to do so.

RECO then in turn engaged Sydney based earthmover Retaining Solutions to undertake the construction works under the supervision of full-time site based RECO staff. After extensive staff inductions and preparation of strict safety procedures, the site works were able to commence.

The works began with significant excavation (some 15,000m³), removal and stabilisation of an existing embankment to make room for the new wall. On completion of excavation, RECO engaged a



Main Picture: Dump truck approaching New Acland coal Dump Structure.

Top and above: Installation of REHas® soil reinforcing strips.

Mining infrastructure



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Left: Original and new dump structures at New Acland Coal.

Above: Construction of the slab on top of the dump structure.

geotechnical engineer to assess and certify the exposed foundation to carry the loads from the new structure. Once done, construction of the new wall could then commence.

RECO manufactured facing panels at it's own precasting facility at Wacol, near Brisbane, some 2 hours drive from the site. The site based RECO presence was able to schedule delivery of materials in line with the progress of site construction activities thus ensuring no delays. Careful traffic management was continually required as construction traffic regularly crossed paths with mining traffic due to the close proximity of day-to-day mining operations, which had to be allowed to continue unhindered.

Once the wall was fully installed, the final challenge for RECO was to construct the heavily reinforced concrete dump slab. Elements of the steelwork were prefabricated off-site for RECO by F&E moulds in Sydney and transported to site for incorporation in the slab.

The slab was finally poured 9 weeks after commencement of the

works – all but completing the project for RECO.

The construction scope is never without its particular difficulties due to the complex interaction and coordination of numerous subcontracted parties, each with a desire to perform works in minimal time, at minimal cost. However for RECO as the managing contractor the issues of safety and quality were constantly of paramount concern and this focus was not lost.

Whilst construction is not a common part of RECO's scope in Australia it must be said that this project was particularly successful for RECO, and Sedgman Pty Ltd has recently been pleased to announce to it's shareholders that the entire upgrade project was delivered to it's client on time and on budget.

Special features/benefits

- RECO responsible for the construction of the Reinforced Earth wall.
- Facing panels manufactured at RECO's own precasting facility at Wacol allowing for optimal scheduling of materials

Project specifications

System	TerraPlus®
Finish	Smooth, grey concrete
Structure	Dump Structure
Area	503m ² (and 533m ²)
Max. Height	14m
Length	15m (main wall) 22m (each wing wall)
Design load	CAT 789B (280 tonnes)
Design life	100 years

precasting, delivery to site and construction.

- For RECO as the managing contractor the issues of safety and quality were constantly of paramount concern and utmost importance for the duration of this project.



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