



CASE STUDY

D2G UPGRADE

Dinmore, QLD, Australia

Reinforced Earth® walls
TerraPlus®

Owner: The Department of Main Roads
Consultants: SMEC Australia and Parsons Brinckerhoff
Contractor: Abigroup Contractors, Fulton Hogan and Seymour Whyte Constructions Joint Venture
Construction: March 2009

Background:

The Department of Main Roads is upgrading the Ipswich Motorway from four to six lanes with provision for eight lanes in the near future.

The motorway will provide a vital traffic link and freight corridor from Rocklea in the east to Dinmore in the west, connecting Warrego Highway, Cunningham Highway, Logan Motorway and Centenary Motorway to the Brisbane traffic network. Further, it is a crucial traffic connection between Ipswich and Brisbane.

This upgrade also includes eight kilometres of the Motorway between Dinmore to Goodna. The alliance delivering this part of the project is called Origin Alliance and comprises of Main Roads, Abigroup, Fulton Hogan, Seymour Whyte Constructions, SMEC Australia and Parsons Brinckerhoff.

Challenge for the Department of Transport:

The motorway originally consisted of a minimum of two lanes in each direction and runs over 19 kilometres from Dinmore to Rocklea.

Traffic volumes on this corridor have dramatically increased since

the 1990's as South East Queensland's population has rapidly expanded. As a result, the motorway became severely congested and unreliable for road users and the Department of Main Roads developed a plan to upgrade new sections of the Motorway.

Reinforced Earth® walls:

The Origin Alliance, the companies responsible for constructing the Ipswich Motorway Upgrade, engaged the Reinforced Earth Company to design and supply 41 Reinforced Earth® walls (TerraPlus® facing panel walls) with a combined surface area of 20,168sqm as well as 11 temporary wire mesh walls (3,762sqm) for the Dinmore to Goodna section of this upgrade.

Challenges and Solutions:

To ensure that the works did not disrupt traffic – this objective being included in the specifications – RECO proposed that they be organised in two stages. RECO also provided on-site supervision every two weeks.

Despite this phasing and an expansion of the RECO organisation to better control the project's logistics (elements manufactured by several sub-contractors had to be delivered to



Main picture and above: TerraPlus® at the Ipswich Motorway Upgrade – Dinmore to Goodna section. The main picture includes the wave pattern and the above pictures includes the random stone and rock patterns.

Transport infrastructure



REINFORCED EARTH
SUSTAINABLE TECHNOLOGY



Left: TerraPlus® Reinforced Earth® walls at the Ipswich Motorway Upgrade – Dinmore to Goodna. This is part of the 'leaf' pattern.
Above: Construction of the Reinforced Earth® walls with the wave pattern, Dinmore, NSW.

four different work zones), the project suffered disruption and delays due to heavy rainfall in the region in early 2011 that resulted in catastrophic flooding. However, Reinforced Earth® structures were not affected in any way and this demonstrated the resilience of Reinforced Earth® structures during rare but extreme flood events.

In addition, it was difficult at times for RECO to meet targets and timelines due to four zones and four teams that were working independently of each other. RECO solved this problem by asking the four zones to select one company and one representative for RECO to liaise with and send designs and panels to rather than four.

Unusual features of this project:
 This project has been unusual and interesting in several ways for RECO. It is the first time that RECO have designed and supplied the complete system that includes the posts and capping beams of the structures.

Further, it is also the first time that one of the temporary walls have been fully galvanised and completely embedded and buried into the backfill of the final structure.

Another unusual aspect is the architectural finishes. The Origin Alliance's landscape architect requested an aesthetically appealing wall as they would be located in the city of Brisbane. As a result, RECO worked with the clients' landscape architect to achieve this goal. They came up with a Reckli Havel and Reckli Nordeney finish which included four different patterns. This consisted of a leaf, wave, rock and random stone pattern.

Exceptional feedback and endorsement:
 RECO received exceptional feedback from the client for this project. Peter Andrews from the Origin Alliance has agreed to be quoted as saying: "We are very happy and appreciative of the level of service provided and the quality of panel finish is perfect".

Project specifications

System	TerraPlus®
Finish	Special
Structure	Reinforced Earth® wall
Area	20,168sqm
Max. Height	
Length	41 RE Walls & 11 temporary walls
Design load	
Design life	100 years for RE walls & 5 years for temporary walls