



<b>Project</b>	Dartmouth Dam
<b>Owner</b>	MDBA
<b>Project Description</b>	Design and Supply of cable support system in the access tunnel

<b>Client</b>	Goulburn Murray Water
<b>Site Location</b>	North Eastern Victoria
<b>Year completed</b>	2011

**Project Description** The Dartmouth Dam is the largest capacity dam in Victoria and the highest structure of its kind in Australia. When it is full, the dam stores almost 4,000,000 megalitres (ML).

It has undergone regular modernisation in the recent years. In 2011, UNISTRUT and Lecky’s Electrical supplied the cable support equipment for the auxiliary power supply cable.

The primary purpose of Dartmouth Dam is the storage of water for irrigation and domestic use in Victoria and New South Wales. In dry seasons, the storage supplements releases from Lake Hume and increases supplies to the River Murray system.

To increase the operational reliability of the low level outlet works an auxiliary power supply has been commissioned. This entailed installing a separate electrical cable some 480 metres down an access tunnel, terminating in a valve chamber from where the outlets gates are operated.

***“CHANGING TUNNEL SURFACES AND MECHANICAL HAZARDS MADE IT IMPOSSIBLE TO USE CONVENTIONAL CABLE TRAY SUPPORTS...”***

The Access tunnel is a “horse shoe” shape with a flat reinforced concrete invert. Some sections of the

tunnel are concrete lined, while other areas are sprayed concrete or natural rock. Due to the changing tunnel surfaces and the need to mount the cable away from mechanical hazards conventional cable tray assemblies could not be used.

Dartmouth team met on site with Lecky's Albury's representatives and Steve Palmer, UNISTRUT Victoria Sales Manager, to qualify directly the sensitive constraints with the hanging requirements.

One reason Dartmouth team wanted to work with UNISTRUT was the company long-time technical expertise and the competent personal service on site.

The challenge for UNISTRUT was to design a custom made solution to provide Dartmouth a simple and cost effective solution to cable tray installation.

***“THE HANGING BRACKETS ARE SIMPLE, SAFE AND EASY TO INSTALL.”***

Maston Feakes, UNISTRUT Business Development Manager Victoria, was able to provide a simple yet innovative solution by designing a unique C type hanger built from UNISTRUT channel, associated with specific anchor fixings. The benefit for Dartmouth team was the ease of installation of cables, which were already lying on the floor and could not have been installed through a traditional trapeze hung solution. Using UNISTRUT “QRN” fast installation channel nuts also added to the rapidity of installation.

Engineering flexibility and fast response time were the major success factors for the project.

UNISTRUT and Lecky's complimented each other, ensuring the design, fabrication and delivery programme were ahead of schedule. “I also commend both companies for their post project discussions with Dartmouth staff”, commented Peter Liepkalns, head of the project.

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**Solution** Nema 16A Cable ladder  
Custom made C type hanger  
Custom made cantilever brackets  
Slotted channel for drainage  
UNISTRUT “QRN” quick installation nuts

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**Project team** UNISTRUT Business Development Manager: Maston Feakes  
UNISTRUT Victoria Sales Manager: Steve Palmer

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**Referee** Peter Liepkalns, GMW, SRC/ OPS  
Ph (02) 60 724411 Email [peterl@g-mwater.com.au](mailto:peterl@g-mwater.com.au)

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“The simplicity of design and associated anchoring enabled Dartmouth staff to erect 90 linear metres of cable tray in the lined section per day...”

Cable tray installation in the concrete lined and concrete sprayed section of the access tunnel.

Cable tray installation in the unlined tunnel section.

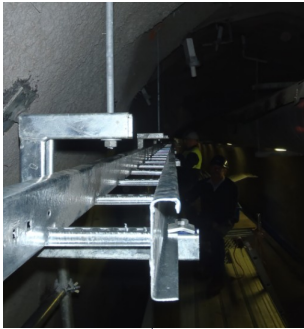
The design only required standard hammer drills, knock in anchors and all thread to complete the job.

*Additional side support was provided every 6 metres to maintain an aesthetic line and also provide rigidity when placing the cable in the tray. The additional support did not hinder placing the cable nor the cable tray covers.*





Hanging bracket & side support



Hanging bracket and tray



Horizontal brackets

