



## GEOFABRICS CASE STUDY



# RESTORING HISTORIC ALLIGATOR CREEK BRIDGE WITH INNOVATIVE GEOGRID

## PRODUCTS USED

### Triaxial Geogrid

- A multi-axial geogrid made from punched polypropylene sheets, forming a unique hexagonal structure with triangular apertures that confine and interlock with aggregate for soil stabilisation and ground improvement
- Reduces aggregate layer thickness by over 50% without compromising performance, lowering excavation and fill costs
- Enhances layer stiffness to allow the use of lower-quality or recycled fill materials, reducing material costs
- Speeds up installation, offering a fast, cost-effective stabilisation solution for roads, working platforms and heavy-vehicle pavements

### Similar Product

Geofabrics® Geogrid™ Triaxial

### Bidim® Green Non-Woven Geotextile

- A strong three-dimensional structure with high elongation and equal biaxial strength properties in both directions
- Made with a combination of recycled PET and virgin plastic materials
- Provides excellent filtration, separation, drainage and protection performance
- Reduced need for quarried fill materials and reduced construction times

## PROJECT DESCRIPTION

This project involved upgrading the historic Alligator Creek Bridge, located in Queensland. Originally built in 1911, the 253-metre-long bridge required maintenance as part of Queensland Rail's asset renewal program. The upgrades included the replacement of several ageing concrete piers and general maintenance to ensure the bridge's long-term structural integrity.

Geofabrics was approached by the lead contractor for suggestions to optimise the thickness of the working platform required for a tracked piling rig.

## OUR SOLUTION

Geofabrics worked closely with the client's geotechnical engineer to propose a working platform using triaxial geogrids with a thickness of 300 millimetre. This reduced the working platform thickness by 45% compared to the alternative without geogrid. The platform thickness was determined using an approach that accurately assesses the positive effect of stabilising geogrids on the bearing capacity of working platforms, validated through full-scale testing.

The geogrid was laminated with Bidim Green A29G geotextile and placed in accordance with the installation guidelines provided by the manufacturer. A material specified by TMR Type 2.3 standards was used to construct the platform, with a total 1,150 square metres of triaxial geogrid procured for the project.

The client expressed satisfaction with both the installation of the geogrid solution and the overall outcome of the project. The client's representative commented, "The geosynthetic used not only allowed us to meet the desired loading capacity requirements on the piling pads but also enabled us to minimise the thickness required as intended. We look forward to more successful collaborations in the future".





**45%**  
thinner platform

**1,150 m<sup>2</sup>**  
total area covered



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Sustainable solutions

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