

# CASE STUDY

Geogrid

Project: SH4 Realignment  
Date: Mid Feb - April 2009  
Client: NZTA  
Location: Okura (between Wanganui and Raetihi)



## Miragrid GX Geogrid

Two abutment walls needed to be constructed to protect the bridge piers and support the embankment fills behind the bridge abutment forming the new realignment for SH4. This new bridge alignment spans across Mangawhero River linking between Wanganui and Raetihi.

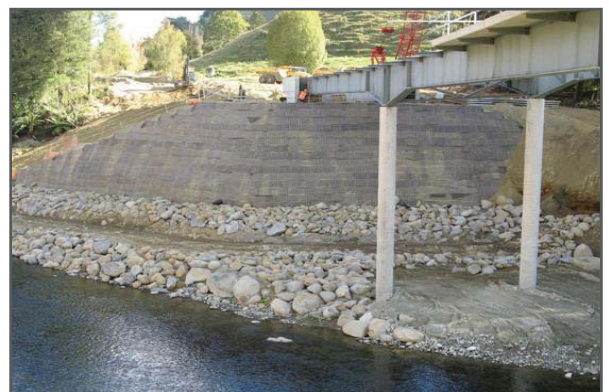
The **Green Terramesh** reinforced soil structure was considered and was the final choice for the bridge abutment wall. The versatility of geogrid reinforcement when laid around the two existing bridge piers, allowed the structure to be constructed quickly and concurrent with the backfilling process. The alternative option was a conventional concrete retaining wall, which proved to be too costly and impractical to construct. In addition, some geogrid wrap around structure was constructed behind the existing piers to relief the lateral soil thrust on the bridge piers. This was essential especially for a very tall structure.

MacStars software was used to analyse the **Green Terramesh** bridge abutment structure for both static and seismic cases. Full PGA horizontal load was applied in the design and analysis of the structure since it was associated with a bridge abutment, i.e. structure movement or deformation shall be restricted during an earthquake event. This required a base geogrid reinforcement length of 16m. The design also considered a rapid draw down case for a 100 year flood event on the static case.

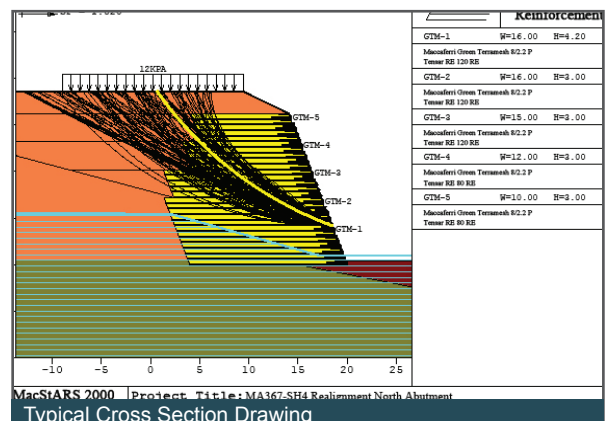
The contractor completed the structure for the Southern Abutment (330m<sup>2</sup>) and for the Northern Abutment (600m<sup>2</sup>) expediently and was very pleased with the final outcome.



Bridge prior to construction with piers installed, Feb 2009



Completed Green Terramesh abutment structure, April 2009



The information contained herein is general in nature. In particular the content herein does not take account of specific conditions that may be present at your site. Site conditions may alter the performance and longevity of the product. Actual dimensions and performance may vary. This document should not be used for construction purposes and in all cases we recommend that advice be obtained from a suitably qualified consulting engineer or industry specialist before proceeding with installation. © Copyright held by Geofabrics New Zealand Ltd. All rights are reserved and no part of this publication may be copied without prior permission.

QUALITY - SUPPORT - EXPERTISE

GEOFABRICS.CO.NZ

