

Parahaki Bridge (New Zealand)



Project description

The Manawatū Tararua Highway (or Te Ahu a Turanga) in New Zealand has been constructed to replace Highway 3 that had to be closed due to landslides in this hilly and seismically active region.

The main structure that crosses the Manawatū Gorge is called Parahaki Bridge, and has a length of 300 m.

It has a balanced-cantilever design, and required its superstructure to be temporarily supported during the construction stage.

The \$620 million highway project is due to be finished by the end of 2024.

mageba scope

In the early stage of the project, temporary bearings were required to fit onto the relatively small piers in a way that avoids any clashes with any other temporary or permanent parts or components of the bridge, with anchorages to suit the permanent bearings that would replace them.

mageba's solution included 6 RESTON®POT HP free-sliding bearings at each pier along with 2 RESTON®FORCE shear keys, which were designed to resist horizontal loads.

The pot bearings were designed with a vertical load capacity of 44,000 kN each, and with the ability to accommodate an uplift movement of 35 mm during seismic loading, while the shear keys were designed to resist enormous horizontal loads of 13,700 kN each.

All of the components were designed in accordance with Australian design standards as specified, allowing for the seismic load to oscillate for the duration of the earthquake in order to protect the piers against excessive loading.

Highlights & facts

mageba products:

Type: RESTON®POT HP bearings
RESTON®FORCE shear keys

Installed: 2022

Structure:

Region: Manawatū Gorge
Country: New Zealand
Type: Balanced-cantilever bridge

Length: 300 m
Owner: Waka Kotahi (NZTA)
Contractor: HEB Constructions
Engineer: Bamford Consultants and Kina Consulting

The new structure crosses the Manawatū Gorge on the North Island of New Zealand



RESTON®FORCE shear keys as designed and manufactured



A free-sliding RESTON®POT HP bearing after manufacturing

