



**Owner :** Roads & Traffic Authority NSW/BHP  
**Engineer :** Richard Woods  
**Engineering consultant :** Cardno

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**Subsidiary(ies) :** Freyssinet Australia

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**Beginning of works :** 07/2007  
**End of works :** 11/2007

### Description of the work :

70 km south west of Sydney on the Hume Highway, twin bridges over Nepean River had moved to the East due to subsidence because of mining in the area by BHP. Each bridge is about 300m long with spans of 50m with the highest Piers 60m above ground. The northern Abutment had moved 57mm, the first Pier around 40mm and the second Pier around 20mm. The next piers were stable. Because of the different movements, the deck was in a unnatural form and that's why the bridges had to be realigned. Works had to be proceeded with a minimum of bridge closures.




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### Freyssinet mission :

Freyssinet Australia was awarded a 21 week contract to realign the bridges. We commenced on site 3 weeks later and had the project completed in 15 weeks. RTA had ordered the steel for the clamp plates before awarding the contract. On the abutments, pot bearings had to be replaced with sliding bearings, which required 4 x 200 tonne jacks to lift the deck. To be able to lift the deck at the Piers, we installed a 40 tonne steel structure to create a lifting base around each Pier. The clamp plates were lifted with a crane and then lowered onto the side of the deck. A complete designed winch system took over the load of the clamps and lifted them on the correct place. This was held in place by friction with 2 clamp plates stressed together using 20 x 92 tonne stress bars. The deck was then lifted at each pier with 4 x 620 tonne jacks so the bearings could be replaced or disconnected off the deck. The realignment was done using 6 x 50 tonne jacks. Once the movement was complete, the bearings had to be welded or clamped to fix the deck to the Piers. An access to the Piers was built hanging off the deck using the Quikdeck system. The project was completed to satisfaction of the RTA and BHP, who were very pleased with the safety standards, the time frame, the minimal road closures and initiatives used on site.

