

# REHABILITATION AND UPGRADING OF A HERITAGE LISTED TIMBER TRUSS BRIDGE

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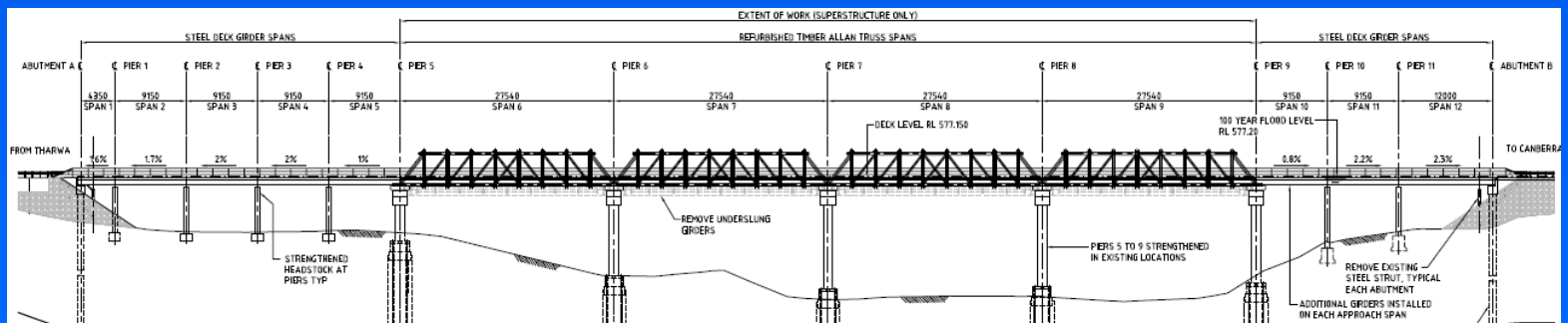
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# Introduction

- Original bridge constructed in 1895
- Oldest and largest surviving four span, timber Allan truss bridge in Australia
- 4 x 27.4m (90 ft) truss spans, 7 approach spans, each approx 9m
- Approach spans and piers originally timber, but rehabilitated as RC and steel in 1960's



# Context for Rehabilitation

- Principal timber truss elements had been periodically replaced due to degradation / poor detailing & inadequate maintenance
- By 2000 significant deterioration caused a loss in capacity of the main truss elements
- Installation of Bailey support trusses in 2005
- Closure of the bridge in 2006



# Rehabilitation Design

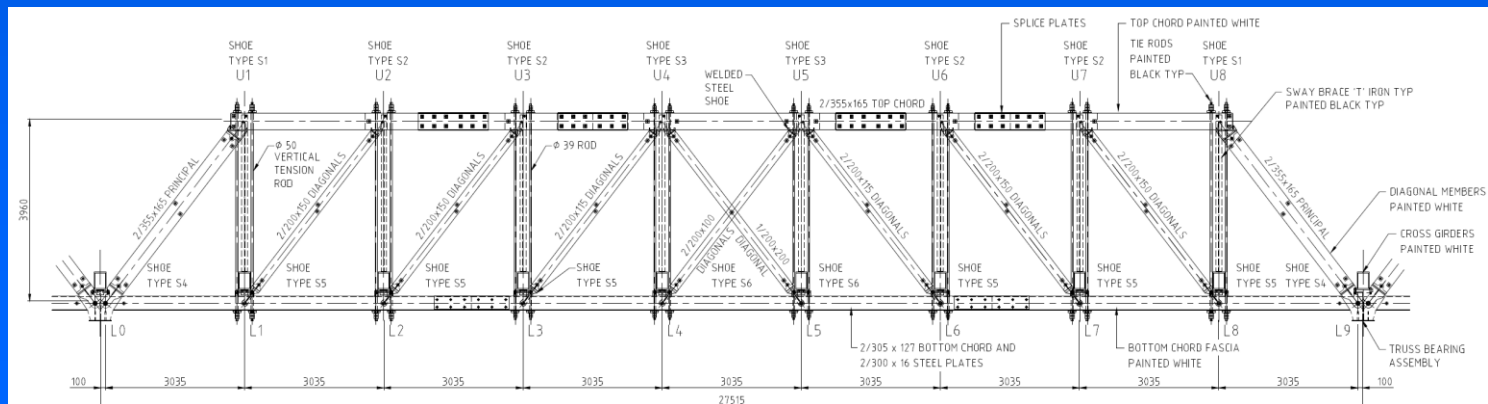
- Strong community support and recognition of the significance of the original bridge design
- In 2007 Roads ACT proposed a \$25m rehab.
- Upgrading of the Allan truss structures rather than the replacement of the bridge
- Four Stages:
  1. temporarily support the deck using steel girders
  2. refurbishment and strengthening of the existing concrete approach spans and piers
  3. the replacement of the timber trusses, deck, and traffic barriers, incorporating an SLT deck
  4. removal of the girders and temporary steelwork





# Rehabilitation of Trusses

- Research projects undertaken to develop design innovations for effective use of timber
- New methods for compression design and preventing buckling of chords and diagonals
- Steel tension elements in bottom chords
- Specific details for creating inherent durability in the construction (avoid moisture traps)

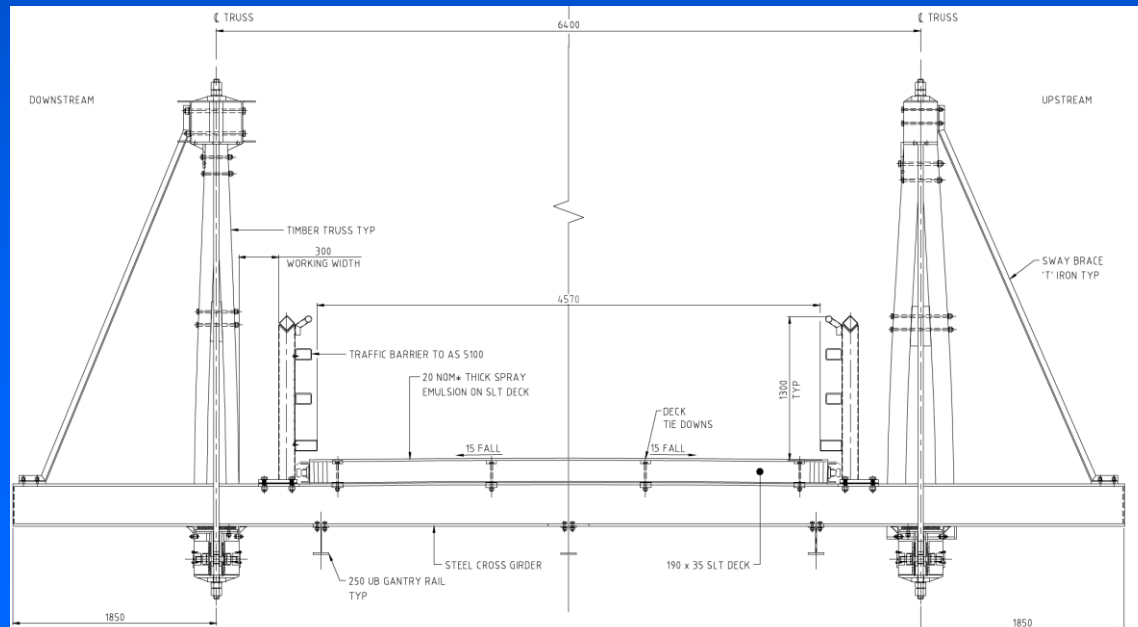


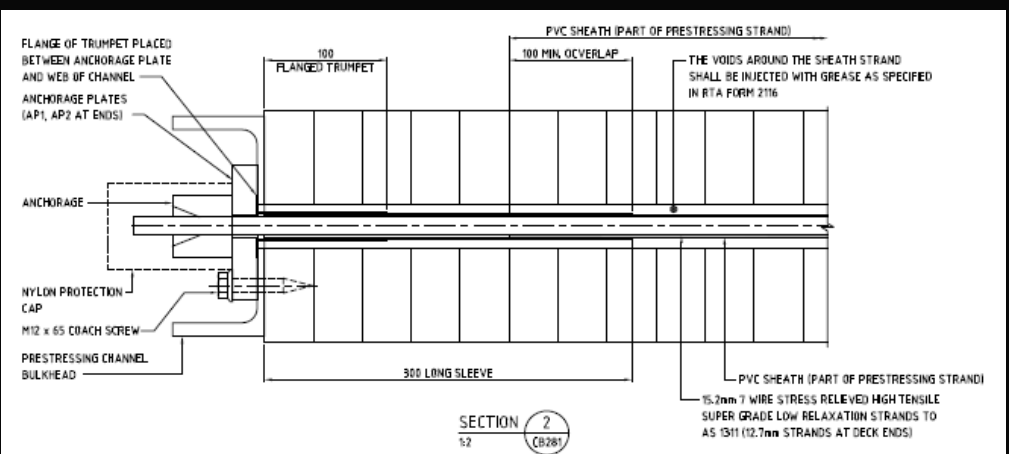




# SLT Decking System

- 110 metres long, monolithic orthotropic plate made from 190x35 F27 seasoned hardwood
- No deck joints between the trusses
- Launched from one end of the bridge





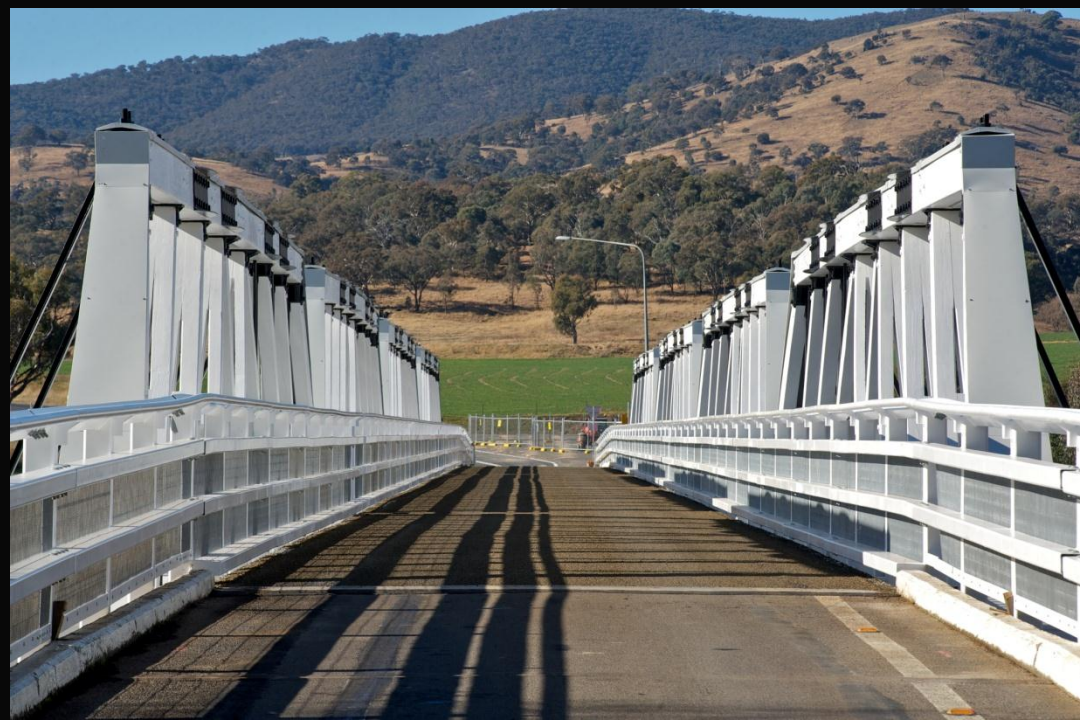
# Launching the Deck

The 100 t deck was launched over 3 days in May 2011, using a 24 tonne truck with an 8 tonne winch to pull at the front and a similar setup to restrain at the rear.



# Conclusions

- This project presented a unique opportunity to rehabilitate a 100 year old timber bridge which has highly significant heritage value for Australia.
- The challenges:
  - Maintaining the inherent structural integrity & form
  - Incorporate new design & const'n technologies
  - Re-instate to carry modern vehicle loadings
- All were successfully addressed when the bridge was opened in June 2011





# Acknowledgements

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**Thank you for  
your attention**