APPENDIX A. CONDITION ASSESSMENT

The Heritage Conservancy
built heritage conservation + building design

Condition Assessment

Chinamans Bridge, Nagambie

Introduction

This report has been prepared by Mim Butcher, heritage consultant, for Extent Heritage to provide heritage advice to the Strathbogie Shire Council regarding the condition of Chinamans Bridge (formerly Kerris Bridge), which is a place of State heritage significance.

The purpose of this report is to provide an assessment of the current condition of the bridge and recommend further works with a view to securing loose fabric and then undertaking conservation works.

Place Description

Chinamans Bridge is an extensive timber trestle bridge constructed of hand hewn timbers located to the west of the township of Nagambie, crossing the Goulburn River adjacent to Vickers Road.

Image: Aerial view of Chinamans Bridge (outlined in blue), Vickers Road is to the left. Source: Nearmap.

M: 0418 179 336
E: heritageconservancy@outlook.com.au
A: 111 The Avenue, Ocean Grove Vic 3226
Reg: DP-AD 40921
ABN: 33 165 069 862

Image: Panorama view of the Chinamans Bridge looking east. Source: Thomas Cohen.

The bridge consists of 15 spans between abutments, with the fourth to seventh bents[1] from the southern end constructed to facilitate the sixth span to lift up (no longer operational).

Refer to the section, *Definitions – Parts of A Bridge*, at the end of this report for more information on traditional timber trestle bridge construction.

The majority of bents are constructed of five vertical/plumb piles with a batter-post at either side. A sill runs across the piles at approximately half height, with longitudinal bracing at either side of each pile to the underside of the stringers, or girders. A corbel sits on top of the cap and supports the stringers which run longitudinally. Cross-ties sit on top of the stringers and support the decking above which also runs longitudinally.

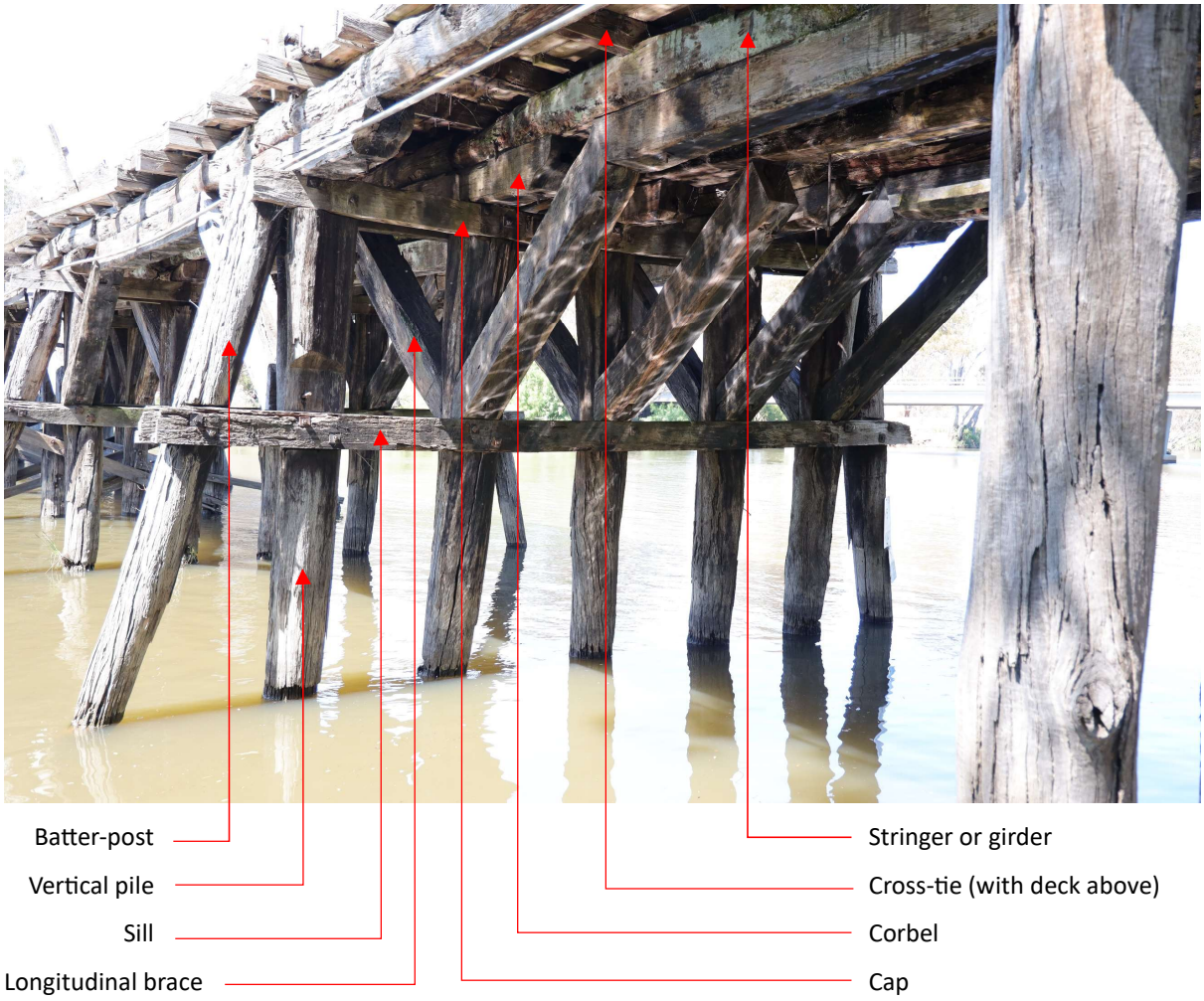

Image: View of underside of Chinamans Bridge with main bridge components indicated. Source: Thomas Cohen.

[1] This is the combination of the cap and the pile. Together, with other bents, act as supports for the entire bridge.

Place History

The following is a summary of the history of the place:[2]

> Chinamans Bridge is an extensive timber bridge which spans the Goulburn River 2.7 kilometres west of the Goulburn Valley Highway. It is believed to have been constructed in 1891 and at the time was known as Kerris Bridge. The bridge was funded with a joint grant from the Public Works Department and the Water Supply Department. It was designed by the Goulburn Shire Council Engineer and constructed by the contractor JB Parkinson at a cost of £4188 3s 6d. The bridge included a lift span to enable sawmill and recreation steamers to continue to utilise the Goulburn River. The Nagambie Sawmill steamer passed through the bridge six times a week during the 1890s. Chinamans bridge originally carried the Nagambie-Heathcote Road across the Goulburn River, however the road has now been re-aligned to be carried over the river by a new bridge nearby. Chinamans Bridge was given its name because the Nagambie-Heathcote Road, once known as Chinamans Road, was in an area populated by Chinese market gardeners up until 1916. Chinamans Bridge is a timber girder bridge with hand hewn squared timber stringers strutted to the piers and timber corbels and deck. The arrangement of spans supports the view that the bridge at one time incorporated a lift span to provide for the passage of river traffic, however only the timber fenders remain. The drawbridge span was replaced, around 1940, with a steel span.

Heritage Significance

Chinamans Bridge is of heritage significance to the State of Victoria and is registered in the Victorian Heritage Register (VHR) as place no. 869 and register no. H1449.[3]

Statement of Significance

> The following is an abbreviated Statement of Significance:[4]
>
> **What is significant?**
>
> All the structure known as Chinamans Bridge including all of the structure, its approach spans and abutments
>
> **How is it significant?**
>
> Chinamans Bridge is of architectural and historical importance to the State of Victoria.
>
> **Why is it significant?**
>
> Chinamans Bridge is of architectural importance as one of the earliest completely timber road bridges in Victoria. It is important for its use of hand hewn timber in its construction and details. Although it has lost much of its mechanism, the bridge is a rare surviving example of a bridge which included a vertical lift span.
>
> Chinamans Bridge is of historical importance for its associations with the expansion of Victoria's infrastructure in the 1890s and for its role in the development of transport systems. It is especially associated with the growth of the township of Nagambie and is an indication of the district's prosperous sawmilling industry during the 1890s. Chinamans Bridge is of historical importance as a reminder of the steamboat era in Victoria during the

[2] Victorian Heritage Register, *Chinamans Bridge,* Heritage Council Victoria, 12 April 2023, https://vhd.heritagecouncil.vic.gov.au/places/869
[3] Victorian Heritage Register
[4] Victorian Heritage Register

1890s, when rivers were still used in preference to roads for recreational and commercial purposes.

Site Inspection

A site inspection was undertaken by Mim Butcher, heritage consultant, and Thomas Cohen, photographer, on 10 November 2023. Access was gained on foot only and was limited to either side of the Goulburn River, on top of the abutments and also underneath the bridge. The deck was fenced off and was not accessible.

Condition Assessment

Overall, Chinamans Bridge is in extremely poor condition. The bridge has collapsed at the southern end and the majority of structural timbers have deteriorated beyond repair and provide no structural support. There is also termite damage at the northern end of the bridge.

Currently the bridge is posing an immediate safety risk.

Following is a summary of observations:

Vertical Piles and Batter-Posts

Approximately 80% of piles are deteriorated at the base from continual wetting and drying causing accelerated deterioration. Of these at least half are completely rotten through at the base and provide no structural support to the structure above it.

In addition, approx. 10% piles are completely missing. It is estimated that only 10% of all piles are structurally sound.

Image: View of piles in the northern-most bent showing two completely rotten through and two piles completely missing. Source: Thomas Cohen.

Sills

Sills have rotten through at most ends resulting in the outer connections to the batter-posts coming loose. The sills have collapsed at the southern end.

Image: Collapsed sill at southern end of bridge resulting in collapse of bracing connected to it. Source: Mim Butcher.

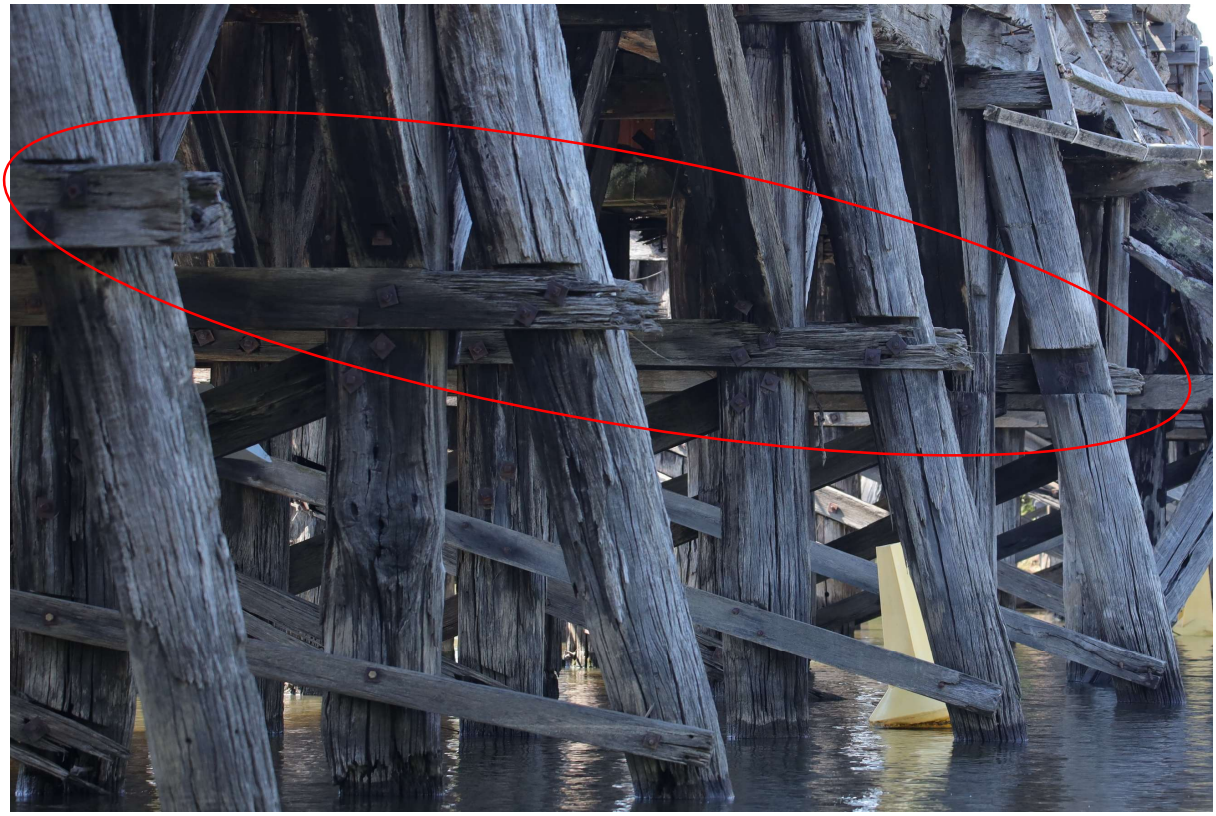

Image: Rotten ends of sill timbers. Source: Thomas Cohen.

Longitudinal braces, Stringers/Girders, Corbels and Cross-Ties

The structural timbers that support the underside of the deck appear to be in reasonable condition, however inspection was undertaken from ground level and the condition may be worse than visually obvious.

Bracing timbers appear to be in reasonable condition, particularly to the inside of the bridge where there has been less weather exposure. There have been some previous contemporary replacements and reinforcing made to the bracing at the southern end, prior to collapse of this section.

Girders and corbels appear to be in reasonable condition. Many have cracking running lengthways, occurring as they dried out over time (they would have been green timbers when installed). There is some termite damage to these timbers at the northern end of the bridge.

Image: Underside of bridge at northern end with two girders/stringers at centre. Note the natural cracking from drying process. Source: Mim Butcher.

Image: Termite damaged corbel. Source: Mim Butcher.

Deck

The bridge deck has deteriorated beyond repair. It has caved in at the southern end due to collapse of the timber structure below. Handrails which ran along the perimeter have fallen off.

Image: The bridge deck from the southern end looking north. Source: Thomas Cohen.

Image: The bridge deck from the northern end looking south. Source: Mim Butcher.

Fixings

Generally, the metal fixings (assumed to be wrought iron) which tie the bridge timbers together have come loose across the length of the bridge as the timber members have deteriorated.

Image: Loose connections between cross-ties and deck. Source: Mim Butcher.

Site Inspection Photographs

Site inspection photographs may be downloaded from the following link:

PERMENANT LINK - Chinamans Bridge Site Photos 20231110

Appropriate Conservation Works

The bridge is in extremely poor condition and has reached a point where it is beyond repair. It poses an immediate safety risk due to imminent collapse.

It is extremely difficult to define what is “loose fabric” with regard to this structure because of its precarious condition. No portion of the bridge is secured adequately, and therefore all fabric should be deemed loose.

In addition, it would be unsafe to undertake maintenance or repair works to the structure because of its fragile state.

The appropriate course of action is immediate demolition.

Definitions – Parts of a Bridge

The following describes the parts of a traditional timber trestle bridge:[5]

THE following list gives the names and their synonyms of some of the more important parts of wooden trestles. In connection with this list see Figs. 1 and 2, to which the numbers opposite the names refer.

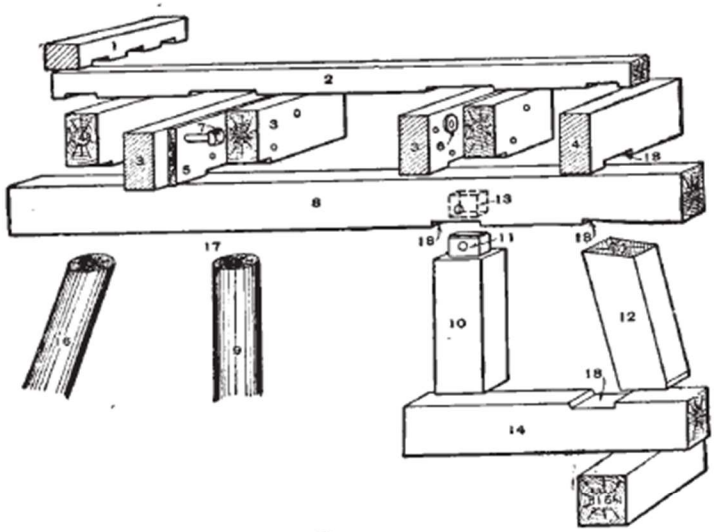

FIG. 1.

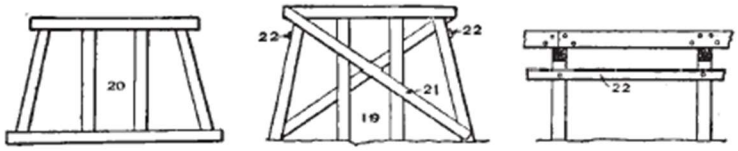

FIG. 2.

Bent, Framed, 20. (See page 24.)
Pile, 19. " " 6
Cluster. " " 41
Bent Brace, see Sway-brace.
Block, see Sub-sill.
Bolster, see Corbel.
Cap, 3. (See page 12.)
Chord, see Stringer.
Corbel, Bolster. (See page 31.)
Cross-tie, 2. " " 35
Cut-off, 17. " " 11
Dapping, see Notching.
Fender, Guard-rail, 1. (See page 35.)
Gaining, see Notching.
Girt, see Longitudinal Brace.
Girder, see Stringer.
Guard-rail, Fender, Ribbands, 1. (See page 35.)
Jack-stringer, see Stringer.
Longitudinal Brace, Girt, Waling-strip, 22. (See
Mortise, 13. [page. 39)
Mud-sill, see Sub-sill.
Notching, Gaining, Dapping, 18. (See page 30.)
Outside Stringer, see Stringer.
Packing-block, Packing piece, 5. (See page 32.)
Packing-bolt, 7. " " 48
Packing-piece, see Packing-block.
Packing-washers, see Separator.
Piles, Batter, Inclined Brace, 16. (See page 7.)
Vertical, Plumb, Upright, 9. " " 7
Posts, Batter, Inclined, 12. " " 28
Vertical, Plumb, Upright, 10 " " 28
Ribbands, see Guard-rail. [pages 32 and 50.)
Separator, Packing-washer, Thimble Spool, 6. (See
Sill, 14. (See page 27.)
Spool, see Separator.
Stringer, Chord, Girder.
Track, 3. (See page 32.)
Outside, Jack, 4. " " 34
Sub-sill, Mud-sill, Blocks, 15. (See page 25.)
Sway-brace, Bent Brace, 21. " " 39
Tenon, 11. " " 12
Thimble, see Separator.
Track-stringer, see Stringer.
Waling-strip, see Longitudinal Brace.

ix

[5] W.C.Foster, *A Treatise on Wooden Trestle Bridges,* Second Edition, John Wiley & Sons, New York, 1897, page ix.

Corbel detail:[6]

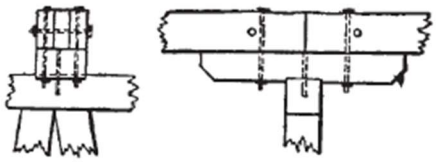

FIG. 55.—CHARLESTON, CINCINNATI & CHICAGO R. R.

[6] W.C.Foster, page 42.