OLD COBRAM-BAROOGA BRIDGE

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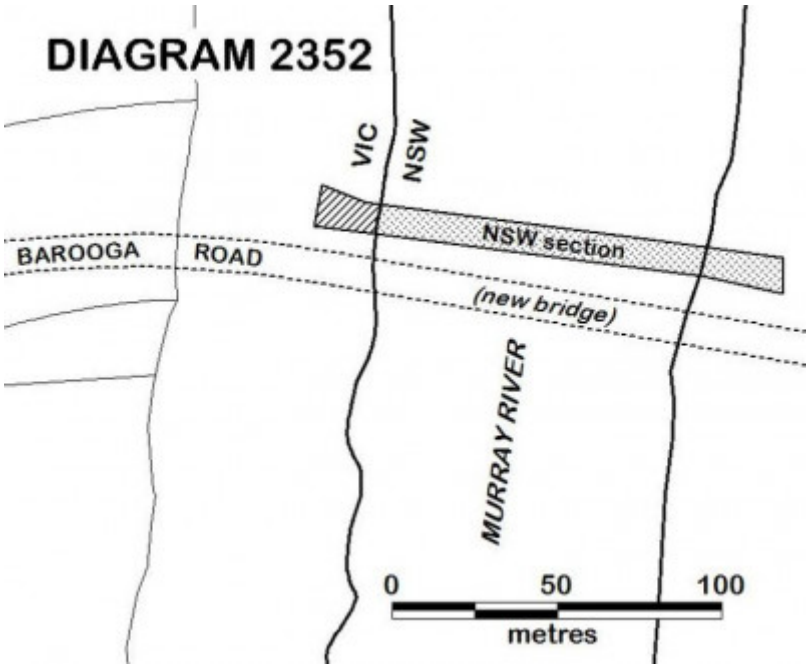

Diagram 2352

Location

BAROOGA ROAD COBRAM, MOIRA SHIRE

Municipality

MOIRA SHIRE

Level of significance

Registered

Victorian Heritage Register (VHR) Number

H2352

Heritage Overlay Numbers

HO303

VHR Registration

February 11, 2016

Heritage Listing

Victorian Heritage Register

Statement of Significance

Last updated on - March 16, 2022

What is significant?
The Old Cobram-Barooga Bridge, consisting of a two-span de Burgh truss bridge with a central single, vertical-lift opening span supported on cast iron piers located on the former road that connects the border towns of Cobram (Victoria) and Barooga (New South Wales).
History Summary
Since the beginnings of European settlement, the waters of the Murray River have been a key factor in the commercial agricultural development of what has been some of the most productive land in modern Australia. During the mid-nineteenth century toll-ferries and row boats had a monopoly on transporting people and goods across the river. From 1889 a punt operated between Cobram and Barooga and was the only means of crossing the river at this point. In 1879 two bridges opened - the Murray Bridge (South Australia) and the Echuca-Moama Bridge. During the 1880s and 90s the colonial governments of New South Wales and Victoria began a joint program of building bridges with opening spans which could accommodate paddle steamers, trains and road traffic. The Old Cobram-Barooga Bridge was officially opened on 3 December 1902 and provided access for heavy goods vehicles to transport agricultural produce. The central lift-span of the bridge allowed paddle steamers to pass underneath. The bridge was constructed by the prolific Victorian bridge-building firm of JB and W Farquharson of Melbourne. The improved capacity to transport agricultural goods, particularly wool and wheat, to Melbourne, Sydney and larger regional towns consolidated the importance of north-eastern Victoria and the Riverina District of New South Wales. The Cobram Bridge is the only bridge on the Murray River whose construction was completely funded by the Victorian government. In 2002 a high level concrete bridge was built to the south of the original 1902 bridge, which remains open for pedestrian traffic.
Description Summary
The Old Cobram-Barooga Bridge is a timber truss, lift-span bridge carrying two traffic lanes across the Murray River between Cobram and Barooga. The primary axis of the bridge is east-west. The bridge has a clearance over normal water level of 7.9m with the lift-span closed and 14.3m with the lift-span open. The bridge was superseded by a parallel concrete bridge and no longer carries vehicular traffic. The three main spans include a single, vertical-lift opening span supported on cast iron piers in the centre of the bridge, flanked by a single de Burgh Truss span on each side. The eastern (NSW) side has been truncated and retains only one timber beam approach span, which terminates in a steel fence and stair to ground level. All three timber beam approach spans

survive on the western (Victorian) side. The outer ends of the truss spans and the approach spans are carried on timber trestles on timber piles. The outer ends of the lift-span are carried on twin cylindrical cast iron piers with intermediate perforated steel plate braces.
The lift-span is formed by a roadway between riveted Pratt-Truss box-girders with a span of 18m. The road deck on the lift-span is narrower than the approaches and reduces to one traffic lane. The lifting superstructure comprises four steel lattice towers, connected at their upper level by steel lattice girders. The two de Burgh truss spans, each 31.7m, are of composite timber and steel construction, with paired timber top chords and vertical struts with steel rods forming diagonals within each panel.
The approach spans range from approximately 9.1m to 11m in length and are of timber beam construction, comprising five parallel timber logs spanning between timber and trestle piers. Each span has been strengthened by the addition of four steel rolled steel joists (RSJs), one each located in between the timber logs. There is a footway on the southern side with a timber guardrail but the majority of the timber decking of the footway has been removed. The footway is absent on the lifting span and the footways have an entrance to the road deck on either side of the opening span (pedestrians are/were required to share the road deck with vehicles for the length of the opening span).
This site is part of the traditional land of the Yorta Yorta people.

How is it significant?

The Old Cobram-Barooga Bridge is of historical and scientific significance to the State of Victoria. It satisfies the following criterion for inclusion in the Victorian Heritage Register:

Criterion A

Importance to the course, or pattern, of Victoria's cultural history.

Criterion B

Possession of uncommon, rare or endangered aspects of Victoria's cultural history.

Criterion F

Importance in demonstrating a high degree of creative or technical achievement at a particular period.

Why is it significant?

The Old Cobram-Barooga Bridge is historically significant as one of most important Murray River bridges constructed between New South Wales and Victoria. Built Federation era, the bridge was understood from its beginnings as an important physical symbol of the creation of a national Australian society out of disparate colonial social components. The bridge was an impressive capital works project which linked road, river and rail routes and facilitated economic and regional growth in both states. Although most of the bridge is in New South Wales it has a special significance in Victoria's history because it was built entirely from Victorian funds and constructed by the Victorian bridge-building firm of JB and W Farquharson. [Criterion A]
The Old Cobram-Barooga Bridge is a rare de Burgh design timber truss bridge incorporating a metal Pratt lift-span. It features a steel lift-span on an iron and concrete substructure with two large de Burgh composite timber-steel truss spans one on each side of the steel lift-span. The de Burgh-Pratt composite timber-steel trusses were built only for a brief period between 1900 and 1904. This bridge is one of three surviving vertical lift-span bridges of this type in Australia and is one of two that retain all of their lift-span operating mechanisms intact. [Criterion B]
The Old Cobram-Barooga Bridge demonstrates a high degree of technical achievement because it represents the peak of lift-span technology in bridge engineering in Australia. The design was largely developed in New South Wales and the efficacy and durability of the design is evidenced by the survival of this bridge and many of its peers for over a century of use. It illustrates the historic need to embrace composite materials for bridges for practical and economic reasons and the ongoing adoption of innovations in bridge construction by Ernest de Burgh Australia's foremost engineers of the late colonial and post-Federation era whose work was influential in this field nationally and internationally. [Criterion F]
The Old Cobram-Barooga Bridge is also significant for the following reasons, but not at the State level:
The bridge is of significance to the people of northern Victoria and the Riverina region of New South Wales as it improved road, rail and river links between the states which encouraged the agricultural and economic development of these regions.

Permit Exemptions

General Exemptions:

General exemptions apply to all places and objects included in the Victorian Heritage Register (VHR). General exemptions have been designed to allow everyday activities, maintenance and changes to your property, which don’t harm its cultural heritage significance, to proceed without the need to obtain approvals under the Heritage Act 2017.

Places of worship: In some circumstances, you can alter a place of worship to accommodate religious practices without a permit, but you must notify the Executive Director of Heritage Victoria before you start the works or activities at least 20 business days before the works or activities are to commence.

Subdivision/consolidation: Permit exemptions exist for some subdivisions and consolidations. If the subdivision or consolidation is in accordance with a planning permit granted under Part 4 of the *Planning and Environment Act 1987* and the application for the planning permit was referred to the Executive Director of Heritage Victoria as a determining referral authority, a permit is not required.

Specific exemptions may also apply to your registered place or object. If applicable, these are listed below. Specific exemptions are tailored to the conservation and management needs of an individual registered place or object and set out works and activities that are exempt from the requirements of a permit. Specific exemptions prevail if they conflict with general exemptions.

Find out more about heritage permit exemptions here.

Specific Exemptions:

It should be noted that Permit Exemptions can be granted at the time of registration (under s.42(4) of the Heritage Act). Permit Exemptions can also be applied for and granted after registration (under s.66 of the Heritage Act)

General Condition 1

All exempted alterations are to be planned and carried out in a manner which prevents damage to the fabric of the registered place or object.

General Condition 2

Should it become apparent during further inspection or the carrying out of works that original or previously hidden or inaccessible details of the place or object are revealed which relate to the significance of the place or object, then the exemption covering such works shall cease and Heritage Victoria shall be notified as soon as possible.

General Condition 3

All works should be informed by Conservation Management Plans prepared for the place. The Executive Director is not bound by any Conservation Management Plan, and permits still must be obtained for works suggested in any Conservation Management Plan.

General Condition 4

Nothing in this determination prevents the Heritage Council from amending or rescinding all or any of the permit exemptions.

General Condition 5

Nothing in this determination exempts owners or their agents from the responsibility to seek relevant planning or building permits from the relevant responsible authority, where applicable.

Specific Permit Exemptions
Permit exemptions as outlined in *Standard Exemptions for Works Requiring Heritage Council Approval*, Heritage Branch, New South Wales Department of Planning as approved the New South Wales Minister of Planning, 25 March 2009.

Theme

3. Connecting Victorians by transport and communications 4. Transforming and managing the land

Construction dates	1902,
Architect/Designer	de Burgh, Ernest Macartney,
Heritage Act Categories	Registered place,
Other Names	COBRAM BAROOGA BRIDGE, COBARM-BAROOGA BRIDGE,
Hermes Number	197955
Property Number	

History

The Old Cobram-Barooga Bridge
Since the beginnings of European settlement the waters of the Murray River have been a key factor in the commercial agricultural development of what has been some of the most productive land in modern Australia. From the 1830s onwards crossing the river became a necessity and this involved the construction of infrastructure such as wharves, weirs, locks, bridges, including pontoon and truss bridges. By the mid-nineteenth century toll-ferries and row boats had a monopoly on transporting people and goods across the river. In 1879 two bridges opened - the Murray Bridge and the Echuca-Moama Bridge. From 1889 a punt operated between Cobram in (Victoria) and Barooga (New South Wales) and was the only means of crossing the river at this point.

By the 1890s the limited capacity of ferries became a hindrance to the steadily increasing road traffic. In response the Colonial Governments of New South Wales and Victoria began a joint program of building bridges for land-based transport and that would accommodate paddle steamers. High-level bridges were the ideal, but the combination of expensive river spans and long approach viaducts graded to suit horse and bullock drays made this option too costly. The affordable alternative was low-level bridges with moveable spans. This solution had already been anticipated when in 1858 Henry Hopwood established a pontoon bridge at Echuca. During the 1880s and 90s the Colonial Governments of New South Wales and Victoria began a joint program of building bridges with opening spans which could accommodate paddle steamers, trains and road traffic.

The bridge building program coincided with discussions about the use of Murray River water for agricultural irrigation between the colonies. During the 1870s closer settlement programs highlighted the need for a regular water supply and in 1887 George Chaffey commenced designing a massive irrigation scheme at Mildura. In 1893, representatives of the three states met in Melbourne and considered the installation of locks on the Murray River to preserve supplies for irrigation and facilitate river transport. Economic conflicts of interests between the colonies stymied coordinated action. Federation in 1901 meant that the three states in which the Murray flowed were no longer in competition. In 1902 a Royal Commission recommended joint control of the Murray River by the three states and a joint funding arrangement for water conservation infrastructure, such as dams and weirs. As irrigation systems grew there continued to be a need for bridges over the Murray River between Victoria and New South Wales.

The prospect of a bridge in the Cobram-Barooga district had been discussed regularly at public meetings since 1884. By November 1899, Government Ministers in both states reported that decisions had been taken to proceed with the bridge and that specifications were being prepared. After Federation was given royal assent on 9 July 1900 the declaration of tenders for the Bridge were awarded in November 1900. It was decided that the bridge would be financed and built by the Victorian government. The bridge was constructed by the prolific Victorian bridge-building firm of JB and W Farquharson of Melbourne. The Bridge opened officially on 3 December 1902, two months after being open to traffic. It provided access for heavy goods vehicles and the central lift-span allowed paddle steamers to pass underneath. The improved capacity to transport agricultural goods, particularly wool and wheat, to Melbourne, Sydney and larger regional towns consolidated the importance of north-eastern Victoria and the Riverina District of New South Wales.

The Cobram Bridge is the only bridge on the Murray River whose construction was completely funded by the Victorian government. It appears that the Victorian Country Roads Board was also responsible for its maintenance after opening. The construction of the bridge is evidence of the value of the wool industry in the

vicinity and of the economic flows of goods between NSW and Victoria. In 2002 a high level concrete bridge was built to the south of the original 1902 bridge, which remains open for pedestrian traffic.

The development of bridge technology

In Australia, stone (and brick) arch bridges provided the major form of bridge until the middle of the nineteenth century, after which, local engineers turned to timber truss bridges to provide the majority of river crossings, with the (expensive) imported wrought iron bridges reserved for railways and the larger and more heavily trafficked roads. Although timber beam bridges are limited by the dimensions of available materials, timber offered the cheapest and quickest bridge solution. In NSW, the availability of excellent hardwoods provided Public Works engineers McDonald, Allan, Dare and de Burgh with a uniquely strong and durable material for timber truss bridges. Timber beam bridges served well for 150 years as relatively inexpensive structures to aid the movement of goods and people.

In the latter half of the nineteenth century the emergence of steel provided a cheaper, stronger and more adaptable material for bridges than cast or wrought iron. It was rapidly adopted world-wide, its application limited only by its relative cost. In Australia, this meant that its use continued to be constrained until after local manufacture commenced in 1915. In response, the timber truss bridge designs in NSW evolved after 1899 to include steel members in critical locations such as bottom chords, whilst continuing to utilise timber for the majority of the bridge structure. There were five main types of timber truss bridges erected in NSW, distinguished by the evolving arrangement of the primary truss members. The five types are:

1860-1886 Public Works Department Truss (PWD).A basic truss bridge, based upon English models, in use from 1860 to 1886. It took advantage of the local hardwoods for its main members and was a solid and durable design.

1886 to 1893 McDonald Truss. Built from 1886 to 1893, the McDonald truss improved upon the Old PWD type by addressing several of its particular shortcomings. These included the placement of cast-iron shoes at the junctions between timber beams, the end members were doubled and splayed for better lateral stability and wrought-iron rods were utilised for vertical tension members.

1893 to 1929 Allan Truss.Built from 1893 to 1929, the Allan type also used cast iron connection pieces and vertical iron rods but was a significant improvement on the McDonald type, with most main members doubled and spaced, a simplified tensioning system and using smaller individual pieces of timber.

1899 to 1905 de Burgh Truss.The de Burgh Truss was built from 1899 to 1905. This truss was a composite truss, utilising timber and steel in combination. It was distinguished by the use of pin-joints in the connections between the steel bottom chords and the steel diagonal rods. The de Burgh Truss was an adaptation of the American Pratt Truss design developed by Americans Thomas and Caleb Pratt in 1844. Prevalent from the 1840s through the early twentieth century, the Pratt truss inspired a large number of variations and modified subtypes during the nineteenth and early twentieth centuries.

1905 to 1936Dare Truss.The Dare Truss is very similar to an Allan truss but used steel bottom chords. Designed by Harvey Dare and built from 1905 to 1936, the Dare Truss incorporates the best features of both the Allan Truss and the de Burgh Truss, whilst eliminating the pin-joints of the latter that proved problematic in maintenance. The Dare Truss was the most successful of the timber/steel composite trusses.

The Old Cobram-Barooga Bridge was designed by Ernest de Burgh and uses de Burgh Trusses. The de Burgh Truss is unique amongst the five timber truss types, as it was the first to depart from the previous standard type. A defining feature of the Old Cobram-Baroonga Bridge its arrangement, with timber vertical posts, timber top-chords and steel rods as inclined tension members, bottom chords formed by continuous parallel steel plates, steel plates and diagonal rods connected to the bottom chords by turned pins. The Cobram-Barooga Bridge also has a movable lift-span bridge whereby a horizontal span, counterweighted between two towers, could be raised vertically to provide a passageway for the steamers and their towed barges. Opening-span bridges were built from 1890 until 1941, after which no new opening bridges were erected on the Murray River.

Ernest de Burgh

Ernest Macartney de Burgh (1863-1929) was one of Australia's foremost engineers of the late colonial period and the early 20th century. He was born in Dublin, Ireland and received his engineering education at the Royal

College of Science. At age 22 he arrived in Melbourne then onto Sydney where he joined the New South Wales Department of Public Works on 30 April 1885. He was to specialise in the design and construction of bridges, water supply schemes and dams. In 1901 de Burgh was appointed Engineer for Bridges in NSW and by that time had been associated with many major bridges. This included the 50 metre single truss bridge over the Lane Cove River which was at the time the longest timber truss span ever built in Australia. He also developed the composite timber and steel truss that now bears his name, and was a member of the Sydney Harbour Bridge Advisory Board. Ernest Macartney de Burgh was regarded as one of the ablest civil engineers in Australia whose achievements had been recognised internationally.

KEY REFERENCES

NSW State Heritage Register Nomination Form, Department of Planning/Heritage Council, NSW, September 2015.

Don Fraser, 'Cobram-Barooga Bridge over the River Murray', in Newsletter of Engineering Australia, no.15, August 2004.

Berrigan Shire, Cobram-Barooga Bridge
http://berriganshire.nsw.gov.au/QuickLinks/FlashbackFriday/tabid/263/articleType/ArticleView/articleId/2190/Cobram-Barooga-Bridge.aspx

Plaque Citation

The bridge is of significance to the people of northern Victoria and the Riverina region of New South Wales as it improved road, rail and river links between the states which encouraged the agricultural and economic development of these regions.

Assessment Against Criteria

Criterion
The Old Cobram-Barooga Bridge is of historical and scientific significance to the State of Victoria. It satisfies the following criterion for inclusion in the Victorian Heritage Register:

Criterion A
Importance to the course, or pattern, of Victoria's cultural history.

Criterion B
Possession of uncommon, rare or endangered aspects of Victoria's cultural history.

Criterion F
Importance in demonstrating a high degree of creative or technical achievement at a particular period.

Why is it significant?
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Criterion A]
The Old Cobram-Barooga Bridge is a rare de Burgh design timber truss bridge incorporating a metal Pratt lift-span. It features a steel lift-span on an iron and concrete substructure with two large de Burgh composite timber-steel truss spans one on each side of the steel lift-span. The de Burgh-Pratt composite timber-steel trusses were

built only for a brief period between 1900 and 1904. This bridge is one of three surviving vertical lift-span bridges of this type in Australia and is one of two that retain all of their lift-span operating mechanisms intact. [

Criterion B]
The Old Cobram-Barooga Bridge demonstrates a high degree of technical achievement because it represents the peak of lift-span technology in bridge engineering in Australia. The design was largely developed in New South Wales and the efficacy and durability of the design is evidenced by the survival of this bridge and many of its peers for over a century of use. It illustrates the historic need to embrace composite materials for bridges for practical and economic reasons and the ongoing adoption of innovations in bridge construction by Ernest de Burgh Australia's foremost engineers of the late colonial and post-Federation era whose work was influential in this field nationally and internationally. [
Criterion F]

Extent of Registration

NOTICE OF REGISTRATION

As Executive Director for the purpose of the **Heritage Act 1995**, I give notice under section 46 that the Victorian Heritage Register is amended by including the following places in the Heritage Register:

Number: H2352
Category: Heritage Place
Place: Old Cobram-Barooga Bridge
Vermont Street
Cobram
Moira Shire

All of the place shown hatched in Diagram 2352 encompassing part of Crown Allotment 7D Parish of Cobram.

Dated 11 February 2016

TIM SMITH
Executive Director

[*Victorian Government Gazette* G 6 11 February 2016 p.205]