Waterhole Creek Bridge

Nomination as an Item of Engineering

Proposed EHRP Category	*State type of listing proposed: Either Item of Engineering Interest or a Marker Nomination.*		
Item Name:	Waterhole Creek Culvert		
Other/Former Names:			
Locality:	Williamsdale		
Address:	Monaro Highway, between Williamsdale and Michelago		
Co-ordinates	Latitude -35.60228 Longitude 149.14827		
Current Owner:	Transport for New South Wales		
Original Owner:	New South Wales Government Railways		
Current use:	Abandoned railway bridge		
Former use:	Railway Bridge		
Proposed use:	Abandoned railway bridge		
Item Condition:	Excellent		
Designer:	John Whitton, A Howarth (Draftsman?) William Hutchinson (Engineer in Chief)		
Builder:	Alexander Johnstone & Co.		
Started:	1886	**Completed:**	1887
History: **(100 to 600 words)**	As the Main Southern Line from Sydney to Albury was completed in the late 1870s attention turned to branch lines to serve the wider region through which the trunk line passed and in particular the Monaro district. Numerous routes were suggested and trialled until a line branching at Goulburn, through Bungendore. Queanbeyan, Michelago and Cooms was built in the late 1880s. In particular, the section from Queanbeyan to Michelago was opened on 7 December 1887. It had been built by Alex. Johnstone & Co. to plans signed by John Whitton. All of the larger bridges on the line were of timber, including two laminated		

	arches, three large truss bridges, numerous 'Timber Openings' and box culverts. The original John Whitton initialled Working Plan and Section also shows several 3ft and 4ft culverts, distinct from box drains. The intended material of construction of these waterways is not clear – brick or stone? At a substantial watercourse, known as Waterhole Creek, not far north of Michelago, the plan showed three 26ft Timber Openings – that is a simple girder bridge of standard design. This bridge was not built however and at its location the crossing was made with a 20 ft (6m) unreinforced concrete arch. Whether this should be called a bridge or a culvert is debatable, but it is a substantial structure. Other culverts nearby shown as 3ft and 4ft span were also made of concrete. Why the amendment was made is unknown and the source of the new design is only minimally documented. Specific plans for the bridge survive and they are clearly New South Wales Public Works Department, Railway Construction Branch plans, and are annotated as having been sent to Mr [Wiliiam] Hutchinson, later Chief Engineer, but at the time District Engineer, presumably for the relevant district. With plans surviving of the bridge as it exists, pre-dating the opening of the line. There can be little doubt that it was in place and working in 1887. Culverts do not have individual plans – just a page of standard details for the several diameters. There is no specification or note on the plans that it should be concrete. Plans exist for a very similar bridge across Mullet Creek near the Up end of the Woy Woy tunnel north of Sydney, again without specification of material, and that line came into use in 1888. The Mullet Creek bridge, still in service, is of sandstone. Both it and Waterhole Creek are near identical in design with buttresses integral with the arch ring at about 2 metre centres. Previously it had been considered that the first use of unreinforced concrete in an arch bridge had been at Black Bobs Creek on the Hume Highway near the junction of the Illawarra Highway, known as Hoddles Crossroads. See a separate listing for the Black Bobs Creek bridge in this series. Unless and until any other older bridge can be identified the claim is made that Waterhole Creek Bridge is the first in NSW. The nearby concrete culverts while contemporary with the bridge are not the first use of concrete for culverts in NSW. Many such structures were built between Young and Cowra, and between Cowra and Blayney on the cross-country South to West link between Demondrille and

	Blayney. The section between Cowra and Blayney opened in February 1888, thus two months after the line to Michelago if such dates are to be adopted for the primacy of engineering features which had clearly been completed - well before the first official train ran. The section from Young to Cowra had opened on 1 November 1886 and thus the culverts on that line, clearly shown on the Working Plan as 'C Culverts' or 'C.C.' predate the culverts near Waterhole Creek. Some references on this subject include two 6.1m (20ft) concrete culverts, thus similar to Waterhole Creek, between Cowra and Blayney. Reference to the original Working Plan shows this to be a metrication error. '6'6" C.C.' has been copied as 6.1m. There is no very large concrete arch culvert or bridge on the Blayney to Demondrille line. Accessing the Bridge. The railway line over the bridge is now closed. The railway and the Monaro Highway are parallel and close at this location, and the bridge can be seen from the road, on the left traveling south. It is not possible to stop at this place as the road is on an embankment, over Waterhole Creek, protected by guard rails leaving no safe place to pull off. Between the railway and the present road, a former, now very abandoned, route of the Monaro Highway exists. The railway forms the border between NSW and the ACT for many kilometres to the north. The railway is in NSW; the western fence of the railway reservation is the border. Just north of Waterhole Creek the border leaves the railway and strikes sharply west, crossing the Monaro Highway which thus leaves the ACT and enters NSW. This location is clearly marked with road signs which are very close to the actual border. Immediately south, that is 250m, of the New South Wales sign a gravel track on the left junctions the highway and passes under the railway by means of a 26ft-timber-opening bridge which also spans Deep Creek. Access to the Waterhole Creek Bridge may be had by parking on the wide gravel track and walking along the railway, or along the old road between the highway and the railway, or by driving along the abandoned highway route as far as one dares. Total distance to the bridge is 500m. The abandoned concrete road bridge across Deep Creek is in sound condition and trafficable. The road deteriorates markedly after a road maintenance stockpile site and would be difficult beyond for 2-wheel drive vehicles, especially in wet weather. At Waterhole

	Creek the road crosses on a timber bridge which is certainly no longer trafficable, though careful transit on foot is possible. The creek bed is deep with steep banks and is flooded so it is not possible to walk through the arch.
Description: **(100 to 600 words):**	The bridge is an unreinforced concrete arch of 20 feet (6m) span. It is believed to be the oldest concrete bridge in New South Wales and to be among the oldest in Australia, if not the oldest.
Engineering Significance:	During the late 19th Century concrete began to be used in place of brick and stone in bridge construction. Initially the material was unreinforced until about 1900 when steel bars began to be used to create reinforced concrete structures. The bridge at Waterhole Creek is believed to be the first concrete bridge in New South Wales, if not in Australia. There are numerous concrete arch culverts of three and four feet span (0.9m and 1.2m) in the same railway section, near Waterhole Creek and these are also of significance.
Webpage Summary: **(200 to 300 words)**	As the Main Southern Line from Sydney to Albury was completed in the late 1870s attention turned to branch lines to serve the wider region through which the trunk line passed and in particular the Monaro district. Numerous routes were suggested and trialled until a line branching at Goulburn, through Bungendore. Queanbeyan, Michelago and Cooms was built in the late 1880s. In particular, the section from Queanbeyan to Michelago was opened on 7 December 1887. It had been built by Alex. Johnstone & Co. to plans signed by John Whitton. All of the larger bridges on the line were of timber, including two laminated arches, three large truss bridges, numerous 'Timber Openings' and box culverts. The original John Whitton initialled Working Plan and Section also shows several 3ft and 4ft culverts, distinct from box drains. The intended material of construction of these waterways is not clear – brick or stone? At a substantial watercourse, known as Waterhole Creek, not far north of Michelago, the plan showed three 26ft Timber Openings – that is a simple girder bridge of standard design. This bridge was not built however and at its location the crossing was made with a 20 ft (6m) unreinforced concrete arch. Whether this should be called a bridge or a culvert is debatable, but it is a substantial structure. Other culverts nearby shown as 3ft and 4ft span were also made of concrete. Why the amendment was made is unknown and the source of the new design is only minimally documented. Specific plans for the bridge survive and they are clearly New South Wales Public

	Works Department, Railway Construction Branch plans, and are annotated as having been sent to Mr [Wiliiam] Hutchinson, later Chief Engineer, but at the time District Engineer, presumably for the relevant district. With plans surviving of the bridge as it exists, pre-dating the opening of the line. There can be little doubt that it was in place and working in 1887. Culverts do not have individual plans – just a page of standard details for the several diameters.
Engineering Theme:	Transport
Heritage Listing:	Not known to be listed
References:	Working Plan and Section Queanbeyan to Michelago Working Plan and Section Murrumburrah to Blayney John Forsyth line notes Goulburn to Bombala SRA aperture cards, NSW Railway Archives

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EHA Branch Chair:	Eamonn Madden	**Approval Date:**	October 2025

Figure 1Waterhole Creek bridge, upstream (eastern) portal. Bill Phippen 19 September 2025

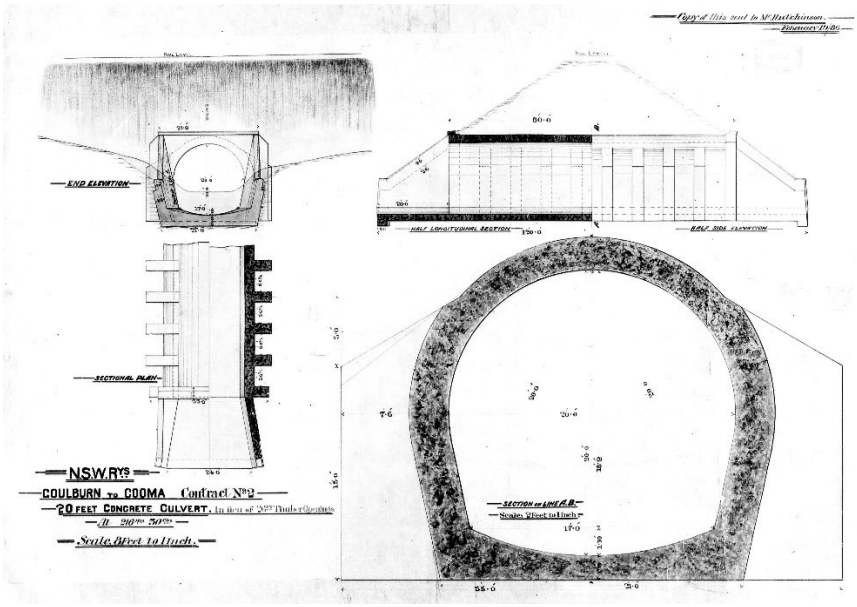

Figure 2 Original 1886 plans of the Waterhole Creek Bridge. Note the buttresses to the arch ring, the title block shows that it is in lieu of the timber opening.

Figure 3A concrete culvert at 217 miles 6 chains. The location is stamped on the face wall of the culvert and corresponds exactly to the Working Plan. Stephen Buck 2007

Figure 4Eastern face of the Waterhole Creek Bridge with impressions of the formwork on the soffit. Stephen Buck 2007

Figure 5 Western face of the Waterhole Creek Bridge. Stephen Buck 2007.

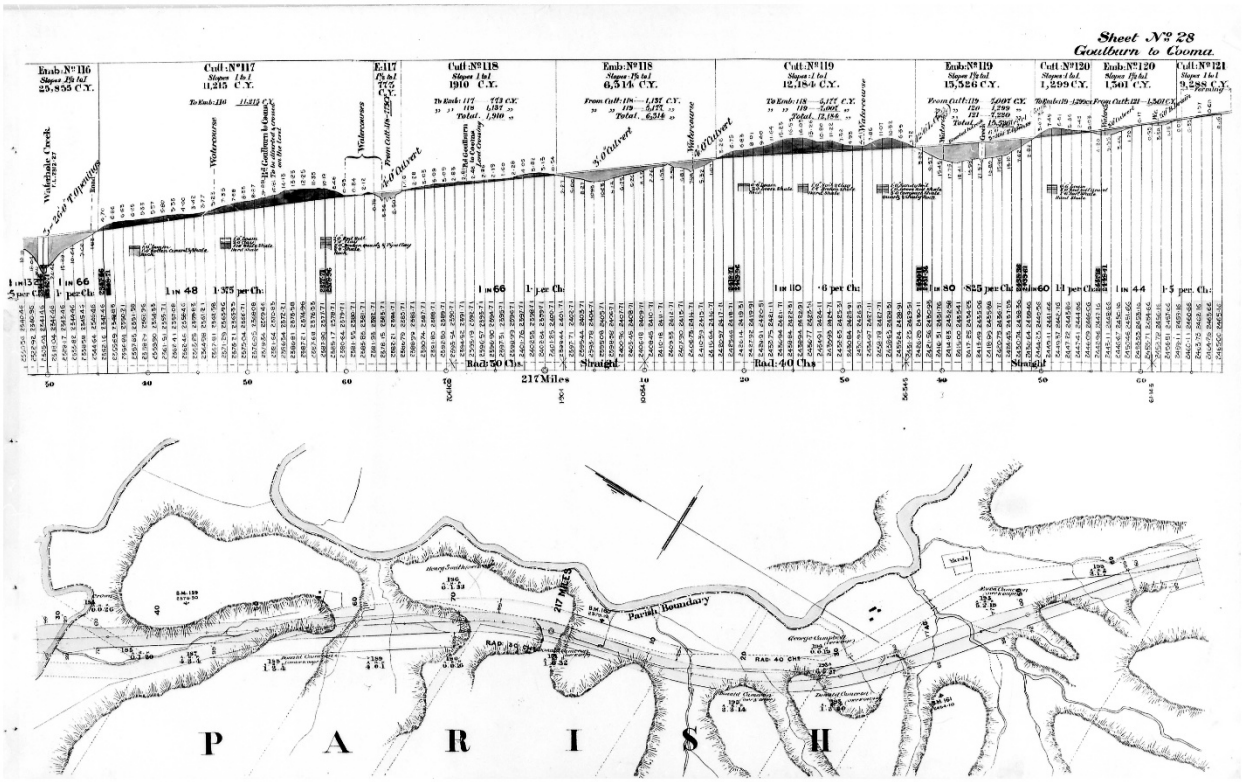

Figure 6 The Working Plan and section of the route. Waterhole Creek is at extreme left. There are many plans in the set for any section of line. The first in the set is signed by John Whitton. Note that the chainages for the several culverts correspond exactly to modern measurements.

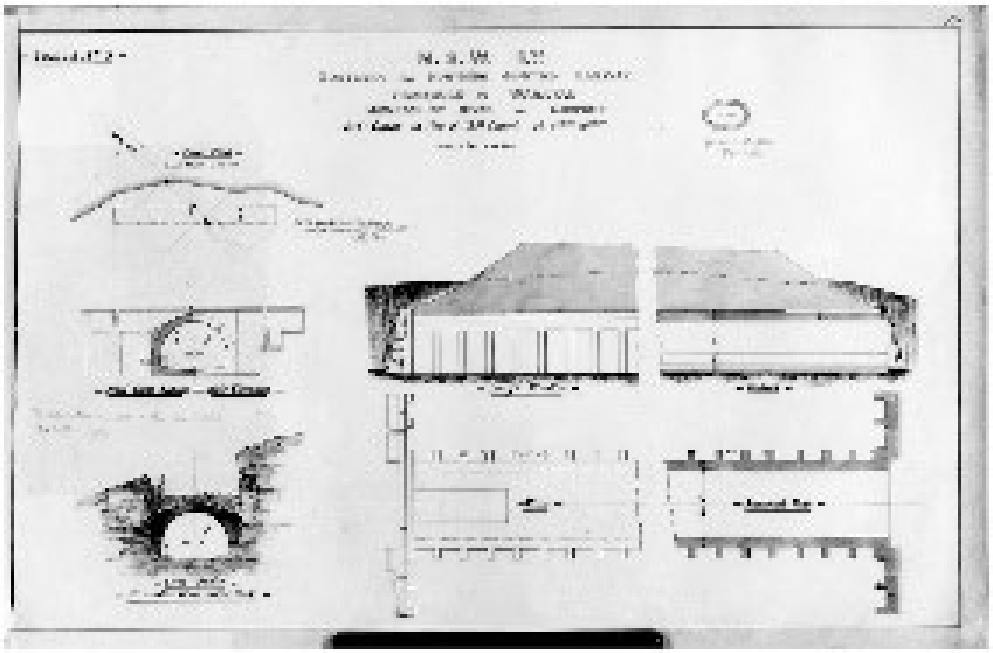

Figure 7 Plans of the bridge at Mullet Creek near Wondabyne. The design is identical, the only difference being the construction material which is nowhere specified.

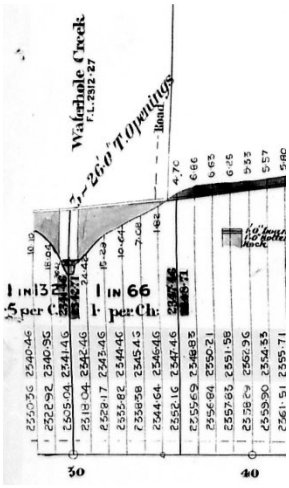

Figure 8 A detail from the Working Plan shows the original intention for the bridge to be three 26ft timber openings.

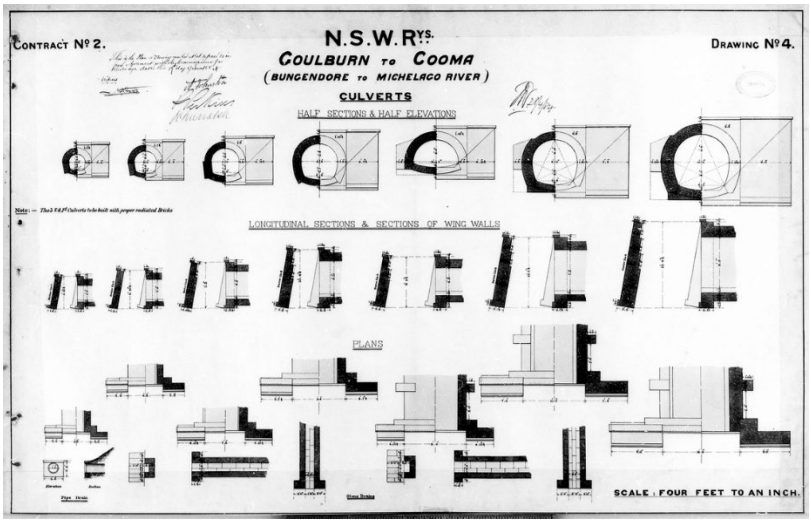

Figure 9 Standard drawings for culverts on the route from Goulburn to Cooma. The intention at the time of contract was that they should be brick as the note at left specifies that for the smaller radii the bricks should be 'proper radiated bricks'.

Figure 10 The timber road bridge across Waterhole Creek on the abandoned former route of the Monaro Highway. The railway and concrete arch bridge are to the left and the Monaro Highway may be glimpsed at top right, Bill Phippen 19 September 2025.