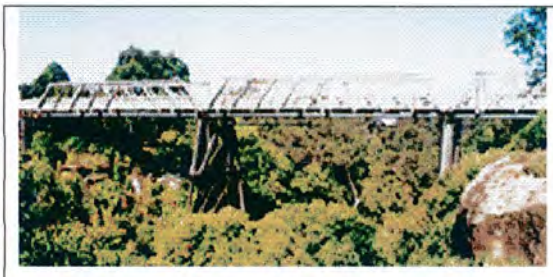
NOMINATION OF THE

VICTORIA BRIDGE PICTON

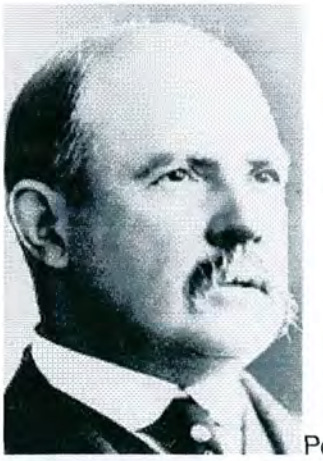
AS AN

HISTORIC ENGINEERING MARKER

10am on Sunday 6 April, 2003, at the Picton Railway Station



1897 Victoria Bridge over Stonequarry Creek, Picton.



Percy Allan

Upper portion of the 64-foot trestle, the deck is 92 feet above the water.

Prepared for the Engineering Heritage Committee,
The Institution of Engineers, Sydney Division
by Don Fraser.

VICTORIA BRIDGE, PICTON

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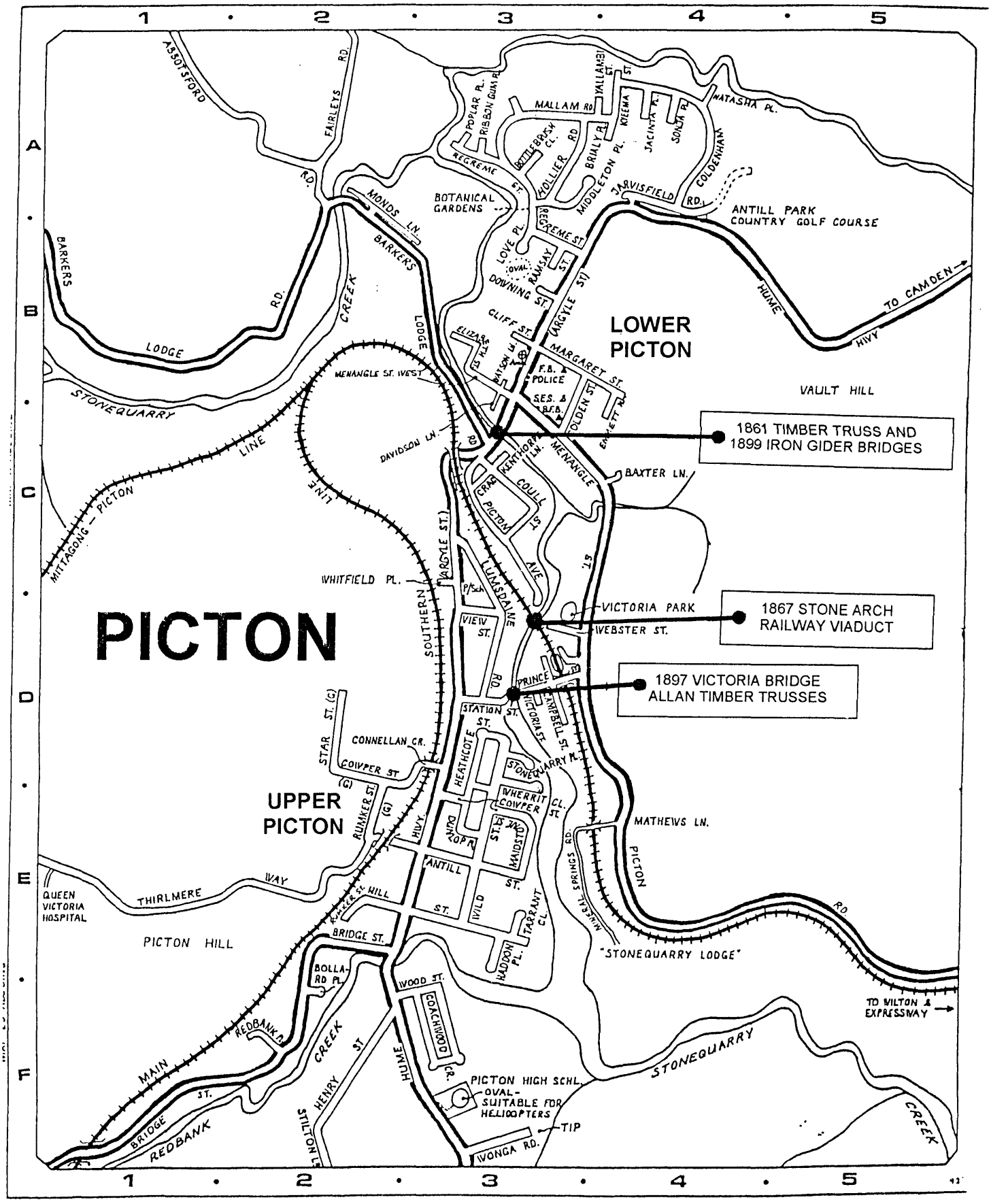
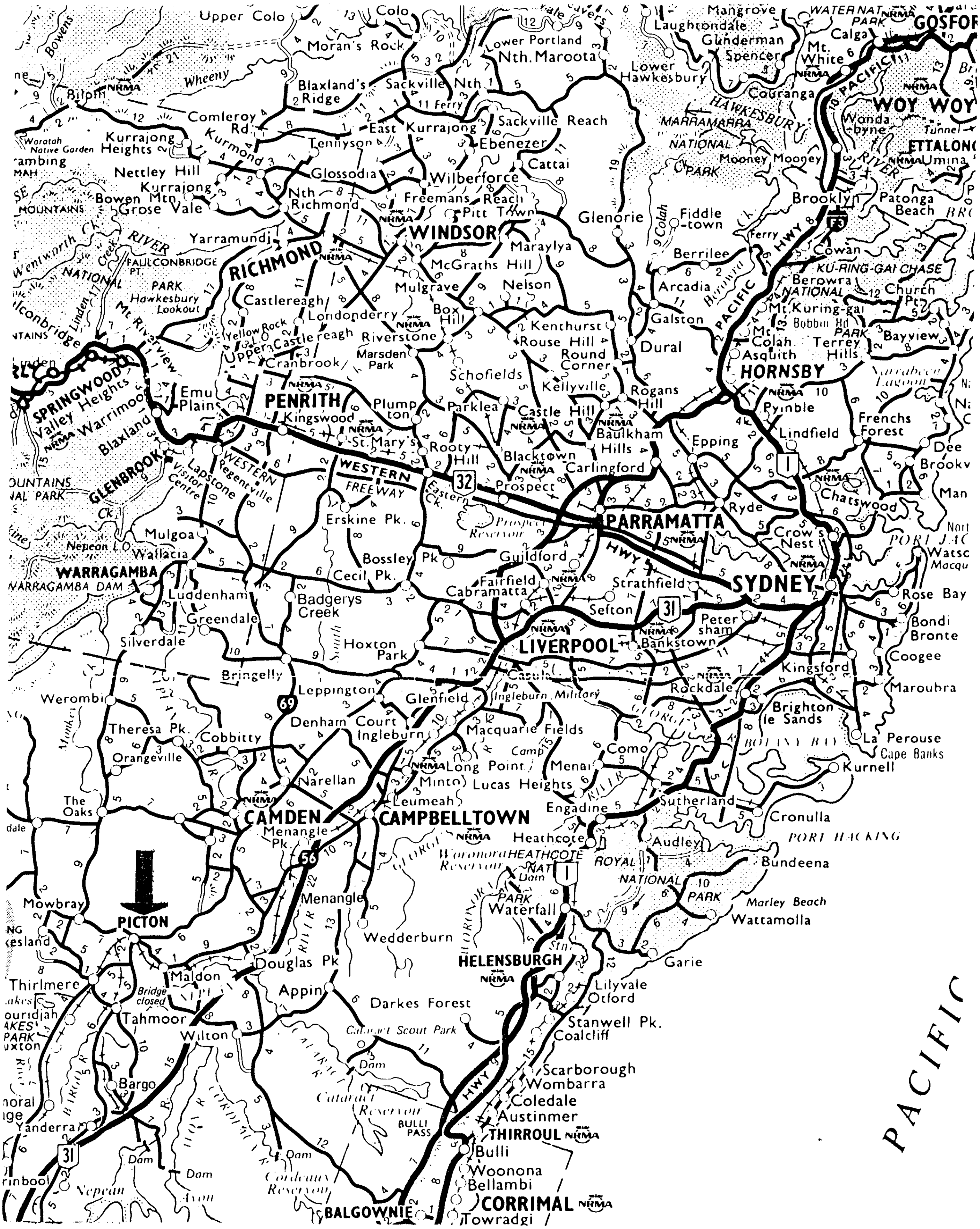


Map 2 Picton and its historic bridges over Stonequary Creek



Map 1 Sydney and Picton

Statement of Significance
Victoria Bridge
Picton, NSW

This 3-span Allan timber truss road bridge over Stonequarry Creek, Picton is listed on the NSW State Heritage Register as an item of State Significance (Roads and Traffic Authority's *Timber Bridge Management*, January 2002, p6).

- Opened in 1897, it is the second oldest Allan truss road bridge in NSW.
- The bridge is associated with the eminent Public Works engineer Percy Allan.
- This type of truss, named after its designer Percy Allan, was the third in a five-stage evolution (1861 – 1905) of timber truss road bridges in New South Wales. It was a significant technical improvement over the two preceding timber truss bridge designs.
- Timber truss road bridges became a common feature on the NSW road system with the construction of 442 up till the 1930s, giving New South Wales the title of "the timber bridge State".
- Allan truss bridges were 25% of the total population and currently represent 35% of the surviving timber truss road bridges.
- With three timber truss spans, Victoria Bridge is among the longest of its type.
- The 64-foot (19.5 metres) high timber trestles place the deck of the bridge 92 feet (28 metres) above the water, the tallest timber bridge in New South Wales.
- The bridge is an important landmark in the historic town of Picton, a popular tourist and day-tripper destination.
- Victoria Bridge is an excellent representative example of timber truss bridge construction and with proximity to Sydney its technical excellence can be readily appreciated.
- After 105 years, the bridge continues to provide a convenient bypass of the Picton centre for through lightweight traffic.

Nomination Form

Administrator
Engineering Heritage Australia
The Institution of Engineers, Australia
Engineering House
11 National Circuit
BARTON ACT 2600

THE AUSTRALIAN HISTORIC ENGINEERING PLAQUING PROGRAM

Nominating Body: Engineering Heritage Committee, Sydney Division, I E Aust.

The following work is nominated for a:

~~National Engineering Landmark~~

Historic Engineering Marker

Name of work: Victoria Bridge

Location, including address and map reference if possible:
Prince Street, Picton, NSW

Owner: Wollondilly Shire Council

Operator: Roads and Traffic Authority (maintenance)

The owner has been advised of this nomination, and a letter of agreement is attached. Letter attached

Access to site: Open access, public road across Stonequarry Creek.

Glenn Rigden

.....

Chair of Nominating Committee

Date: .....6 November 2002.....

98M2034
P B Manamperi
Phone 9218 6710

- 1 OCT 2002

Roads and Traffic Authority
www.rta.nsw.gov.au

Mr Don Fraser
Secretary
Engineering Heritage Committee Sydney
The Institution of Engineers Australia
PO Box 2044
Rose Bay North NSW 2030.

Centennial Plaza
260 Elizabeth Street
Surry Hills NSW 2010
Telephone (02) 9218 6888
PO Box K198
Haymarket NSW 1238
DX 13 Sydney

Dear Mr Fraser,

Plaquing the Victoria Bridge, Picton

Reference is made to your letter dated 1 August 2002 addressed to the General Manager, Infrastructure Maintenance regarding the commemorative plaquing of the Victoria Bridge, Picton.

I agree in principle to the Institution of Engineer's proposal for the commemorative plaquing of Victoria Bridge, Picton during next year's Heritage Festival.

Mr Mal Bilaniwskyj, Asset Manager, Southern Region is nominated as the contact officer for this project. He will advise on a suitable location and will arrange for installation of the plaque. Further he will be the contact regarding the timing and any arrangements regarding the unveiling ceremony for the plaque.

Mr Bilaniwskyj's contact details are given below:

Address: Southern Regional Office
P O Box 477
Wollongong East 2520
Telephone: (02) 4221 2402
Facsimile: (02) 4227 3705

Yours sincerely

Paul Forward
Chief Executive

CC: Asset Manager, Southern Region

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PROPOSED PLAQUE WORDS

I E Aust Logo

HISTORIC ENGINEERING MARKER

Victoria Bridge, Picton

This bridge, built by C J Foord and opened on 7 October 1897, has three Allan type timber trusses supported on the tallest timber trestles in New South Wales. This type of road bridge was the third in the evolution stages of timber truss road bridges (1861-1905). The truss was named after its designer, eminent Public Works engineer Percy Allan. The bridge was named in the 60th year of the reign of Queen Victoria and is one of the oldest surviving bridges of its type. (84 words)

The Institution of Engineers, Australia
Roads and Traffic Authority, NSW
Wollondilly Shire Council, 2003

Historic Picton (from notes supplied by Jan Ross)

The settlement and development of Picton had much to do with its geographical location, 85 kms south-west of Sydney, on a straight line between Sydney and Melbourne, and at an easy ascent into the Southern Highlands which consolidated to become the major transport corridor, road and rail, onto the interior of southern New South Wales.

Stonequarry Creek was named as early as 1798 and settlement began in 1822 when Governor Macquarie made three land grants, one of which was given to his A.D.C Major Henry Colden Antill. This provides an historic link between Picton and the Institution of Engineers through Major Antill's great grandson, James Macquarie "Jim" Antill (1912-1994), who was an eminent construction engineer, a stalwart member of the Institution for 50 years and its Sydney Division President in 1969.

The Antills established the private town of Picton clustered around the present intersection of Menangle and Argyle Streets, and being at the bottom of the valley became known as Lower Picton, whereas the government's surveyed town higher up towards Picton Hill, became Upper Picton. The town was named after one Sir Thomas Picton, a "hero" soldier of the Peninsular War and at the Battle of Waterloo where he was killed in 1815.

In its early days, Picton was surrounded by pastoral properties, dairies, farms and small holdings which still provide much of Picton's pleasant rural setting. However, with the arrival of the Great Southern Railway in 1863, it quickly assumed a railway image which dominated the town's activities for another sixty years being a locomotive depot for the steep single line via Hilltop to Mittagong. When the deviation and duplication to Mittagong via Bargo was completed in 1919, railway activities were gradually wound down.

After World War II, coal mining, transport and the cement works at Maldon added an industrial aspect to Picton's image. However, trucking coal to Port Kembla ceased in 1996 but the cement works continued operations and transport survives despite the F5 bypass in 1980.

Fortunately, Picton's geographical location, just beyond the perimeter of Sydney's metropolitan area, has been its saving attribute. It has become an attractive dormitory town for people who work in Sydney or Wollongong and the recreational delights of the Illawarra and South Coasts are in easy reach.

And yet, Picton still displays a wealth of colonial history with items such as the oldest surviving stone viaduct in NSW, the first railway tunnel (the Mushroom Tunnel), Victoria Bridge the highest timber trestle bridge in the State, the colonial mansion

Figure 3 An early view of Picton.

Figure 4 The 1863 mansion "Jarvisfield" is now the Antill Park Golf Clubhouse. There had been an attempt to establish the Village of Jarvisfield around the railway station.

Figure 5 The 1885 C B C Bank building, now occupied by the National Australia Bank.

Figure 6 The Post Office built in 1892.

Pictures supplied by the Picton & District Historical & Family History Society from their 1910 Hogue Album.

Picton Bridges

Map 2 shows the locations of three historic bridges over Stonequarry Creek in Picton.

Hamilton Hume had discovered the "Argyle" country (hence the present County of Argyle and Argyle Street, Picton) in 1814. Following the historic cross country expedition by Hume and Hovell from Sydney to Port Phillip (near Geelong) in October-November 1824 (which had passed through the early settlement of Picton), a road was established by Surveyor-General Thomas Mitchell in 1829 via Menangle Ford to Stonequarry Creek and on to Bargo. This is now Menangle Street . A few years later a road was established over the Razorback Range which entered Picton via Argyle Street. This route became the Great Southern Road and then the Hume Highway in 1928. One of the six bridges between Campelltown and Bargo was over Stonequarry Creek .

By the 1850s the Great Southern Road was the main busy route to southern New South Wales via Goulburn and Yass, and the Department of Internal Communication's Road Branch (later the Department of Public Works) assumed responsibility for repairs and improvements of all roads and bridges in New South Wales. One improvement was a new, second, bridge over Stonequarry Creek in 1861, a 2-span timber truss bridge, (figure 7). The spans are now known as OLDPWD trusses (see next section on the *Evolution of the timber truss bridge in NSW*).

Unfortunately, the trusses were difficult to maintain and its single lane was an inconvenience to the busy flow of traffic, so a third bridge was built which fared no better. So that the next bridge, the 1899 steel girder bridge (figure 8) could be kept on the Argyle Street alignment, the old bridge was moved upstream and this was considered an engineering feat at the time, The bridge was opened on 13 September, 1899 and was widened in 1979.

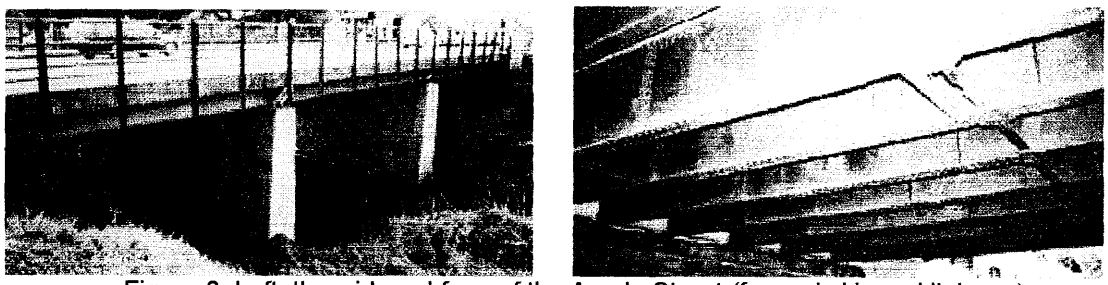


Figure 8 Left, the widened face of the Argyle Street (formerly Hume Highway), and Right the 1899 steel plate web girders. The bridge is still in service.

A short distance downstream is the 1867 railway viaduct. When the railway reached Picton in 1863, plans were already in hand for the extension to Mittagong via the steep single line through Thirlmere and Hill Top, known as the Loop Line since the deviation/duplication was completed in 1919. The crossing of Stonequarry Creek was part of the original contract but the first contractor failed and the now famous stone arch

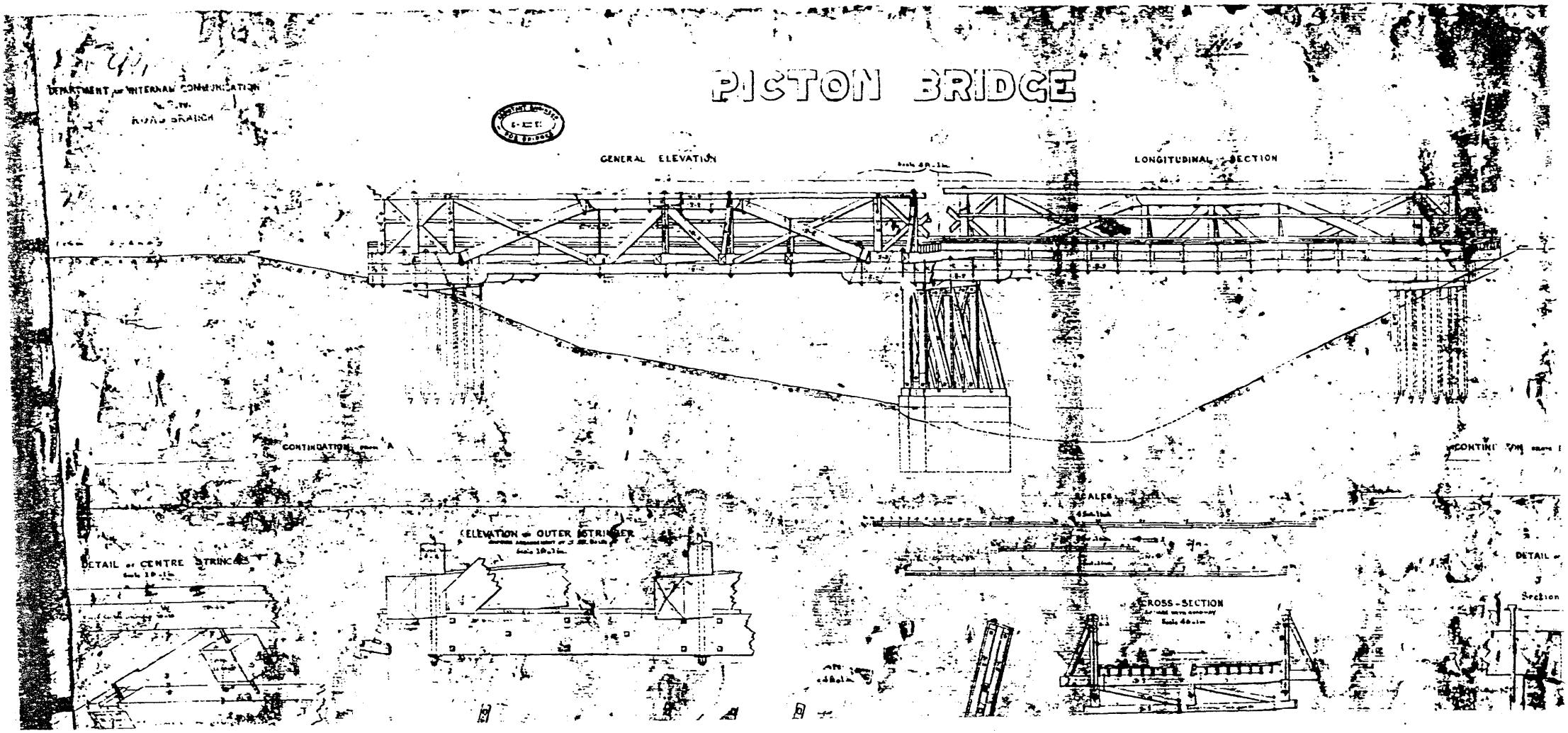


Figure 7 The 1861 timber truss bridge over Stonequarry Creek, Picton was built by J Sorrie & Co.

viaduct was built by Murnin and Brown, 1863-67. This structure (figure 9) is still in service, unlike the other contemporary stone arch viaducts by John Whitton on the Great Western Railway, which although they still survive, are not in service. They had been built for single tracks whereas as the Stonequarry Viaduct had the distinction of being built for double tracks.

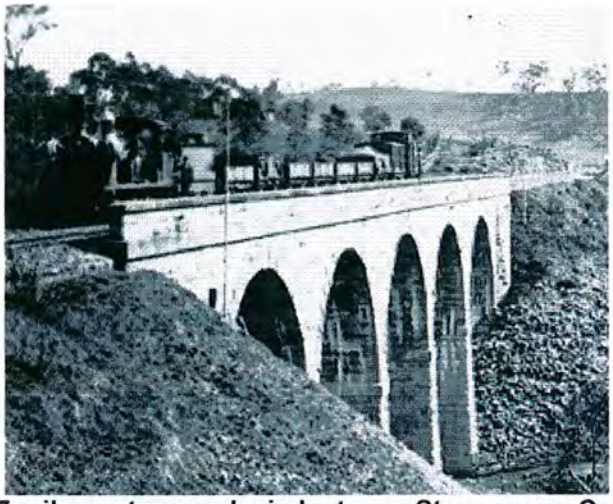


Figure 9 The 1867 railway stone arch viaduct over Stonequarry Creek, Picton c1880.

A little further downstream is Victoria Bridge, the subject of this nomination (figures 10, 11 and 12a-12c).

Figure 10 Victoria Bridge, Picton in 1910
(Hogue Album, Picton & District Historical & Family History Society).

Prior to opening this bridge in 1897, travellers on the Menangle Road (Map 2) wanting to go to Upper Picton or travel south on the Great Southern Road, had to proceed into the town centre at Lower Picton with its congestion, across the railway level crossing and climb the steep rise to Upper Picton. The residents of Upper Picton had to do the reverse to get access to the railway station. Until a railway overbridge at the railway station was completed in 1899, the bridge across Stonequarry Creek was accessed by a temporary level crossing near the railway station. Since 1900 the short cut from Menangle Road via Prince Street and Station Street, has been used to reach Upper Picton.

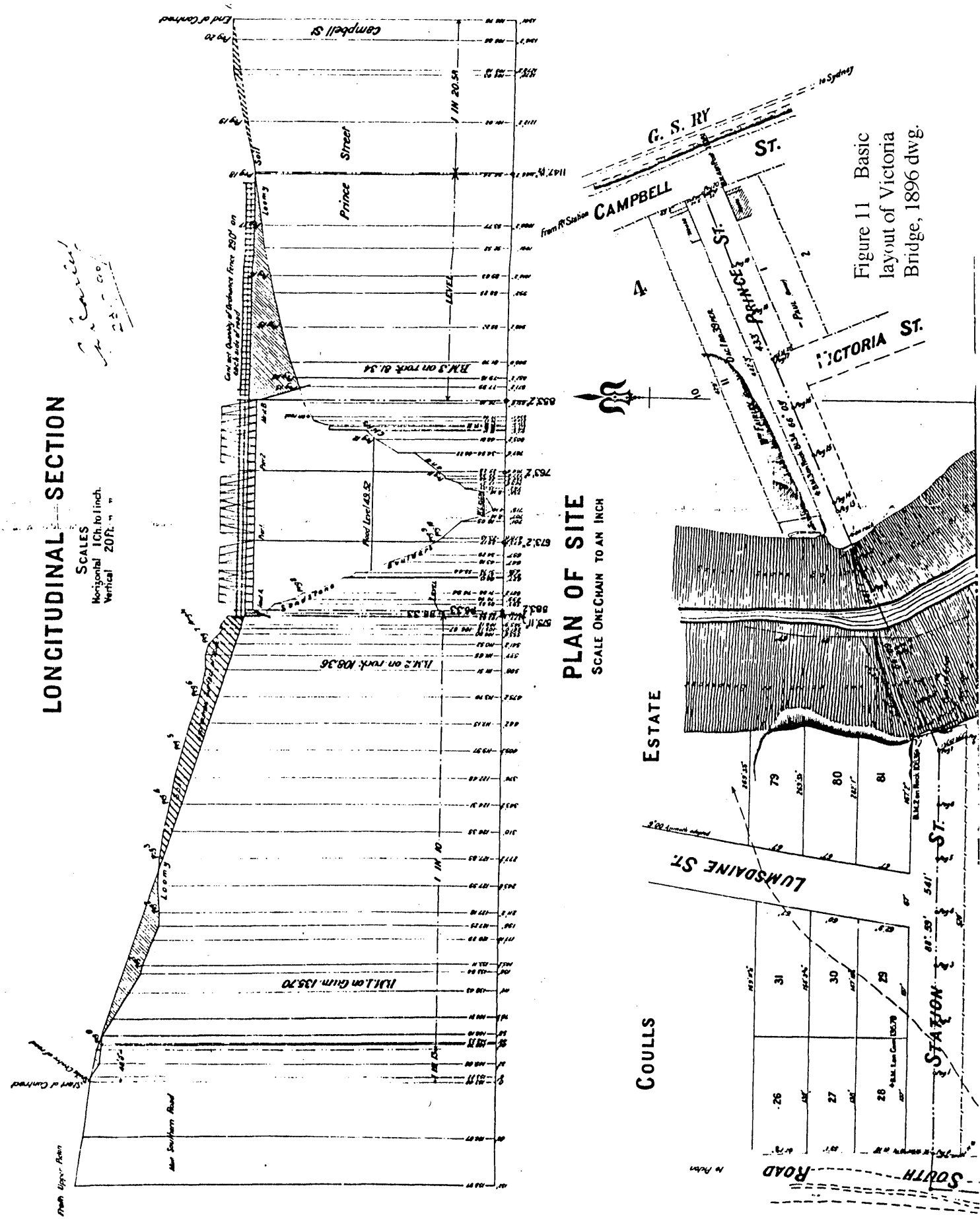


Figure 11 Basic layout of Victoria Bridge, Picton, 1896 drawing.

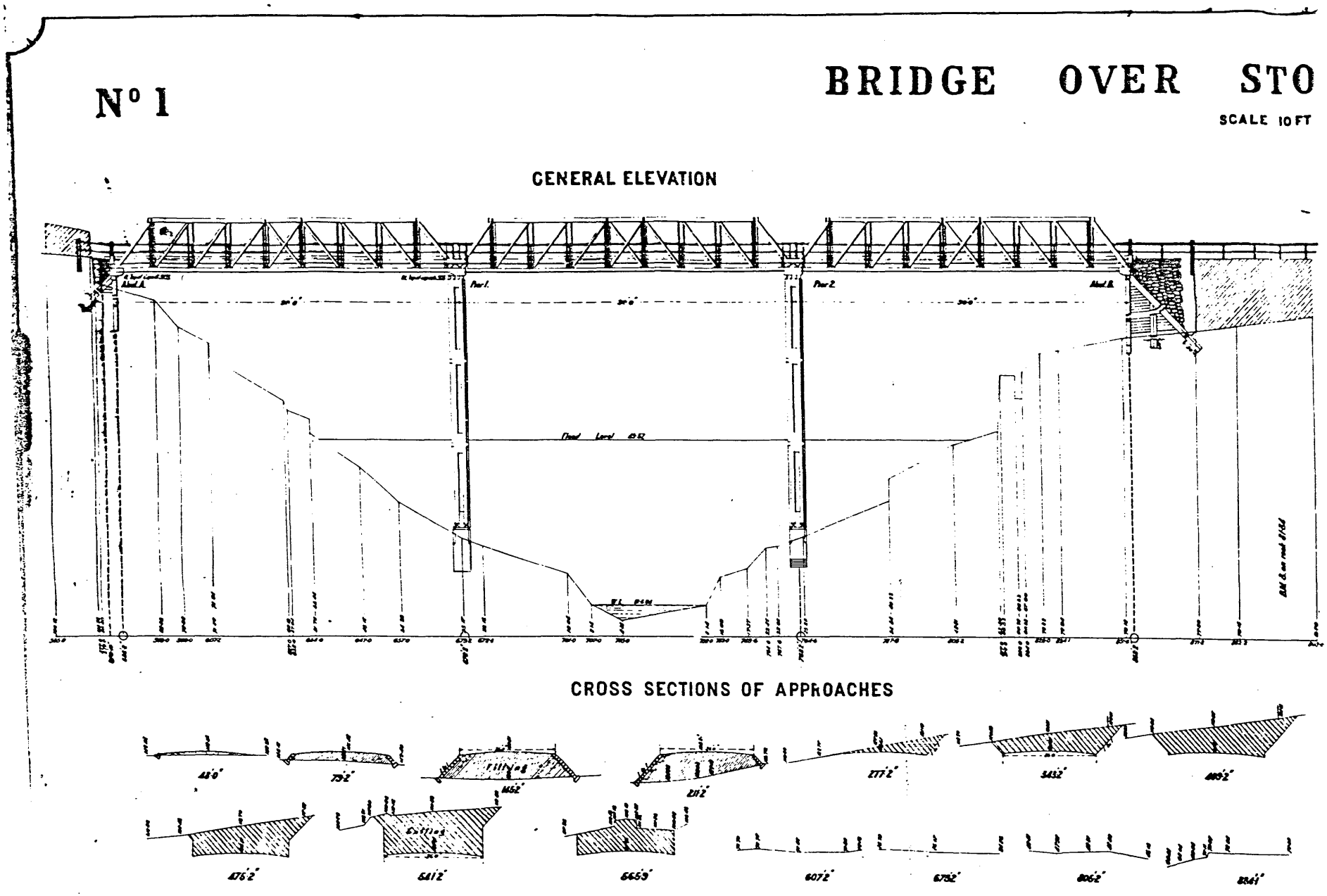


Figure 12a

Figure 12a General arrangement of Victoria Bridge, Picton.

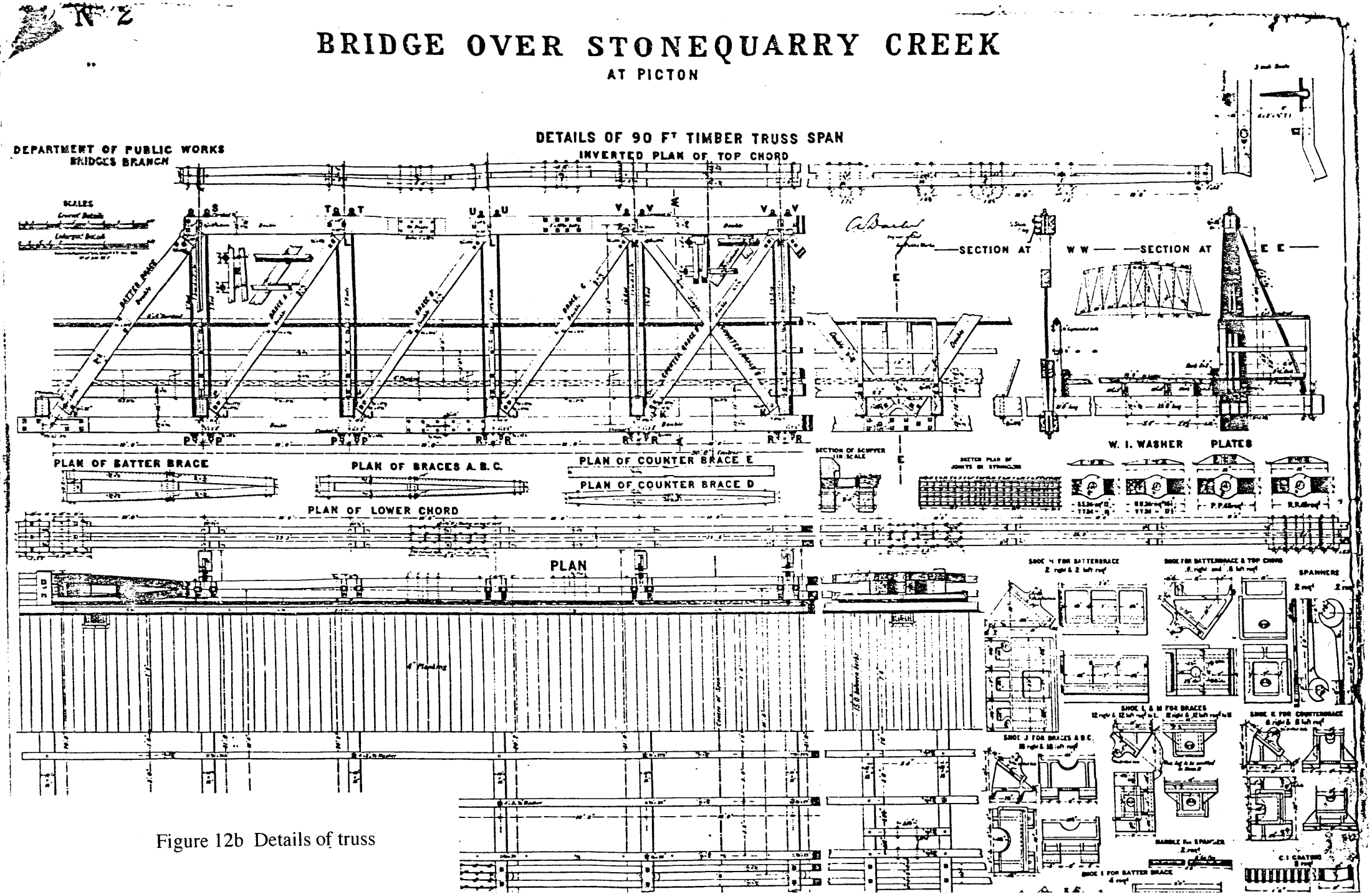


Figure 12b Details of truss

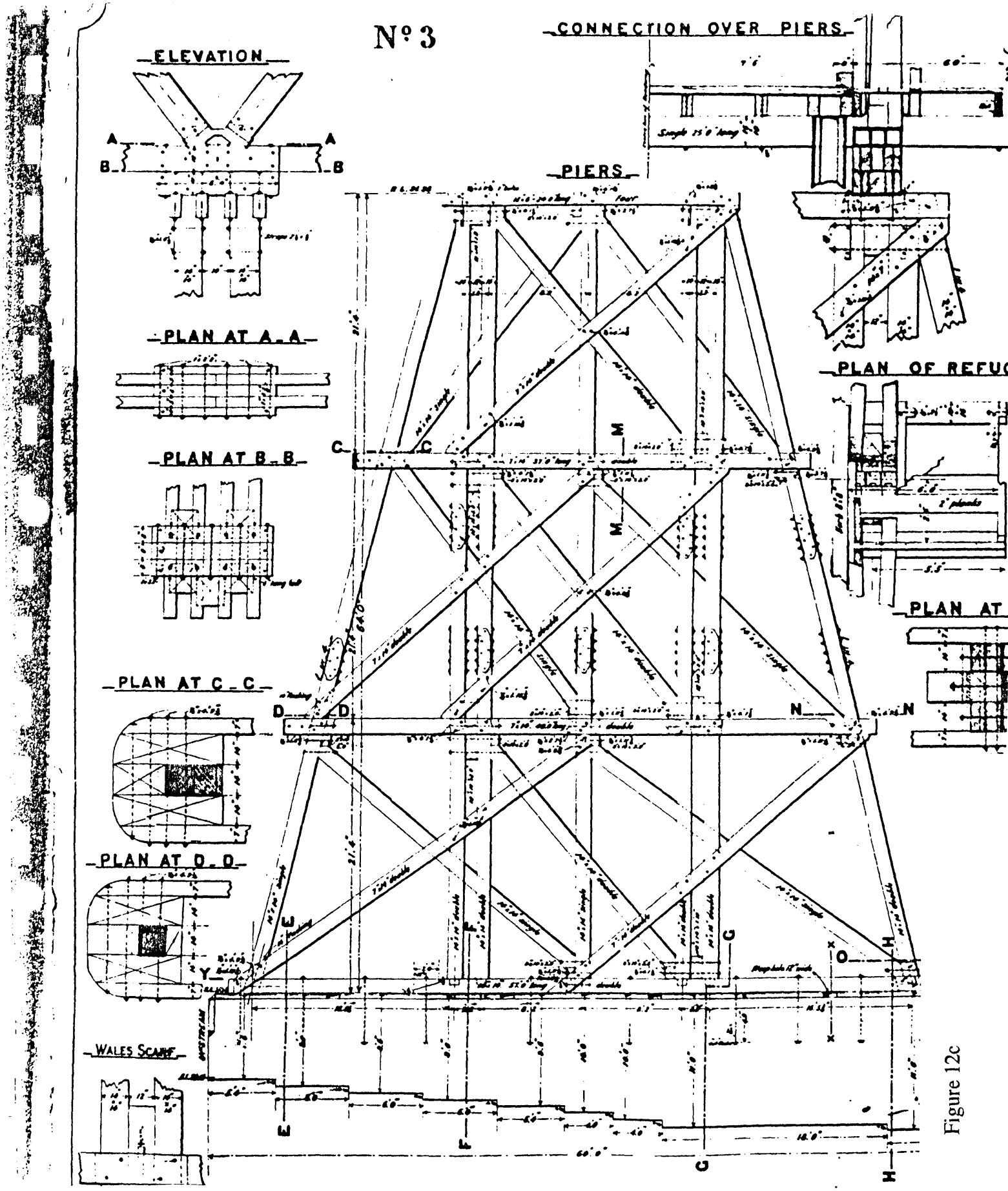


Figure 12c

Figure 12c Details of timber trestle, Victoria Bridge, Picton.

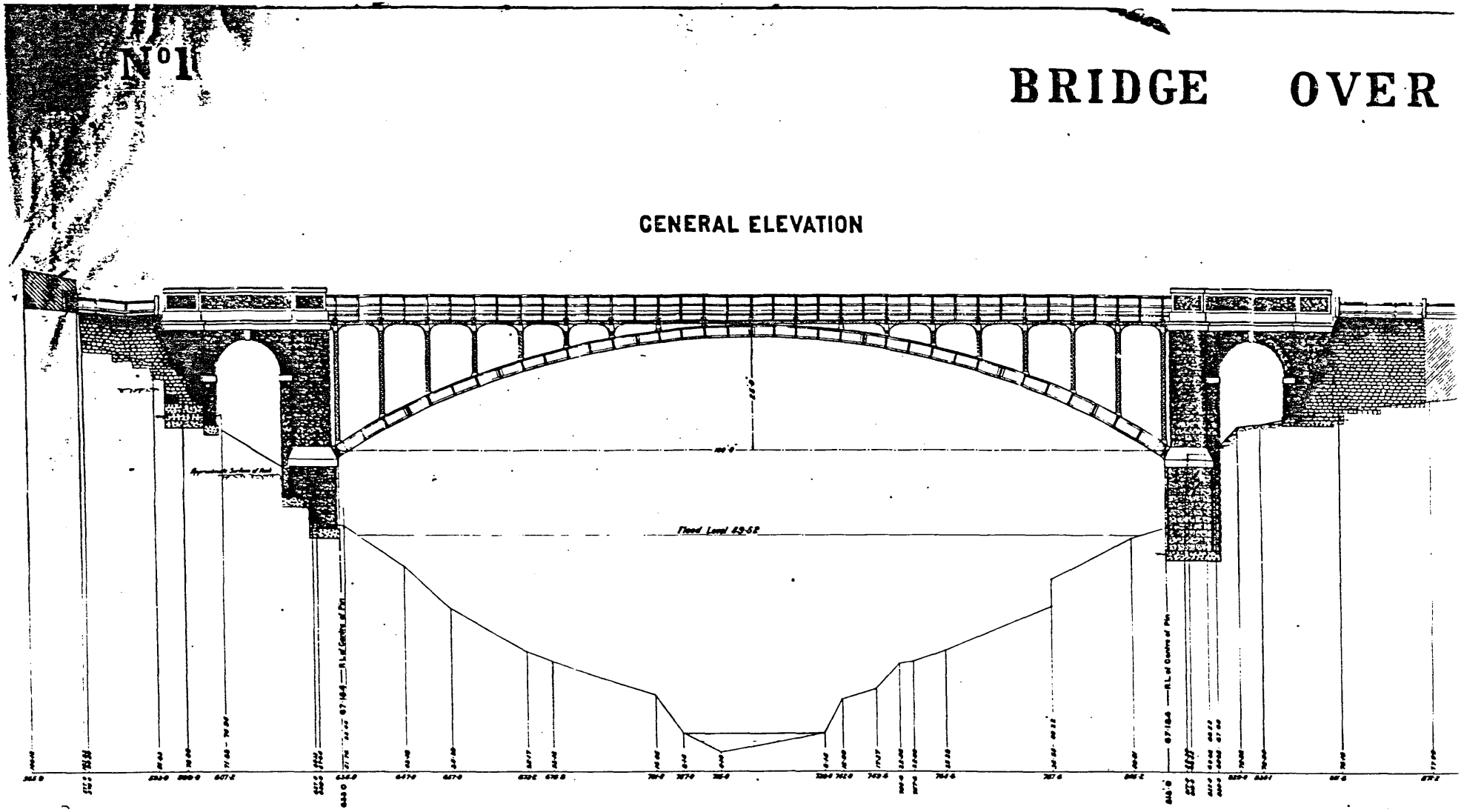
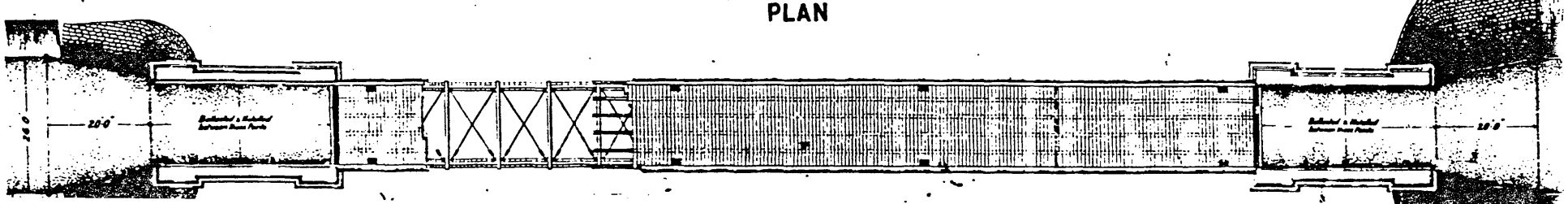


Figure 13 An alternative Victoria Bridge..

Figure 13 An alternative Victoria Bridge.



James Hooke, a prominent citizen and local property owner, lived in Upper Picton and had been agitating for such a connection since the 1880s. Approval came at the time of town's incorporation in 1895 and the bridge was opened on 7 October, 1897. The Town and Country Journal of 16 October reported as follows,

> *The new bridge over Stone Quarry Creek, Picton was officially opened on October 7 by the Hon. J. H. Young – Minister for Works. Mr Young christened the bridge, which he named Victoria. Afterwards the visitors were entertained. The bridge cost £3700, is 270 ft long by 15 ft wide and is 92ft high".*

(Figures 10, 11 and 12a-12c)

The name had some local controversy with some townsfolk wanting "Hillgrove" the name of James Hooke's property, but the chosen name was in honour of Queen Victoria's 1897 Diamond Jubilee. The bridge was built by C J Foord, Canterbury, Sydney.

The cost in 1997 dollars was estimated at $600,000 and the bridge is the highest above water level for any timber bridge in New South Wales. It was among the earliest to incorporate the newly designed (1894) Allan timber trusses (see next section on the *Evolution of the timber truss bridge in NSW, including a biosketch of Percy Allan*) and is the second oldest of its type after the1896 Allan trusses at Swan Hill.

The Victoria Bridge that never was, is shown in figure 13.

A cost comparison between a steel arch and timber trusses was obtained by the author from the PWD Annual Report for 30 June 1901 in the note concerning the famous DeBurgh Bridge over the upper reaches of the Lane Cove River, North Ryde, Sydney. The composite steel and timber truss bridge (which was destroyed by the 1994 bushfires) cost £3,500, whereas Victoria Bridge cost £3700. A steel arch design for the Lane Cove River site was estimated to cost £10,050. The alternative design at Picton (figure 13) may well have cost £11,000 i e almost three times the cost of the Allan truss design.

Around 1900, New South Wales was slowly recovering from the economic depression of the early 1890s and was experiencing one of its worst droughts. Funds for public works were constrained and the new timber truss bridges were proving to be very cost effective.

The steel arch bridges were not built.

Another historic bridge in the Picton district is the abandoned suspension bridge across the Nepean River at Harvey's Crossing, which can be reached via the road next to the Cement Works at Maldon. It was opened on 12 March 1903 by Minister for Works E W O'Sullivan. There is a comprehensive article about this bridge, which, in *MAIN ROADS*, December 1978, pp61-63, quoting from the *Picton Post and Advocate* reports of19 June 1901 and 18 March 1903. Also on the 18 March 1903, the *Town and Country* Journal

carried a report on the opening ceremony. The bridge was clearly considered a structure of great importance. A concise summary follows,

Harvey's Crossing, a stone causeway at water level (figure 14) had steep difficult approaches down the sides of the Nepean Gorge and was constantly being damaged by floods, causing traffic delays and requiring expensive maintenance.

Figure 14 Harvey's Crossing could have an idyllic picnic appearance but was a dangerous, inconvenient site.

Agitation for a high level bridge came to fruition when in 1899 the Government placed £15,000 in the Public Works Estimates. The result was a single clear-span timber suspension bridge 9figure 15) designed by the eminent Public Works engineers, E M deBurgh and Harvey Dare, built by "day labour" at a cost of £8,000 and opened on 12 March, 1903 by the Minister for Works, E W O'Sullivan. The bridge was a boon to the district and provided a safer access to the South Coast and Illawarra.

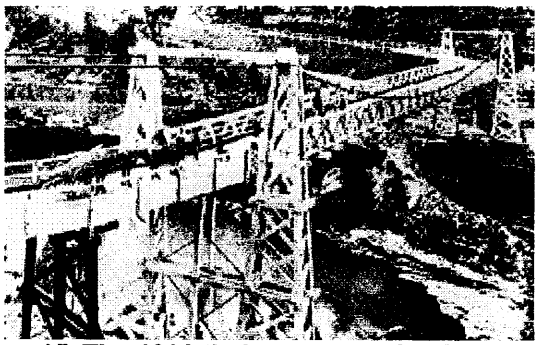


Figure 15 The 1903 timber suspension bridge over the Nepean River at Harvey's Crossing, Maldon.

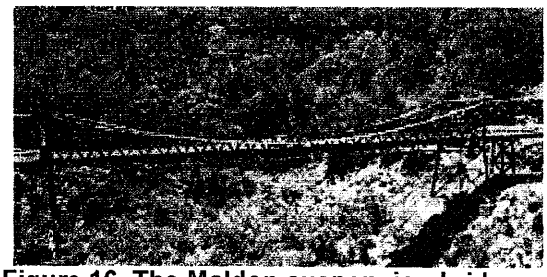


Figure 16 The Maldon suspension bridge as reconstructed after fire damage in 1939.

On 14 January, 1939, the timber towers were severely damaged by a bushfire that swept through the gorge but the structure was deemed recoverable. A temporary ford was provided and the Department of Main Roads staff began reconstruction which included new steel towers (*MAIN ROADS* February 1940 pp63-68), figure 16. However, the steep winding approaches and the low load capacity of the suspension bridge warranted a replacement, so a modern prestressed concrete bridge (figure 17) was completed in 1980 on a new section of road downstream. The 1903 structure survives, is an item of State Heritage significance and is the responsibility of the Wollondilly Shire Council.

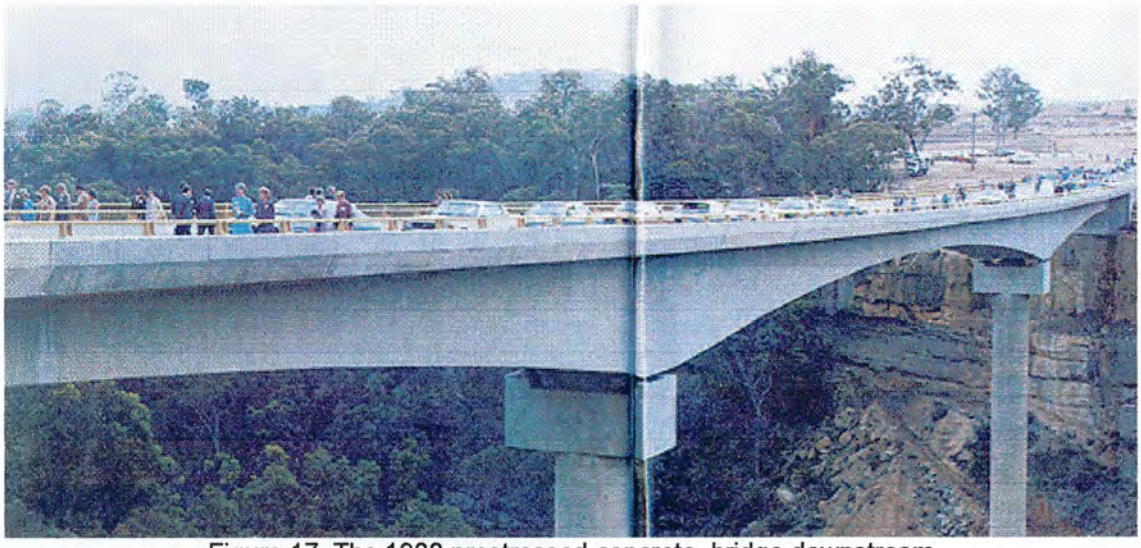
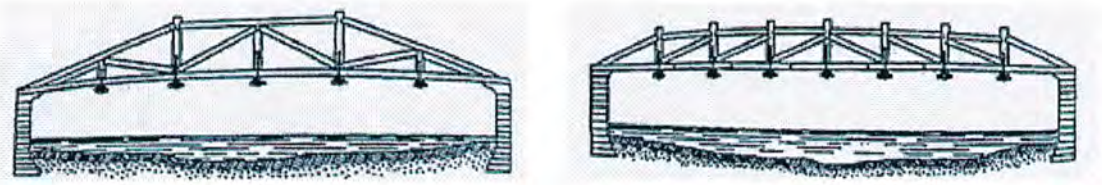


Figure 17 The 1980 prestressed concrete, bridge downstream of the old suspension bridge.

Evolution of the timber truss bridge in NSW

The truss, unlike the suspension cable/vine, the rock arch, the beam/log and the dome/cavern, has no equivalent in nature. It is a creation by man, first formalised by the sixteenth century Italian architect Andrea Palladio (1508-1580), figure A.



(a) (b)

Figure A Palladio's drawings of timber truss bridges c1550.

The truss is a spatial assembly of relatively short members to form a much larger structure that has a high load capacity/weight ratio. It is particularly efficient for spans exceeding 30 metres (100 feet) and up to 610 metres (2,000 feet). Most of the great bridges of the world are steel trusses.

In New South Wales, after the establishment of the Department of Public Works (PWD) in 1859, a standard timber truss bridge design was developed for road bridges by Chief Engineer and Commissioner for Roads, William C Bennett. It was a relatively low cost bridge, being constructed from local hardwood timbers, such as ironbank, rather than the expensive imported iron. Bennett's design, modelled on the Palladio truss in figure A(a), has become known as the "Old PWD Truss", figure B(a), and it allowed a rapid expansion of the burgeoning road network from 1870 to 1884. Only two Old PWD truss bridges remain in New South Wales, both classified as of State Significance.

(a) Old PWD truss (b) McDonald truss

Figure B The modified Palladio trusses 1870 to 1894.

The OLD PWD truss was the first in a five stage evolution of the timber truss road bridge in New South Wales, their names were OLD PWD, McDonald, Allan, de Burgh and Dare. The four following the OLD PWD truss have been named after their designers, all eminent engineers of the NSW Department of Public Works (PWD).

However, the old design had some structural faults and was expensive to maintain. In 1884 John A McDonald, the PWD Engineer for Bridges, produced an improved standard design to rectify the worst of these problems and to cater for increased loadings. His design has become known as the McDonald Timber Truss, figure B(b), and five such bridges survive, all of State Significance. He also pioneered the new technology of composite construction whereby a mix of timber and steel members was used to their best structural advantage. The 1893 bridge over the Lachlan River at Cowra had three large composite truss spans. After its replacement in 1986, a sample truss was mounted in the riverside park but had to be demolished for safety reasons in 1995.

In the early 1890s Assistant Bridge Engineer, Percy Allan (*bio-sketch follows*), began a comprehensive redesign of the timber truss bridge using data on the strengths of Australian timbers from Prof Warren's testing program at Sydney University and the experiences in constructing and maintaining the previous designs. He chose the American Howe truss, an arrangement anticipated by Palladio 400 years earlier, figure A(b). In his cost-effective design, now known as the " Allan Truss", he used marketable lengths of timber, minimised the adverse effects of water holding in joints, countered the effects of the high shrinkage of Australian hardwoods and devised ways of replacing defective members without taking the bridge out of service. His new design came into service in 1894 with the ability to carry 50% more load than its predecessors but with 20% less material. Approximately 35 Allan truss bridges survive, figure C, with 11 of State Significance. Victoria Bridge, Picton is one the Allan truss bridges of State Significance.

Figure C The clean simple lines of an Allan truss, easy to construct and repair.

Figure D A general view of a deBurgh composite truss and a closer view of a pinned joint in the bottom steel member with new replacement timber.

Another member of this famous team of PWD bridge engineers, which included Harvey Dare and J J C Bradfield, was E M deBurgh. Following the concept of composite construction, pioneered by J A McDonald (1893 above), de Burgh developed it into a viable standard design in 1899. He used the American Pratt truss with timber for the top chord and the vertical members, iron rods for the diagonals and a bottom chord member made from structural steel sections plus the American practice of using single steel pins at each of the bottom chord joints, figure D.

The first two deBurgh composite bridges at Queanbeyan and Inverell in 1899 (both replaced) had sloping end members as in the Howe/Allan trusses. This was an unnecessary detail for the Pratt arrangement of members and so vertical ends were adopted for all subsequent de Burgh truss bridges.

This new design, which now bears his name, promised great economies in maintenance, particularly the ease of replacing members, figure D. However the inclusion of pinned joints proved to be a hindrance to certain aspects of maintenance and future strengthening. The design was used only for a short period 1900 to 1905 during which time twenty such bridges were built. Ten survive with five being of State Significance.

Despite the drawbacks of the deBurgh design, the advantages of composite construction were clearly recognised and Harvey Dare reworked the Howe/Allan truss into a composite structure, figure E,. It was the last of the five stages in the evolution of timber truss bridges in New South Wales. By 1935, with in excess of 400 timber truss bridges having been built, they became a characteristic feature of the New South Wales road network, so much so that it was referred to as "the timber bridge State".

But during the 1920s, the increasing availability of locally produced steel allowed a gradual changeover to steel truss construction.

Figure E A typical composite Dare truss of the Howe type with timber diagonals and riveted steel bottom chord.

Percy ALLAN

Percy Allan (1861-1930) is regarded as one of Australia's foremost bridge engineers being associated in the design and construction of 583 bridges during his 49-year career (1878-1927) in the NSW Department of Public Works (PWD). Among his best known works are the 1894 redesigned timber truss road bridge (the Allan truss), the 1896 lift bridge and timber trusses over the River Murray at Swan Hill, and the 1902 Pyrmont and the 1903 Glebe Island swing bridges. They are among the earliest electrically operated moveable span bridges in the world) and the 1930 Georges River Bridge. All survive as at 2002.

Born in Sydney and trained by tutorage under senior PWD engineers, Percy Allan was among the early group of Australian-born engineers at a time dominated by expatriates from Britain. After establishment of the School of Engineering, under Professor W H Warren, at the University of Sydney in 1883, Allan was joined by an increasing number of local graduates including J J C Bradfield, J W Roberts and Harvey Dare.

In 1896 Percy Allan was appointed engineer-in-charge of bridge design and from 1900 to 1908 had the added responsibility for rivers, artesian bores, water-supply and drainage which included parts of Sydney's sewerage system. He was District Engineer, Newcastle from 1908 to 1911 from which he was later to present a paper "Port Improvements at Newcastle, NSW" to the Institution of Civil Engineers, London, being awarded their Telford Premium in 1921.

He returned to Sydney in 1912 and resumed supervision of bridge projects becoming Chief Engineer, National Works and Local Government Works in 1918. He retired in that position in 1927. In his youth he was a rugby representative and was a keen golfer throughout his life. Professionally, he was a member of and contributor to local and international engineering societies. He died in 1930 and is buried at South Head Cemetery, Sydney. (*Australian Dictionary of Biography, 1891-1939, pp36-37*)

Engineering Heritage Australia
Plaquing Nomination Assessment Form

Item Name	**Victoria Bridge**
Location	**Stonequarry Creek**
Suburb/Nearest Town	**Picton**
State	**New South Wales**
Other/Former Names	
Local Govt. Area	**Wollondilly Shire Council**
Owner	**Wollondilly Shire Council/RTA maint'**
Current Use	**Road bridge for Picton bypass**
Former Use	**As above**
Assessed Significance	**State**
Statement of Significance	This 3-span Allan timber truss road bridge over Stonequarry Creek, Picton is listed on the NSW State Heritage Register as an item of State Significance. ▪ Opened in 1897, it is the second oldest Allan truss road bridge in NSW. ▪ The bridge is associated with the eminent Public Works engineer Percy Allan. ▪ This type of truss, named after its designer Percy Allan, was the third in a five-stage evolution (1861 – 1905) of timber truss road bridges in New South Wales. It was a significant technical improvement over the two preceding timber truss bridge designs. ▪ Timber truss road bridges became a common feature on the NSW road system with the construction of 442 up till the 1930s, giving New South Wales the title of "the timber bridge state". ▪ Allan truss bridges were 25% of the total population and currently represent 35% of the surviving timber truss road bridges. ▪ With three timber truss spans, Victoria Bridge is the longest of its type.

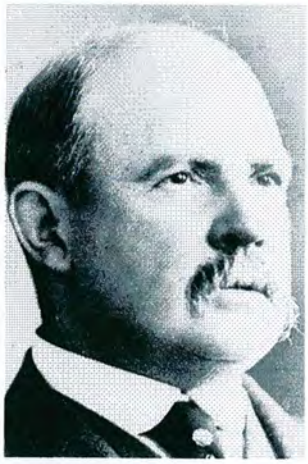
	▪ The 64-foot (19.5 metres) high timber trestles place the deck of the bridge 92 feet (28 metres) above the water, the tallest in New South Wales. ▪ The bridge is an important landmark in the historic town of Picton, a popular tourist and day-tripper destination. ▪ Victoria Bridge is an excellent representative example of timber truss bridge construction and with proximity to Sydney its technical excellence can be readily appreciated. ▪ After 105 years, the bridge continues to provide a convenient bypass of the Picton centre for through lightweight traffic.

ENGINEERING HERITAGE AUSTRALIA			
Historical Notes:	Prior to building the Victoria Bridge, travellers on the Menangle Road wanting to go to Upper Picton or travel south on the Great Southern Road, had to proceed into the town centre at Lower Picton with its congestion, use the railway level crossing and climb the steep rise to Upper Picton. The residents of Upper Picton had to do the reverse to get access to the railway station. Until a railway overbridge at the railway station was completed in 1899, a temporary level crossing was used. Since 1900 the short cut from Menangle Road via Prince Street and Station Street, has been used by light traffic to reach Upper Picton. James Hooke, a prominent citizen and local property owner, lived in Upper Picton and had been agitating for such a connection since the 1880s. Approval came at the time of town's incorporation in 1895 and the bridge was opened on 7 October, 1897. The Town and Country Journal of 16 October reported as follows, *The new bridge over Stone Quarry Creek, Picton was officially opened on October 7 by the Hon. J. H. Young – Minister for Works. He christened the bridge, which was named Victoria. Afterwards the visitors were entertained. The bridge cost £3700, is 270 ft long by 15 ft wide and is 92ft high".* The name had some local controversy with some townsfolk wanting "Hillgrove" the name of James Hooke's property, but the chosen name was in honour of Queen Victoria's 1897 Diamond Jubilee. The bridge was built by C J Foord, Canterbury, Sydney. The bridge is the highest timber bridge above water level in New South Wales. It was among the earliest to incorporate the newly designed (1894) Allan timber trusses and is the second oldest of its type after the1896 Allan trusses at Swan Hill.		
Designer:	Percy Allan, bridge engineer, Department of Public Works.		
Maker/Builder:	C J Foord, Canterbury, Sydney.		
Year Started	1895	**Year Completed: 1897**	**Circa:**

ENGINEERING HERITAGE AUSTRALIA	
Physical Description:	Three 90ft (27.4m) timber Allan trusses, without approach spans, 273ft (83.4m) long. It carries a single lane carriageway and a footway. The 64ft (19.5m) high timber trestles place the deck 92 Feet (28m) above the water, the tallest in New South Wales.
Physical Condition	Fair, maintained by the Roads and Traffic Authority.
Modifications:	Barriers along the deck to separate vehicles and pedestrians.
SIGNIFICANCE **Historical Phase**	In order to meet an 1861 government decree to use as much local materials in road bridge works as possible, Public Works engineers developed a series of five types of timber truss road bridges (1861-1905). In excess of 400 of these bridges were built which were a significant contribution to the expansion of and improvement to the road network in NSW. The third type of timber truss bridge in 1894, was the ALLAN type, an all timber structure.
Historical Association:	The Allan type timber truss for road bridges was named after its designer, the eminent Public Works engineer Percy Allan (1861-1930). He specialised in bridges being involved in 583 projects in his 49-year career. He became one of Australia's ablest civil engineers whose achievements were recognised internationally by receiving the prestigious Telford Premium, Institution of Civil Engineers, London in 1921.
Creative or Technical Achievement:	The Victoria Bridge with three Allan truss spans of 27.4 m each, is the longest of its type. Based on the American Howe truss, it was a technical advance over its predecessors. Allan truss bridges continued to be built into the 1930s and there are 35 survivors in use.
Research Potential:	The clean open form of construction of the bridge exhibits the technical excellence of its design and details.
Social:	The bridge is highly valued by the local community, and tourists who regularly visit historic Picton. The bridge is a landmark structure in the district.
Rarity:	Rare in the Sydney region, and has rare technical features, including the tall timber trestles.
Representativeness:	Highly representative of Allan truss construction.

ENGINEERING HERITAGE AUSTRALIA				
Integrity/Intactness:	Has the original truss and trestle fabric.			
References:	Roads and Traffic Authority, *Timber Bridge Management*, Sydney, January 2002. Fraser D J, *Timber Bridges of New South Wales*, Multi-Disciplinary Transactions, I E Aust 1985. *Picton Post and Advocate*, October 1897.			
Listings	**Name:**	**Title:**	**Number:**	**Date:**
	Register of the National Estate	**Yes**		
	State Heritage Register NSW	**Yes**	**01484**	**1999**
	National Trust of Australia	**Yes**	**Classified**	**1984**
	Hawkesbury City Council's LEP	**No**		

Item Name:	Victoria Bridge
Location:	Picton, NSW
Image/s:	*Cannot insert images into this space, hence see below.*
Captions:	The Allan truss bridge over Stonequarry Creek, Picton. Percy Allan



Victoria Bridge over Stonequarry Creek, Picton

NOTE: ** indicates that information is not supplied.**

Item

Name of Item:	Victoria Bridge over Stonequarry Creek, Picton
Item Number:	19066
Type of Item:	Built
Item Sub-Type:	NSW Allan Truss Bridges
Roadloc:	****
Address:	**** Prince Street, Picton 2571
Local Government Area:	Wollondilly
Owner:	Local Government
Current Use:	Road Bridge
Former Use:	****

Statement of Significance

Completed in 1897, the Victoria bridge is an early example of an Allan type timber truss road bridge, and in 1998 was in fair condition.

As a timber truss road bridge, it has many associational links with important historical events, trends, and people, including the expansion of the road network and economic activity throughout NSW, and Percy Allan, the designer of this type of truss.

Allan trusses were third in the five-stage design evolution of NSW timber truss bridges, and were a major improvement over the McDonald trusses which preceded them. Allan trusses were 20% cheaper to build than Mc Donald trusses, could carry 50% more load, and were easier to maintain.

Having the tallest timber trestle supporting piers of any timber truss bridge, the Victoria bridge has an imposing appearance, and is both technically and aesthetically significant as a result.

In 1998 there were 38 surviving Allan trusses in NSW of the 105 built, and 82 timber truss road

bridges survive from the over 400 built.

The Victoria bridge is a representative example of Allan timber truss road bridges, and is assessed as being State significant, primarily on the basis of its technical and historical significance.

Date Significance Updated: 08 February 1999

Description

Designer:	Percy Allan
Builder:	C J Foord, Canterbury
Construction Years:	**** - 1897

Physical Description:

Victoria bridge is an Allan type timber truss road bridge. It has 3 timber truss spans, each of 27.4m (90ft). There are no approach spans. The overall length of the bridge is 83.4m (273ft).

The super structure is supported by timber trestles which carry a single lane carriage way with a minimum width of 3.7m and a footpath. A timber post and rail guard rail extends the full length of the bridge and an Armco barrier protects pedestrians from vehicular traffic.

Physical Condition and/or Archaeological: Fair

Potential:

Modifications and Dates: ****

Date Condition Updated: 08 February 1999

History

Historical Notes:

Timber truss road bridges have played a significant role in the expansion and improvement of the NSW road network. Prior to the bridges being built, river crossings were often dangerous in times of rain, which caused bulk freight movement to be prohibitively expensive for most agricultural and mining produce. Only the high priced wool clip of the time was able to carry the costs and inconvenience imposed by the generally inadequate river crossings that often existed prior to the trusses construction.

Timber truss bridges were preferred by the Public Works Department from the mid 19th to the early 20th century because they were relatively cheap to construct, and used mostly local materials. The financially troubled governments of the day applied pressure to the Public Works Department to produce as much road and bridge work for as little cost as possible, using local materials. This condition effectively prohibited the use of iron and steel, as these, prior to the construction of the steel works at Newcastle in the early 20th century, had to be imported from England.

Allan trusses were the first truly scientifically engineered timber truss bridges, and incorporate American design ideas for the first time. This is a reflection of the changing mindset of the NSW people, who were slowly accepting that American ideas could be as good as or better than European ones. The high quality and low cost of the Allan truss design entrenched the dominance of timber truss bridges for NSW roads for the next 30 years.

Percy Allan, the designer of Allan truss and other bridges, was a senior engineer of the Public Works Department, and a prominent figure in late 19th century NSW.

Timber truss bridges, and timber bridges generally were so common that NSW was known to travellers as the "timber bridge state".

Listings

Heritage Listing	Reference Number	Gazette Number	Gazette Page
Local Environmental Plan			
National Trust of Australia register			

Assessment of Significance

Historical Significance:

Through the bridge's association with the expansion of the NSW road network, its ability to demonstrate historically important concepts such as the gradual acceptance of NSW people of American design ideas, and its association with Percy Allan, it has historical significance.

Aesthetic Significance:

The bridge exhibits the technical excellence of its design, as all of the structural detail is clearly visible. In the context of its landscape it is visually attractive. As such, the bridge has substantial aesthetic significance. Having the tallest timber trestle supporting piers of any timber truss bridge, the Victoria bridge has an imposing appearance, and is both technically and aesthetically significant as a result.

Social Significance:

Timber truss bridges are prominent to road travellers, and NSW has in the past been referred to as the "timber truss bridge state". Through this, the complete set of bridges gain some social significance, as they could be said to be held in reasonable esteem by many travellers in NSW. The Victoria bridge is valued by the people of the Picton district.

Technical Significance:

The bridge is highly technically significant because it is an example of an Allan truss, and is representative of some major technical developments that were made in timber truss design by the Public Works Department. The timber trestle piers supporting the bridge are the largest of any timber truss bridge, thus giving it additional technical significance.

Integrity/Intactness:

Intact

Representativeness:

Representative of Allan truss bridges.

Rarity:

Rare - In 1998 there were 38 surviving Allan trusses in NSW of the 105 built, and 82 timber truss road bridges survive from the over 400 built.

Endorsed Significance:

State

References

Bibliography

Type	Author	Year	Title
Written	Department of Main Roads, NSW	1987	Timber Truss Bridge Maintenance Handbook
Written	Fraser, D J	1985	Timber Bridges of New South Wales
Written	Allan, Percy	1924	Highway Bridge Construction. The practice in New South Wales

Study Details

Title	Year	Number	Author	Inspected by	Guidelines Used
Relative Heritage Significance of all Timber Truss Bridges in NSW		5000092	McMillan Britton & Kell		No

Custom Fields

RTA Region:	SOUTHERN
Bridge Number:	965
CARMS File Number:	****
Property Number:	****
Conservation Management Plan:	****

Images