

Nattai Creek Bridge

Conservation Management Plan

Report to Talis Consultants

Version 4.0 – May 2024



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shining a light on people and place



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Nattai Creek Bridge

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ABBREVIATIONS AND ACRONYMS

CHL	Commonwealth Heritage List
CMP	Conservation Management Plan
DCP	Development Control Plan
EPBC Act 1999	<i>Environment Protection and Biodiversity Conservation Act</i>
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
Heritage Act	<i>Heritage Act 1977</i>
HNSW	Heritage NSW
ICOMOS	International Council on Monuments and Sites
LEP	Local Environmental Plan
NHL	National Heritage List
NSW	New South Wales
REF	Review of Environmental factors
RNE	Register of the National Estate
S170 Register Act	Heritage and Conservation Register maintained under section 170 of the <i>Heritage Act 1977</i>
SEPP	State Environmental Planning Policies
SHI	State Heritage Inventory
SHR	State Heritage Register
SoHI	Statement of Heritage Impact
WHL	World Heritage List

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1 PROJECT OVERVIEW

1.1 Introduction

Wingecarribee Shire Council engaged Talis Consults to prepare a Conservation Management Plan (CMP) for Nattai Creek Bridge, on Ferguson Crescent in Mittagong ahead of proposed bridge replacement/upgrade works. Lantern Heritage Pty Ltd (Lantern) is engaged as the subconsultant to Talis Consultants to assist in the delivery of the CMP which will inform options for bridge design, and development of a Statement of Heritage Impact (SoHI) required to accompany the design.








1.2 Site location

The study area includes the Nattai Creek Bridge and surrounding curtilage (“the site”) as defined in the Wingecarribee Shire Council Local Environment Plan (LEP). The bridge is listed under the Wingecarribee LEP 2010 (listing No.11885) and was gazetted on 10th March 2017. The bridge is located on Ferguson Crescent on the northeastern side of the township of Mittagong in the New South Wales Southern Highlands (Figures 1 and 2).

1.3 Study objectives

Wingecarribee Shire Council is responsible for the operation and maintenance of Nattai Creek Bridge. This CMP reviews the heritage significance of Nattai Creek Bridge and outlines conservation policies aimed at conserving the site’s cultural heritage significance and ensuring its ongoing function and use.

This report:

-  Provides historical context for the Nattai Creek Bridge.
-  Reviews the current condition of the bridge and information available regarding bridge modifications over time.
-  Provides a comparative analysis that contextualises the bridge and its significance.
-  Reviews the bridge’s heritage significance with reference to its history, setting, historical associations, aesthetic and technical attributes, importance within the local community, research potential rarity and representativeness.
-  Discusses the constraints and opportunities for conservation management as they relate to statutory requirements, operational requirements and significance grading of bridge components.
-  Outlines conservation policies based on the site’s significance, constraints and opportunities.
-  Provides guidance on implementation of this document.

1.4 Overview of Nattai Creek Bridge

Nattai Creek Bridge on Ferguson Crescent in Mittagong is a double span timber beam bridge on sandstone abutments and pier. The site has been assessed as being of local heritage significance and is listed on the Wingecarribee Shire Council LEP. The bridge spans headwaters of the Nattai River, where the Great South Road (AKA Old South Road), surveyed by Mitchell, originally ran prior to the realignment of the Old Hume Highway 100m further north.

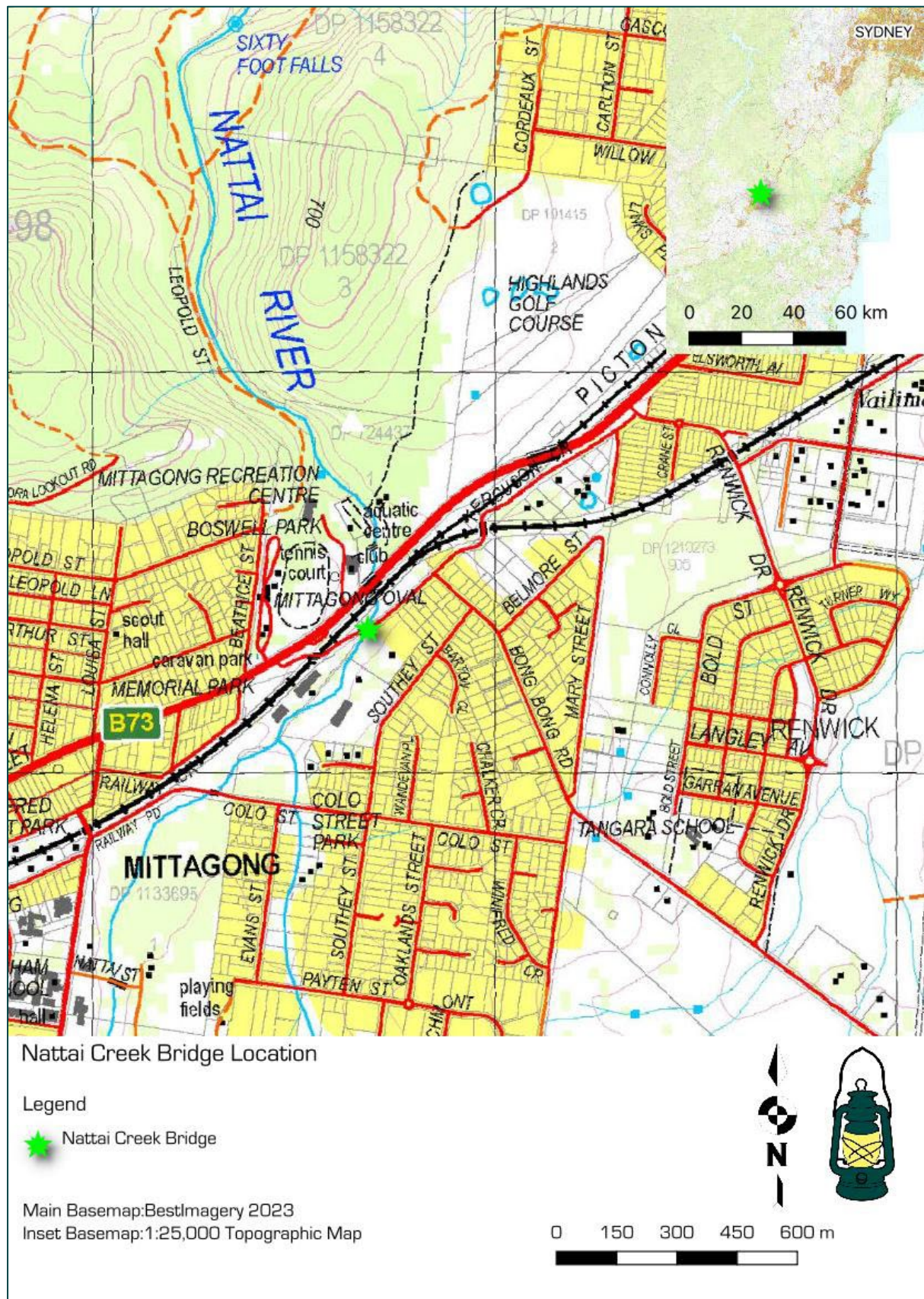


Figure 1: Overview of study area location.



Figure 2: Aerial detail of study area location.

1.5 Definition of heritage item

Nattai Creek Bridge is listed as an item of local heritage significance on the Wingecarribee Shire Council LEP 2010 (Item I1885 – refer to Appendix 1). The bridge is also known as Ferguson Crescent Bridge. It is situated at the southern end of Ferguson Crescent (Figure 1). The current curtilage of the site extends 12m east west and 10m north-south (Figure 3) and is situated 5m north of the curtilage of The Maltings/Maltings Conservation Area and Fitzroy Inn. The current curtilage does not adequately encompass the bridge and should be extended as indicated in Figure 4. The revised curtilage encompasses both abutments, the entirety of the decking and extends to the edge of the curtilages of The Maltings and Fitzroy Inn.

1.6 Process to develop Nattai Creek Bridge CMP

This CMP was developed by Rebecca (Bec) Parkes BA (Hons) PhD, Christine Gant Thompson BA (Hons) MA, and Rebecca Värttö BA and MA Arch Science of Lantern Heritage. Bec is Director and Principal Archaeologist at Lantern, she has over 20 years' experience in cultural heritage management. Christine is Principal Archaeologist at Lantern and has 15 years' experience in heritage management. Rebecca is a Historical Archaeologist with over 10 year's professional experience.





The Australia *ICOMOS Burra Charter* was adopted for this study with reference made to the associated *Practice Notes*. The CMP format follows the 2021 Heritage Council of NSW documents: *Guidance on developing a conservation management plan* (Marshall 2021a) and the *Statement of Best Practice for Conservation Management Plans* (Marshall 2021b).

Historical and social significance research was conducted by Lantern Heritage using resources such as Trove and the archives at Berrima Historical society. The bridge was surveyed by Lantern archaeologists Christine Gant-Thompson and Majella Hammersley.

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1.7 Limitations

The limitations of this study are:

-  No photos of the 1898 bridge in its original state could be found.
-  This CMP does not address Aboriginal historical association or significance of this place.
-  This CMP does not address European archaeology in detail as this is beyond the scope of the CMP, however the development of the site is described in the documentary evidence section.
-  Access to the northern abutment was not possible, details regarding the condition of this element is limited.

1.8 Acknowledgments

Lantern Heritage would like to thank the following people for assistance provided during the preparation of this CMP:

-  Mark Watling and Ricky Martin of Wingecarribee Shire Council for providing a site inspection of the bridge and background knowledge on changes to the bridge's structure
-  Phillip Morton and Linda Emery of the Berrima District Historical & Family History Society Inc for assistance in searching for information on the bridge
-  John Griffin, owner of the Fitzroy Inn for providing historic setting for the bridge.

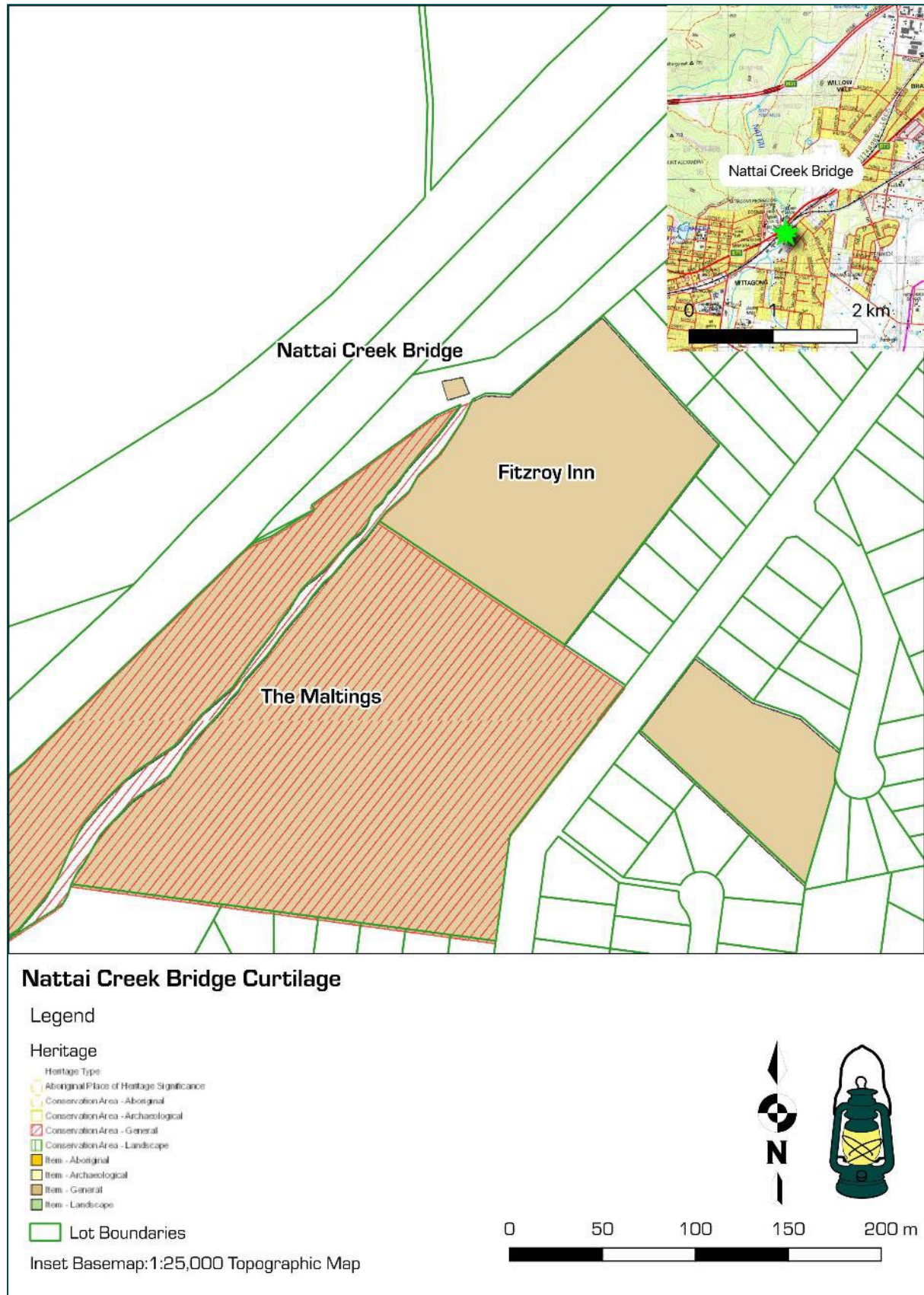


Figure 3: Curtilage and site location relative to curtilage of Fitzroy Inn and The Maltings.

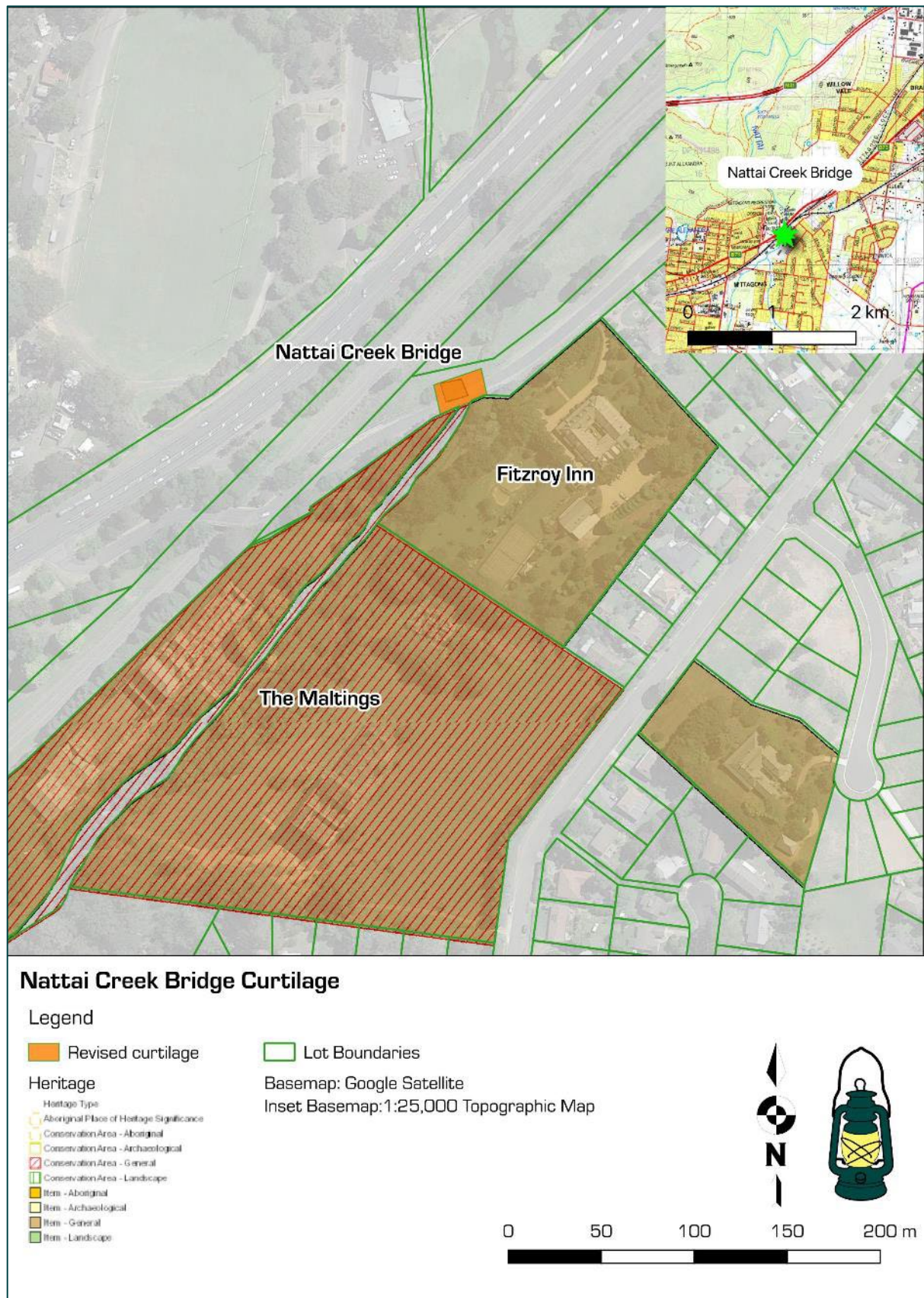


Figure 4: Revised curtilage for Nattai Creek Bridge.

2 DOCUMENTARY EVIDENCE

2.1 Chronology Aboriginal and settler contact

Date	Events
c.1802	Francis Louis Barallier, who explored the Wollondilly River to find a way over the blue mountains during 1802, referred in his diary that the Gundungurra he met “were almost immediately distinguishable by their animal skin cloaks reaching almost to the ankle”. It was Barrallier who named the Nattai River, and it would be likely that was the aboriginal name for it (McColgan 1995).
c.1826	A record states there were 67 natives of Bong Bong tribe, 10 of Mittagong tribe, and 62 of Nattai tribe. These natives were all members of the Gundungurra tribe, (or Gandagarra, the aboriginal pronunciation of words is often impossible to reproduce with our English spelling of words) but were separate families ... were staying in different locations within their tribal boundary (McColgan 1995).
c.1800s	There were a number of natives known to have been shot or killed by early settlers. The Gundungurra had an oral history of telling John MacArthur in the 1800’s, herding a large group into a gully and shooting them all (McColgan 1995:44)
c.1871	The discovery of ore at Yerranderie lead to a rush for mining leases that cause further segregation and alienation of the Gundungurra country within Burragong.

2.2 Regional chronology

Date	Events
1798 (December 1st)	Exploration, led by ex-convict John Wilson passed through the valley in which Mittagong is now situated. The group included: Wilson, Roe and John Price, a servant of Governor Hunter, reached the junction of Wingecarribee and Wollondilly rivers before returning to Prospect. A second journey into the area in the same year was made by a party comprised of Wilson, John Price, and a man called Collins. They reached Mt Jellore 17-3-1798 and Gin Gin Bullen 19-3-1798
1821	Earliest settler in Mittagong area- William Chalker. Chalker’s hut was built on area later surveyed as Portion 82 Parish Mittagong on the south side of the Old South Road. He was given a permit on May 10 th , 1821, to proceed through the cow pastures with 93 cattle and two stockkeepers to graze stock on Mittagong Range. This settlement likely occurred because of Old South Road (or Argyle) that passed the Mittagong Range.
c.1827/or 1836	George Cutter or James Foster builds Kangaroo Inn located on old Argyle Road at lower Mittagong (opposite side to current Fitzroy Inn). George Cutter becomes the first licensee. A trust was established for Ann Cutter, and in 1837, Ann and George Cutter brought the land and inn from John Tawell, for three hundred pounds (Day & McCarthy n.d.).

Date	Events
1828	Official mail service to the district commences.
1833	Subdivision of road. Nattai village was the main concentration relative to a small population.
c.1835	Nattai was a private village with a subdivision of approximately 100 acres.
1837	Minnikin Lodge (now named), corner of Lyell Street and Hume Highway built by Goulburn brewer William Bradley in 1837. This Inn became the second Kangaroo Inn after the first Kangaroo Inn at Lower Mittagong became obsolete with the new line of road to Berrima. George Cutter, the proprietor of the old Kangaroo Inn became the lessee of the new Kangaroo Inn
c.1845	Fitz Roy Inn (Oaklands) built by Alexander Brand for Mrs Anne Cutter. This would be the first hotel in the state built to provide rooms as well as liquor under requirements of the governor's new law, for the benefit of weary travellers. The building included convict cells, cooking stove and baker's oven and was constructed using heavy sandstone.
c.1851	The Gold Rush witnesses many men leaving area, resulting in a shortage of labour.
1860	Floods carry whole bridge away at Berrima. Matthews and Jennings build a new bridge which lasts to 1897. In 1897 a timber bridge was erected which lasted to 1962 when present structure was erected.
1865	Present town area sparsely populated with small number of houses and shops on north side of main road.
1867	Th anticipation of arrival of railways causes iron works to be subdivided with a new village if new Sheffield to the east and north of the works. Railway construction arrives at township. The station is named 'Mittagong' and erect a sign to that effect thus deciding the name of the town. The line opened to traffic 3-3-1867. Names New Sheffield and Nattai Village disappeared through lack of use as the area became recognised as the town of Mittagong. The section of railway line between Mittagong and Moss Vale came into use 2-12-1867 without fanfare.
1883	First butter factory outside Sydney erected in Mittagong and first milk separators used (Fresh Food and Ice Company). F F & I Co establishes the first export of butter from Australia, shipping one ton on the steamer "Iberia" which sailed for London 5-1-1884.
1899	Construction of the first buildings of Maltings. Built by Stuart Bros of Sydney at a cost of £8,496 for the NSW Malting CO Later became Tooths Maltings, later to be sold and purchased for business by Tooth and Co. in 1905.
c.1907	A gatehouse building is constructed at the maltings level crossing gate for a gate attendant. First occupant was a Mrs Meares, followed by a Mrs Day.

Date	Events
1918	Construction of double railway line deviates on path of old single line embankment over Clinamen's Creek one mile west of Mittagong. The old single line embankment becomes part of road to Bowral.

2.3 Chronology of Fitzroy Inn

Date	Events
1818	George Cutter is discharged from the British Army. George marries Ann Sculthorpe
1820	George and Ann arrive in Sydney on the ship Surrey as free settlers. On his shipping record, George gave his occupation as a veterinary surgeon, but his army papers record his occupation is a labourer. Immediately the cutters opened premises in Pitt Street Sydney, Ann selling a variety of items and George selling tools and iron products. He also advertised himself as a veterinary surgeon and farrier.
1823	Financial problems soon occurred, and George had several legal proceedings against him for failure to pay his creditors. The supreme court ordered that all George's property and goods should be auctioned for payment to his creditors.
1826	Having secured a grant of land from the crown, George had an Inn erected on Old South Road in Mittagong (see Plate 4). The Inn was named the Kangaroo Inn and was a popular place for people going south to Goulburn and beyond.
1826	George takes exception to reporting of a legal case against him and writes an open letter to the Australian newspaper saying his character has been vilified, and questioned how a respectable tradesman's reputation could be injured by the machinations of another individual.
1827	George is committed to trial in Sydney for intent to rape a young girl, aged 13 years.
1828	George is fine 30 pounds on the lesser charge of intent to rape Isabella Gamble.
1830	George was enterprising. He also erected a stone windmill for grinding of wheat for local farmers to utilise. The windmill was erected opposite the Inn on the property now owned by the Marist Brothers.
1831	George continued to have financial troubles at the Inn and was declared insolvent and lost possession of the Kangaroo Inn and all his goods.
1835	With the opening of the new line (Old South Road) road to Berrima, George perceived an opportunity for another Inn to be erected as traffic from the Old South Road would now travel this route. James Foster had a grant of land near Nattai River on this road and George undertook to erect an Inn on this site.
1836	The Inn opened in 1836, with Ann the licensee. This Inn was known as the Second Kangaroo Inn.

Date	Events
1837	George is charged with stealing 2 cows and a heifer, on the property of Captain John Coghill. It was discovered that a convict named Collins had tried to implicate George in the crime that he did not commit. The case against George was dismissed by the Supreme Court and it was recommended that Collin's ticket-of-leave be terminated. Collins admitted he was motivated by revenge to make false accusations against George. In another case in Campbelltown quarter sessions, George was sentenced to six months in Sydney gaol for assaulting John Burdoff and George's witness was committed for perjury.
1839	During his sentence, George uses his skills as a blacksmith, but is not an ideal prisoner and was charged with several offences and given appropriate penalties.
1846	George is released from Port Arthur prison. He returns home to the Inn to discover his wife, Ann is living with another man named Alexander Brand who is undertaking repair work at the Inn. George is made to feel unwelcome.
1850	<p>A man named Brand applied for the licence of the Inn, renaming it the Fitz Roy Hotel (Inn). The Inn was named after Governor Charles Fitz Roy who had visited nearby Fitz Roy Iron Works (the first iron works in Australia)</p> <p>George attempts to prevent Brand from obtaining the licence for the Inn by writing a letter to the courts magistrate in Berrima, with a copy reproduced in the Goulburn Herald stating that Brand was an unfit person to be issued with the licence because:</p> <ol style="list-style-type: none"> 1. He is in illegal possession of the property 2. Brand was committing adultery with Ann Cutter 3. Brand is a single man and disallowed from holding a licence for public house. Further stating that Brand is encouraging Ann to drink heavily. <p>George went to the Fitz Roy Inn and took exception to Brand's tenure in the building. George allegedly attempted to murder Brand. Both men were tried for attempting to murder each other. George was acquitted and Brand was kept in gaol and had to pay a bond of 100 pounds for his release.</p>
1853	The Fitz Roy Inn was leased to Bartholomew Rush. Separate premises were allocated nearby to George and Ann.
1858	Ann dies at the age 62 years in Camden while returning to Mittagong. Ann is buried in an unmarked grave in Camden Cemetery.
1859	George marries Winfred McMahon (nee Hayes) the widow of Bryan McMahon, a former publican at Berrima. Edward Chalker is accused of stealing a horse from Brand. Brand gave evidence that George was the Captain of a band of robbers before he was transported in 1839 and now Chalker's is the Captain. Chalker's was found guilty of the offences.
1860	George dies at the age of 68 years and is buried in an unmarked grave at Berrima Cemetery. Both Ann and George never had children.

Date	Events
1966	The Sun (dated June 7 th 1966) Discusses how relics relating to the Fitzroy Inn have been recovered from the cellars of the Inn, and that some have been within a rubbish dump near the Hume Highway. Relics recovered included liquor bottles (still containing liquor) dating some 100 years. Other items included convict related items that included leg and neck irons and ball and chain and shackles. [Collected from Fitzroy Inn archives May 2023].

2.4 Chronology of Nattai Creek Bridge

Date	Event
1800s(nd) -1867	Earlier bridge over Nattai Creek depicted in historic photos (Plate 4 & Plate 5).
1898	Bridge constructed over Nattai Creek at 75miles from Sydney. Designed by PWD and signed off by Ernest de Berg.
1980s	The guard rails and curb logs (at base of guard rails) are replaced
2000	The entire timber decking and the runners (horizontal) are re placed.
c.2010-2020	A sinkhole has appeared on and off over the last 20 years between the southwest corner of the bridge deck and the road surface. This has been repaired with fill numerous times, however the curb stones and upper sandstone blocks in the abutment adjacent to this section have moved about 100mm to west

2.5 Aboriginal History

The current archaeological data available suggests Aboriginal occupation within the Sydney region to date to at least 36,000 years (Jo McDonald CHM, 2005b, Williams, et al 2014).

The major Aboriginal groups that occupied the South Eastern Highlands Bioregion were the Walbanga in the centre, Ngarigo in the Southern and Centre Bioregion, and Gundungurra and Ngunawal in the northern bioregion (HO & DUAP 1996). The Walgal were to the west within the northern portion of Kosciuszko National Park, and Bidawal located from the coast to areas near modern day Bombala. A group north of Sydney holds the Dharwal language region which encompasses the areas of present-day Botany Bay south to Jervis Bay (Murray and White 1988).

These groups have been recorded as being more nomadic and relied upon the recurring reserve of food resources available within the tablelands. This included tubers from the yam daisy during the seasons of spring, summer and autumn, and wattle seeds in the months of July through to August, and orchid tubers in August to September (HO DUAP 1996). The rivers were exploited for fish and crayfish from September to May and the larger grazing animals and smaller animals were hunted throughout the year.

The Wingecarribee area, also known as the Southern Highlands, contains a boundary extending from Camden and the Blue Mountains in the north, Goulburn in the South, and the Illawarra escarpment (Merrigong) in the east is the land of the Gundungurra people (Leevers 2006).

The Gundungurra, sometimes referred to as the “mountain people,” or variously described as the Nattai Tribe, or the Burragorang tribe, occupied an area, or territory, roughly from the Illawarra escarpment through the southern highlands, taking in Moss Vale, the Wingecarribee swamp, Bowral, and Mittagong, as far south/west as Goulburn, and as far north as Camden (McColgan

1995). From there, it extended over the Great Dividing Range to the inland slopes. Only the Kooradgies and other tribal elders would know the defined boundaries, but it certainly took in the valleys of Burragorang, Megalong, and Kanimbla, with favourite camping sites for various seasons (McColgan 1995).

The neighbours to the north were the Dharrock tribe, and on the south and south/west they were joined by the Thurralwal. The numerical strength of the tribe at the time of early settlement was estimated at several hundred, but because they lived by hunting and foraging food, it was normal for family units of from 10 to 70 individuals to inhabit various locations (McColgan 1995:44).

Limited ethnographic accounts of early encounters between British explorers and Gundungurra people were recorded when explorers were traversing these lands. A report from 1830 concerning 'The Battle of Fairy Meadow' indicated that some several hundred warriors from the 'Bong Bong tribe' (Gundungurra) and the 'Wodi Wodi' people participated (Organ 157-159:1990). By 1833 it has been recorded that the numbers of Gundungurra People had declined dramatically to 'forty people at Berrima, ten people at Stonequarry (Picton) and fifteen at Burragorang, totalling sixty-five people'. The reasons for such a decline have not been understood due to a lack of written record concerning this group (Leevers 2006:5-6).

The landscape within the boundaries of Wingecarribee contained large areas of grassland (Moss Vale, Bowral, Sutton Forest) which would have been home to wallaby, kangaroo, and emu. The more forested areas, rivers, numerous creeks, and swamps would have provided food resources such as edible grubs, waterfowl, platypus, fish, molluscs, eels, yabbies and frogs (Mulvaney & Kamminga 1999). Further included were swans, varieties of ducks, pelicans, egrets, waders, storks, and broilgas living in the wetlands that were surrounded by water lilies, sedges, reeds, paperbarks and Ti tree (Leevers 2006:8).

These traditional practices were heavily impacted by the arrival of colonists, with the introduction of foreign disease and the destruction of the natural landscape that the Aboriginal groups were so intrinsically connected to and to which they relied upon.

In the early 1900s, R.H. Mathews collected information from the Gundungurra people who were living on one of the earliest Aboriginal Reserves in the Burragong Valley, Reserve No 26 at Byrne's Creek (Leevers 2006).

Knowledge concerning The Gundungurra Dreaming were collected that were set in the *gun-yung-lung* (Dreaming) times of the *Burrin-gilling* animal-men. It describes the battle of *Mirragan* and *Gurangatch*, describing the creation of the Wollondilly and Cox's River valleys, Wombeyan (*wam-bee-ang*) and Jenolan Caves, including other features of the landscape. The Dreaming story of *Mulleum* and *Dyirri-dyir-ratch* (the eaglehawk and the willy-wagtail) related to the Gundungurra marriage system, avoidance relationships and prohibitions (Leevers 2006:12-13). Other Dreaming stories further included those regarding the legend of the waratah and how it became red, have also been collected. This information displays in part, the totemic relationships, clan boundaries, laws, kinship systems and deep spiritual connection to 'country'.

The Gundungurra shared trade and social communication between individuals from neighbouring groups including Dharawal to the north, Yuin and Wodi-Wodi on the coast, Ngunawal to the south and Wiradjuri to the west. Traditional tracks have been recorded as existing within the escarpment of the Macquarie Pass and through Meryla to Kangaroo Valley and the coast. The tracks through river valleys within Shoalhaven, the Wollondilly, Cox and Nattai provided opportunities for communication over a large area of south eastern NSW from the western plains extending to the Blue Mountains, to Port Jackson, the Illawarra and the south coast, and to the Snowy Mountains (Leevers 2006:14-15).

The Gundungurra have been recorded as having similar tools, weapons, ornamentation, dress, food, and customs as those Aboriginal groups closer to Sydney. The Gundungurra wore full-length mantles or cloaks made from possum and other animal skins and the use of the woomera and boomerang were practiced (Leevers referencing Barrallier 2006:38).

The early contact between colonists introduced diseases such as measles, smallpox, venereal disease, whooping cough, tuberculosis, and influenza, which has devastating impact to the Aboriginal people (Organ & Speechley 1997:9) including those of the Gundungurra, and to which effects cannot fully be realised. The effect of colonisation upon the Traditional way of life for Aboriginal people is unmeasurable.

The Gundungurra and Tharwal people are recognised as the Traditional Custodians of what is now known as the Wingecarribee Shire.

2.6 Settlement and expansion

The initial 50 years of colonisation (1788-1838) of Australia within the colony of New South Wales, was concentrated to coastal strips spanning between the Great Dividing Range and the Pacific Ocean. The growth and expansion of the Sydney depended on the success and economical use of roads and the subsequent railways that were constructed in those early years, which increased with a need and demand to improve communications due to limitations of both inland and coastal shipping (RTA 2000:13).

Within this time-period, the roads and bridges that allowed transport within these areas were limited in their construction despite the goals of Governor Macquarie (1810-1822), Governor Darling, Governor Bourke, and road builders Thomas Mitchell, William Cox, and George Evans (RTA 2000).

These roads were predominantly financed through private ventures (including levied tolls) and public subscriptions (1998:26). Improvements were made during in 1832 when stone mason David Lennox was appointed Sub-Inspector of Roads (1st October 1832) and then Superintendent of Bridges (June 6th, 1833) (RTA 2000).

The early roads were based on original paths and well-established trade routes established by Aboriginal people to well before colonisation and the importance of these original routes cannot be fully known (Leevers 2006).

As the colony expanded, and as land areas opened, new settlement areas were made available, and new roads were created or expanded upon (i.e., established Aboriginal paths and trade routes). Where watercourses impeded access, simple timber bridges were constructed. Of these early bridges, limited records have survived and as such, exact number are unknown or lost from the written record (RTA 2000). Nonetheless, French Naturalist Francois Peron visited Sydney in 1802 and recorded an extensive description of Sydney, which included major roads and bridges [refer to Plate 1].

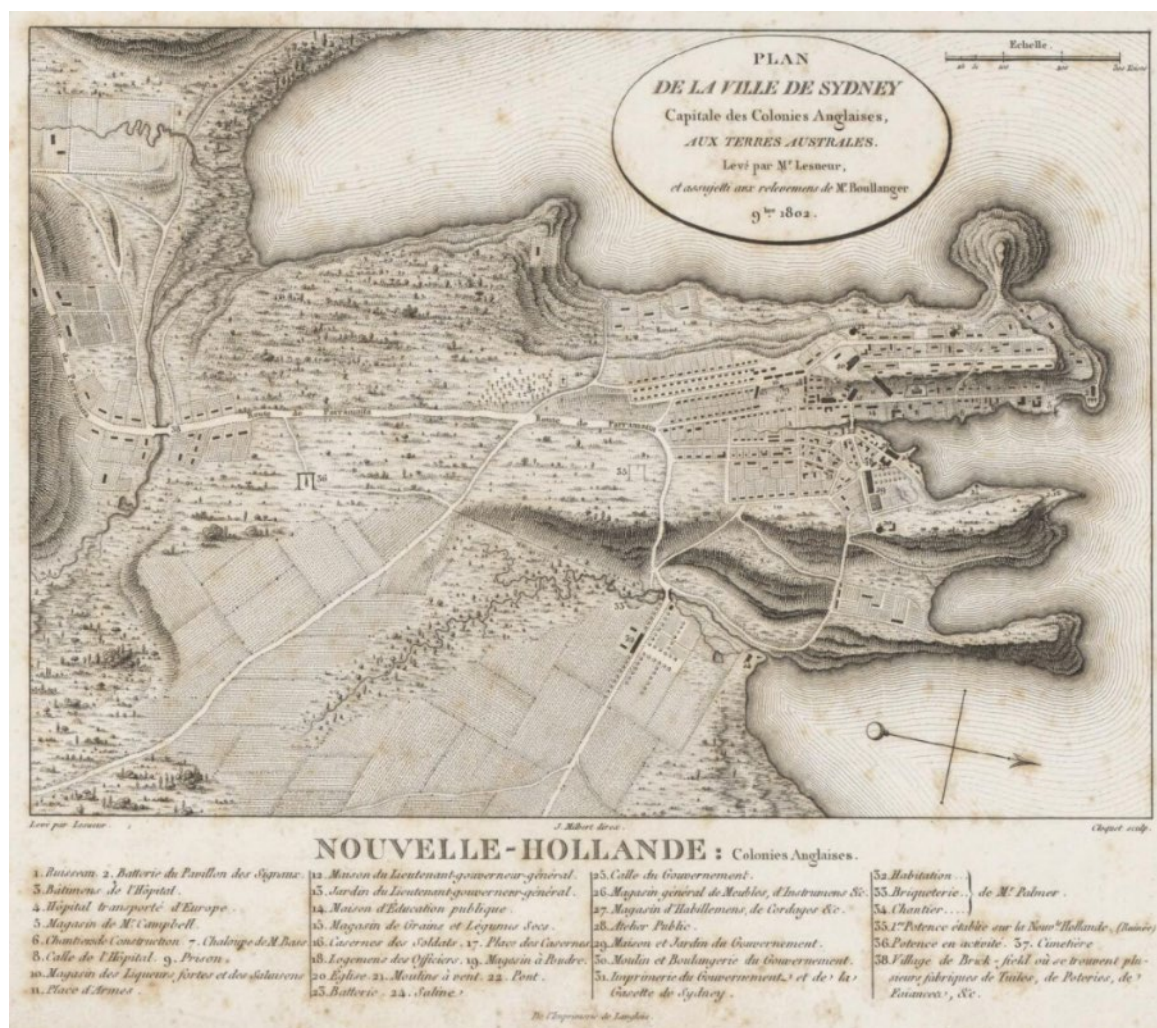


Plate 1:Detail of 'Plan de la ville de Sydney: Capitale des colonies Anglaises, Aux terres Australes 1802 (National Library of Australia [nla.map-f307 (detail Trove n.d.). Note- the depiction of bridges along these early paths and roads.

The early bridges allowed for greater expansion and ease of travel for settlers within the colony and four them are depicted in Peron’s 1802 map.

The timber beam bridge is considered one of the oldest forms of bridge types. These bridge styles were constructed using fallen tree trunks laid across streams, to act as the foundation structures for both railway and road networks in NSW and were based on long-established examples from Europe and Britain, due to the Department of Public Works (PWD) using both types until c.1920s (RTA 2000:13).

The early bridges of Sydney included a log bridge over the original Tank Stream (Plate 3) (October 1788) that aided as a path from the Governor’s house to the Military Barracks. This bridge was replaced a mere 6 months later in 1803 with a stone arch bridge, and to which is the origins of the name behind the current Bridge Street, Sydney. (RTA 2000).

The expansion of trade and the settlement of Rose Hill (changed in 1790 to Parramatta) resulted initially in a timber bridge being constructed by Major Francis Grose in 1794, later being replaced by a more durable timber bridge laid atop stone piers in 1802 following the early bridge being destroyed by floodwaters (DMR 1976). Further afield within the years of 1813 and 1821, during Governor Macquarie’s term, William Roberts was commissioned to road works for the expansion of the colony, which comprised some 28 bridges located on both Windsor and Liverpool Roads, and to which benefitted settlers immensely (Truss Book, n.d).

The Duck River (now Glanville), contained a timber bridge, constructed in 1797, and following this in 1805 was some 10 bridges listed by the Governor's Road Committee on Parramatta Road, due to this road being a crucial food supply route in conjunction with the Parramatta River, which included Johnston's Creek (Annandale) to A'Beckett's Creek (Parramatta). These bridges have been recorded as requiring the following requirements:

'16 feet wide with Four Sleepers of at least a foot and a half in diameter, either ironbark or blue gum, bedded on timber of the like dimensions, to be covered with three inch planks, 16 feet long and properly secured by treenails of 1 ½ inch diameter' (DMR 1976).

The main bridges of these early days included: the simple log bridge of 'Tank Stream Bridge' (see Plate 3) (present day Circular Quay, 1788), the simple log bridge of 'Brickfields Bridge' (between present-day Hay Street and Pitt Street, 1971), floating pontoon bridge of 'South Creek Bridge' (Windsor, 1802-1814) later replaced by a free-access low-level timber beam structure (66m in length), and a single Lane timber bridge 'Chapel Street Bridge' (Parramatta 1804-1836) (RTA 2000).

An expedition led by Gregory Blaxland, William Lawson, and William Charles Wentworth, witnessed the first successful crossing by colonist of the Blue Mountains. Events following on from this expansion, was the construction of the road to Hartley, completed by William Cox's and a team of 30 men by January 1815. Included was the construction of bridges over the Cox and Lett's River, that were completed with sections of wood made from oak that had a girth of some 9 feet (DMK 1976).

These bridges were constructed using timber beams of some description, to which such details have been lost from the historic record. The earlier form of the log bridge, as has been recorded of the Corduroy bridge (Plate 2) which consisted small traverse logs atop longitudinal logs and side logs, which served as kerbs (RTA :2000:14). The later addition to improve the rough nature of these early bridges was to replace the traverse logs with wooden planks.



Plate 2: Man standing beneath Corduroy Bridge (log bridge) c.1886 (source: Trove, n.d.)



Plate 3: The stone bridge over the Tank Stream (L) depicted in this 1810 view of Sydney (Transport NSW sourcing MAAS).

By the 1830s, pastoralism and land speculation resulted in the segregation of large areas of land through pastoral leases and land grants which encouraged an influx of 'squatter' to occupy unallocated land with the promise of profit. Governor Darling established the 'limits of location' following a Government order on 5th September 1826, which resulted in settlers only being allowed to have land within the 'limits' and the remaining being Crown Lands (Truss Books NSW). Coinciding to this was the establishment of the colony's three 'Great Roads' that included South Road to Goulburn, the North Road to the Hunter River region and the Western Road to Bathurst. These roads included the construction of bridges using the labour of convicts in irons and working bullocks under the watch of military guard (Truss Books NSW).

In the 1840s to early 1850s, the Colonial Architect was responsible for building infrastructure, which was changed to a new government agency, the Public works Department (PWD) in 1859 due to the impacts from the Gold Rush and the subsequent increased demand for public-orientated works surpassing the capacity of the Colonial Architect's Office (RTA 2000:15). Following from this were changes made to transport within the colony. This was made possible when changes occurred to how transport was undertaken.

By the time the PWD was established, the dominant building type and construction material was timber, however some stone arch bridges had been constructed. Timber, stone, and brick was the preferred material used, being locally sourced materials compared to that of wrought iron, which was far more costly to a relatively new colony. This was to later change in areas subject to frequent flood events and the need to construct bridges above such flood zones (RTA 2000:16).

The role of timber bridges for the developing road network was vast as is depicted in the reports by PWD Roads and Bridges Branch Annual report spanning 1892-1902. As stated in RTA (2000:17) 'the total number of bridges built steadily increased from 2,700 to 3,700 with the larger bridges, timber trusses, masonry arches, iron girders and iron trusses being specifically identified and described. The latter averaged only around 13% with timber beam bridges as 87% of the total number of bridges at the beginning of the 20th century.

Timber bridges were simple in form and initially, a cheap way to allow access over the many small streams and rivers that dotted NSW, that required maintenance and exploitation of hardwood, resulting in the depletion of such forested areas, and limiting the material as a long-term resource.

Few timber bridges were built following the events of World War II, during the 1950s, when steel production recovered, and concrete was introduced. This resulted in these earlier simple bridges being replaced by precast prestressed concrete units or steel beams or upgraded by being stripped of their planked decks and covered by reinforced concrete or bitumen (RTA 2000:18).

2.6.1 Hardwood Timbers of New South Wales

The early descriptions from newspaper articles of the late 1700s and early 1800s discuss the difficulties convicts faced with the bulk, weight, and hardness of Australian Timbers. This changed dramatically with the discovery of Australian Red Cedar (*Toona ciliata*) in the Hawkesbury Flats, resulting in the harvesting of this wood by convict gangs shortly after (Victoria Bridge at Picton CMP 2018).

J.J. C. Bradfield (designer of Sydney Harbour Bridge) compared the strength of ironbark and iron, reporting that 'ironbark was more than three times stronger than iron in tension and twice as strong as iron in compression' (Bradfield 1896). In 1870, the Director of the Botanic Gardens made reference to the trees within Wingecarribee 'In the open forests, in the Wingecarribee district, 150 feet is by no means an uncommon height for more than one species to attain' (Moore quoting Richards 1871:633-639).

By the late 1800s and early 1900s, hardwood became more difficult to obtain, due to its rapid disappearance, largely caused by the commercial world recognising its value in areas of the East, South Africa and Europe (Victoria Bridge at Picton CMP 2018:31).

2.6.2 Colonial Explorers and Early Settlers

The first recorded British expedition/excursion occur within present day Wingecarribee area was ten years after colonial settlement in 1798, followed by a second in 1802 and a third with a considerable delay in 1814 (Historic Records of Australia 134:1915). H & JK Hume identified suitable country within the area beyond what was known as 'bargo bush' that was named 'New Country' by Macquarie (Prest 1963).

Increasing pastoral expansion occurred after 1815, led by Surveyed-General John Oxley bringing cattle to Wingecarribee, which allowed the area to open-up for settlement (Leevers 2006). A marked tree line was made by Hume in the early 1800s that crossed over the Mittagong Ranges.

Hume in 1817 with the assistance of Dr Charles Throsby of Glenfield and James Meehan at the request of Governor Macquarie. Macquarie engaged Dr Throsby of Picton to construct a cart road, naming it Argyle Road, south of the New Country. Throsby's Superintendent, Joseph Wild, utilised 15 convicts for the construction of the Road, that spanned 75 miles (120km) long and 0.5 chain or 33ft (11m) wide, as was the Macquarie regulation width (Leevers 2006).

The road started at Stonequarry (Picton) in October 1819, and was completed over the Cookbundoon Range (Goulburn) by November 1820. The road had a total of six (6) bridges completed by February 1821. Governor Macquarie travelled along this road, with the aim of establishing new settlements to the area (Leevers 2006).

Lands to the west was occupied as John Oxley's station within Wingecarribee. In 1828, a need for an improved line of road west of Mittagong Range, avoiding the Wingecarribee Swamps at Bong Bong was required. Work begun in 1830 on the new road to Mittagong and Berrima which became the Great South Road (Refer to Figure 5), later renamed The Hume Highway which is the present Ferguson Crescent. The Hume Highway, prior to 1928 was known as the 'Great Southern Road, Argyle Road, Port Phillip Road, and Sydney Road. Present day Ferguson Crescent (location of Nattai Creek Bridge) is on the same alignment (Wingecarribee Heritage Study 1993).

2.7 Development of Mittagong

The name Mittagong is believed to come from an Aboriginal word thought to mean 'high Mountain'. Irish born Surveyor James Meehan (1774-1826) applied the name to the range in 1816. The name Mittagong is said to be first mentioned as the name of the range, with John Oxley referring to it as Mittagong. The area has also been referred to by Governor Macquarie as Marrigan or Minnikin (McColgan 1995).

The new line of road through Berrima to the south during the 1830s was being built, and during this time rich deposits of iron ore were exposed, in the area where the Mittagong RSL Club is located. A syndicate led by John Thomas Neale in 1848 formed the FitzRoy Iron-mining Company, mined the iron ore, establishing a smelting operation close-by. Following from this saw the piecemeal settlements of Gainsborough (1841), Fitzroy (1862), New Sheffield (1865) and Mittagong (1884).

Early records of the town of Mittagong are referred to as Nattai, likely because of the location of the Nattai River, located north of present-day Mittagong township. The Nattai flows into the Wollondilly River is fed by Bakers and Kells Creek (Wombeyan caves road), Nattai creek (Oaklands), Braemar Creek (Braemar and Sheepwash, Colo Vale), and Gibbergunyah Creek (Welby) (McClogan 1995:46).

Early settlers travelling passed the Bargo River by bullock wagon, horse and on foot recorded the area as being arid, dry, and containing few water holes. This dramatically changed once over Catherine's Hill were the country contained lush grass and many springs of fresh water and a saying 'wait until you reach the Natta' by travellers was taken to refer to the whole area as we know it today after climbing Catherine's hill (McClogan 1995: 46).

Settlement within Mittagong was by 'free born' men and woman, with smaller homesteads dotted the landscape. Land clearing for agriculture and grazing was undertaken and more intense grazing was undertaken closer to the homesteads. Early pastoralism was undertaken with fattening cattle in the southeast and sheep in the northwest.

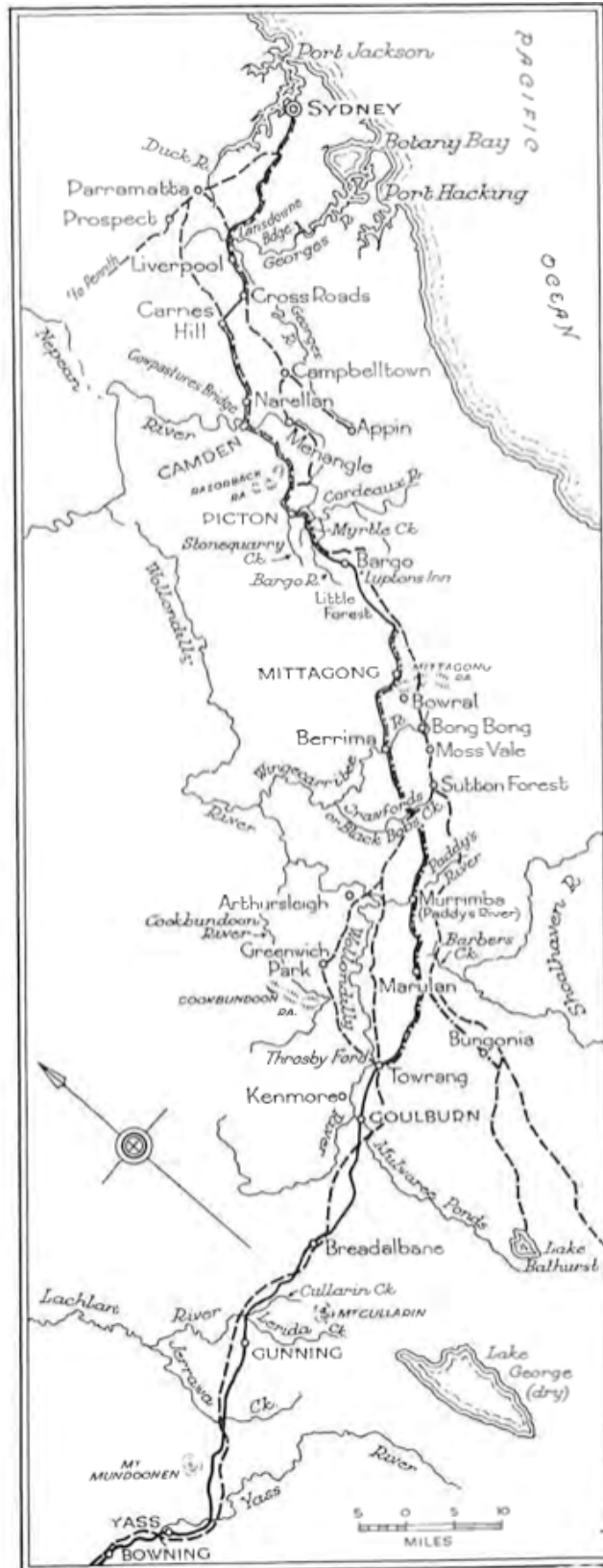


Figure 5: Mitchell's Great South Road through the Southern Highlands c.1830s as shown by solid back line (Wingecarribee Shire Heritage study vol.1).

The introduction of the cattle area transition to intensive dairying because of the major developments:

1. Easy access to the railway system, which had reached Mittagong in 1867, aiding the Fresh Food & Ice Co., established by T.S. Mort (1875), to open its major country milk-chilling plant in Mittagong. Mittagong at once became the vital link for dairy properties radiating along the southern railway.
2. The Fresh Food Co. in 1883 installed the first cream-separators in the colony at the Mittagong factory; this Danish innovation led to the spread of butter factories in Robertson, Kangaloon, Glenquarry and other places and encouraged pig-breeding to utilise the skimmed milk by-product.

These events left substantial heritage items from the late nineteenth and early twentieth century that included factories, dairies, bails, cleared land for intensive grazing as well as piggeries and styes (Wingecarribee Heritage Study 1993:31). Rural industries further included the production of grain, crops, and wheat with the construction of flour mills using water, wind, and horse in the years of 1830-1870. A detailed account of the development of the Wingecarribee area is depicted in 'Wingecarribee Shire Heritage Study vol 1 (1993).

The current town of Mittagong sits 632m above sea level, located 110km south-west of Sydney via the Hume Highway in the Nattai River Valley, between Mt Alexandra and Mt Gibraltar, which are both extinct volcanoes.

2.8 Fitzroy Inn

Historic records of the Fitzroy Inn are somewhat conflicting, and dates appear to contradict from the historic record. Research undertaken by Day & McCartney (N.D) and McClogan (1995) differ somewhat, nonetheless, it is understood that the following historic events occurred.

Prior to the settlement of Mittagong, an Inn was originally built for James Foster who obtained the land in 1835 at a public auction, with the understanding that he builds a commodious Inn within a time of two years. This was completed by 1836 and the first recorded licensee of the Inn became George Cutter, who named the premises, the Kangaroo Inn. The Inn was leased by George and Ann Cutter from Foster. A trust was established for Ann Cutter, and in 1837, Ann and George Cutter brought the land and inn from John Tawell, for three hundred pounds (Day & McCartney n.d.).

Following from George Cutter being removed from the Inn for legal matters, which resulting in the inn being conducted by William McGrath in 1838. From 1839 -1845, Ann Cutter, became the licensee whilst her husband was serving a prison sentence in Van Diemen's Land (Day & McCartney n.d.).

In 1846 a man named Alexander Brand leased the Kangaroo Inn from Ann Cutter for fourteen years. A condition of the lease stated that George Cutter was only able to occupy the premises under the sufferance of Alexander Brand. The tenancy of Brand continued for several years, and in 1850 the name of the inn was known as, the Fitz Roy.

A lease was drawn up between Alexander Brand and Bartholomew Rush in 1853 and the new lessee conducted the inn, which name was often known as, the Fitz Roy Hotel. Bartholomew Rush continued with the lease until 1868, despite changes in ownership of the property. The building has had various owners and uses.

The building is rectangular design with the foundations being constructed from heavy sandstone locks of approximately 18ins. (450mm) width. The Inn contained a cellar, well, cooking stove area, and baker's oven (McClogan 1995:57).

Prisoners were held at the Inn overnight on route to Berrima Gaol. The Inn was later renamed Oaklands and set up by Henry Southey as a School for boys (Berrima District Historical and Family History Society).

During the years of its existence, it has been an inn (Fitzroy Inn), a boarding school, a boys' home, a guest house, and finally a private home. The arrival of the railway in 1867 caused the rapid demise of the inns when road traffic diminished if compared to previous levels. Travel of the late 1800s, was achieved by coach, horse, or on foot by means of the Old South Road. Goods were also transported by horse and bullock wagon. Roads were rough, unsealed and a journey was a long ordeal." (McClogan 1995:68).

2.9 Ernest De Burgh

Ernest Macartney De Burgh (Plate 4) was born 1863 (1863-1929) at Sandymount, Ireland. He was educated at Rathmines school and the Royal College of Science in Dublin, Ireland, and work on railway construction. De Burgh arrived in Sydney in 1885, obtaining a position in the New South Wales Department of Public Works (PWD). After two years he was transferred to the country to supervise the construction of steel bridges, later becoming Engineer-in-Charge of Bridges, and was responsible for bridges over the Murrumbidgee, Murray, Lachlan, Hunter, and various other rivers, with the first bridge over Lane Cove River being completed in 1901 (Plate 5). It was during this time that he signed off on the design for the Nattai Creek Bridge for PWD (Main Roads Journal 1976:127).

In 1903 De Burgh was transferred to the Department of water Supply and Sewerage and the following year he travelled to Europe to study water-supply and dam-construction. On his return to Australia, he worked in areas connected to the Burrinjuck Dam and Murrumbidgee Irrigation Scheme. In 1909 he was appointed Chief Engineer for Harbours and Water Supply, then Chief Engineer for Water Supply and Sewerage in 1913 (Main Roads Journal 1976:127).

Following on in 1908, De Burgh recommended to the Minister for Public Works that a dam be constructed across the Warragamba River and made similar recommendations in 1918 at a recommended cost of \$6,750,000. Although De Burgh would not live to see Warragamba Dam built, his name is connected to numerous dams in NSW. De Burgh designed and supervised the construction of reservoirs in Sydney which included: Nepean, Avon, Cordeaux, Cataract, the Chichester scheme for the Newcastle district. Further afield was the Umberumberka scheme for Broken Hill. The decision to locate Australia's capital city was also partially due to De Burgh and his investigations concerning water resources and supply to the proposed areas. De Burgh retired in 1927 and died in Sydney 3rd April 1929 (Main Roads Journal 1976:127).



Plate 4: E.M. De Burgh (original image-Sydney Water Board Journal, April 1968:31)

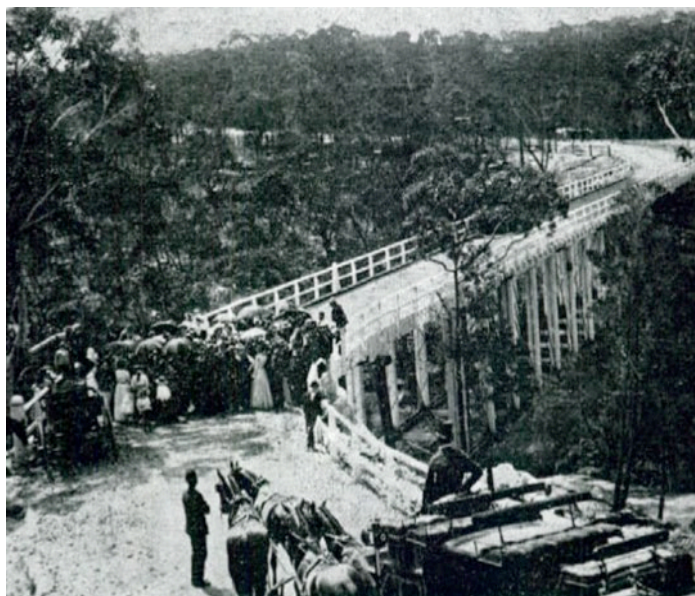


Plate 5: De Burghs Bridge (now replaced) (opening 23rd February 1901)

2.10 Ernest de Burgh’s bridges

The Nattai Creek bridge was designed by the NSW Public Works Department under Ernest de Burgh as supervising bridge engineer. De Burgh held this role for a decade from 1891 and supervised construction of eleven major bridges across the state including crossings of the Murray River in the south, to the Darling River in the west and the Tweed River in the north. De Burgh was involved in planning two notable suspension bridges: the Hampden Bridge in Kangaroo Valley and the Maldon suspension bridge over the Nepean River at Picton (Ariyaratne et al 2019).

De Burgh was promoted to chief bridge engineer in March 1901 and started development of an improved timber truss bridge design. The first bridge to feature the new de Burgh truss was the Queens Bridge over the Queanbeyan River (Ariyaratne et al 2019).

2.11 Nattai Creek Bridge

The Nattai Creek Bridge is situated on Nattai Creek along the Old Hume Highway (previously Main South Road), on the north-eastern side of the Southern Highlands town of Mittagong. Adjacent to this bridge lies the historic Fitzroy Inn (Oaklands Inn).

Nattai Creek Bridge is located on Ferguson Crescent, Mittagong (formerly part of Great Southern Road). The bridge is a timber decked bridge set atop sandstone abutments that was designed by the Public Works Department and signed off by bridge design engineer Ernest de Berg in 1898. The bridge had replaced an earlier timber bridge and is depicted in an c.1867 photograph (Plate 6). An article from the Goulburn Herald (NSW 1881-1907) on Wednesday 17 August 1898 states ‘The tender of G.E. Fraser of Bowral (£891) was granted for the creation of a bridge over the Nattai Creek near Mittagong (see Plate 6), and the tenders for public works (Plate 9).

The bridge holds significance as it is an early timber deck bridge with stone abutments, that’s construction methods have been retained and are intact. Further, the bridge is one of few remaining timber deck bridges to still exist in the Southern Highlands. (Source: Wingecarribee LGA SHI Heritage Items- State Heritage Inventory).

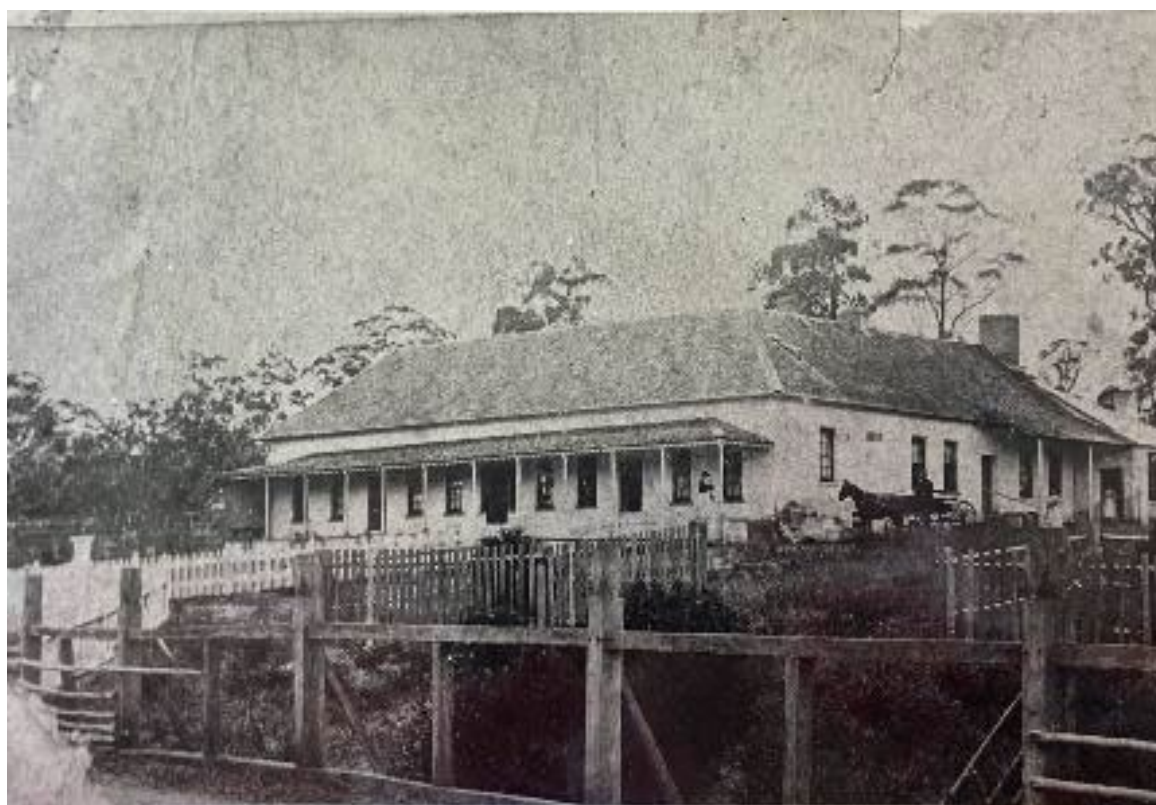
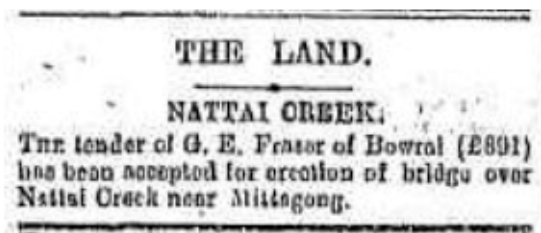


Plate 6: Kangaroo Inn (Fitzroy Inn) and Hotel c.1869 with Nattai Bridge (earlier bridge) in foreground. [Fitzroy Inn Photo file P177- PicLib Cat #015085].



Plate 7: Historic photo of Nattai Creek Bridge from south near maltworks (source: Wingecarribee Shire Council 2023).



'THE LAND.

Nattai Creek

The tender of G.E. Fraser of Bowral (£891) has been accepted for creation of bridge over Nattai Creek near Mittagong'

Plate 8: Goulburn Herald (NSW 1881-1907), Wednesday 17 August 1898, page 2

Erection of a Timber Beam Bridge, on Masonry Walls over Nattai Creek, Main South Road near Mittagong.	28 May, 1898	Buildings, Adelong. Office of the Principal Assistant Engineer for Roads, Sydney; and Police Buildings, Mittagong.
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Plate 9: Tenders for Public Works: Sydney 3rd May 1898 [New South Wales Gazette Sydney, NSW: 1832-1900].



Plate 10: Fitzroy Inn – Oaklands. Painting in the Mitchel Library (State Library of NSW. Donated by Jim McCartney N.D.).



Plate 11: Oaklands Bridge (Nattai Creek Bridge) (Fitzroy Inn 2023, N.D.)

3 PHYSICAL EVIDENCE

3.1 Overview

Nattai Creek Bridge is located on Nattai Creek on the north-eastern side of the Southern Highlands town of Mittagong. The bridge is 40 metres south from the Sydney to Goulburn rail line and 50 metres northwest of the 19th century Fitzroy Inn.

The Nattai Creek Bridge was constructed in 1898 replacing an earlier bridge thought to date to the 1830s/40s. There is little documented evidence of this earlier bridge. The current bridge is a double span bridge with sandstone abutments and pier (Figure 6). Whilst Nattai Creek Bridge contains elements from the original 1898 design, there have been numerous alterations and maintenance repairs undertaken.

3.1.1 Site Inspection

A site inspection was undertaken on the 30th of May 2023. The site inspection was conducted by Principal Archaeologist Christine Gant-Thomas and archaeologist Majella Hammersley of Lantern Heritage (Lantern), Mark Watling (Project Manager Wingecarribee Shire Council) and Ricky Martin, (Team Leader Construction and bridge maintenance).

The creek currently flows below the eastern span with muddy and occasional pools of water visible below the western span. A small trickle of water is visible flowing beneath the southeast corner of the western abutment. It is speculated that this may be a burst/leaking water main, however the source of water is unclear. The western abutment on the southern side of Ferguson Crescent extends for about 1.5m towards the entrance of The Maltings.

3.1.2 Design

Nattai Creek Bridge was designed by the NSW Department of Public Works and its design was signed off by Ernest De Burgh. The bridge measures 20m (60') east-west and comprises two 10m (30') long spans supported by sandstone abutments and a central sandstone pier. The timber deck is 6m wide (20'). The bridge was originally built with timber railings as show in Figure 6 (see Appendix 2 for extracts of this plan).

3.2 Analysis of existing fabric

3.2.1 Abutments

Original design: as shown in Figure 6 the sandstone abutments and associated wing walls were designed with a 1 in 12 batter with concrete footings. The face wall abutments measured 14' (4.2m) high on top of a 2' (0.6m) high concrete foundation. The wing walls measured 11' 6" (3.45m) high, again on top of a 2' high concrete foundation.

Existing condition: the abutments retain their original fabric and show no signs of major modifications (Plates 12-15). There is however evidence of deterioration in the mortar and signs of some modern repairs. Vegetation growth in and around the abutments is contributing to the rate of deterioration¹.

¹ Detailed inspection of the eastern abutment was not possible due to safe access constraints.

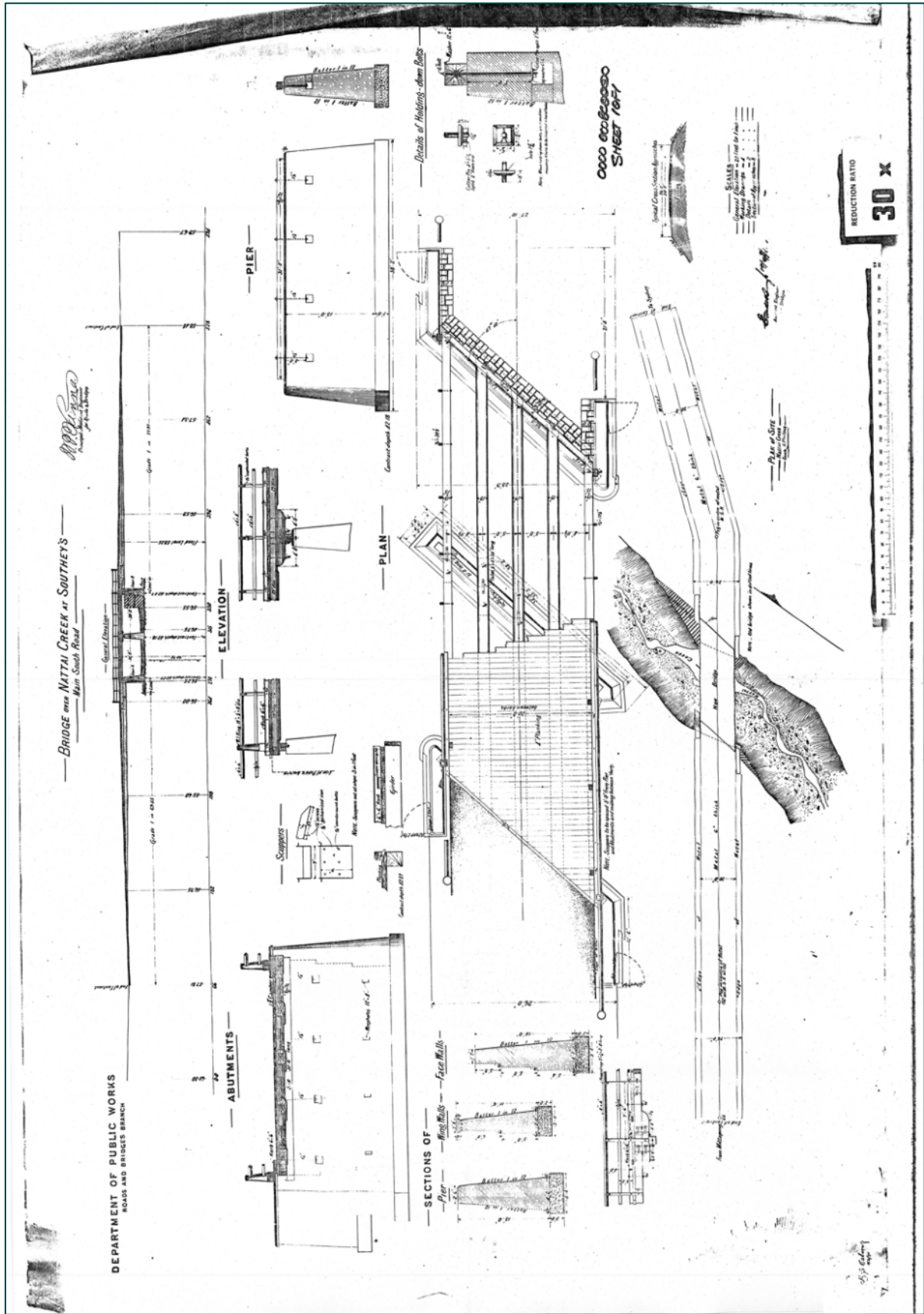


Figure 6: Plan of Bridge over Nattai Creek by Department of Public Works 1898 (Heritage NSW Inventory 2023)



Plate 12: northern side of western abutment, facing west



Plate 13: underside of eastern span and eastern abutment, facing east



Plate 14: western abutment, facing west, showing vegetation growth and deterioration in stonework.



Plate 15: western abutment, facing south, showing vegetation growth, damage to masonry from sinkhole and evidence of repaired mortar work.

3.2.2 Pier

Original design: as shown in Figure 6, the sandstone pier measured 13' high by 31' long [3.9m by 9.3m] constructed on a concrete foundation measuring 38' 2' long by 2' high [11.45m by 0.6m]. The pier tapered from the 5'8" [1.7m] concreted foundation to 2'6" [0.75] wide at the top.

Existing condition: the pier retains the original fabric and show no signs of major modifications (Plates 16-19). The condition of the stonework is generally good and does not show any serious signs of deterioration.

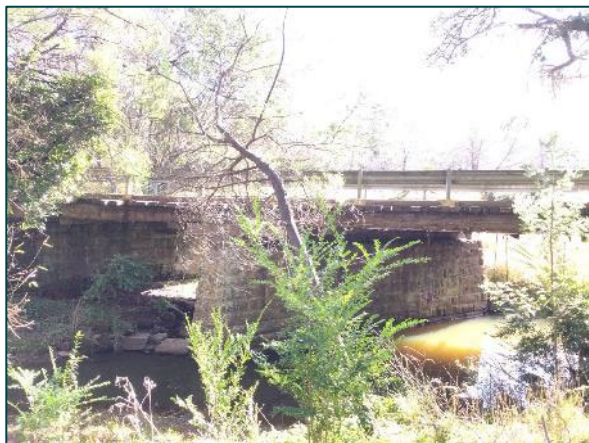


Plate 16: Nattai Creek Bridge showing central pier and existing armaguard railing, facing north.



Plate 17: Nattai Creek Bridge showing central pier and existing girders, decking and railing, facing east.



Plate 18: West face of central pier facing east.



Plate 19: Top of central pier, facing east.

3.2.3 Bridge girders

Original design: the bridge was originally designed with five sets of timber girders comprising three of equal dimensions in the middle and two outer girders that were smaller. As shown in Figure 6, the central three girders measured 19" (0.48m) in diameter and were spaced 5' (1.52m) apart. The outer two girders measured 13" (0.33m) square and were placed 4'11" (1.5m) from their neighbouring central girders.

Existing condition: As can be seen in Plates 13, 16-17, 19 and 20-23, the existing girders comprise a set of five beams cut "in the round" to approximately equal dimensions (~0.4m diameter). There is also evidence of what appear to be multiple phases of reinforcing timbers bolted underneath the existing round girders.



Plate 20: General view of northern side of bridge showing timber girders, replacement deck and guards rails [facing southeast]



Plate 21: Underside of eastern span showing timber work, facing east.



Plate 22: Detail of timber work and reinforcing atop the pier, facing east.



Plate 23: Detail of timber work and reinforcing atop the pier, facing east.

3.2.4 Decking

Original design: the bridge was originally designed with 4" (100mm) planks that measured 20' (6.1m) from kerb to kerb.

Existing condition: As can be seen in Plates 20-27, the timber decking has been completely replaced and is partially covered with asphalt at each end of the bridge.

3.2.5 Railing

Original design: the bridge was originally designed with double timber railings with a 4" (100mm) square upper railing and a 4" x 3" (100 x 75mm) lower railing.

Existing condition: As can be seen in Plates 16-17, 20, and 24-27, the original railing has been replaced with modern metal armaguard railings.



Plate 24: Timber decking, facing east.



Plate 25: General view of bridge showing decking and railing, facing west.



Plate 26: Bridge decking and railing facing east towards Fitzroy Inn.



Plate 27: Overview of northern side of bridge facing southwest.

3.3 Summary of modifications

As discussed above and corroborated by information provided by Wingecarribee Shire Council, the bridge has undergone substantial modifications. This is based on comparison between the original plans and field observations. For example, the original plan shows decking and girders that are 13” square (outside) internal girders are 19” round. Based on field observation all girders are round and of same dimension. Therefore, Lantern concludes that they have been replaced as they are not consistent with original design. Whilst a full record of alterations is not available, the modifications can be summarised as follows:

- Armaguard railing installed in the 1980s;
- Entire decking replaced in 2000s;
- Girders have been completely replaced;
- Vertical hangers and associated bolts have been replaced multiple times; and
- A sinkhole has appeared over the last 20 years between the northwest corner of the bridge deck and the road surface (see Figure 7). This has been repaired with fill numerous times, however the curbstones and upper sandstone blocks in the western abutment have moved about 100mm to west (as shown in Plate 15).

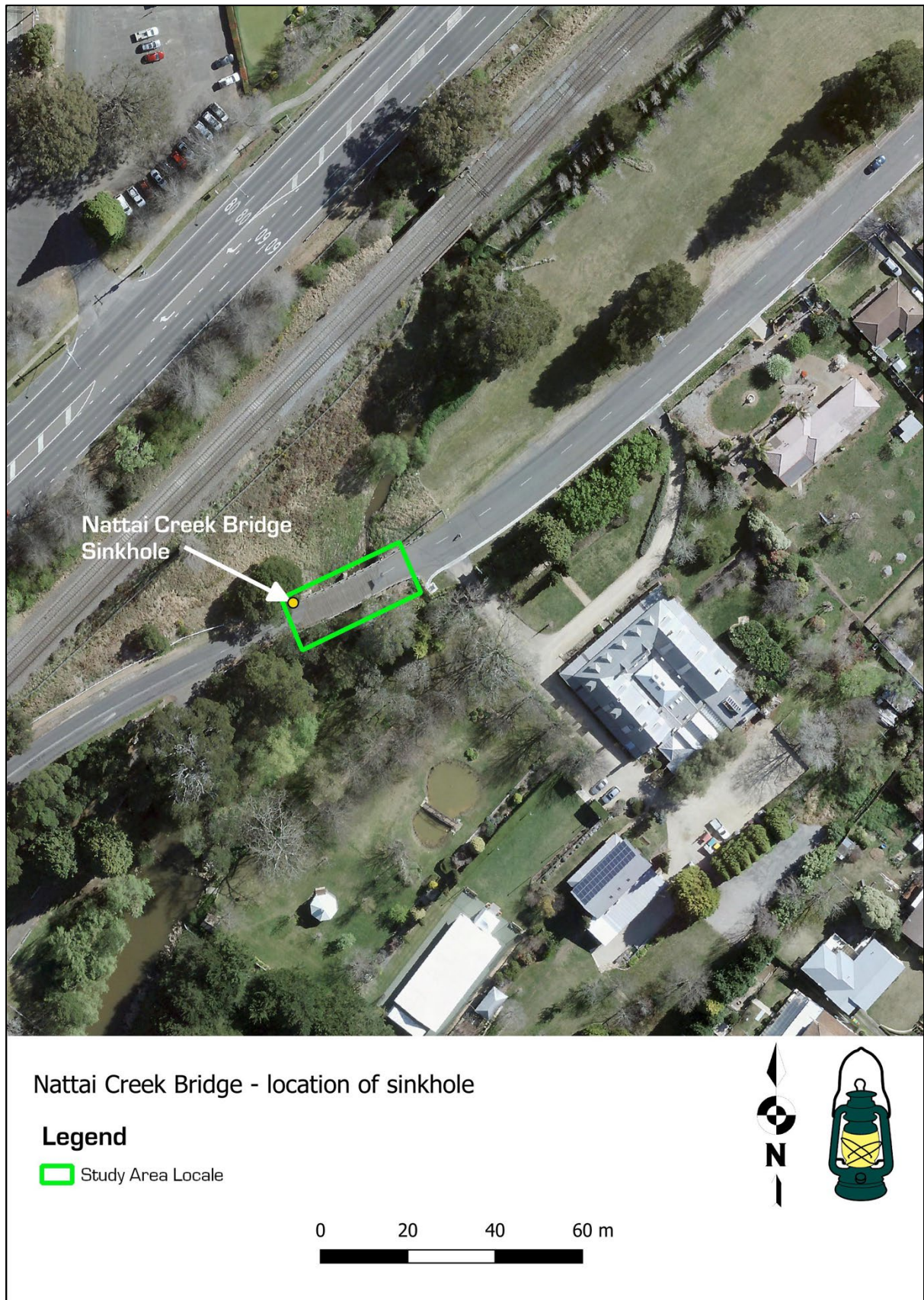


Figure 7: Location of sinkhole at Nattai Bridge

4 COMPARATIVE ANALYSIS

The following comparative assessment evaluates additional information from other bridges across NSW as a comparative contextualisation for the Nattai Creek Bridge.

4.1 De Burgh Bridges in NSW

A search of the SHI has shown that there are at least 12 other road bridges in NSW with connections to Ernest De Burgh. Table 1 provides an overview of these bridges and their connections to de Burgh. As can be seen in this table, the other 12 bridges are either designed by De Burgh, or in the case of the North Bourke Bridge and Approaches, have an element of design by De Burgh. This is in contrast to the Nattai Creek Bridge, which simply implements a bridge design approved by De Burgh.

Table 2 provides a summary of the notable significance of the SHI listed bridges with De Burgh connections. Five of these bridges are listed on the SHR, one has been removed from the s170 Register, one is listed on the RMS s170 Register, and five of the bridges are listed on their relevant LEPs. None of these bridges are in Wingecarribee LGA. However, there are four bridges that are listed in neighbouring LGAs (Hampden Bridge listed on the SHR in Shoalhaven; Suspension Bridge over the Nepean in Wollondilly; Crookwell Truss Bridge in Upper Lachlan and Lansdowne Bridge over Mulwaree Ponds in Goulburn-Mulwaree). There are thus several excellent examples of De Burgh designed bridges extant in the local area that demonstrate a range of different bridge types.

Furthermore, in terms of a timber beam bridge with De Burgh connections, the approaches to the North Bourke Bridge are important as an example of De Burgh design of a curved bridge approach to avoid an hotel. Similarly, in terms of the age of bridges with De Burgh connections, the Hampden Bridge is more notable as a bridge of the same age as the Nattai Creek Bridge, and the Arch Bridge at Jenolan is an example of an earlier bridge designed by De Burgh.

In summary, there are examples of a range of bridges locally, and across NSW as a whole, that are more important in terms of their links to De Burgh, better exemplify his design innovations with timber beam bridges, and are either earlier than Nattai or directly linked to De Burgh's role as Bridge Engineer (1901-1904).

Table 1: Overview of SHI listed bridges with connections to De Burgh.

Item	Bridge Type	Age	Connection to De Burgh
Middle Falbrook Bridge over Glennies Creek	De Burgh timber truss road bridge	1904	Designed by Public Works engineer Ernest M. De Burgh.
St. Albans Bridge over MacDonald River	De Burgh timber truss road bridge	1902	Designed by Public Works engineer Ernest M. De Burgh.
Old Cobram-Barooga Bridge	Hinton-type vertical lift-span opening bridge with De Burgh Truss side spans and timber beam approaches	1902	Designed by Public Works engineer Ernest M. De Burgh.
Hampden Bridge	Suspension bridge	1898	Designed by Public Works engineer Ernest M. De Burgh.
Beckers Bridge over Webbers Creek	De Burgh timber truss road bridge	1902	Designed by Public Works engineer Ernest M. De Burgh.
Tabulam Bridge	De Burgh timber truss road bridge	1902	Designed by Public Works engineer Ernest M. De Burgh.

Item	Bridge Type	Age	Connection to De Burgh
North Bourke Bridge and Approaches	Lift span bridge with timber beam approaches	1883/ 1903	Bridge approaches designed by Ernest M. De Burgh
Lansdowne Bridge over Mulwaree Ponds	De Burgh timber truss road bridge	1902	Designed by Public Works engineer Ernest M. De Burgh.
Gillies Bridge Over Black Creek, Rothbury	De Burgh timber truss road bridge	1902	Designed by Public Works engineer Ernest M. De Burgh.
Suspension Bridge over the Nepean River	Stiffened suspension bridge	1903	Designed by Public Works engineer Ernest M. De Burgh
Crookwell Truss Bridge c.1903	De Burgh timber truss road bridge	1903	Designed by Public Works engineer Ernest M. De Burgh
Arch Bridge Jenolan Caves	Masonry Arch Bridge	1896	Designed by Public Works engineer Ernest M. De Burgh

Table 2: Significance of SHI listed bridges with connections to De Burgh

Item	Notes on Significance
Middle Falbrook Bridge over Glennies Creek	Only De Burgh truss bridge with Monier concrete pipe piers The Middle Falbrook bridge is a representative example of De Burgh timber truss road bridges, and is assessed as being State significant, primarily on the basis of its technical and historical significance. It is listed on the SHR.
St. Albans Bridge over MacDonald River	The bridge type is rare in the Sydney Region, has rare technical features and is highly representative of De Burgh trusses. It is listed on the SHR.
Old Cobram-Barooga Bridge	Intact and rare example of a Hinton-type vertical lift-span opening bridge with De Burgh Truss side spans and timber beam approaches. It is directly associated with the Federation of the Australian states in 1901. Its construction was delayed until the outcomes of the Federation proposals were known and this association, in the context of the past and future use of the Murray River, illustrates the economic relationships between the states in the 1890s and the motivations for Federation. It is listed on the SHR.
Hampden Bridge	Hampden Bridge is of state significance as the second major suspension bridge in NSW, and as the only surviving timber decked vehicular suspension bridge constructed in the nineteenth century. It is listed on the SHR.
Beckers Bridge over Webbers Creek	Beckers Bridge is a representative example of De Burgh timber truss road bridges, and is of state heritage significance primarily on the basis of its technical and historical values. It is listed on the SHR.
Tabulam Bridge	This bridge is the longest extant De Burgh truss bridge and has concrete piers, thus giving the bridge a high degree of technical significance. It is listed on the Kyogle LEP
North Bourke Bridge and Approaches	The construction of this bridge was a significant technical achievement. It was the last bridge of this type in usage when it closed in 1997/8. Its lift up section was important in the river boat days. The approaches designed by De Burgh and opened in 1903 are significant for their timber and iron construction and their considerable length.

Item	Notes on Significance
	It is listed on the Bourke LEP
Lansdowne Bridge over Mulwaree Ponds	Removed from s170 register following acknowledgement from OEH on 30 June 2017.
Gillies Bridge Over Black Creek, Rothbury	It is representative of the group of De Burgh timber truss bridges. It is rare in having the original timber deck configuration and it has the shortest main span length of the remaining bridges of the type in NSW. It is listed on the Cessnock LEP
Suspension Bridge over the Nepean River	The Maldon Suspension Bridge has State significance as one of a very small number of true suspension bridges in NSW. The curved timber approaches and the use of overhead anchored cables is believed to be unique in NSW and the bridge represents several pioneering and unique engineering feats. It is listed on the Wollondilly LEP.
Crookwell Truss Bridge c.1903	This is one of the ten surviving De Burgh truss bridges in NSW identified in 1998 (MBK 1998). It is listed on the Upper Lachlan LEP.
Arch Bridge Jenolan Caves	Masonry arches were difficult and expensive to build and thus, were usually only constructed on important and highly trafficked routes. The bridge's design and construction in this location attests to the importance attributed to it and to the area by the Public Works Department, which was in the process of improving road access to a number of tourist and health resorts in the late nineteenth century. It is listed on the RMS s170 Register.

4.2 Timber Beam Bridges




In 2002 there were two timber beam bridges listed on the SHR (RTA 2002: 6): Fladbury Bridge over the Severn near Glen Innes and the single-span southbound Federal Highway bridge over Wollagorang Creek south of Goulburn. A search of the current SHI listings indicate that Fladbury Bridge remains on the SHR as a “good example of a low-level bridge of a substantial length. The Bridge demonstrates one of the variations in the design of the timber beam bridge with the use of concrete piers. The Bridge is assessed as having State significance on the basis of its historical and technical significance.” The search did not reveal a current listing for the bridge at Wollagorang Creek.

Management policies within NSW over the past few decades have seen the steady replacement of timber beam bridges, especially those of local significance, in accordance with the condition and traffic needs of individual bridges across the state (RTA 2002: 6).

Data regarding the number of remaining timber beam bridges in NSW is not readily available, nor do searches of the SHI provide reliable results for the numbers of timber beam bridges listed.² As such, it is more useful to refer to Wingecarribee council records for timber bridges and SHI listings for bridges in Wingecarribee, Wollondilly and Goulburn Mulwaree LGAs.

4.3 Local Bridges

Wingecarribee Shire Council records indicate that of the 24 bridges with timber elements controlled by the council in 2016, only three remain. Those bridges are as follows:

-  Nattai Creek Bridge
-  Yarrunga Creek Bridge; and
-  Shepard Street Bridge.

² For example, the SHR listed Fladbury Timber Beam Bridge does not show up in a search of the SHI for bridges with “timber” in the description.

Nattai Creek Bridge is the only remaining bridge with a timber deck.

A search of SHI listed bridges across Wingecarribee, Wollondilly and Goulburn Mulwaree LGAs reveals that there are five additional³ road bridges listed in the local region that have timber elements. These bridges are summarised below in Table 3.

Table 3: Overview of SHI listed bridges in Wingecarribee, Wollondilly and Goulburn Mulwaree LGAs.

Item	Bridge Type	Age	Notes
Black Bob's Bridge	Sandstone, timber and concrete	1835-1896	Retains elements of the original 1835 bridge.
Brownlow Hill Road Bridge	Timber truss on masonry piers	19 th C	In ruins, listing last updated 2006
Victoria Bridge over Stonequarry Creek	Allan type Timber Truss	1897	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.
Rossi Bridge over Wollondilly River	Allan type Timber Truss	1899	Having both stone piers and a rare three truss spans, the Rossi Crossing Bridge stands out for its technical significance.
Myrtle Creek Bridge ruins	Timber superstructure on stone piers		The original timber bridge at the site is thought to have been demolished and replaced in 1900. The second bridge with stone piers was made redundant by a replacement bridge on the realigned Hume Hwy in the 1940s.

Of the extant bridges with timber elements that remain extant in the local area, the most comparable appears to be the Myrtle Creek Bridge ruins at Tahmoor in Wollondilly LGA. This bridge, which was built at a similar time to the Nattai Creek bridge, comprises a timber superstructure on masonry piers, and was a replacement for an earlier timber bridge. However, in the case of the Myrtle Creek Bridge, the realignment of the Hume Highway in the 1940s meant that the turn of the century bridge remains extant alongside the 20th century bridge replacement. The duplication of the road alignment means that while the earlier bridge is no longer functional, it also does not face the requirements for modification and upgrades associated with a functioning bridge. As such, it is an example of the earlier construction style and technique that has not been modified by 20th to 21st century traffic requirements.

4.4 Summary of comparative analysis

The Nattai Creek Bridge is the only remaining timber deck bridge known in the Wingecarribee LGA, and while it is locally representative of its type, there are other examples of such bridges across the broader region. There are also various examples of more notable timber beam bridges and timber beam bridge components across the state of NSW. In the context of a comparative analysis, Nattai Creek Bridge is not notable in terms of connections to De Burgh, nor as an example of a timber beam bridge. Its significance stems more from the fact that the bridge marks a road crossing that has been in use for over 150 years and as a bridge that retains fabric dating back to 1898.

³ In addition to the Nattai Bridge and the other De Burgh bridges discussed in Section 6.4.1.

5 ASSESSMENT OF HERITAGE SIGNIFICANCE

As outlined in the Burra Charter Process (Australia ICOMOS 2013), an assessment of cultural significance is an essential step towards informing decisions regarding heritage management. The Burra Charter refers to five key cultural heritage values: aesthetic, historic, scientific, social and spiritual. The significance assessment for the Nattai Creek Bridge has been conducted using these NSW significance criteria, which in turn are based on the five key values identified in the Burra Charter.

5.1.1 NSW Significance Criteria

There are seven different criteria used within NSW to determine if an item (i.e., a place, building, work, relic, moveable object, or precinct) is of local or state significance (NSW Heritage Office 2001). An item is defined as having heritage significance (cultural and/or natural) if it is assessed to be of local and/or state significance against one or more of the following criteria:

- Criterion (a)** an item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area);
- Criterion (b)** an item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area);
- Criterion (c)** an item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area);
- Criterion (d)** an item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons;
- Criterion (e)** an item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area);
- Criterion (f)** an item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area);
- Criterion (g)** an item is important in demonstrating the principal characteristics of a class of NSW's
 - cultural or natural places; or
 - cultural or natural environments.
(or a class of the local area's
 - cultural or natural places; or
 - cultural or natural environments.)

5.1.2 Levels of significance in NSW

Within NSW there are four different levels of heritage significance that are recognised: local, State, National and world heritage significance. The following definitions of these levels of significance are taken from the Heritage Council of NSW (2008) publication on assessing levels of heritage significance.

- **Local** heritage significance means significance to an area in relation to the historical, scientific, cultural, social, archaeological, architectural, natural, or aesthetic value of the item.
- **State** heritage significance means significance to the State in relation to the historical, scientific, cultural, social, archaeological, architectural, natural, or aesthetic value of the item.

- **National** heritage significance means places with outstanding natural, Indigenous, or historic heritage value to the nation.
- **World** heritage significance means cultural significance which is so exceptional as to transcend national boundaries and be of common importance for present and future generations of all humanity.

5.1.3 Hierarchy of significance

There are also different gradings of significance that can be applied to individual elements or components of an item. Such gradings of significance are particularly useful in terms of assessing the contributory value of individual site components. This can in turn assist in the process of assessing whether changes to a component or aspects of a site will have an impact on the heritage significance of individual elements and/or the overall heritage significance of an item.

The NSW Heritage Office (2001) publication on assessing heritage significance identifies five different significance gradings, which are outline below in Table 4

Table 4: Overview of the NSW significance grading system.

Grading	Justification	Status
Exceptional	Rare or outstanding element directly contributing to an item’s local and State significance.	Fulfils criteria for local or State listing.
High	High degree of original fabric. Demonstrates a key element of the item’s significance. Alterations do not detract from significance.	Fulfils criteria for local or State listing.
Moderate	Altered or modified elements. Elements with little heritage value, but which contribute to the overall significance of the item.	Fulfils criteria for local or State listing.
Little	Alterations detract from significance. Difficult to interpret.	Does not fulfil criteria for local or State listing.
Intrusive	Damaging to the item’s heritage significance.	Does not fulfil criteria for local or State listing.

5.2 Significance Assessment

The following significance assessment (Table 5) builds on the existing statement of significance available on the SHI. Where relevant, additional information compiled as the result of this assessment is also included. Reproduced text from the existing listings is shown in italics.

5.3 Nattai Creek Bridge

Table 5: Nattai Creek Bridge – significance assessment.

Criterion	Assessment against the criterion
a	<p>The existing bridge was built in 1898 to replace an earlier structure that dated to at least the 1860s. The location of the creek crossing was identified as part of Mitchell’s New Line of Road, which in turn influenced the establishment of the nearby Fitzroy Inn. As such, the current Nattai Creek Bridge is important as part of the development of the 19th century transport network and associated landscape at Mittagong.</p> <p>The Nattai Creek Bridge is locally significant against this criterion.</p>
b	<p>Whilst the design of the Nattai Creek Bridge was “signed off” by eminent bridge design engineer, Ernest de Burgh, the bridge is not important in the life or works of de Burgh.</p> <p>The bridge does not meet the threshold for significance against this criterion.</p>
c	<p>While Nattai Creek Bridge does not display a high degree of creative or technical achievement it is a locally recognised landmark that contributes to the aesthetics of the broader landscape around the Fitzroy Inn and the Maltings.</p> <p>The bridge has contributory local significance against this criterion.</p>
d	<p>The bridge has ongoing local importance as part of the broader landscape setting for the nearby Fitzroy Inn. The bridge is recognised by the local community and visitors to the Fitzroy Inn as a tangible link to the history of the region and connection to the nineteenth century landscape and older transport networks. This significance is demonstrated by the current listing of the bridge on the LEP.</p> <p>The Nattai Creek Bridge is locally significant against this criterion.</p>
e	<p>Whilst the fabric of the bridge provides insight into the design and construction of the bridge, the item does not have the potential to yield important information that is not readily available through other sources (e.g. design plans). Furthermore, there are no identified potential archaeological deposits in association with this item.</p> <p>The bridge does not meet the threshold for significance against this criterion.</p>
f	<p>The Nattai Creek Bridge is a locally rare example of an extant timber beam bridge. It is one of the few remaining examples of a timber deck bridge in the Southern Highlands. It is also one of approximately 13 remaining SHI listed bridges in NSW associated with Ernest de Burgh.</p> <p>The Nattai Creek Bridge is locally significant against this criterion.</p>
g	<p>The bridge retains much of its original fabric and is a good example of a post 1894 low level timber beam bridge.</p> <p>The Nattai Creek Bridge is locally significant against this criterion. .</p>

5.3.1 Statement of significance

The current SHI listing for the Nattai Bridge reads as follows: “

Significant as an early bridge with stone abutments whose construction method has remained relatively intact. The bridge is one of the few remaining timber deck bridges in the Southern Highlands.

The following revised statement of significance has been compiled on the basis of the research and investigations documented in this report:

The Nattai Creek Bridge has historical importance as an extant 19th century structure that marks part of the alignment of Thomas Mitchell’s New Line of Road, which in turn influenced the location and establishment of the Fitzroy Inn. The bridge has ongoing social significance as a tangible link to the history of the region and connection to the nineteenth century landscape and transport network. It is a locally recognised landmark that contributes to the aesthetics of the broader landscape around the Fitzroy Inn and the Maltings. The bridge retains much of its original fabric and is a good example of a post 1894 high level timber beam bridge. It is also a locally rare example of an extant timber beam bridge, and one of the few remaining examples of a timber deck bridge in the Southern Highlands.

The Nattai Creek Bridge is locally significant against criteria a, d, f, and g.

5.4 Grading of Significant Components

The following table and Figure 8 provide an overview of the significance grading of Nattai Creek Bridge components.

Element(s)	Significance	Justification
Abutments	Moderate-High	Original fabric but also shows signs of deterioration and modern repairs.
Pier	High	Original fabric in relatively good condition.
Bridge Girders	Little	Contains little or no original fabric.
Stringers and Decking	Little	Entire decking replaced in 2000. Original character of the fabric has been comprised as the replacement timber is not of identical form as the original decking. However, the width of the bridge has not changed and reflects the narrow dimensions of historic bridges.
Railing	Intrusive	The guard rails and curb logs were replaced in the 1980s with metal armaguard that detract from the aesthetic of the original bridge design.
Setting	Moderate	The setting has been modified but the realignment of the Hume Highway means that Ferguson Crescent retains elements of the 19 th century landscape setting.

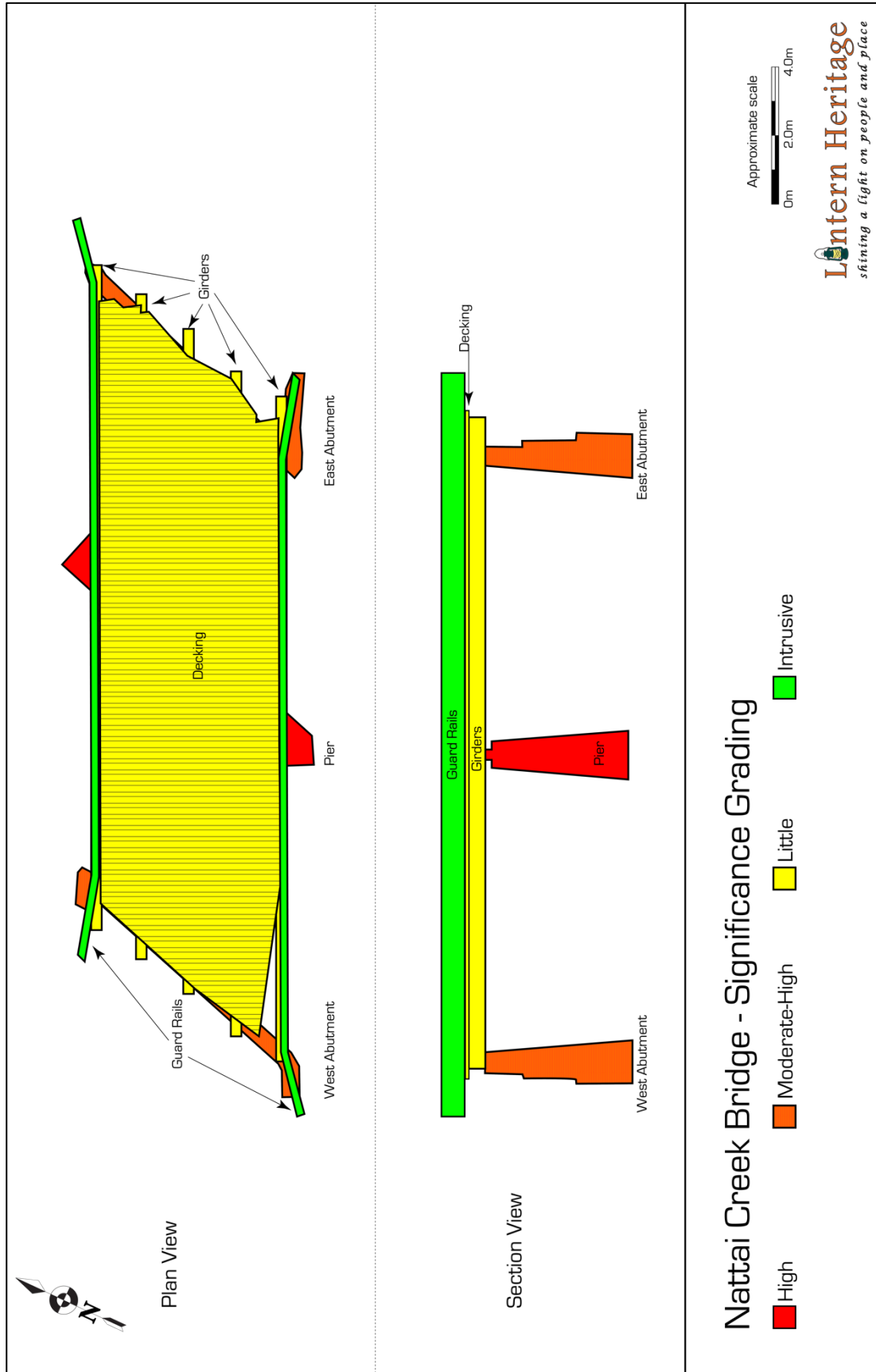


Figure 8: Significance grading of Nattai Creek Bridge components.

6 CONSTRAINTS AND OPPORTUNITIES

6.1 Cultural significance constraints and opportunities

The Nattai Creek Bridge has historical significance in the context of the expansion of the road network south of Sydney, in particular the establishment of Thomas Mitchell's New Line of Road. The establishment of this new road alignment in turn influenced the establishment of the nearby Fitzroy Inn. The bridge is a tangible link to the history of the region and the character of the 19th century landscape and transport network. As such, the conservation of this bridge should retain its use as part of the road infrastructure of Mittagong, and more specifically the Fitzroy Inn. The conservation of the bridge is also important to retain the historical and aesthetic associations with the nearby Fitzroy Inn and surrounding landscape. Its conservation should also respect the character of the surrounding landscape and nearby heritage items (Fitzroy Inn and The Maltings).

There may also be opportunities to enhance visitor appreciation of and engagement with all three heritage items through appropriate interpretation of the bridge, its history and setting.

Nattai Creek Bridge is of local social importance because of its history and contributions to the character of the landscape. However, it also has importance in terms of the traffic purposes it serves. As a single lane bridge, there are restrictions to traffic capacity, risks of incident, and associated complications for maintenance works.

The bridge is locally rare as an extant example of a timber beam bridge that retains timber decking. It is also representative of post 1894 low level timber beam bridges. Whilst the timber components of the bridge are not original (as detailed in Section 3.3), they broadly follow the original bridge design. The masonry abutments and pier are important elements of original fabric that should be conserved in a manner that they can be viewed and appreciated by the local community and visitors.

The representativeness of the bridge could be enhanced by reinstating original details that have been modified, and/or replacing non-original fabric with components that reference the original design.

6.2 Statutory constraints

6.2.1 Environmental Planning and Assessment Act, 1979 (NSW)

The NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) and the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation) provide the overarching structure for planning in NSW. The two most commonly used policies that support the EP&A Act and the EP&A Regulation are State Environmental Planning Policies (SEPPs) and Local Environmental Plans (LEPs).

LEPs are administered by Local government. An LEP is a planning instrument that councils prepare under the EP&A Act, in consultation with their community and approved by the Minister for Planning (or their delegate). Each local government area has a LEP that guides development and planning decisions as well as providing protection for natural resources. All local councils are required to identify items of local heritage significance in a heritage schedule to their LEP. Items listed on the heritage schedule of an LEP are also listed on the SHI.

6.2.2 Heritage Act, 1977 (NSW)

The *Heritage Act 1977* is the NSW legislation that provides protection for items⁴ of heritage significance in NSW. In particular, it provides protection for items of State significance that are listed on the NSW State Heritage Register (SHR), and items that are protected by an Interim Heritage Order (IHO). Any proposal that will impact such items requires approval under Section 60 of the *Heritage Act 1977*.

6.2.3 Section 170 Register

Section 170 of the *Heritage Act 1977* requires NSW government agencies to identify, conserve and manage heritage assets owned, occupied or managed by that agency. Government agencies are required to keep a Register of heritage items, which is called a Heritage and Conservation Register or more commonly, a S.170 Register, which is a record of the heritage assets owned or managed by a NSW government agency. Items listed on a S.170 Register are listed on the State Heritage Inventory (SHI). State significant items identified in a S.170 register are also considered for listing on the SHR.

6.2.4 NSW National Parks and Wildlife Act 1974

The *National Parks and Wildlife Act 1974* (as amended), administered by Heritage New South Wales (HNSW), is the primary legislation for the protection of Aboriginal cultural heritage in New South Wales. Part 6 of the NPW Act provides specific protection for Aboriginal objects and declared Aboriginal places by establishing offences of harm.

6.2.5 Statutory Constraints Summary

The Nattai Creek Bridge is listed on the Wingecarribee LEP and is subject to Section 5.10 of the Wingecarribee LEP 2010. This means that any structural alterations, other than maintenance, will require development consent. Furthermore, a Statement of Heritage Impact may be required as part of any such development consent.

The *NSW National Parks and Wildlife Act 1974* is also applicable with regards to any potential harm to Aboriginal objects that may be present at the site.

6.3 Operational Constraints and Opportunities

As alluded to above in Section 6.1, the traffic requirements along Ferguson Crescent mean that the existing single lane bridge is no longer consistent with the current and future needs of pedestrians and vehicles. The long term plan for the bridge deck is to have unrestricted vehicular load capacity to meet AS 5100.2 requirements. The plan is also to include a 2.5m wide pedestrian pathway on the northern side of the bridge.

These operational requirements result in limited elements of the bridge requiring replacement and/or modification to bridge form and fabric. There is however opportunity to respect the original 1898 bridge design through incorporation of forms and fabrics that reference the original design.

6.4 Physical Constraints and Opportunities

The physical constraints and opportunities of the Nattai Creek Bridge, as identified through reference to significance of bridge components (see Section 3.3 and 3.4), is summarise below in Table 6. These opportunities include using like for like fabric for original elements of bridge, forms that are sympathetic with original bridge, maintaining views of the piers and abutments and overall conservation of the aesthetics of the bridge.

⁴ The Heritage Act 1977 defines a heritage item as "a place, building, work, relic, moveable object or precinct".

Table 6: Overview of constraints and opportunities at Nattai Creek bridge as they relate to individual bridge components and significance.

Element(s)	Constraints	Opportunities
Abutments	Predominantly comprises original fabric of moderate to high significance.	Opportunity to conserve original fabric and incorporate into upgraded bridge.
Pier	Predominantly comprises original fabric; fabric of high significance.	Opportunity to conserve original fabric and incorporate into upgraded bridge.
Bridge Girders	Fabric is not original and cannot be returned to original due to current building/safety requirements.	Opportunity exists to respect significance through replacement with sympathetic materials/forms. This does not necessarily require like for like replacement and may include consideration of alternative materials/forms. The emphasis is on those materials/forms being sympathetic to the significance of the bridge.
Stringers and Decking	Fabric is not original and cannot be returned to original due to current building/safety requirements.	Opportunity exists to respect significance through replacement with sympathetic materials/forms. This does not necessarily require like for like replacement and may include consideration of alternative materials/forms. The emphasis is on those materials/forms being sympathetic to the significance of the bridge.
Railing	Fabric is not original and cannot be returned to original. Relevant minimum safety requirements need to be adhered to.	Existing railings are not a significant component of the bridge. There is an opportunity to improve safety through replacement of sympathetic railings.
Setting	The bridge contributes to the broader landscape setting of Fitzroy Inn and The Maltings.	There is an opportunity to enhance/respect the landscape setting through any proposed modifications to the bridge.

7 CONSERVATION AND MANAGEMENT APPROACHES

The Section provides an overarching guide for the future management of Nattai Creek Bridge. It is intended to guide decision-making whether with regard to major upgrade proposals or day-to-day maintenance.

7.1 Defining Conservation

Conservation is defined as ‘the process of maintaining and managing change to a heritage asset in a way that sustains and where appropriate enhances its significance’ and as ‘all the processes of looking after a place so as to retain its cultural significance’ (ICOMOS). Conservation is not a process that precludes change but one that enables it to occur without diminishing the significance of a heritage asset and one that is mindful of the long-term future. The foundation for conservation is the understanding, retention and enhancement of significance. An understanding of significance should underpin every conservation decision and change to a heritage asset.

The purpose of conservation is to preserve a place of heritage value indefinitely. Fundamental to achieving this is for the place to have a meaningful use. It is inevitable that some change will be necessary to ensure the safety and security of the public and the extant features of the bridge. Such changes should be designed to ensure the protection and enhancement of heritage values and be informed by the constraints and opportunities outlined above together with a strategy for maintenance and repair. This will ensure the protection of significant features and fabric and maintain a sound future for the site.

7.1.1 Best Practice Guidance

The Australia ICOMOS Burra Charter, while not a statutory document, is widely accepted as the standard for best practice conservation in Australia. Article 3 of the Burra Charter encourages the principle of doing ‘...as much as necessary but as little as possible.’ This principle should apply to all aspects of decision making.

7.2 Capacity for change

The long-term conservation and management of Nattai Creek Bridge requires an understanding as to its capacity for change. This relates to the ability for physical changes to the built fabric of the place without causing harm to its overall significance. Identifying the capacity for change should always be based on an in-depth understanding of the significance of all values balanced against the pressures of change on the site.

Table 7 below provides an overview of the capacity for change identified for the different elements of the Nattai Creek Bridge. It should be noted that this table provides a guideline only. Any proposed alteration with potential to impact on significance should be assessed, and a Statement of Heritage Impact prepared as necessary.

Where the capacity for change is identified as minor, it should be noted that this does not necessarily mean that there are no allowable changes. For instance, changes that are required to conserve significance and/or necessary as part of repairs or functional alterations may be required. What is more important is that any changes that detrimentally impact the significance of the item are avoided for those components with minor capacity for change. Instead, greater levels of change should be considered for those elements with moderate or considerable capacity for change.

Table 7: Capacity for change at Nattai Creek Bridge.

Element(s)	Capacity for Change	Notes
Abutments	Minor Avoid alterations/demolition	These elements are key components of original fabric. Major alterations should be avoided: overall appearance and context should be retained. Changes may include removal of detracting fabric and/or detrimental elements. Repair and renewal should be done on a like-for like basis.
Pier	Minor Avoid alterations/demolition	
Bridge Girders	Moderate	Reduced requirement for justification of changes. Desirable to remove detracting fabric and/or intrusive elements. Explore opportunities to reinstate or interpret previous features/fabric and/or remove low significance alterations. Repair and renewal does not generally necessitate like-for-like replacement.
Stringers and Decking	Moderate	
Railing	Considerable Increased capacity for change, particularly any change that enhances/respects significance and/or reduces the intrusiveness of this component.	As above but with increased emphasis on consideration of removal of intrusive elements.
Setting	Minor - Moderate	Alterations are generally acceptable so long as they either enhance the setting or do not substantially detract from the setting. Changes may include removal of detracting fabric/elements and/or reinstatement or interpretation of previous elements.

7.3 Conservation Policies

The policies outlined below have been identified with reference to the significance of Nattai Creek Bridge, the opportunities and constraints defined in Section 6 and the capacity for change acknowledged in Table 7. These policies provide guidelines for managing heritage significance at the site whilst also addressing operational requirements.

7.3.1 Retention of the cultural significance of Nattai Creek Bridge

- 1) Nattai Creek Bridge is an item of local cultural significance. The bridge will be maintained and conserved in such a way that protects or enhances the site's cultural significance.
- 2) Conservation of Nattai Creek Bridge will be in accordance with the principles of the Australia ICOMOS Charter for the Conservation of Places of Cultural Significance (Burra Charter [2013]).

- 3) All current and future owners, managers and consent authorities responsible for the care and maintenance of Nattai Creek Bridge will be advised of and be responsible for the conservation of the heritage significance of the bridge.
- 4) Conservation management of the Nattai Creek Bridge will be conducted in consultation with appropriately qualified and experienced heritage consultants working in collaboration with appropriately qualified and experienced structural engineers.

7.3.2 Adoption, implementation and review of the CMP

- 1) The conservation policies that are set out in this document will be adopted by Wingecarribee Shire Council as guidelines for future decisions regarding conservation and development of Nattai Creek Bridge.
- 2) Wingecarribee Shire Council will ensure adequate resources are available for the implementation of these policies during any works or routine maintenance at the bridge and its setting.
- 3) Wingecarribee Shire Council will ensure that this document is available for and understood by staff/contractors managing/undertaking the ongoing maintenance of Nattai Creek Bridge.
- 4) This CMP will be made public and lodged with relevant administrative, maintenance, heritage and archival agencies.
- 5) This CMP will be reviewed every five years in order to incorporate any relevant changes in conservation methods/legislation or user requirements. The effectiveness of the CMP will also be evaluated as part of the review process.
- 6) The State Heritage Inventory listing of the Nattai Creek Bridge will be updated.

7.3.3 Use of the bridge

- 1) Wingecarribee Shire Council will continue to engage with the local community/bridge users to ensure that the Nattai Creek Bridge is retained and will continue its historic function.
- 2) Nattai Creek Bridge will continue to be used for local traffic (pedestrian/vehicular/cyclist). It is acknowledged that use as a functioning bridge is intrinsic to its cultural significance.
- 3) Any use or activity that may cause/accelerate damage to the fabric or setting of the bridge is unacceptable.

7.3.4 Maintenance and repair

- 1) Ongoing repair and maintenance will be carried out to ensure that the minimum standards of maintenance are met and that each significant element of Nattai Creek Bridge retains its level of significance. Works will be undertaken by suitably skilled workers with appropriate levels of expertise/experience.
- 2) Nattai Creek Bridge will be inspected annually by appropriately qualified specialists to assess structural integrity. Any issues that have potential to affect public safety will be addressed by appropriate methods.

7.3.5 New work

- 1) The individual elements/components of Nattai Creek Bridge will be conserved in accordance with their identified levels of significance whilst also respecting the conservation of the overall design and form of the bridge.
- 2) Nattai Creek Bridge will continue to carry traffic (pedestrian/vehicular/cyclist) appropriate to the requirements of Ferguson Crescent. Adaptations/alterations may be implemented to continue this serviceability so long as they do not compromise the heritage significance of the bridge. These adaptations/alterations may include introducing new materials to meet load, safety and durability requirements, subject to relevant approvals.
- 3) Wingecarribee Shire Council will match the excellence of the original in the quality of design and construction for any modifications or new works.
- 4) Any works not specifically covered by this CMP should be reviewed by Wingecarribee Shire Council's Heritage Advisor, and relevant statutory approvals / exemptions ratified by the relevant approval body. Applications for such approvals / exemptions should be accompanied by a statement of heritage impact (SOHI).

7.3.6 Interpretation

- 1) The heritage significance of Nattai Creek Bridge will be communicated through effective heritage interpretation that is based on the historical themes and analysis outlined in this CMP.
- 2) A suitably designed sign will be installed and maintained at an appropriate viewing location to provide interested visitors with views of significant fabric and accompanying relevant information.

7.3.7 Protection and enhancement of visual setting

- 1) Any development proposed for land adjacent Nattai Creek Bridge, whether inside or outside of the curtilage, should take into consideration visual impacts on the bridge and the broader landscape setting.
- 2) Signage in the vicinity of Nattai Creek Bridge should be kept to the minimum of what is required for safety and should not block views of the bridge.
- 3) Vegetation in the vicinity of Nattai Creek Bridge should be kept to a minimum. Weeds should be removed and vegetation that impedes views of the bridge cleared.
- 4) Any relevant planning and statutory controls must be adhered to when considering any development or works adjacent the bridge.
- 5) Where possible, efforts should be made to enhance the visual setting of the bridge.

7.3.8 Archival recording

- 1) A complete archival recording will be undertaken of Nattai Creek Bridge.
- 2) Inspections of the bridge and accompanying photographic condition records will be undertaken before, during and after any works at the bridge.
- 3) All methods and materials used at Nattai Creek Bridge will be fully documented and accompanied by photographic records.
- 4) Representative samples of any significant fabric removed from Nattai Creek Bridge will be suitably archived.

- 5) All records and samples relating to Nattai Creek Bridge will be managed to ensure permanent retention and made available to bridge managers, engineers and heritage practitioners.

7.3.9 Archaeology

- 1) The NSW Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales will be adhered to for any works proposed at Nattai Creek Bridge.
- 2) Wingecarribee Shire Council will consult with relevant Aboriginal stakeholder about any proposed works that may impact Aboriginal archaeological potential or cultural significance.
- 3) Any subsurface disturbance of land that may have archaeological potential will be carried out in accordance with the provisions of the Heritage Act 1977 and the NSW National Parks and Wildlife Act 1974.

7.3.10 Exemptions and approvals

- 1) Routine maintenance works identified in Table 8 can proceed without prior approval/notification.
- 2) Works identified in Table 9 will require approval/consent by Wingecarribee Shire Council Heritage Advisor.

7.3.11 Pier and abutments (high significance)

- 1) The Nattai Creek Bridge pier and abutments will be repaired/reconstructed to their original design/dimensions.
- 2) Any intrusive/compromised fabric will be removed/replaced.
- 3) Any additions/modifications to the pier and abutments will be sympathetic to the original design and will not significantly impede views of original fabric.

7.3.12 Girders (little significance)

- 1) The existing wooden girders will be replaced before deterioration affects safety or serviceability of the bridge.
- 2) Consideration could be given to replacing the timber girders with alternative elements that match and/or are sympathetic to the form of the original girders.
- 3) The design of any such girders will be developed with due consideration to any additional requirements for the bridge.

7.3.13 Stringers and decking (little significance)

- 1) The decking and wearing surface should be maintained in such a way that ensures the safety of vehicles travelling across the bridge so as to reduce the risk of damage to the bridge.
- 2) The stringers and decking should be replaced as necessary with fabric that matches and/or is sympathetic to the original form and fabric of the bridge.

7.3.14 Railing (currently intrusive)

- 1) In the short term, the safety risks will be mitigated as much as possible by ensuring damaged/deteriorate fabric is quickly replaced.
- 2) In the long term, the railings should be replaced with fabric that matches and/or is sympathetic to the original form and fabric of the bridge.

Table 8: Routine maintenance works that do not require approval prior to implementation.

Element	Works
Site and general	Remove any rubbish from the site
	Remove weeds and undertake vegetation clearance
Girders	Clean as required
	Inspect and treat as necessary for termites
	Tighten all bolts
Stringers and Decking	Undertake line marking renewal
	Cleaning required to ensure correct drainage
Pier and abutments	Clean as required
Railing	Check for incident damage and repair as necessary

Table 9: Works that will require approval(s) prior to implementation.

Element	Works
Pier and abutments	Replacements of fabric
	Modifications to fabric or form
Girders	Replacements of fabric
	Redesign of form
Stringers and Decking	Replacements of fabric
	Redesign of form
Railing	Replacements of fabric
	Redesign of form
Setting	Changes to views to and from the bridge
Interpretation	Installation of interpretive signage as part of approved interpretation plan

8 IMPLEMENTATION OF THE CMP

The conservation policies set out above in Section 7 provide guidelines for the ongoing care and maintenance of Nattai Creek Bridge in a manner that ensures the conservation of the bridge’s cultural heritage values. Table 10 below provides an overview of the implementation plan for this CMP.

Table 10: Overview of CMP implementation.

Timing	Action	Priority
Year 1	Submit CMP to Wingecarribee Shire Council Heritage Advisor for approval	High
	Formally adopt this CMP and integrate with all other documentation, planning and management processes relating to Nattai Creek Bridge	High
	Prepare an Incident Response Plan for Nattai Creek Bridge	Medium
	Review options for bridge modifications/upgrades that will meet service requirements and comply with this CMP	High
	Prepare SOHI to support/accompany proposed modifications/upgrades and submit to Wingecarribee Shire Council Heritage Advisor for approval	High
Years 2-4	Implement modifications/upgrades in accordance with relevant approval[s]	Medium-High
	Undertake inspections of bridge integrity	High
Year 5	Review this CMP	Medium

9 REFERENCES

- Ariyaratne, W., Berger, I., Bowie, I., Brassil, T., Coltheart, L., Fraser, D., Gojack, D., Glencross-Grant, R., Jack, I., Nicholas, A., Pearson, B., and R. Wedgwood, 2019, *The Timber Truss Bridge Book*, published by NSW Roads and Maritime Services.
- Australia ICOMOS, International Council on Monuments and Sites, 2013. The Burra Charter: the Australia ICOMOS charter for places of cultural significance 2013.
- Australian Heritage Commission 2001 Australian Historic Themes, a framework for use in heritage assessment and management, Commonwealth of Australia, Canberra.
- Cardno MBK 2000. Timber Beam Bridges- Study of Relative Heritage Significance of RTA Controlled Timber Beam Road Bridges in NSW.
- Day, L., and T., McCartney (N.D.) *Mittagong's Picturesque History*. Mittagong Publishing ISBN 0 646 19389 9.
- Department of Main Roads, NSW 1976, *The Roadmakers*. Timber Truss Bridges Study of Relative Heritage Significance of All Timber Truss Road Bridges in NSW. (1998). Available at: <https://www.transport.nsw.gov.au/system/files/media/documents/2023/bridge-types-historical-overviews-2006-timbertruss.pdf> [Accessed 8 Jun. 2023].
- Heritage Office and Department of Urban Affairs and Planning (HO&DUAP) 1996 *Regional histories: regional histories of New South Wales*, Department of Urban Affairs and Planning, Sydney.
- Historical Records of Australia, Series 1, Volume II 1797-1800, The Library Committee of the Commonwealth Parliament. 1914, p. 134.
- Jo McDonald Cultural Heritage Management Pty Ltd. (1997b). Interim Heritage Management Report: ADI Site St Marys. Volume 1 - Test Excavation Report. Unpublished report for Lend lease - ADI Joint Venture.
- J.J.C. Bradfield, 'Some Notes on Australian Timbers', read before the Sydney University English Society, 28-05-1896.
- Leevers, K., 2006. First contact/frontier expansion in the Wingecarribee area between 1798-1821: exploration and analysis. Unpublished thesis.
- Marshall, D. 2021a *Guidance on developing a Conservation Management Plan*, prepared for the Heritage Council of NSW.
- Marshall, D. 2021b *Statement of Best Practice for Conservation Management Plans*, prepared for the Heritage Council of NSW.
- Murray, R. and White, K. 1988. Dharug and Dungaree: The History of Penrith and St Marys to 1860. Hargreen Publishing Company in conjunction with the Council of the City of Penrith.
- Moore, C, Esq., F.L.S., 'On the Woods of New South Wales', The Industrial Progress of NSW, being a Report of the Intercolonial Exhibition of 1870, at Sydney; together with a variety of papers illustrative of the industrial resources of the colony, Sydney: Thomas Richards, Government Printer, 1871, pp 633-639.
- McColgan, J., 1995. Southern Highlands Story.
- Mulvaney, D. J., & Kamminga, J., 1999. *Prehistory of Australia*, Allen & Unwin, St Leonards.
- NSW Heritage Council 2006 New South Wales Historical Themes.

- NSW Heritage Council 2008 *Level of Heritage Significance*, NSW Department of Planning, Sydney.
- NSW Heritage Office 2001 *Assessing Heritage Significance*. Update for NSW Heritage Manual. NSW Heritage Office, Sydney.
- NSW Heritage Office and Department of Urban Affairs & Planning 2002 *Statements of Heritage Impact*, NSW Heritage Office and Department of Urban Affairs & Planning, Sydney.
- Organ, M. & Speechley, C., 'Illawarra Aborigines,' in Hagan, J. & Wells, A., (Eds), *A History of Wollongong*, University of Wollongong Press, Wollongong, 1997, p. 19.
- Prest, J., Hamilton Hume & William Hovell, Oxford University Press, Melbourne, 1963, p. 4.
- 'Report of interview in 1897 of Mr Martin Lynch, eyewitness, by Archibald Campbell MLA' in Organ, M. (Ed.), *Documentary History of the Wingecarribee & South Coast Aborigines 1770- 1850*. Aboriginal Education Unit, University of Wollongong Press, 1990. p. 157-159.
- Schmit, A.F. (1976) 'E.M. De Burgh', *Main Roads of the Department of MAIn Roads, New South Wales Vol 41*.
- Timber Beam Bridges Study of Relative Heritage Significance of RTA Controlled Timber Beam Road Bridges in NSW 2000 12. [n.d.]. Available at: <https://www.transport.nsw.gov.au/system/files/media/documents/2023/bridge-types-historical-overviews-2006-timberbeam.pdf> [Accessed 11 Jul. 2023].
- Trove. [n.d.]. Plan de la ville de Sydney [cartographic material] : Capitale des colonies Anglaises, aux terres Australes. [online] Available at: <https://nla.gov.au/nla.obj-229944462/view> [Accessed 15 Jun. 2023]
- Trove. [n.d.]. *Man standing beneath a log bridge, Australia, ca. 1886 [transparency]*. [online] Available at: <https://nla.gov.au/nla.obj-149693492/view?searchTerm=corduroy+bridge#search/corduroy%20bridge> [Accessed 15 Jun. 2023].g
- Truss Book. [n.d.]. *Foreword*. [online] Available at: <https://roads-waterways.transport.nsw.gov.au/about/environment/protecting-heritage/timber-truss-bridge/foreword.html> [Accessed 1 Jul. 2023].
- Williams, A. N., Atkinson, F., Lau, M., & Toms, P. S. (2014). A Glacial Cryptic Refuge in South-East Australia: Human Occupation and Mobility from 36,000 years ago in the Sydney Basin, New South Wales. *Journal of Quaternary Science*, 29(8), 735–748.
- Wingecarribee Heritage Study volume 1. Prepared by JR Services for Wingecarribee Shire Council and the Department of Planning. 1993.
- Search for NSW heritage | NSW Environment & Heritage [WWW Document], n.d. URL <http://www.environment.nsw.gov.au/heritageapp/heritagesearch.aspx> [accessed 28.06.2023].

APPENDIX 1 – HERITAGE REGISTER LISTINGS

Item Details

Name

Nattai Creek Bridge

SHR/LEP/S170

LEP #11885

Address

Ferguson Crescent MITTAGONG NSW 2575

Local Govt Area

Wingecarribee

Local Aboriginal Land Council

Unknown

Item Type

Unknown

Group/Collection

Unknown

Category

Unknown

All Addresses

Addresses

Records Retrieved: 1

Street No	Street Name	Suburb/Town/Postcode	Local Govt. Area	LALC	Parish	County	Electorate	Address Type
	Ferguson Crescent	MITTAGONG/NSW/2575	Wingecarribee	Unknown			Unknown	Primary Address

Significance

Statement Of Significance

Significant as an early bridge with stone abutments whose construction method has remained relatively intact. The bridge is one of the few remaining timber deck bridges in the Southern Highlands.

Owners

Records Retrieved: 0

Organisation	Stakeholder Category	Date Ownership Updated
No Results Found		

Description

Designer

Builder/Maker

Nattai Creek Bridge – Conservation Management Plan

Ernest de Burgh

Physical Description

Updated

A timber decked bridge with sandstone abutments designed in the late 1890s by the Public Works Department. The bridge replaced an earlier timber bridge shown in an c.1867 photograph.

Physical Condition

Updated

Modifications And Dates

Further Comments

Current Use

Former Use

Listings

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Local Environmental Plan	Wingecarribee Local Environmental Plan 2010	11885	3/10/2017 12:00:00 AM		

Records Retrieved: 1

Procedures/Exemptions

Section of Act	Description	Title	Comments	Action Date	Outcome
No Results Found					

Records Retrieved: 0

History

Historical Notes or Provenance

Updated

Designed by the Roads and Bridges Branch of the Department of Public Works and signed off by eminent bridge design engineer, Ernest de Burgh, in 1898. The plan is titled "Bridge over Nattai Creek at Southey's, Main South Road".

The Sydney Morning Herald reports on Tuesday 16 August 1898 under the heading of Public Tenders:

"Tenders have been accepted for the following public works:- Bridges. - Over Nattai Creek, on the main South road, near Mittagong, G. E. Fraser (Bowral), £891..."

Historic Themes

Records Retrieved: 0

National Theme	State Theme	Local Theme
No Results Found		

Recommended Management

Management Summary

Management

Records Retrieved: 0

Management Category	Management Name	Date Updated
No Results Found		

Report/Study

Heritage Studies

Records Retrieved: 0

Report/Study Name	Report/Study Code	Report/Study Type	Report/Study Year	Organisation	Author
No Results Found					

Reference & Internet Links

References

Records Retrieved: 1

Type	Author	Year	Title	Link
Written		1898	Public Tenders (http://nla.gov.au/nla.news-article14155474)	

Data Source

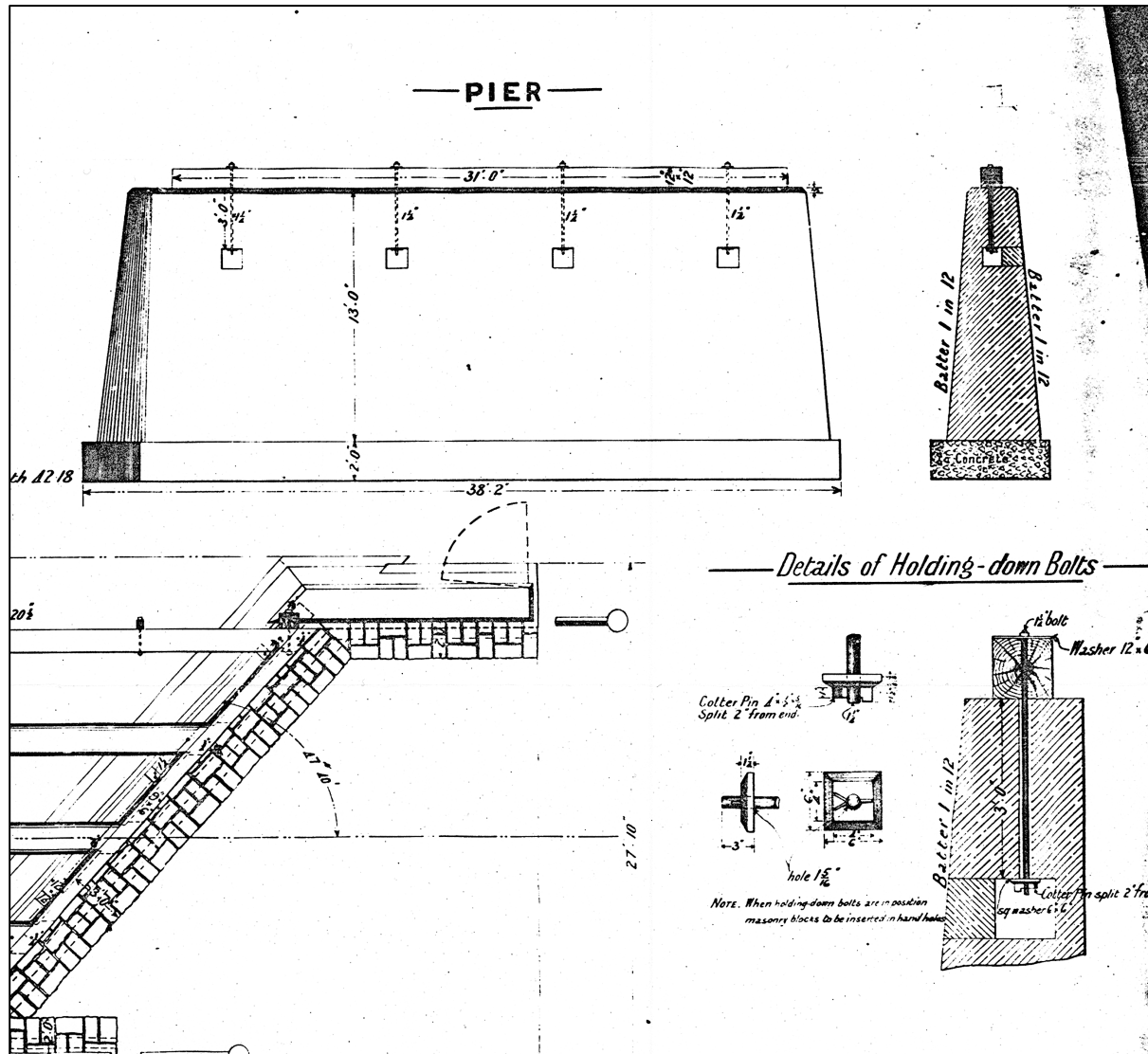
The information for this entry comes from the following source:

Data Source	Record Owner	Heritage Item ID
Local Government	Wingecarribee Shire Council	2681885

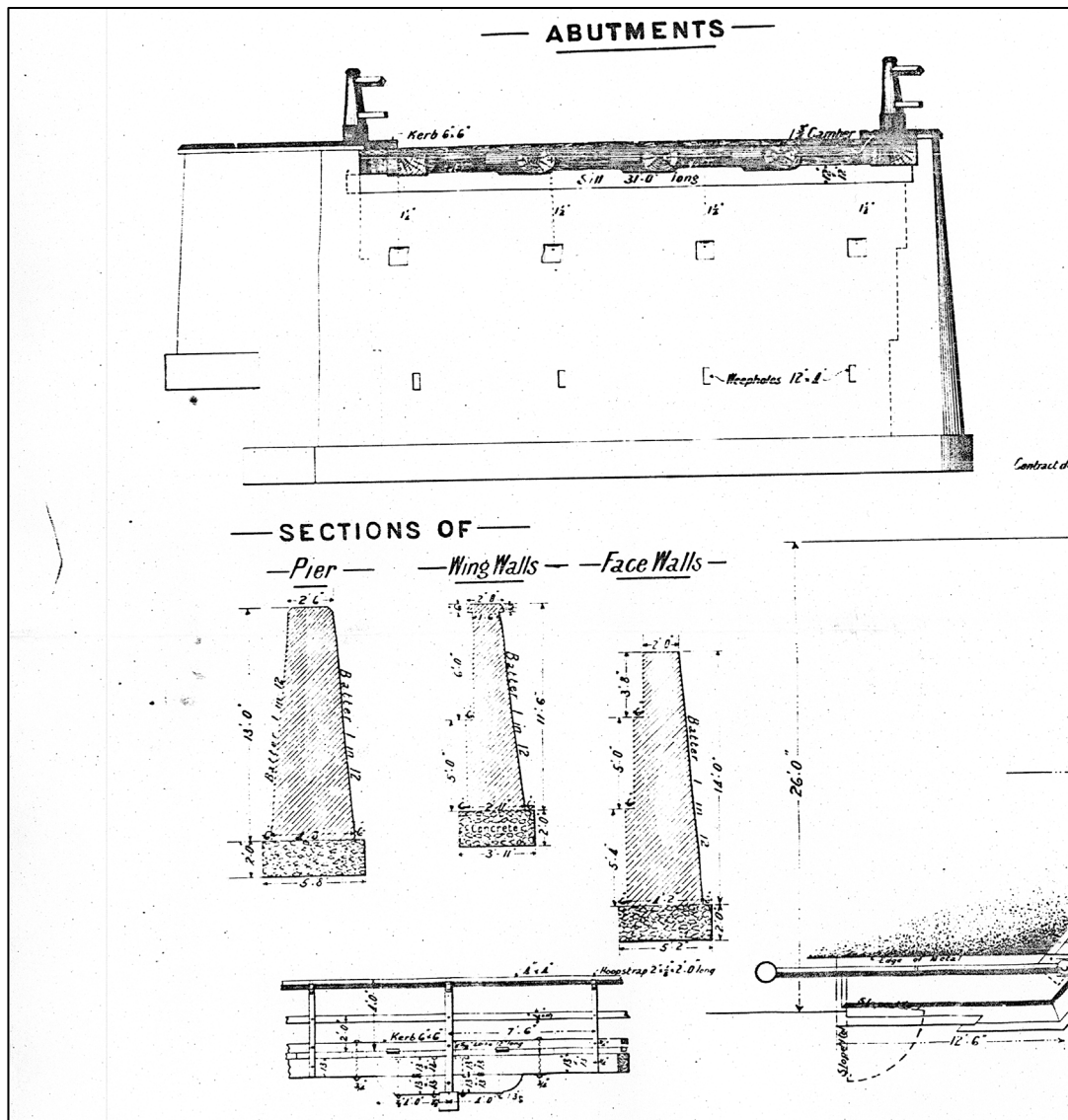
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APPENDIX 2 – ORIGINAL DESIGN OF NATTAI CREEK BRIDGE

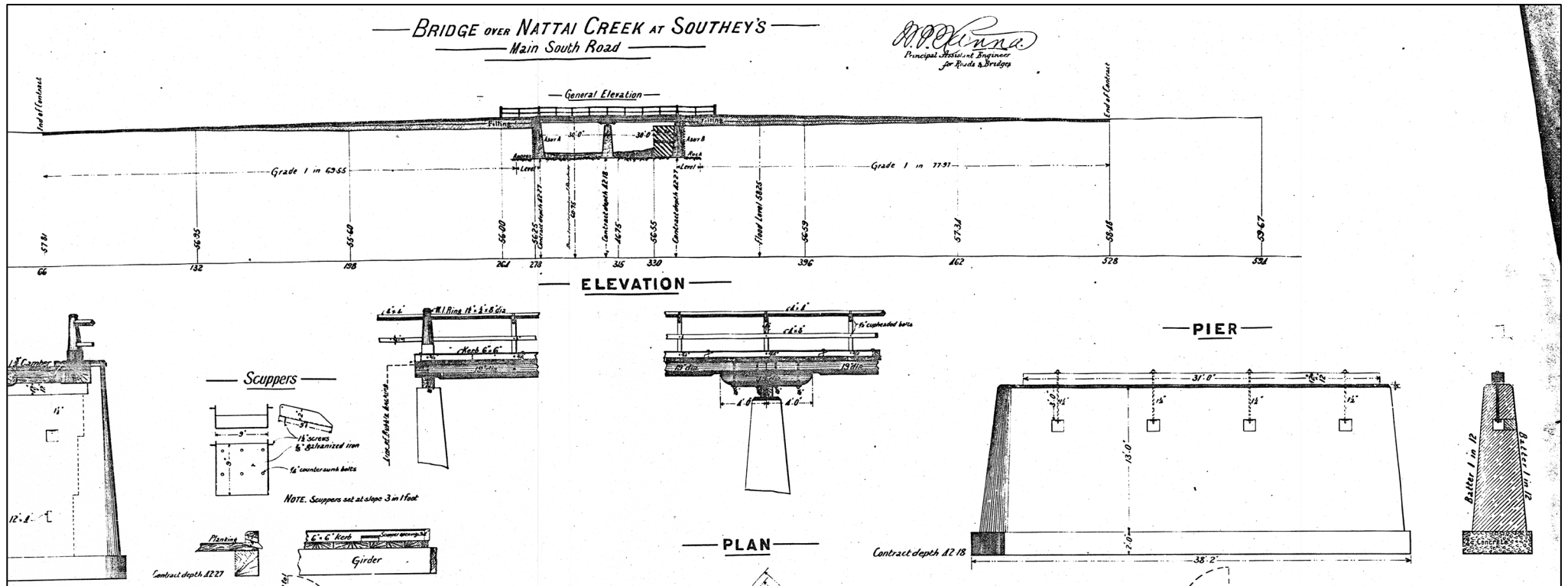


Extract of plan of piers - Nattai Creek Bridge



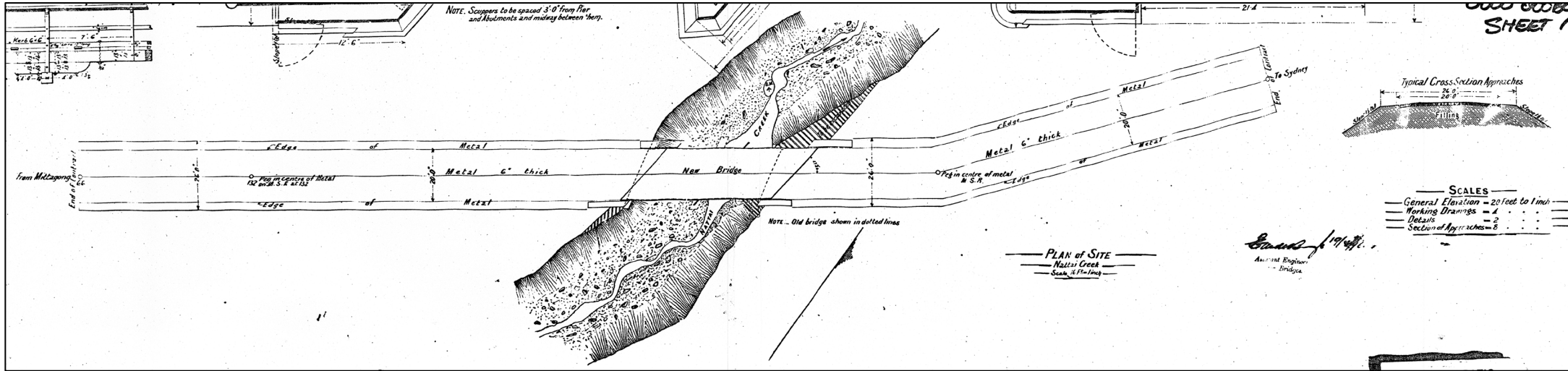
Extract of plan of abutments – Nattai Creek Bridge

Nattai Creek Bridge – Conservation Management Plan



Extract of elevation plan – Nattai Creek Bridge

Nattai Creek Bridge - Conservation Management Plan



Extract of site plan - Nattai Creek Bridge