

APPENDIX



F

Historical Heritage Technical Report

NORTH STAR TO NSW/QUEENSLAND BORDER ENVIRONMENTAL IMPACT STATEMENT

ARTC

The Australian Government is delivering
Inland Rail through the Australian
Rail Track Corporation (ARTC), in
partnership with the private sector.

Inland Rail North Star to NSW/QLD Border

Appendix F: Historical Heritage
Technical Report

**Australian Rail Track
Corporation**

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Abbreviations

Acronym	Definition
AACAP	Army Aboriginal Community Assistance Program
AHC Act	Australian Heritage Council Act 2003 (Commonwealth)
ACHMP	Aboriginal Cultural Heritage Management Plan
ARTC	Australian Rail Track Corporation
Ch	Chainage
CHL	Commonwealth Heritage List
DPIE	Department of Planning, Industry and Environment (NSW)
EIS	Environmental Impact Statement
EP&A Act	Environmental Planning and Assessment Act 1979 (NSW)
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)
FFJV	Future Freight Joint Venture
GIS	Geospatial information system
GLEP	Gwydir Local Environmental Plan 2013
GSI	Ground Surface Integrity
GSV	Ground Surface Visibility
HHMP	Historical Heritage Management Plan
IHO	Interim Heritage Orders
km	kilometres
LEP	Local Environmental Plan
LGA	Local Government Area
m	metres
mm	millimetres
MPLEP	Moree Plains Local Environmental Plan 2011
NHL	National Heritage List
NS2B	North Star to NSW/QLD Border Project
NSW	New South Wales
OUV	Outstanding Universal Values
QLD	Queensland
RNE	Register of the National Estate
SEARs	Secretary's Environmental Assessment Requirements
SEPP SRD	State Environmental Planning Policy (State and Regional Development) 2011
SHI	State Heritage Inventory (NSW)
SHR	State Heritage Register (NSW)
SSI	State Significant Infrastructure
WHL	World Heritage List

1 Introduction

The Australian Government has committed to delivering Inland Rail, an interstate freight rail corridor between Melbourne and Brisbane, via central-west New South Wales (NSW) and Toowoomba in Queensland. Inland Rail is a significant piece of nation transport infrastructure and will enhance Australia's existing rail network and serve the interstate freight market.

The Inland Rail route, which is approximately 1,700 kilometres (km) long, will involve:

- Using the existing interstate rail corridor through Victoria and southern NSW
- Upgrading approximately 400 km of existing corridor, mainly in western NSW
- Providing approximately 600 km of new corridor in northern NSW and southeast Queensland
- Inland Rail has been divided into thirteen sections, seven of which are located in NSW.

Future Freight Joint Venture (FFJV) has been commissioned by the Australian Rail Track Corporation (ARTC) to undertake the historical heritage assessment for the North Star to the NSW/QLD Border (NS2B) section, one of thirteen projects that comprise the Inland Rail Program.

FFJV aims to undertake this heritage assessment to inform the concept design, modelling and preparation of the Environmental Impact Statement (EIS) for the NS2B project (the proposal). The Area of Interest (study area), which is 2 km wide, generally follows the currently non-operational Boggabilla branch line from just north of North Star, NSW to near the Whalan Creek crossing before veering north east towards the McIntyre River and the Queensland border (refer Figure 1.1). This corridor links with the Goondiwindi line on the Queensland side near the Kildonan siding.

The study area includes areas of temporary disturbance including:

- Laydown areas
- Access tracks
- Workers camp at North Star
- Borrow pits.

These areas are considered temporary because they are only required during the construction phase of the proposal and are needed for construction purposes.

1.1 Proposal description and key aspects

ARTC is seeking approval to construct and operate the North Star to NSW/QLD border section of Inland Rail (the proposal). The proposal consists of approximately 25 km of upgraded track between North Star and a greenfield deviation around Whalan Creek, and 5 km of new track between Whalan Creek and the NSW/QLD border. The proposal is a key component of the wider Inland Rail network between Melbourne and Brisbane.

The proposal consists of the following key features listed in Table 1.1. Those aspects more likely to interact with heritage sensitive areas are discussed in detail below.

The construction phase of the proposal will also involve laydown areas, temporary access tracks, borrow pits, a mobile concrete batching plant, and a construction camp. The design has responded to key environmental features and has been developed in line with engineering constraints for a reference rail design. The rail design is based on minimising environmental impact, minimising disturbance to existing infrastructure and meeting engineering design criteria.

The study area is predominantly the construction footprint and this follows the currently non-operational Boggabilla branch line from just north of North Star, NSW to near the Whalan Creek crossing, before veering north east towards the McIntyre River and the Queensland border (refer Figure 1.1).



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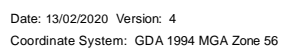


Figure 1.1:
Study area

Table 1.1 Key features of the proposal

Aspect	Description
New track	<ul style="list-style-type: none"> Approximately 25 km of new track within the existing, non-operational Boggabilla rail corridor Approximately 5 km of new track within a greenfield rail corridor.
Crossing loop, maintenance siding and turnouts	<ul style="list-style-type: none"> One crossing loop, designed to accommodate trains up to 1,800 m long, however it is designed to accommodate trains up to 3,600 m long if required Turnouts will be provided on either end of the crossing loop to allow trains to be guided from one track to another A one-ended siding (approximately 250 m long) will be incorporated into the crossing loop for maintenance purposes. It will be connected to the southern end of the crossing loop via a low-speed turn out.
Bridges	<ul style="list-style-type: none"> Eleven new bridges This includes an approximately 1.8 km long viaduct over the Macintyre River and Whalan Creek, which are major watercourses. The viaduct is located in both NSW and Queensland; therefore, potential impacts will be assessed under the NSW <i>Environmental Planning and Assessment Act 1979</i> by this EIS, and under the <i>State Development and Public Works Organisation Act 1971</i> by the NSW/QLD Border to Gowrie EIS.
Drainage	<ul style="list-style-type: none"> Reinforced concrete pipe culverts and reinforced concrete box culverts Scour protection measures will generally be installed around culverts to prevent erosion Embankment and catch drains adjacent to the proposed alignment to divert surface runoff to the nearest bridge or culvert location.
Road rail interfaces	<ul style="list-style-type: none"> Work on new and existing non-operational level crossings (within the existing, non-operational Boggabilla rail corridor) Signalling and communications infrastructure.
Road realignments	<ul style="list-style-type: none"> Minor realignment of Bruxner Way near where the proposal transitions from the existing, non-operational Boggabilla rail corridor to the greenfield rail corridor.
Earthworks	<ul style="list-style-type: none"> To achieve flood immunity, the majority of the proposal is elevated on a fill embankment. The embankment height is typically less than 2 m; however, in the lead up to the Macintyre River Viaduct, the height increases to approximately 7.5 m. No significant cuttings (> 10 m) are proposed.
Ancillary works	<ul style="list-style-type: none"> Ancillary infrastructure including utilities, signalling and communications infrastructure, fencing and signage.

1.1.1 Bridges

Bridges are required so that water, vehicles, and in some cases, stock and pedestrians may cross the proposed rail corridor. Two types of bridges are proposed:

- Rail over water
- Rail over road.

The type of bridge proposed depends on a range of factors, including the local topography, road usership, rail and road alignments at the crossing point, and access requirements. Bridges have been provided at all major watercourse crossings along the proposed alignment to minimise impacts to the local riverine system, and to avoid having to divert watercourses.

A total of eleven new bridges are proposed. Two bridges have been nominated to facilitate fauna crossing of the alignment (Back Creek Rail Bridge and Whalan Floodplain #3 Rail). The nominations are based on biodiversity assessments and the Queensland Department of Transport and Main Roads' Fauna Sensitive Road Design Manual - Volume 2 (2010)¹. Both bridges span waterways, therefore limited additional infrastructure is required to facilitate fauna crossing of the alignment.

An approximate length for each bridge is included in Table 1.2.

¹ This manual was used in the absence of an equivalent manual for NSW. Although written in the context of road projects, the practices outlined in the *Fauna Sensitive Road Design Manual - Volume 2 (2010)* can be applied to rail projects and rail corridor management across Australia.

Table 1.2 Proposed bridges

Chainage of the southern-most end of the bridge (km)	Bridge	Approximate bridge length	Fauna crossing location
Ch 5.7	Mobbindry Creek Rail Bridge	112 m	
Ch 6.1	Mobbindry Floodplain Rail Bridge	182 m	
Ch 8.1	Back Creek Rail Bridge	70 m	✓
Ch 16.3	Forest Creek Rail Bridge	154 m	
Ch 20.7	UT1 Forest Creek Rail Bridge	136 m	
Ch 25.2	Melonenkamm Rail Bridge	160 m	
Ch 25.7	Bruxner Way Rail Bridge	114 m	
Ch 26.0	Whalan Floodplain #1 Rail	183 m	
Ch 27.5	Whalan Floodplain #2 Rail	126 m	
Ch 28.0	Whalan Floodplain #3 Rail	126 m	✓
Ch 29.4	Macintyre River Viaduct	1,750 m	

1.1.1.1 Macintyre River viaduct

The proposal includes an approximately 1.8 km long viaduct that crosses Whalan Creek, Tucka Tucka Road and the Macintyre River. Approximately 1.2 km of the viaduct is located in NSW, while the remaining 0.6 km is located in Queensland. An aerial view of the NSW portion of the Macintyre River Viaduct is shown in Figure 1.2, where the NSW/QLD border is defined by the centre point of the Macintyre River.

During the reference design phase, the design of the Macintyre River Viaduct was informed by geotechnical, flooding and biodiversity studies. Initially, three separate bridge structures were proposed over Whalan Creek, Tucka Tucka Road, and the Macintyre River. However, an iterative flood assessment of the design has resulted in a single viaduct structure that minimises upstream flooding impacts.



Figure 1.2 Aerial view of the NSW portion of the Macintyre River Viaduct (spanning Tucka Tucka Road, looking north-east)

1.1.2 Earthworks

The proposed alignment traverses the Macintyre River floodplain for approximately 14 km. To achieve 1% AEP flood immunity, the majority of the proposal is elevated on a fill embankment. The embankment height is typically less than 2 m; however, around the realigned Bruxner Way and in the lead up to the Macintyre River Viaduct, the embankment height increases to approximately 7.5 m, corresponding to a base width of approximately 52 m. A general width of 40 m has been adopted for new rail corridor with locally widened corridor sections to account for a wide base of formation due to high embankments.

Embankments have been designed and will be constructed to maximise safety and stability during operation and maintenance of the proposal and minimise erosion during flood events.

No significant cuttings (> 10 m) are proposed. Therefore, there is a significant deficit of general and structural fill for constructing embankments. Present estimates indicate that the deficit of general and structural fill is approximately 1,100,000 cubic metres (m³), however this is subject to change during the detailed design phase.

The anticipated method of extracting material from the borrow pits and transporting it to site is:

- Standard earthmoving equipment such as trucks and excavators will be used to extract material from the borrow pits. Depending on the size and composition of material from the borrow pits, crushing plants and/or mechanical screens may also be used to process the material.
- Extracted material will be blended, then stockpiled in workable and traceable lots near the extraction site
- Extracted material will undergo quality compliance test to determine whether it is suitable for use as embankment fill. Unsuitable material will be returned to the borrow pit.
- If required, suitable material will undergo moisture conditioning. It will then be transported to construction sites using the public road network and tipped directly onto the formation.
- Water carts, graders and compacters will be used to further adjust the moisture content, and spread, compact, trim and profile the material into place.
- The reinstatement of borrow pits will be agreed with affected landowners.

Materials won from excavations and cuttings will be assessed for re-use as embankment fill. If unsuitable for reuse and treatment is not practicable, this material may be formed into permanent spoil mounds within the rail corridor. Features of the spoil mounds include:

- Located as close as possible to the source of excavated material
- General height of 3 m, and will not exceed the top height of the new rail line
- May be located on both sides of the track
- Would be stabilised as required
- Gaps in the spoil mounds would be provided to allow water to drain away from the track.

The exact location, sizing and design of spoil mounds will be determined during the detailed design phase, with consideration given to the results of hydraulic modelling and sight distances. Where practicable, mounds would not be located in areas where they would impact on flooding or drainage.

1.1.3 Operation of the proposal

Subject to approval of the proposal, construction of the proposal is planned to occur between 2021 and 2025. The proposal will be managed and maintained by ARTC; however, train services will be provided by a variety of operators. Trains will be double stacked (up to 6.5 m high) and operate on a 24/7 basis.

Train services are not expected to commence until all 13 sections of Inland Rail are complete, which is planned to be in 2025. The proposal will be trafficked by an estimated 14 trains per day in 2025, increasing to an estimated 21 trains per day in 2040. Annual freight tonnages will increase in parallel, from approximately 12 million tonnes per year in 2025 to 20 million tonnes per year in 2040.

1.1.4 Maintenance of the proposal

During the operation phase standard maintenance activities will be undertaken, including:

- Bridge and culvert inspections
- Sleeper replacement
- Rail welding and grinding
- Ballast dropping and cleaning
- Track tamping and reconditioning
- Vegetation management
- Signalling systems and equipment.

1.2 Purpose and scope of this report

This Historical Heritage Assessment Report has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs). Table 1.3 outlines the requirements relevant to this assessment.

Table 1.3 Secretary's Environmental Assessment Requirements compliance

Desired performance outcome	The design, construction and operation of the project facilitates, to the greatest extent possible, the long term protection, conservation and management of the heritage significance of items of environmental heritage and Aboriginal objects and places. The design, construction and operation of the proposal avoids or minimises impacts, to the greatest extent possible, on the heritage significance of environmental heritage and Aboriginal objects and places.	
Current guideline	Criteria for the assessment of excavation directors (NSW Heritage Council 2019) NSW Heritage Manual (NSW Heritage Office and NSW Department of Urban Affairs and Planning 1996a) Assessing Heritage Significance (NSW Heritage Office 2001) The Australia ICOMOS Burra Charter	
SEARs requirement		Section
13.1 The Proponent must identify and assess any direct and/or indirect impacts (including cumulative impacts) to the heritage significance of: a) Aboriginal places and objects, as defined under the National Parks and Wildlife Act 1974 and in accordance with the principles and methods of assessment identified in the current guidelines; b) Aboriginal places of heritage significance, as defined in the Standard Instrument – Principal Local Environmental Plan; c) environmental heritage, as defined under the Heritage Act 1977; and d) items listed on the National and World Heritage lists.		Sections 8 and 9
13.4 Where impacts to State or locally significant heritage items are identified, the assessment must: a) include a statement of heritage impact for all heritage items (including significance assessment); b) consider impacts to the item of significance caused by, but not limited to, vibration, demolition, archaeological disturbance, altered historical arrangements and access, visual amenity, landscape and vistas, curtilage, subsidence and architectural noise treatment (as relevant); c) outline measures to avoid and minimise those impacts in accordance with the current guidelines; and d) be undertaken by a suitably qualified heritage consultant(s) (note: where archaeological excavations are proposed the relevant consultant must meet the NSW Heritage Council's Excavation Director criteria).		Sections 8, 9 and Appendix A

Aboriginal cultural heritage is assessed through a separate process undertaken with the relevant Registered Aboriginal Parties and is outside the scope of this report.

In accordance with these requirements, this historical heritage assessment seeks to:

- Identify known and potential historical heritage values of the study area by way of background research, archaeological survey and test excavation (if required)
- Assess the significance of these identified values
- Assess the potential impact of the proposal on the identified cultural heritage values of the study area
- Recommend measures to manage or mitigate impacts on cultural heritage values.

There are no specific guidelines relating to the development of an EIS. This proposal will therefore follow the NSW Heritage Office publications: Assessing Heritage Significance (NSW Heritage Office 2001), Assessing Significance for Historical Archaeological Sites and 'Relics' (NSW Heritage Branch 2009) and Statements of Heritage Impact (NSW Heritage Office and Department of Urban Affairs & Planning 2002).

The assessment of heritage includes the following tasks to address relevant aspects of the NSW Heritage Office guidelines:

- A search of the following registers for heritage sites in the study area:
 - Commonwealth Heritage Registers (statutory and non-statutory)
 - State Heritage Registers and Inventories (statutory and non-statutory)
 - Local Heritage Registers (statutory and non-statutory)
- Research and prepare a brief history of the subject land, including the identification of areas of potential archaeological sensitivity
- Desktop review of previous historical heritage reports relevant to the local area that are accessible to FFJV
- Liaise with NSW Heritage Division, local Council and local heritage associations regarding known historical heritage sites and potential constraints in the study area
- Targeted archaeological survey over three weeks by FFJV Heritage specialists across impact areas and identified areas of potential archaeological sensitivity
- GIS mapping of known historical heritage and archaeologically sensitive areas.
- Preparation of a heritage impact assessment in accordance with the Statements of Heritage Impact and Archaeological Assessment Guidelines (NSW Heritage Office and NSW Department of Urban Affairs and Planning 1996b, NSW Heritage Office and Department of Urban Affairs & Planning 2002) for the study area which considers the potential for direct and indirect impacts during construction and operation on significant heritage items including:
 - Vibration
 - Demolition
 - Archaeological disturbance
 - Altered historical arrangements and access
 - Visual amenity
 - Landscape and vistas
 - Curtilage
 - Subsidence
 - Architectural noise treatment
- Production of a technical report presenting known and potential constraints, supporting the requests of the Director-General and meeting the standards required by the NSW Heritage Council to cover any potential impacts of the proposal on historical heritage items and develop recommendations for impact mitigation and management strategies in consultation with ARTC.

For the purposes of this assessment, the study area is taken to be the 50 m either side of the proposed alignment. The proposal footprint is the area in which ground disturbing works will occur during the construction, operation or reinstatement phases of the proposal.

1.3 Authorship

In accordance with the SEARs requirements, this assessment has been undertaken by qualified cultural heritage professionals:

- Luke Kirkwood (Principal Heritage Specialist)
- Dr Kate Quirk (Senior Heritage Specialist)
- Dr Susan Lampard (Principal Heritage Specialist)
- Claire Davey (Senior Heritage Specialist)
- Laura Cross (Professional Heritage Specialist)
- Perri Braithwaite (Professional Heritage Specialist).

Luke Kirkwood (Principal Heritage Specialist, FFJV) managed all aspects of the historical heritage assessment detailed herein and was the primary author of this report. Dr Kate Quirk, Claire Davey, Laura Cross and Perri Braithwaite assisted Luke with reporting and fieldwork. Dr Susan Lampard, prepared the historical context review for the proposal.

Luke holds a Bachelor of Science/Arts (Honours) degree in Archaeology and Anthropology from the University of Queensland. Luke has over ten years of cultural heritage management experience.

Kate holds a PhD from the University of Queensland in Archaeology and has over eight years of cultural heritage management experience.

1.4 Report structure

This report contains eleven sections. This section - Section 1 - provides background information on the proposal and assessment undertaken. The remainder of the report is structured as follows:

- Section 2 outlines the statutory framework within which this assessment has been undertaken
- Section 3 details the methodology undertaken for this assessment
- Section 4 describes the heritage context of the study area
- Section 5 summarises the survey results
- Section 6 assesses the significance of the identified heritage values within the study area
- Section 7 provides an overview of the potential impacts of the proposal on identified heritage values
- Section 8 provides an assessment of the impacts of the proposal on identified heritage values
- Section 9 provides an assessment of the cumulative impacts of the proposal on identified heritage values
- Section 10 summarises the findings of this assessment and provision of mitigation measures
- Section 11 lists the references cited in-text.

2 Legislative, policy standards and guidelines

2.1 Commonwealth legislation

2.1.1 Environment Protection and Biodiversity Conservation Act 1999

The primary objective of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) is to provide for the protection of the environment, particularly those aspects that are matters of national environmental significance. Under Part 9 of the EPBC Act, any action that is likely to have a significant impact on matters of national environmental significance may only progress with approval of the Australian Government Minister for the Environment. An action is defined as a project, development, undertaking, activity, series of activities, or alteration. An action will also require approval if:

- It is undertaken on Commonwealth land and will have or is likely to have a significant impact;
- It is undertaken outside Commonwealth land and will have or is likely to have a significant impact on the environment on Commonwealth land
- It is undertaken by the Commonwealth and will have or is likely to have a significant impact.

The EPBC Act defines 'environment' as both natural and cultural environments and therefore includes Aboriginal and historical heritage items. Under the Act, protected heritage items are listed on the World Heritage List, National Heritage List (NHL) (items of significance to the nation) or the Commonwealth Heritage List (CHL) (items belonging to the Commonwealth or its agencies). These two lists replaced the Register of the National Estate (RNE). The RNE has been suspended and is no longer a statutory list; however, it remains as an archive.

Searches of the WHL, NHL, CHL and RNE were originally undertaken in May 2018 and most recently updated in October 2019, with no relevant listings identified for the study area.

2.2 State legislation

2.2.1 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act), administered by the Department of Planning, Industry and Environment (DPIE), requires that consideration be given to environmental impacts as part of the land use planning process in NSW. In NSW, environmental impacts are interpreted as including impacts to Aboriginal and historical cultural heritage.

Division 5.2, Section 5.12 of the EP&A Act stipulates that a development may be declared State Significant Infrastructure (SSI) if it is declared to be such by a State environmental planning policy such as State Environmental Planning Policy (State and Regional Development) 2011 (SEPP SRD).

Under Clause 14(1) of SEPP SRD, a development is declared to be State Significant Infrastructure if:

- The development on the land concerned is, by the operation of a State environmental planning policy, permissible without development consent under Part 5 of the Act, and
- The development is specified in Schedule 3 of the SEPP SRD.

Pursuant to Division 5.2, Subdivision 4, Section 5.23(1)(c) of the EP&A Act, an approval under Part 4 or an excavation permit under Section 139 of the Heritage Act 1977 is not required. Section 5.23(2) also states that Division 8 of Part 6 of the Heritage Act cannot be invoked to prevent or interfere with an authorised SSI.

Impacts to Aboriginal and historical heritage values associated with approved SSI projects are typically managed under Aboriginal Cultural Heritage Management Plans (ACHMPs) and Historical Heritage Management Plans respectively. Such management plans are statutorily binding once approved by DPIE.

2.2.2 Heritage Act 1977

The *Heritage Act 1977* (NSW) (as amended) was enacted to conserve the environmental heritage of NSW. Under Section 32, places, buildings, works, relics, moveable objects or precincts of heritage significance are protected by means of either Interim Heritage Orders (IHO) or by listing on the NSW State Heritage Register (SHR). Sites that are assessed as having State heritage significance can be listed on the SHR by the Minister on the recommendation of the NSW Heritage Council.

Archaeological relics (any relics that are buried) are protected by the provisions of Section 139. Under this section it is illegal to disturb or excavate any land knowing or suspecting that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed. In such cases an excavation permit under Section 140 is required. Note that no formal listing is required for archaeological relics; they are automatically protected if they are of local significance or higher.

Projects to alter, damage, move or destroy places, buildings, works, relics, moveable objects or precincts protected by an IHO or listed on the SHR require an approval under Section 60. Demolition of whole buildings will not normally be approved except under certain conditions (Section 63). Some of the sites listed on the SHR or on Local Environment Plans (LEP) may either be 'relics' or have relics associated with them. In such cases, a Section 60 approval is also required for any disturbance to relics associated with a listed site.

Under Section 170 of the Heritage Act 1977, NSW Government agencies are required to maintain a register of heritage assets. The Register places obligations on the agencies, but not on non-government proponents, beyond their responsibility to assess the impact on surrounding heritage sites.

Searches of the SHR were originally undertaken in May 2018 and most recently updated in October 2019, with no relevant listings identified for the study area.

2.3 Local government

2.3.1 Local Environment Plans

The study area is covered by two local environmental plans, Moree Plains Local Environmental Plan 2011 (MPLEP 2011) and Gwydir Local Environmental Plan 2013 (GLEP 2013). Both plans as they related to heritage are identical and are summarised below.

Clause 5.10 of both LEPs provides specific provisions for the protection of heritage items, heritage conservation areas, archaeological relics, Aboriginal objects and Aboriginal places of heritage significance within each Local Government Area (LGA).

Schedule 5 of each LEP also provides a list of heritage items, conservation areas and archaeological sites within the each LGA. A review of the list indicates there are no Aboriginal objects or places of heritage significance identified on both schedules within the study area.

Subject to development consent under Division 5.2 of Part 5 of the EP&A Act, the planning controls required by each LEP will not apply to the proposal.

2.4 Non-statutory considerations and guidelines

2.4.1 Register of the National Estate

The RNE is a list of important Aboriginal, historical, and natural heritage places throughout Australia, established under the *Australian Heritage Commission Act 1975*. In 2003, the RNE was superseded by the NHL and CHL under the EPBC Act and the *Australian Heritage Council Act 2003* (AHC Act) and, in 2007, the register was frozen. In 2012, all references to the RNE were removed from both the EPBC Act and the AHC Act, and the register now exists primarily as an archive of places with potential heritage value.

Searches of the RNE were originally undertaken in May 2018 and most recently updated in October 2019, with no relevant listings identified for the study area.

2.4.2 National Trust of Australia

The National Trust is a community-based, non-government organization, and has no statutory power. Rather, it provides an indication of the esteem in which the place is held by heritage professionals and the public.

Searches of the National Trust Register were originally undertaken in May 2018 and most recently updated in October 2019, with no relevant listings identified for the study area.

2.4.3 The Burra Charter

The Burra Charter: The Australian ICOMOS charter for places of cultural significance (Australia ICOMOS 2013a) sets a standard of practice for those who provide advice, make decisions about, or undertake works to places of cultural significance including owners, managers and custodians. The Charter provides specific guidance for physical and procedural actions that should occur in relation to significant places.

3 Methodology

The historical heritage assessment is informed by legislative and proposal SEARs requirements, as well as the guidelines Assessing Heritage Significance (NSW Heritage Office 2001), Assessing Significance for Historical Archaeological Sites and 'Relics' (NSW Heritage Branch 2009) and NSW Heritage Manual 1996 (NSW Heritage Office and NSW Department of Urban Affairs and Planning 1996a) which provides a framework for identifying and managing historical significance under the Heritage Act 1997 (NSW). In keeping with this framework, the key elements of the assessment are:

- Background research
- Historical heritage inspection
- Significance assessment
- Impact assessment
- Management recommendations.

3.1 Background research

The aim of the background research was to:

- Develop an understanding of the known and potential historical heritage values of the study area
- Identify areas of known or potential heritage value for subsequent inspection
- Provide a context against which the significance of these values was assessed.

A three stage process was used to fulfil these aims, comprising: register searches, analysis of historical mapping, and review of previous studies.

3.1.1 Register searches

Searches of all relevant heritage registers were conducted to identify previously recorded heritage places. Registers consulted were:

- Commonwealth
 - World Heritage List
 - National Heritage List
 - Commonwealth Heritage List
 - Register of the National Estate (non-statutory)
 - National Trust Register (non-statutory)
- State
 - NSW State Heritage Register
 - NSW State Heritage Inventory
 - NSW relevant S170 Heritage & Conservation Registers including:
 - Australian Rail Track Corporation S170 Heritage & Conservation Register
 - Transport for NSW (TfNSW) S170 Heritage & Conservation Register
 - Transport for NSW (TfNSW) S170 Heritage & Conservation Register – Moveable Heritage
- Local
 - Gwydir and Moree Plains Local Environmental Plan Heritage Schedules.

3.1.2 Analysis of historical mapping

Analysis of historical maps and other images was undertaken to develop an appreciation of the creation and evolution of the historical landscape of the study area. These included:

- Cadastral mapping (showing property owners, reserves, roads and other infrastructure)
- Topographic mapping (showing the location of structures, types of landforms, the extent of vegetation clearance and the alignment of roads and railway)
- Aerial imagery (showing the location of structures, the extent of vegetation clearance and the alignment of roads and railway).

Each of these resources was georeferenced using GIS software, enabling an accurate understanding of the location of the study area relative to elements of the historical landscape. This facilitated the identification of previously unrecorded heritage sites, such as early structures which are no longer standing, but which have the potential for archaeological deposits.

3.1.3 Review of previous studies

A review was undertaken of previous heritage studies, as well as general histories of relevance to the study area. This included:

- Milne, R (1993). The Boggabilla Branch. *Australian Railway Historical Society Bulletin*, 44(664 (February)), 27–47.
- Wallace, J. (2014). *Contested Histories, Conflicting Narratives: Past and present Aboriginal relationships with Warwick, Queensland, Australia*. Monash University.
- Human Rights Australia (1988) *Toomelah Report: Report on the problems and needs of Aborigines living on the NSW-Queensland border*. Canberra, Human Rights Australia.

The information garnered from these sources was used to identify any additional areas of heritage significance, but also to generate an overview of the history of the area, providing a context against which heritage values were assessed.

3.2 Historical heritage inspection

A three-week survey program was conducted consisting of site inspection of:

- Full survey coverage of
 - Existing rail corridor
 - Construction camp
 - Laydowns
 - Majority of borrow pits which were accessible
- Inspection of identified historical heritage recorded the following details:
 - Extent of site
 - Presence and nature of structures
 - Potential archaeological deposit
 - Moveable heritage.

3.3 Significance assessment

The significance of historical heritage places will be assessed in accordance with the NSW significance assessment guidelines (NSW Heritage Office 2001, 2008, NSW Heritage Branch 2009). In general, a place may be considered to be of heritage significance if it meets one or more of the following criteria listed in Table 3.1.

Table 3.1 New South Wales significance criteria

Criterion	Description
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: <ul style="list-style-type: none">■ cultural or natural places; or■ cultural or natural environments. (or a class of the local area's <ul style="list-style-type: none">■ cultural or natural places; or■ cultural or natural environments.)

These criteria may be fulfilled at different significance thresholds, ranging from World to Local, depending on the importance of the place, and the contribution it makes to our understanding of the past. Descriptions of the applicable significance thresholds are provided in Table 3.2.

Table 3.2 Levels of cultural heritage significance

Significance	Description
World	Heritage values contribute to our understanding of the pattern and evolution of world history and heritage and the place is considered to be of outstanding value to humanity
National	Heritage values make an outstanding contribution to our understanding of the pattern and evolution of Australia's history and heritage.
State	Heritage values contribute to our understanding of the wider pattern and evolution of New South Wales's history and heritage.
Local	Heritage values contribute to our understanding of the pattern and evolution of local history and heritage.

3.4 Impact assessment

The potential impacts on the heritage values are assessed using criteria developed from the Guidance on Heritage Impact Assessments for Cultural World Heritage Properties (ICOMOS 2011). This document was prepared by the International Council on Monuments and Sites (ICOMOS), the peak professional body working for the conservation of cultural heritage places and provides a comprehensive method for assessing impacts at all types of heritage places.

Under ICOMOS guidelines, cultural heritage places can be of differing levels of importance, or significance: local, State, National and World (refer Section 3.3) (Australia ICOMOS 2013a). Places of local significance are important only to their immediate community, places of State significance to the wider region, and places of National significance to the country as a whole. Places of World significance are important to all of humanity, possessing one or more Outstanding Universal Values.

Places of differing heritage significance have differing sensitivity to impact. Places of World Heritage significance will be more vulnerable to change than a local heritage site and aspects of a World Heritage place that represent Outstanding Universal Values are the most sensitive of all. The differing significance of a place's heritage values and their relative sensitivity to impact is summarised in Table 3.3.

Table 3.3 Levels of cultural heritage sensitivity

Sensitivity	Justification	Status
Extreme	Attributes which convey Outstanding Universal Values of World Heritage Place	Fulfils criteria for local, state, national and international listing.
Very High	Exceptional, rare or outstanding attributes demonstrating important themes in national or international history and heritage.	Fulfils criteria for local, state, national or potentially international listing.
High	Attributes demonstrating important themes in state history and heritage.	Fulfils criteria for local and state listing.
Moderate	Attributes demonstrating important themes in local history and heritage.	Fulfils criteria for local listing and may fulfil criteria for state listing.
Low	Attributes demonstrating minor themes in local history and heritage.	May fulfil criteria for local listing and does not fulfil criteria for state listing.
Negligible	Attributes that have no heritage significance.	Does not fulfil criteria for local or state listing.

Source: (ICOMOS 2011)

The degree of impact an activity will have on a heritage place is assessed in terms of the magnitude of change to the acknowledged heritage values of a place as summarised in Table 3.4. These impacts may be direct, such as the demolition of heritage buildings, or indirect, such as changes to the views or setting of a heritage place. In some cases, indirect impacts might also cause physical damage to a heritage place, such as excessive vibration causing structural damage, or excessive pollution causing damage to surfaces.

Table 3.4 Determining magnitude of change

Magnitude	Example criteria
Major	Change to all or most significant aspects of the place, such that its heritage values are substantially reduced or destroyed.
Medium	Change to some significant aspects of the place, such that some of its heritage values are partially reduced.
Low	Minor change to significant aspects of the place, such that some of its heritage values are slightly reduced.
Negligible	Changes to insignificant aspects of the places, such that its heritage values are not reduced.
No Change	No change.

Source: (ICOMOS 2011)

The final assessment of the significance of impact on a heritage place is a factor of the cultural heritage sensitivity of the place, combined with the predicted magnitude of change, as outlined in Table 3.5. A prediction of impact significance can be made both before and after the implementation of identified mitigation measures, allowing the efficacy of the measures to be assessed and revealing residual impacts that need to be taken into account.

Table 3.5 Estimating impact significance

Significance of impact		Magnitude of change				
		Major	Medium	Low	Negligible	No change
Cultural heritage sensitivity	Extreme	Very large	Large/very large	Moderate/ large	Slight	Neutral
	Very high	Very large	Large/very large	Moderate/ large	Slight	Neutral
	High	Large/very large	Moderate/ large	Slight/ moderate	Slight	Neutral
	Moderate	Moderate/ large	Moderate	Slight	Neutral/ slight	Neutral
	Low	Slight/ moderate	Slight	Neutral/ slight	Neutral/ slight	Neutral
	Negligible	Slight	Neutral/ Slight	Neutral/ Slight	Neutral	Neutral

Table note:

Shaded boxes indicate a significant effect in terms of EIS

Source: (ICOMOS 2011)

4 Historical heritage context

4.1 History

4.1.1 Camurra-Boggabilla Railway Line

The NSW Public Works Committee approved the construction of a railway line from the rail head at Moree (Camurra) to Boggabilla in May 1923 and an Act of Parliament was put forward in its favour by Premier George Fuller's Nationalist government who also commenced construction of the Sydney Harbour Bridge (NSW Government 1923). Estimated to cost between £359,000 and £401,815 (approximately \$32.5 million today), the working expenses of £17,000 per annum would be outweighed by the £28,000 of anticipated revenue. In addition, it would open up 300,000 acres of "good agricultural land within a 15-mile radius, and that the Crown lands alone will provide settlement for 200 families" ('Camurra-Boggabilla Railway' 1923, p. 2). The ability to sell the Crown lands, then largely inaccessible, was a primary consideration for the State Government in making the decision, coupled with a desire to retain NSW trade within the State. The line was to ensure that the sheep grazing and wool produced in the area was shipped through NSW ports, rather than being carried across the Queensland border to the Goondiwindi Railway Station on the other side of the border and from thence to Queensland ports for export.

Despite this announcement, construction was delayed. It was not until 5 April 1928 that the Moree Gwydir Examiner and General Advertiser reported that the Resident Engineer for the line, Mr J.J. Carrol, had arrived the previous day to determine a location for the camp. At that time, it was anticipated that work would start within three weeks ('Camurra-Boggabilla Railway' 1928a, p. 2).

Work on the line halted in early 1930 when the funds were expended with the line 40 chains (c.800 metres) off of Croppa Creek. The Member for the Legislative Assembly for the Namoi Electoral District, Mr Walter Ernest Wearne, wrote an open letter to the Wialda Standard and Northern District's Advertiser indicating the fall in wool prices had resulted in both State and Federal Governments being unable to raise the necessary capital to finish the line ('Camurra-Boggabilla Railway' 1930, p. 2). The line may have become the recipient of unemployment relief funding, as works recommenced in June 1930, with two shifts of men each working a 24-hour week. Men were informed that it was "useless going to Moree in the hope of securing employment on this line. There is a large number of men registered..." ('Camurra-Boggabilla Railway' 1930, p. 16).

By June 1931 the construction had reached the vicinity of North Star. The men of the construction camp had raised funds to allow for the erection of an "up-to-date dance hall, 40ft by 30 ft" in North Star. The hall would be donated to a charitable institution when railway work was complete and the camp moved on ('North Star' 1931a, p. 2). Less than seven months later, the North West Champion reported that the camp had moved on, days before a fire destroyed the former site ('North Star. Fire Destroys Scrub' 1932, p. 3).

The line was completed in June 1932, when it was inspected by officials of the Construction Branch, who rode the line in an ordinary train with an attached "dining car and general passenger carriage", making this the first train to arrive at Boggabilla Railway Station. The pumping station in the Boggabilla railway yards was under construction. Even prior to the opening of the line to passengers, goods and livestock that were expected on 20 June 1932, it was already mooted that the trucking yards were too "cramped" ('Camurra Boggabilla Railway' 1932, p. 2).

The line opened with a twice weekly service, which carried passengers, livestock and goods. This increased in 1936 to thrice weekly, with additional goods trains on an as-needs basis: it was reported in 1931 that during the wool season “A daily train has been necessary to cope with the business, the weekly loading of wool at North Star being up to 700 bales” (‘North Star’ 1931b, p. 2). The original arrangements for the operation of the line was a station master at Camurra, who oversaw the line as far as Croppa Creek, and a station master in Boggabilla, who oversaw the remainder. By 1937, traffic on the line had increased to the point where it became necessary to appoint an officer-in-charge for the North Star siding (‘North Star Railway’ 1937, p. 4). Earlier in 1937, cranes had been installed at both North Star and Boggabilla to assist in the loading of goods (‘Boggabilla and North Star. New Lifting Appliances’ 1937, p. 2). Milne (1993, p. 31)) indicates a small galvanised iron goods shed was added in 1941.

The line was profitable from the outset and achieved the State Government’s aim of opening up land. Farmers took advantage of the rail service and commenced cropping (refer to Section 4.1.5). Farmers at North Star initially brought the wheat to the railway station to be directly loaded onto the trains, but this was inefficient. The Minister for Transport agreed to permit the construction of a stacking site within the railway yard, but committed no resources for the work. A working bee was then arranged by local men to level the site using their tractors and farm equipment. The new site was completed in time for the opening of the 1942 wheat season and was supplied with a grain elevator by the Australian Wheat Board’s local licensed receiver, J.J. Sullivan Pty Ltd. “Thus, wheat was delivered to North Star, not when railway trucks were available, but when wheat was harvested and ready for delivery” (‘Working Bee Prepared Stacking Site at North Star to Receive First Load of New Season’s Wheat’ 1942, p. 2).

The wheat stacking area was used by the local community until 1955 when a silo was constructed within the railway yard. The silo had a capacity of 700,000 bushels (19,050 tonnes, calculated for wheat) and was constructed by an Italian company (‘Huge Wheat Silo For Inverell Area’ 1955, p. 40). The 1964 wheat yield was abnormally high and the silo system across NSW struggled to cope with the influx of wheat. As a result, it was announced that North Star would receive one of six 1,500,000 bushel capacity silos to be built by the Grain Elevator Board (Heffron 1964, p. 4).

While there were certainly livestock movements from North Star, it would appear that Boggabilla did not handle the same capacity of cereals and was more exclusively used for livestock. The railway yard, also referred to as the Boggabilla trucking yards, were improved by the provision of water for livestock. After lengthy negotiations, the yards were also linked to the Travelling Stock Reserves to allow free passage of stock to the yards (‘Warialda P.P. Board’ 1940, p. 2). Newspaper reports of stock movements from the early 1930s indicate that the majority were being shipped to the Sydney meat markets at Flemington (refer for example, ‘Boggabilla Budget: Hospital Subsidy: Stock Movements: Personal: Town Progress’ 1934, p. 2).

Passenger services were abruptly halted on 3 August 1974, when the State Government used the rise in fuel prices precipitated by the 1973 oil crisis as an excuse. It was also becoming cheaper to move livestock by road and by 1978 the rail line was only in seasonal use to move wheat or to move locally milled sleepers from Boggabilla. The following year, the Station Master at Boggabilla was withdrawn. In 1986, the North Star yard was remodelled to allow for unit train operations. This work was undertaken in conjunction with replacing existing sleepers with new ones made of steel and laying ballast across the adjacent railway line.

The NSW Government decided to close the line north of North Star in 1987, despite Queensland farmers preferring to truck grain across the border to Boggabilla for export via NSW ports. The last train from Boggabilla ran on 23 November 1987 (Milne 1993). On 2 December 1987, the line beyond North Star was closed (Australian Railway Historical Society 1988, p. 24), with cereal grains road trucked from Boggabilla and beyond to either North Star or Crooble (Milne 1993, p. 47). The remainder of the line was “booked out of use” due to infrequent use on 1 November 2013 (Australian Railway Historical Society (NSW Division) 2014, p. 11). The line to North Star was reopened for several weeks in July and August 2014 prior to being closed again and in August of the same year the points were removed from the Silo and Wheat Siding in the Boggabilla Yard (Campbell et al. 2014).

A list of stations, platforms and sidings along the Camurra-Boggabilla Branch Line is provided in Table 4.1.

Table 4.1 Key stops along the Camurra-Boggabilla Branch line

Name	Facility	Status	Opened	Closed	Chainage
North Star	Station (Pc2+)	Closed	20-Jun-1932	unknown	758.570 km
Bibilah	Platform	Closed	20-Jun-1932	20-Feb-1975	765.900 km
Mungle	Platform (Pc1)	Closed	20-Jun-1932	11-May-1974	768.600 km
Wearne	Platform	Closed	20-Jun-1932	unknown	779.648 km
Doyles Siding	Siding	Closed	3-May-1935	12-Oct-1974	785.341 km
Boggabilla	Station (PCc)	Closed	20-Jun-1932	2- Dec -1987	796.546 km

4.1.2 North Star Station

The North Star Station, when opened in 1932, consisted of a station building (Precast Type Pc2+) on the main line. To the west was a loop line and further west again a siding, which included the goods siding (consisting of a loading bank) and a stock siding with associated stockyards. An additional siding was opened on 9 May 1956 to service the Grain Elevators Border silo siding. A second private siding was opened on 5 July 1960 for Ampol (Milne 1993, p. 35) (refer Figure 4.1).

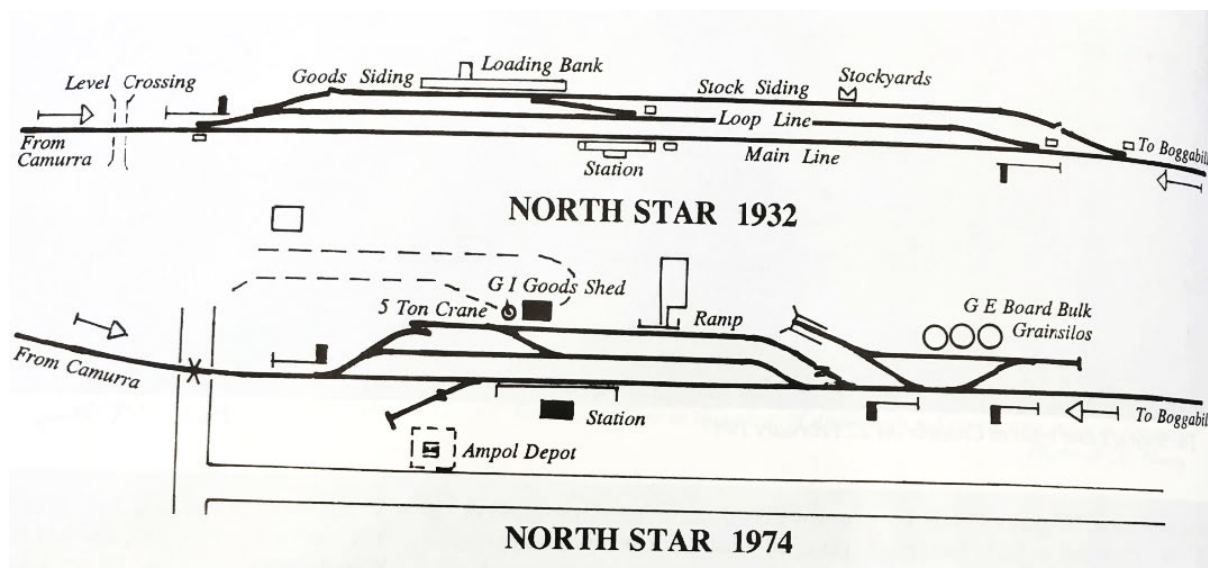
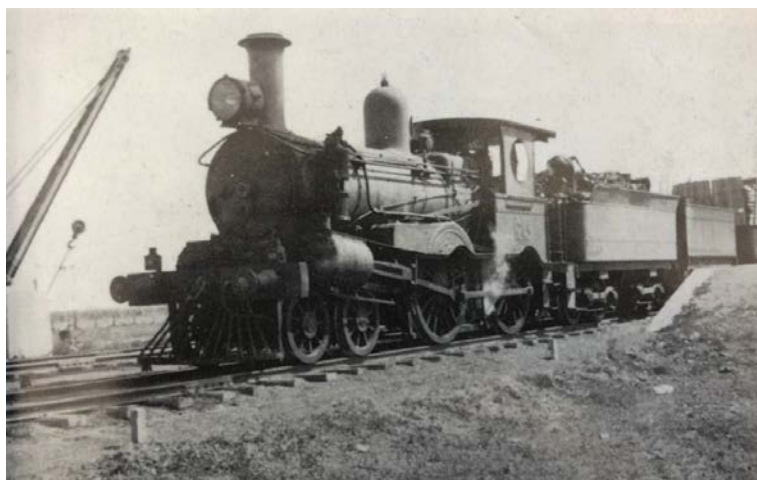


Figure 4.1 Layout of North Star Station in 1932 and 1974

Source: Milne 1993, 32



Photograph 4.1 Z12 class locomotive (Z1245) with Bladwin tender and water gin awaiting a load of timber at North Star, 1944

Source: (Milne 1993, p. 33)

4.1.3 Sidings and halts

The line operated a number of smaller sidings and halts between North Star and Boggabilla. Heading north, these were: Bibilah, Mungle, Wearne and Doyle's Siding. Bibilah was a small halt to allow for passengers and presumably small packages to be loaded and unloaded. The halt closed in 1974 when passenger services were suspended. Mungle included a platform (closed 1971), a goods siding, and a small precast concrete structure (Type Pc1). This siding was converted to a dead end on 8 May 1957 before being closed on 9 April 1974. Malgarai was within months of the line opening renamed Wearne in honour of Walter E. Wearne, MLA of the seat of Namoi who championed the opening of the Camurra to Boggabilla Railway and turned the first sod in a ceremony in 1928 ('Camurra-Boggabilla Railway' 1928b). Originally a large stock siding with platform, it was later reduced to a shelter shed and stockyards. Doyle's Siding was a later addition, opening on 3 May 1935. The siding allowed Mr J.H. Doyle, owner of Malgarai to load his wool directly from the shearing shed into the trains. The siding was closed 4 September 1974 (Milne 1993, p. 35). The layouts of the sidings are shown in Figure 4.2.

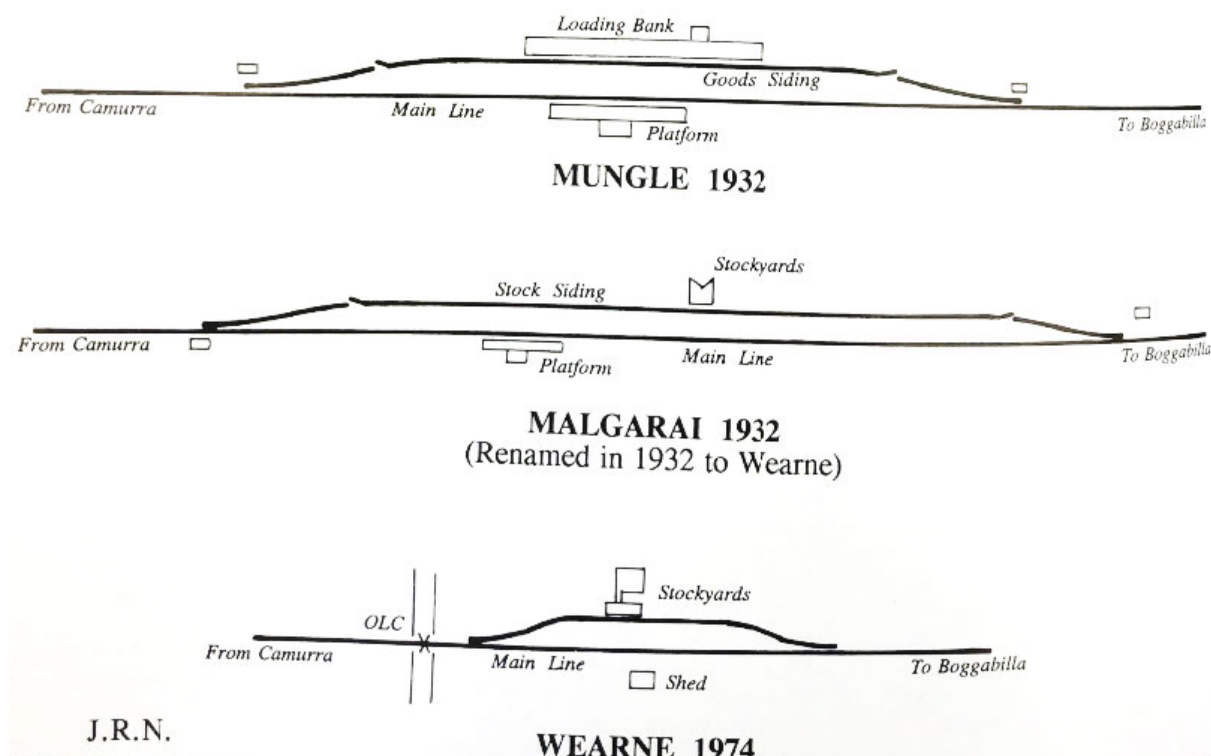


Figure 4.2 Layout of Mungle, Malgarai (1932) and Wearne sidings (1974)

Source: (Milne 1993, p. 32)



Photograph 4.2 Mungle Platform with platform sign, 1968

Source: (Milne 1993, p. 36)

4.1.4 Boggabilla Station

In 1932, Boggabilla had three sidings: one to the water tank, coal stage and turn table, a second to serve the stock yards and a third for the goods shed (refer Figure 4.3). By 1974, an additional siding had been added to service the Grain Elevators Board Bulkheads. A dead-end extension had also been opened from the goods siding for a Vacuum Depot (now Mobil) on 8 February 1961. The Depot closed in 1980 when it became more profitable to transport fuel via road.

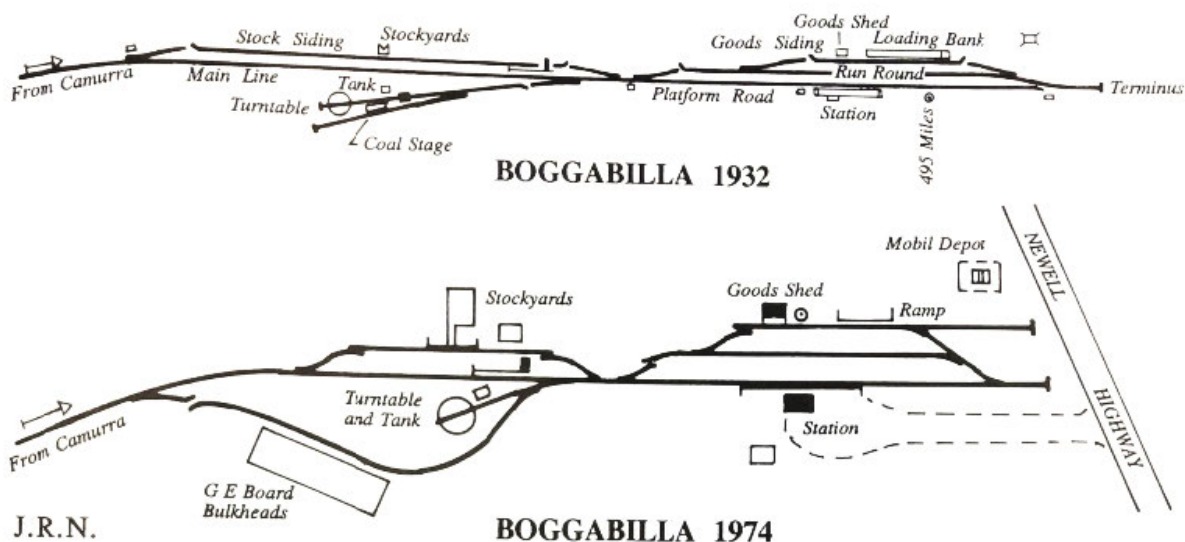


Figure 4.3 Layout of Boggabilla Station in 1932 and 1974

Source: (Milne 1993, p. 37)

4.1.5 North Star

Parish plans indicate the land in the vicinity of what is now North Star was alienated in 1898, with a large portion of the parish of Mingan (13,400 acres) being taken up by Alexander McIntosh under an Improvement Lease. McIntosh may well have been an absentee owner, as his business interests seem to have been focused in Moree. The area of North Star itself was part of three contiguous leases to David Sutton, operated as a property called Wilby (refer Figure 4.4). David's brothers, Edward Wellendon and Abraham (Abe) Sutton took up further smaller parcels of land in the north of the parish. However, it would appear that the brothers operated in partnership under an unregistered Wilby Estate Company ('Licenses Reduction Board' 1925, p. 2). Brother Peter Sutton was also in the area, living in later years at Wilby ('Death of an old District Resident' 1932, p. 2). The area was initially opened up for cattle, but Marino sheep, for the production of wool, supplanted the dominance of beef cattle. The neighbouring district of Yallaroi had problems in retaining workers in this remote and unfenced area, until shepherds arrived from Germany and Scotland. Chinese people also moved to the area, following the end of the Gold Rush and were employed on stations to cut fence posts and as gardeners – Yallaroi Homestead had a Chinese gardener for many years (Fitzgerald 2007, p. 10). While there is no direct evidence for Chinese people in the North Star, it is likely that Chinese workers were employed by landholders in the North Star area too.

David and Edward Sutton developed their land for grazing purposes. On his death, David left his estate divided into 13 equal shares. Edward Sutton continued to operate grazing business until his death in November, 1934. The Union Trustee Co were appointed trustees for Edward Sutton. Shortly thereafter, one of David's daughters, Mrs. Fitzgerald, brought a case under the Trustee Act indicating she had had no benefit from her father's will. Union Trustee Co indicated they had prepared the subdivision of 107 acres near the North Star railway station, which had been lodged with the Registrar-General and would be sold shortly. The funds from the sale would be distributed under David Sutton's will ('Wilby Law Suit: Estate of David Sutton' 1936, p. 10).

The railway line had been constructed by the NSW State Government with the view to stopping graziers shipping their sheep and wool via Queensland ports, but they had not foreseen the value of the land for cereal crops. Edward Sutton, on his property Bibilah, had trialled wheat in 1906. That crop had been hampered by heavy rains and together with the transportation costs to Moree, Sutton did not pursue the crop. Ten years later David Sutton attempted to grow wheat on Wilby, but again the heavy transportation costs made the crop uneconomic. It was then that Mr Norman Makin who was first credited with realising the full potential of the railway line in conjunction with the fertile black soils of the area. Mr Makin had 600 acres of wheat put in by share farmers in 1932. The following year, Mr Makin sowed 2,600 acres and he was joined by M.W. McIntosh, who sowed 4,000. By 1938, The Farm and Settler could list half a dozen farmers who had grown wheat, with many more planning to grow wheat in that coming season, with the expectation that 25,000 acres would be under cultivation in the North Star district that year. Land had been opened up by the Crown subdivision of 35,000 acres of land known as Mungle Scrub in 1936 and the subdivision of Wilby in 1937 ('The Rise of North Star: Northern District Joins Constellation of Important Wheat Centres' 1938, p. 13). From this base, farmers in the area experimented with sorghums in the early 1940s and linseed in the early 1950s, although neither of these seem to have outstripped wheat production, which continued to increase.

North Star fulfilled the expectations of The Farmer and Settler to the extent that it was selected as the location for silos in 1954, and for an extension of the storage space in 1964, as discussed in Section 4.1.1. Despite the success of the surrounding farming district, North Star never developed into a major regional centre, instead focusing on servicing the local area.

4.1.6 Boggabilla

Boggabilla was set apart for a village by gazette on 28 April 1863 ('Sites of Towns and Villa' 1863, p. 3) and land sales in the village proceeded in the following months. The village was likely established to counter Goondiwindi, which had been established on the Queensland side of the border. It quickly developed into a regional centre, with the construction of a number of public buildings in the 1890s, including the Boggabilla Courthouse in 1896, sports grounds, assembly hall, hotel and churches. The area was principally grazing, with stock driven to markets in Maitland and Sydney.

4.1.7 Merriwa

Merriwa is one of the original land holdings on the MacIntyre River in the Boggabilla district and is the only greenfield development for the North Star to NSW/QLD border component of Inland Rail. Originally spelt Merawah, tradition has it that the name is derived from an Aboriginal word 'mirrawah' thought to refer to mopokes, although which linguistic group is not known (Abbott 1926).² The original land grant of 55,000 acres was given to James Howe by the Commissioner of Crown Land on 29 September 1837 (Bedwell 1957). The lands ran from a tree with a surveyor's mark of 'Y' at the junction of the Severn and McIntyre Rivers, down to an 'H' marked on a tree about one and half miles above Boggabilla Hut terminating at a marked tree on the southern bank of the Coppymurrumbilla watercourse (Commissioner of Crown Lands 1837). James Howe ended up selling the property to Richard Dines who bequeathed it to his son George Dines. This was then sold to Robert Fitzgerald Evans, who built the original formal homestead in 1914 (Abbott 1926, Panshanger 1926). Evans eventually sold the main portion of the property to W.H. Mace who only held onto the property for a year before selling to J.H. Doyle in 1926. It is somewhat of a coincidence that Doyle is the nephew of the original owner, James Howe, remaining in the Doyle family ever since. The Doyles themselves have a seemingly celebrated history, having a poem published about them in an early edition of The Bulletin magazine (Abbott 1926):

² [1] It should be noted that mopokes are also known commonly as the Australian boobook (*Ninox boobook*) and incorrectly as the tawny frogmouth (*Podargus strigoides*). It is thus unclear from the reference which animal is the actual translation of mirrawah.

The Doyles.

Step aboard a Newcastle steamer going northward —the man going down the companion way is a Doyle.

Get wrecked at Nobbys—and it's a Doyle that you find on the ledge of the first rock.

Turn up at a funeral—it's a Doyle that all the sport's about.

Go to a christening—some young Doyles are bleating.

At a show, the Doyles pulls off all the prizes—and the Doyles are not bad judges

The Doyles are the tallest and the shortest.

They run banks, newspapers, stations, and churches — though at the latter their hand is perhaps new.

The Doyles are everywhere. They come of a grand stock.

They improve every place they settle on.

There's something else they do; and they all do it.

They make the best wine, and marry the best women.

In bumpers, then, gentlemen—the Doyles—the Doyles.

(‘Personal items’ 1881)

4.1.8 Toomelah

Formerly known as the Toomelah Aboriginal Mission, Toomelah is a small town located approximately 13 km east of Boggabilla on the Tucka Tucka Road. The current township of Toomelah is actually the third Aboriginal Station or Mission in the Northern Borders region around Boggabilla and the second known as “Toomelah” (Wallace 2014). The original mission was located on the Euraba Reserve located 8 km south east of Boomi on the Boonangar Road near Woolinga Waterhole. The Euraba Mission operated from 1890 to 1927 with the Aborigines Protection Board establishing a reserve at Euraba (sometimes referred to as Boomi, the closest settlement) in 1912. Flooding eventually caused this station to be relocated to the site that was to become known as Old Toomelah, 16 km to the west of Euraba (The Maitland Weekly Mercury 1927, p. 2). Wallace in his thesis, documented a number of first-hand accounts identifying that Old Toomelah was in part chosen as a future location due to its ceremonial links to Boobera Lagoon, an important Aboriginal sacred site. However the inadequacy of water supply at this new location forced a third move to the current location of Toomelah (‘New Aboriginal Settlement’ 1938, Human Rights Australia 1988). This location is just west of the junctions of the Macintyre and Dumaresq Rivers, also considered a culturally important area (Wallace 2014).

The land that would comprise Toomelah had initially been set aside as a camping reserve for the network of Travelling Stock Reserves that were established to move stock around the State and to markets (Crown Reserve no. 14698, notified 24 October 1891). This piece of land was subsequently leased to G. Evans from an unknown date until 1927 (Human Rights Australia 1988, p. 69). On 2 July 1937, this portion of land was wholly reserved “for the use of Aborigines” (refer Figure 4.5).

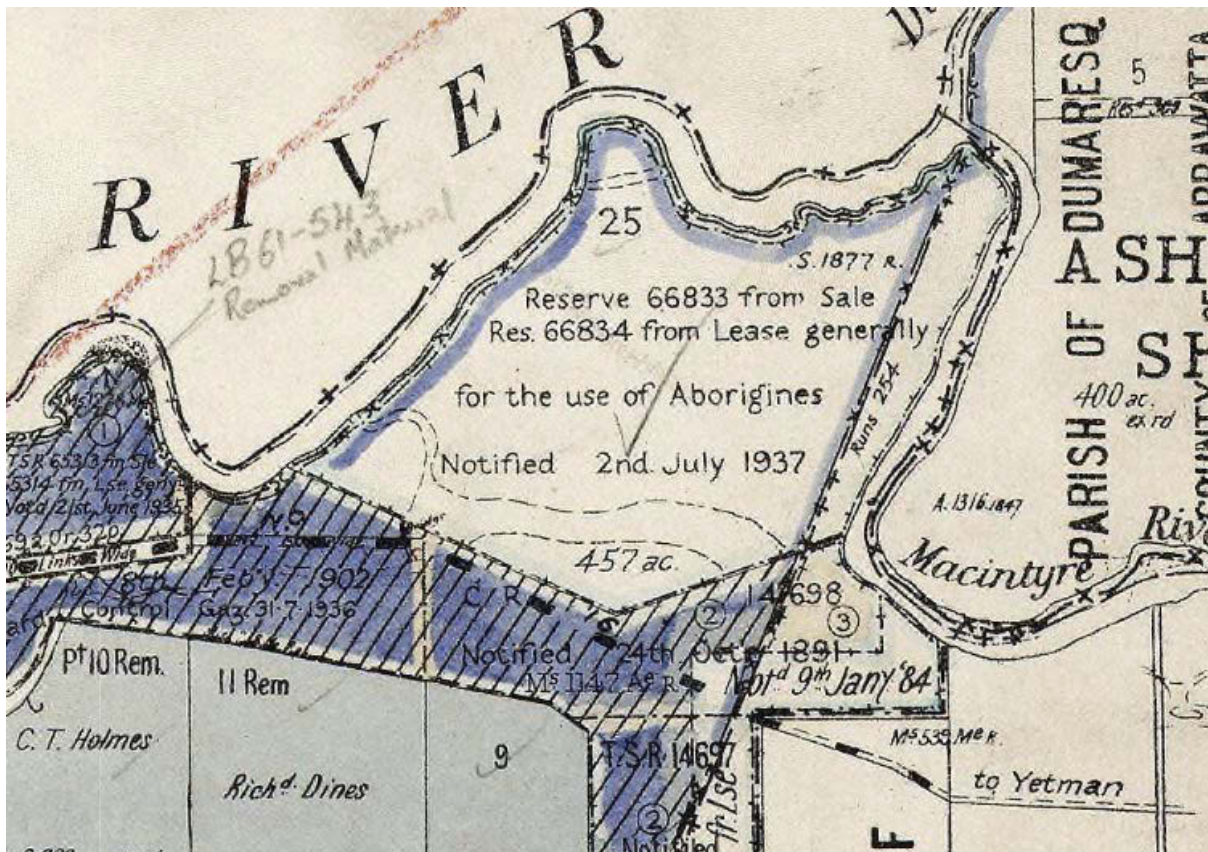


Figure 4.5 Future site of Toomelah. Excerpt from the Merriwa Parish Plan, County Staplyton, 1949

Source: Land Registry Services

Residents of Toomelah, Isabel Flick and her brother Joe, recalled how they were sent to live with her Granny Jane at Toomelah just as the mission was being established (Flick and Goodall 2004). She recalls that there were no houses provided and so their first task was to build their own camps of tin and bark. The houses were slowly built, with each family group moving in once a house was completed (Flick and Goodall 2004, p. 23). The plan included the provision of two and four roomed cottages on a quarter acre block for married men, a dormitory for single men, playground, cricket ground and communal gardens, with construction beginning towards the end of 1938 ('New Aboriginal Settlement' 1938, p. 5).

Isabel recalls the settlement was highly controlled. She enjoyed Sunday School, but everyone was tense and fearful on Monday and Wednesday mornings when the manager's wife would come to inspect the houses to make sure they were clean. The children were also inspected to make sure they didn't have sores or head lice (Flick and Goodall 2004, p. 27). There was very little interaction with the town of Boggabilla – permission had to be sought from the manager to leave the mission (Flick and Goodall 2004, p. 29). Rations were scant and consisted of flour, sugar, tea, jam and condensed milk, so the families supplemented this by hunting rabbit, goanna and emu, however, fish from the river were the main source of protein (Flick and Goodall 2004, p. 30). In 1940, 139 of the 240 residents were on rations (Long 1970, p. 66).

Infrequent corroborees were held in the early years (1938-39), prior to the closure of Tingha and the relocation of the people from that mission but were not sanctioned by the early managers of the mission. The people of Toomelah would wait for the manager to go to town and would then hold the corroboree "on the side of the mission where old Granny Whiteman had her place" (Flick and Goodall 2004, p. 36). A lookout would be posted up a tree to watch for the approaching truck, which was the earliest warning sign heralding the manager's return.

A school had been established prior to a building being erected, which was initially taken by Mr Cubby, whom Isabel remembers was a great teacher. By 1939, he had enlisted for World War II and Reverend E.T. Omerod was pleading for an additional teacher to support the one female teacher who was struggling to educate the 65 children under her care ('At Boggabilla' 1939, p. 2). Isabel remembers that the station manager and his wife also took the lessons, initially, but were not very effective. A female teacher, possibly the lady mentioned by Reverend Omerod, took time to provide the children with some "ideas on how they can learn to read and write", such as letter sounds and how to sound out words (Flick and Goodall 2004, p. 28).



Photograph 4.3 Toomelah Aboriginal Station, ca. 1947-1949

Source: National Library of Australia

In 1970, Long published a summary of his observations of Aboriginal Settlements across Australia (Long 1970). Long indicated that the population at Toomelah (which he referred to as Boggabilla), had fluctuated over the decades. In 1939, when the mission opened, there were just over 200 people. By 1947 the figure was put at 199, increasing to 288 in 1963. When Long visited in November 1965 the population of 216 people was made up of 87 adults and 129 children, however, there were also a number of men who worked away from the mission and visited on the weekends or between jobs. The population was largely made up of children under 15 years (57.4 %) and only 11.5% were over 40 years in age. Long reported that the majority of the people living on the mission came from a limited number of families: the descendants of two brothers accounted for 65 people (31%), while the descendants of another man numbered 44 people (20.3%). These two groups had not intermarried. The descendants of a woman made up a further 24% of the population (53 people). Therefore, 75.3% of the population came from three families. Furthermore, Long indicated that other than one woman from Melbourne, the residents were from the local area (Long 1970, p. 65). Accommodation consisted of 26 houses at that time, which resulted in "gross overcrowding" in some of the houses (Long 1970, p. 65). Either 23 or 24 of these were the original houses built in 1938-39 and were in poor condition. The houses were connected to water, pumped from the river, but although the electrical work had been done, the electricity had not been connected. Long reported that bathroom-laundries had been added but were not in use as yet. Instead "the houses had pit latrines and garbage disposal was carried out by the station handyman" (Long 1970, p. 66).

Services to the community consisted of the school, with a new school building having been finished in 1965 with about 80 students enrolled and operated by three teachers. The number of residents on rations had been reduced and these were collected from Boggabilla, with all residents going to either Boggabilla or Goondiwindi to shop. Unless they were injured or otherwise on a pension, the men of the mission were employed, mainly clearing land, shearing, or as shed or permeant hands on local stations. Two were recorded as working on the railway. Other than two women employed on the mission, none of the women or girls worked – probably a factor of the young average age of the population, which would indicate these women were engaged with small children (Long 1970, pp. 66–67).

Long indicated that money would not be made available in 1966 to improve conditions or build new houses (Long 1970, p. 67). It would appear that the neglect of the mission was already evident. By 1988, when Human Rights Australia prepared their report on the mission, conditions had deteriorated considerably (Human Rights Australia 1988). Since that time, Toomelah has received grants and support from State and Federal governments and in 2017, the Australian Army undertook development works at Toomelah as part of the Army Aboriginal Community Assistance Program (AACAP) resulting in the construction of a new multipurpose hall (Ingall 2017a, 2017b).

4.2 Heritage register searches

An updated search of all relevant statutory and non-statutory heritage registers on 25 October 2019, indicated that there are no heritage places within the study area (refer Table 4.2).

Table 4.2 Summary heritage register searches

Heritage register	In study area	In footprint
World Heritage List	None	None
National Heritage List	None	None
Commonwealth Heritage List	None	None
Register of the National Estate (non-statutory)	None	None
National Trust of Australia	None	None
State Heritage Register	None	None
State Heritage Inventory (including S170)	None	None
Gwydir Local Environmental Plan 2013 - Schedule 5	None	None
Moree Plains Local Environmental Plan 2011 – Schedule 5	None	None

4.3 Previous heritage reports

No previous historical heritage assessments are known to have been conducted for the study area.

5 Results

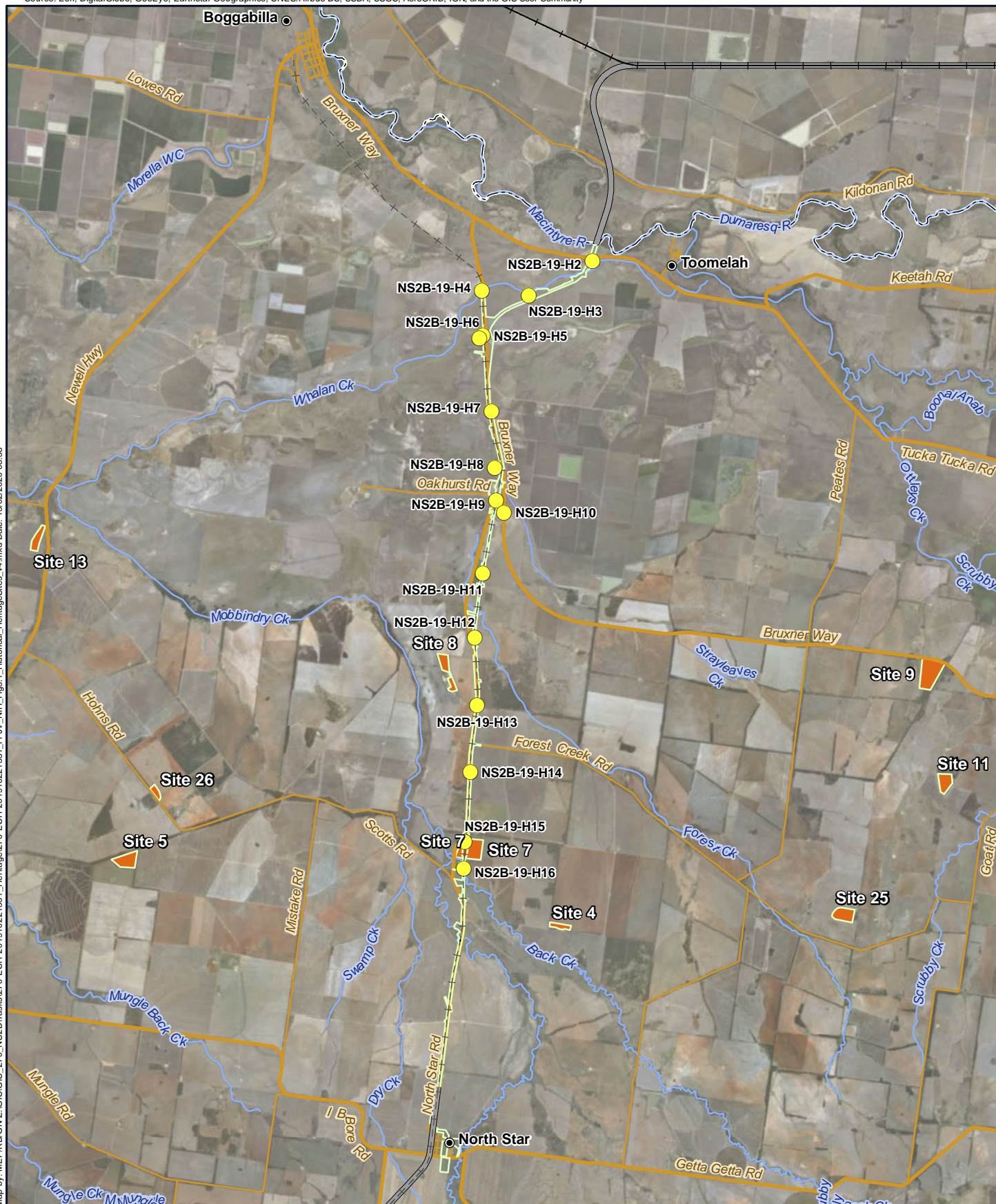
Pedestrian survey was undertaken over five days between 10 December to 14 December 2018 by FFJV heritage specialists Luke Kirkwood (Principal Heritage Specialist) and Dr Kate Quirk (Senior Heritage Specialist).

A total of 15 historical heritage sites, including two railway sidings, a shearing shed, shearers' quarters and two fettler's camp have been identified within or nearby the study area.

The historical heritage sites are shown in Figure 5.1.

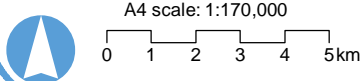
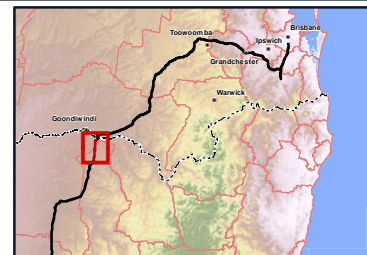
Table 5.1 Pedestrian survey

Site number	Site type	Coordinates (GDA94 Z56)		Lot/Plan
		Easting (mE)	Northing (mN)	
NS2B-19-H2	Logger's Camp	250932	6825820	4908/DP1236542
NS2B-19-H3	Survey Mark	248861	6824701	7314/DP1137535
NS2B-19-H4	Whalan Creek Rail Bridge	247330	6824840	4910/DP1236558
NS2B-19-H5	Shearing Shed Archaeological Site	247365	6823378	3/DP1181234
NS2B-19-H6	Shearer Accommodation	247239	6823294	3/DP1181234
NS2B-19-H7	Modern Roadside Memorial	247642	6820912	Road Reserve
NS2B-19-H8	Old Boggabilla/North Star Road	247935	6819063	2/DP1165811
NS2B-19-H9	Wearne Siding	247788	6818011	4909/DP1236540
NS2B-19-H10	Wearne Station Sign	248058	6817617	Road Reserve
NS2B-19-H11	Fettlers Camp 1	247361	6815636	4909/DP1236540
NS2B-19-H12	Fettlers Camp 2	247102	6813528	4909/DP1236540
NS2B-19-H13	Fettlers Camp 3	247180	6811329	4909/DP1236540
NS2B-19-H14	Fettlers Camp 4	246957	6809163	4909/DP1236540
NS2B-19-H15	Mungle Station and Siding	246774	6806887	4908/DP1236542
NS2B-19-H16	Back Creek Rail Bridge	246738	6806022	4908/DP1236542



Legend

- Historical heritage
- Localities
- Existing rail (operational)
- - - Existing rail (non-operational)
- Adjoining alignments
- Watercourses
- Major roads
- Minor roads
- - - NSW/QLD border
- Construction footprint
- Proposed borrow pit location

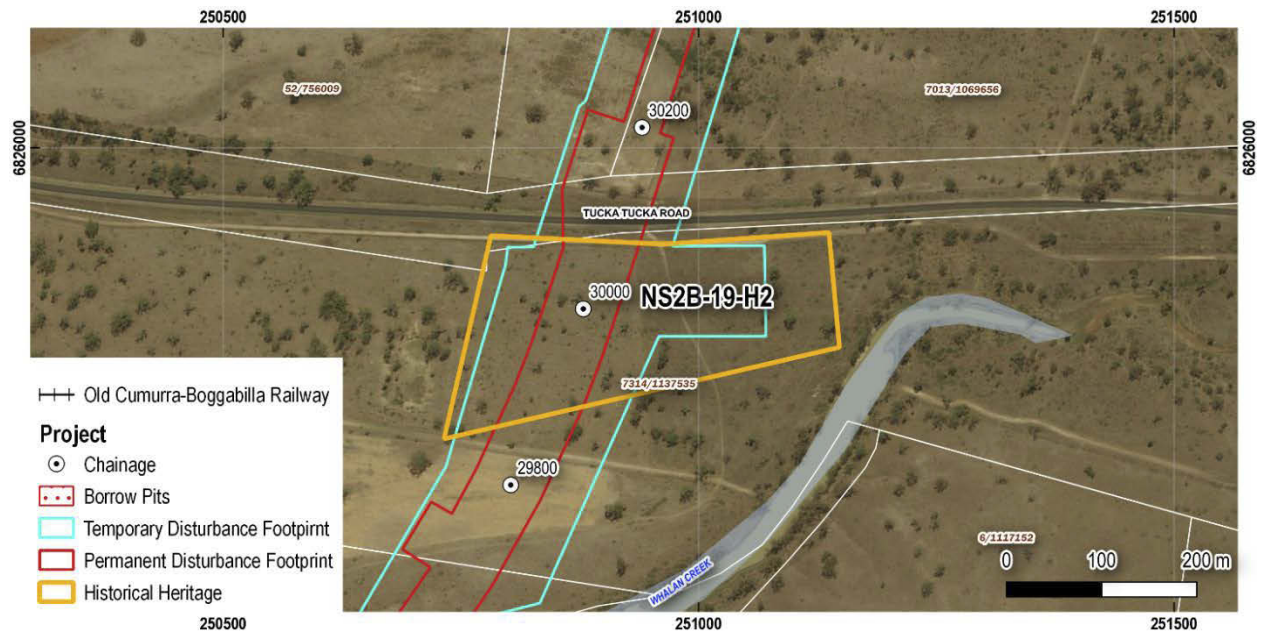


5.1 NS2B-19-H2 - Logger's Camp

Description

Low density historical artefact scatter of mid-20th century broken glass, ceramics and metal in cleared land. Artefact scatter is located immediately south of Tucka Tucka Road and north of Whalan Creek measuring 385m and 150m. NS2B-19-H2 is intersected by the proposal footprint. Information provided by Aboriginal field representatives from Boggabilla and Toomelah indicated that this area was historically a camp used by timber getters.

Location



Key elements	Chainage (m)	GSV	GSI	Easting (GDA94 Z56)	Northing (GDA94 Z56)
Glass and metal artefact scatter	30,000	70%	60%	250932mE	6825820mN



Photograph 5.1 Selection of glass and ceramic artefacts identified at the site

Source: FFJV 2019



Photograph 5.2 Context shot of site looking north towards Tucka Tucka Road

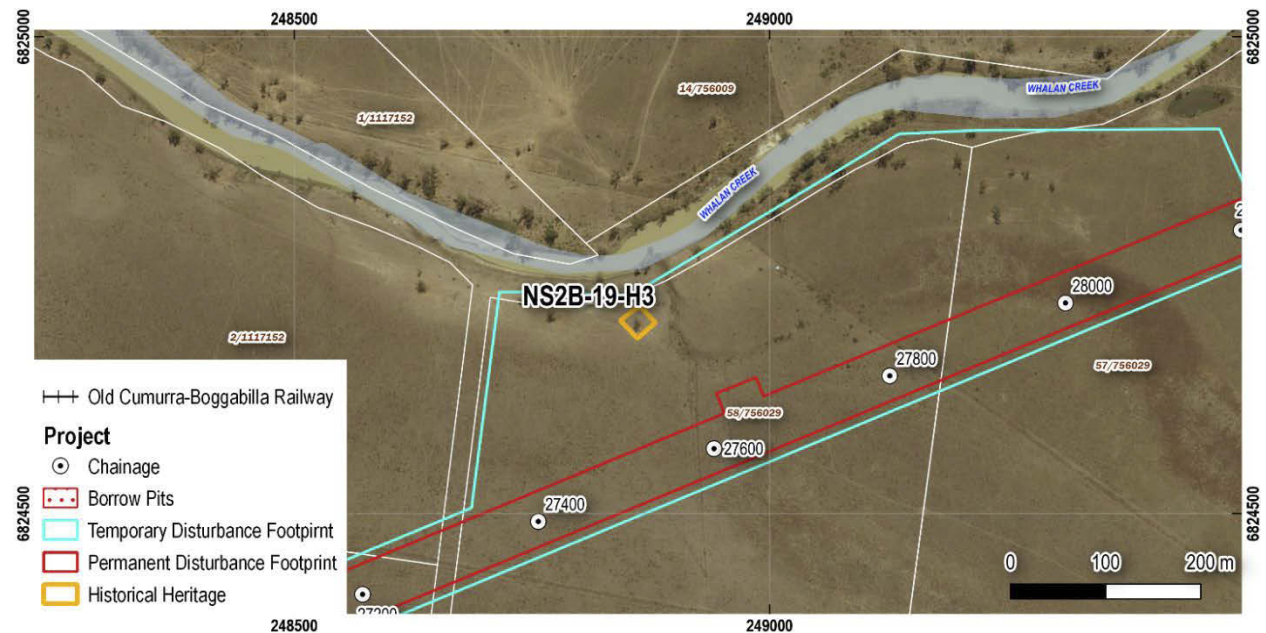
Source: FFJV 2019

5.2 NS2B-19-H3 – Survey Mark

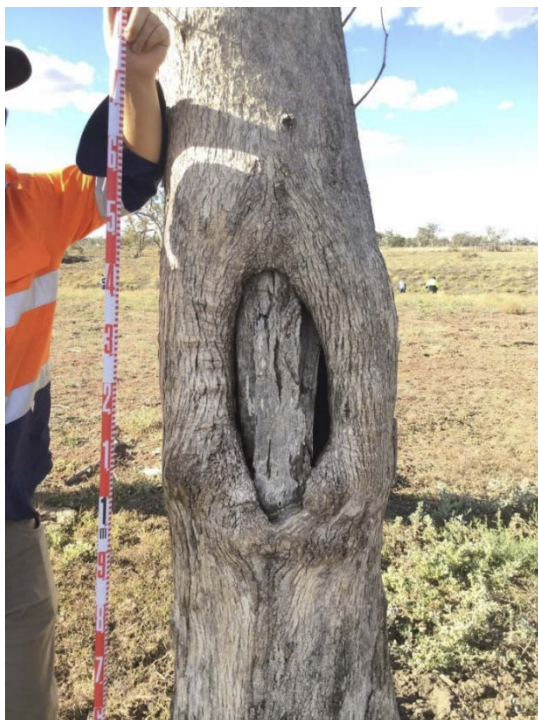
Description

NS2B-19-H3 consists of a single scarred tree used as a survey marker. It is not currently mapped in the NSW Spatial Services Survey Mark database. The tree is a living box gum (*Eucalyptus populnea*). The scar is in fair condition, but the tree is hollowing out. The scar measures 480 millimetres (mm) in length, 201mm in width, and has a scar depth of 180mm. The scar is of a singular simple arrow design with tip facing to the top of the tree

Location



Key elements	Chainage (m)	GSV	GSI	Easting (GDA94 Z56)	Northing (GDA94 Z56)
Survey mark	27,600	40%	60%	248861mE	6824701mN



Photograph 5.3 Tree scar

Source: FFJV 2019



Photograph 5.4 Detail showing arrow mark

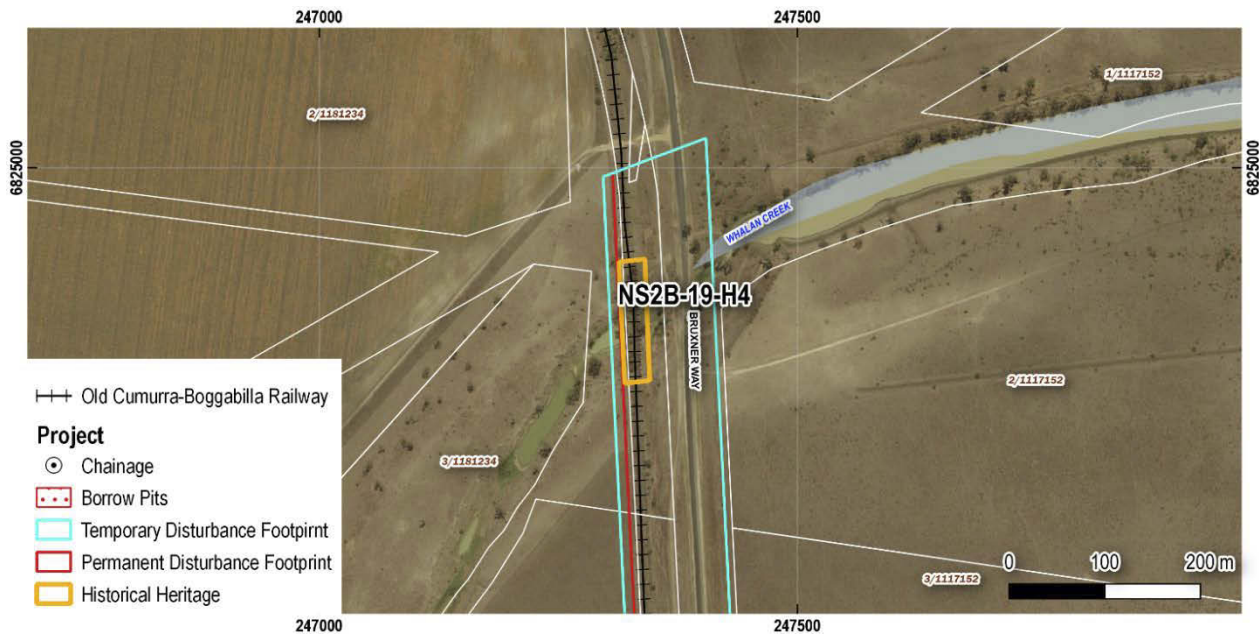
Source: FFJV 2019

5.3 NS2B-19-H4 – Whalan Creek Rail Bridge

Description

Rail bridge constructed of 20 concrete pylons with steel I-beam frame on top of the pylons across Whalan Creek and west of the Bruxner Way. Each pylon section has three smaller I-beams riveted with braces into the main beams. Steel cross members connect internal I-beams. Wooden sleepers are fastened to the steel I-frame with BHP branded steel rails placed on top. The number and arrangement of concrete pylons appears designed to cope with flood waters during flood events on Whalan Creek. Introduced rock fill present around pylons to replace soil lost to erosion. Likely replaced an earlier timber structure.

Location



Key elements	Chainage (m)	GSV	GSI	Easting (GDA94 Z56)	Northing (GDA94 Z56)
Concrete pylons, steel I-beam frame, timber sleepers, steel rails and bolts	Within temporary proposal disturbance footprint	40%	50%	247330mE	6824701mN



Photograph 5.5 Looking south along Whalan Creek Rail Bridge

Source: FFJV 2019



Photograph 5.6 Looking east towards Whalan Creek Rail Bridge

Source: FFJV 2019



Photograph 5.7 Detail of concrete pylon showing erosion around the base

Source: FFJV 2019



Photograph 5.8 Detail of steel I-beam frame

Source: FFJV 2019



Photograph 5.9 Side view of pylons looking west

Source: FFJV 2019



Photograph 5.10 Detail of steel I-beam

Source: FFJV 2019



Photograph 5.11 BHP maker's mark

Source: FFJV 2019



Photograph 5.12 Deterioration of bridge foundations

Source: FFJV 2019

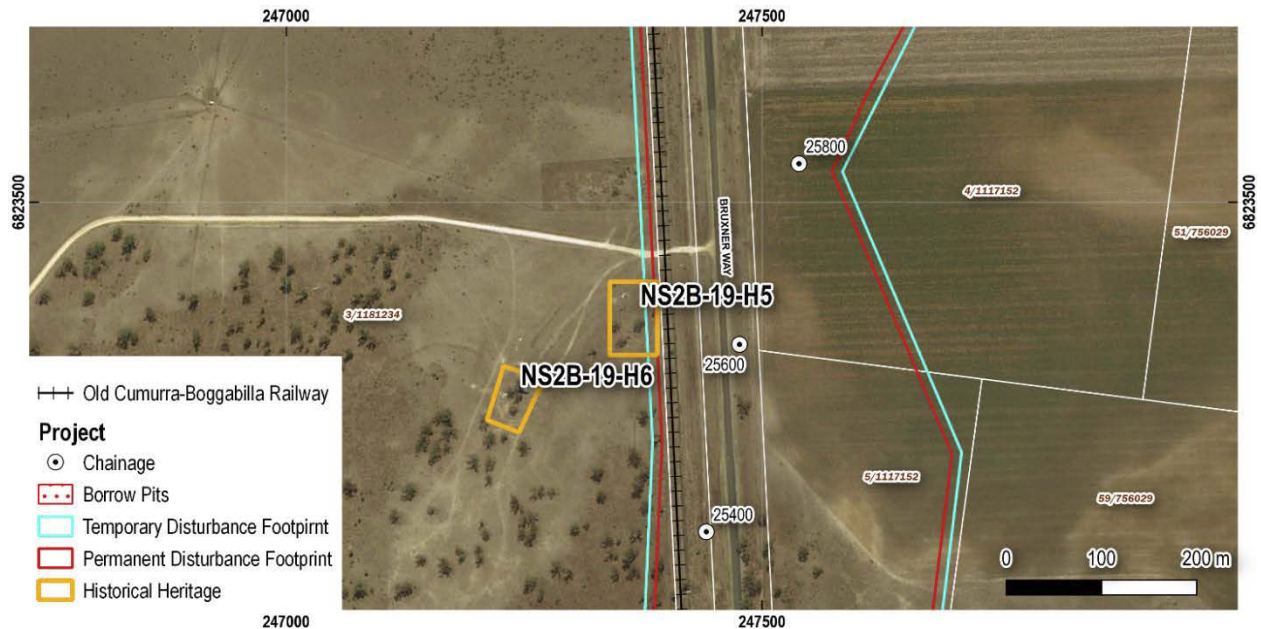
5.4 NS2B-19-H5 and NS2B-19-H6 – Shearing Shed Complex

Description

Identified by local landholder and Aboriginal field representatives as a former shearing shed (NS2B-19-H5) and shearers quarters (NS2B-19-H6). Shearing shed was reportedly used for local balls in the mid-late 20th century, before being burnt down.

Inspection not undertaken due to access constraints, but elements photographed from adjacent public land.

Location



Key elements	Chainage (m)	GSV	GSI	Easting (GDA94 Z56)	Northing (GDA94 Z56)
NS2B-19-H5 - Building debris, windmill	Outside proposal disturbance footprint	40%	80%	247358mE	6823365mN
NS2B-19-H6 - Structure	Outside proposal disturbance footprint	40%	80%	247247mE	6823303mN



Photograph 5.13 NS2B-19-H5 Remains of shearing shed

Source: FFJV 2018



Photograph 5.14 NS2B-19-H6 shearers quarters

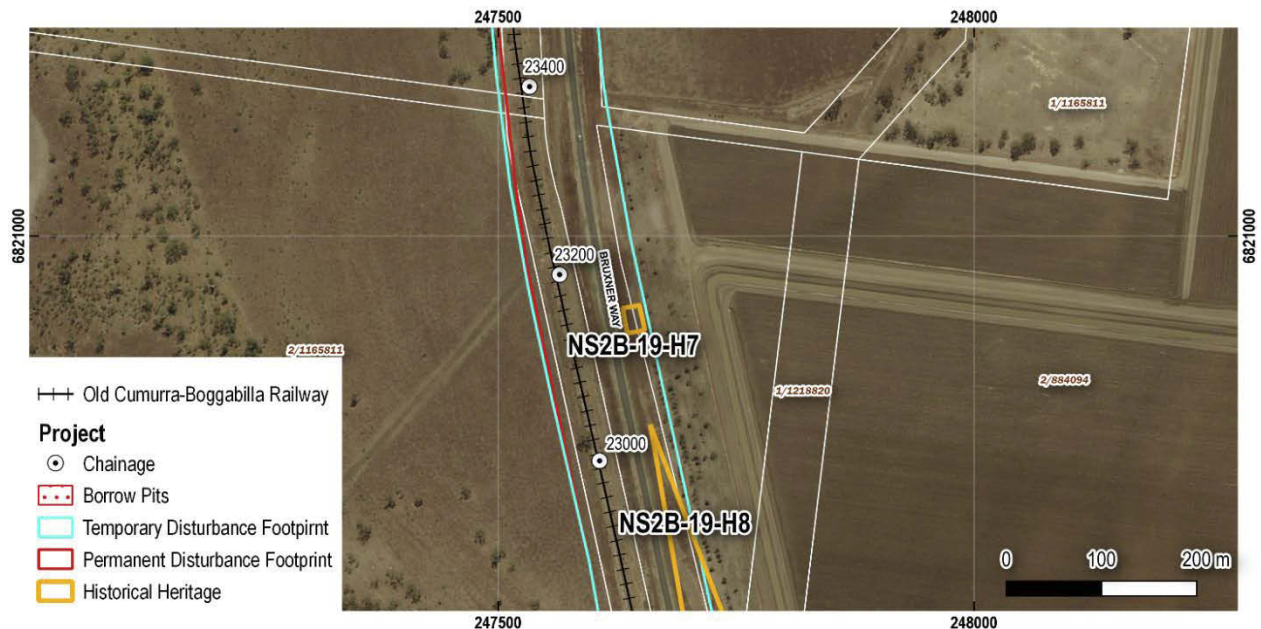
Source: FFJV 2018

5.5 NS2B-19-H7 – Modern Roadside Memorial

Description

Simple roadside memorial of a white metal cross with black writing “RIP HENRY”, flowers and other personal mementoes. It is understood that the memorial is for Mr Henry Orchard, Goondiwindi who was killed in a vehicle accident at this location on 24 August 2018 (Jones 2018). The memorial is located on a property fenceline, east of the Bruxner Way within the temporary disturbance footprint.

Location



Key elements	Chainage (m)	GSV	GSI	Easting (GDA94 Z56)	Northing (GDA94 Z56)
Metal cross and flowers	23100	10%	80%	247642mE	6820912mN



Photograph 5.15 Roadside memorial looking east from Bruxner Way

Source: FFJV 2018

5.6 NS2B-19-H8 – Old Boggabilla/North Star Road

Description

NS2B-19-H8 is the original alignment of the Boggabilla/North Star Road. This alignment is now no longer in use, but still visible on the ground as a raised dirt embankment with at least one concrete culvert. It begins in the north around chainage 23,000 on the proposed NS2B alignment and heads south southeast from the current Bruxner Way. At approximately 22,400, it crosses the Bruxner Way and the old Cumurra-Boggabilla Railway in an S-shaped alignment. This level crossing is now used by the local farmer to gain access to his paddocks on the western side of the old railway. From here, the road continues south on the western side of the railway until it joins up with the current North Star Road at the 'dog-leg' level crossing across from the Bruxner Way at chainage 19,900.

Location



Key elements	Chainage (m)	GSV	GSI	Easting (GDA94 Z56)	Northing (GDA94 Z56)
Northern Most Extent	23,000	20%	60%	247679mE	6820684mN
Level Crossing	22,400	100%	20%	247734mE	6820172mN
Concrete Culvert	20,800	60%	20%	247830mE	6818692mN
Southern Most Extent	19,900	20%	60%	247626mE	6817723mN



Photograph 5.16 Looking south at raised road

Source: FFJV 2019



Photograph 5.17 Road culvert

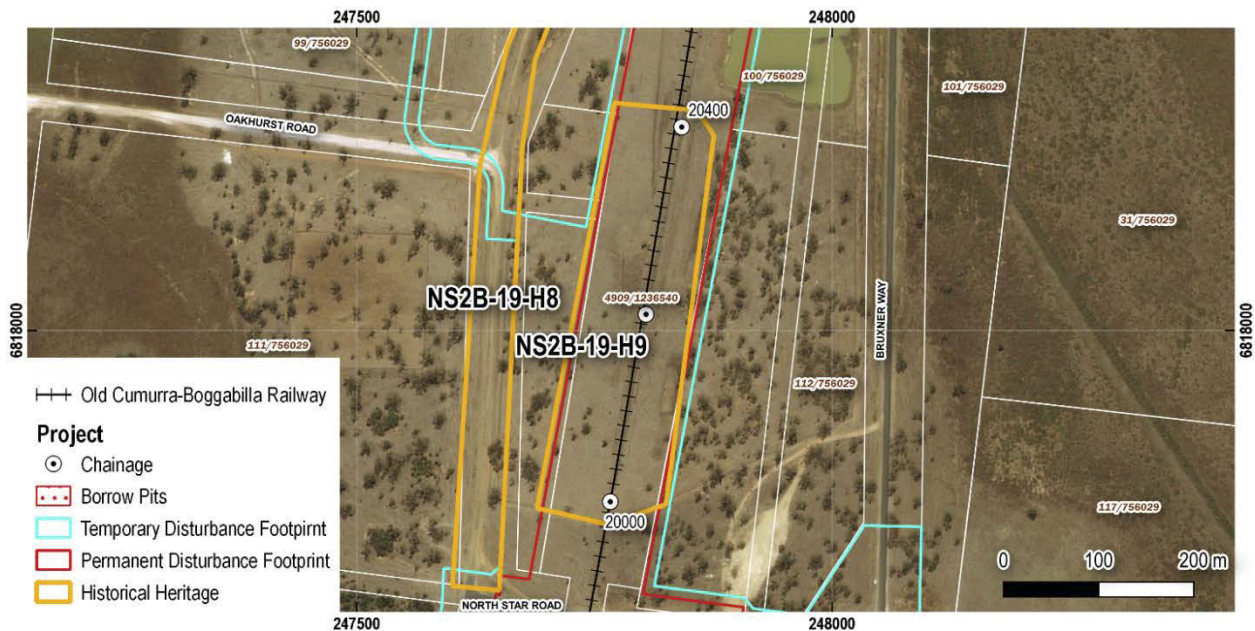
Source: FFJV 2019

5.7 NS2B-19-H9 – Wearne Siding

Description

Site of former Wearne Siding. Currently consists of main rail line, a siding and an earthen embankment supported by a series of 10 concrete panels and braced with off cuts of rail track. All other associated infrastructure known to exist at the site including siding sign has been demolished or removed (refer NS2B-19-H10). A number of discrete highly concentrated broken glass scatters are located east and west of the main rail line. Majority of glass is mid-20th century brown beer bottle glass. Some non-description construction debris is also present likely from the removal of previous structures.

Location



Key elements	Chainage (m)	GSV	GSI	Easting (GDA94 Z56)	Northing (GDA94 Z56)
Earthen embankment, rail, switch, building debris	20200	40%	60%	247780mE	6817858mN



Photograph 5.18Wearne Siding platform looking west

Source: FFJV 2019



Photograph 5.19Wearne Siding platform looking south, showing rail tracks

Source: FFJV 2019



Photograph 5.20Wearne Siding looking south, siding is visible in left half of shot

Source: FFJV 2019



Photograph 5.21Wearne Siding points switch

Source: FFJV 2018



Photograph 5.22Beer bottle broken glass scatter (foreground) looking east

Source: FFJV 2019



Photograph 5.23Beer bottle maker's mark

Source: FFJV 2019



Photograph 5.24Brisbane Cordial bottle

Source: FFJV 2019



Photograph 5.25Unknown bottle with lattice imprint at top

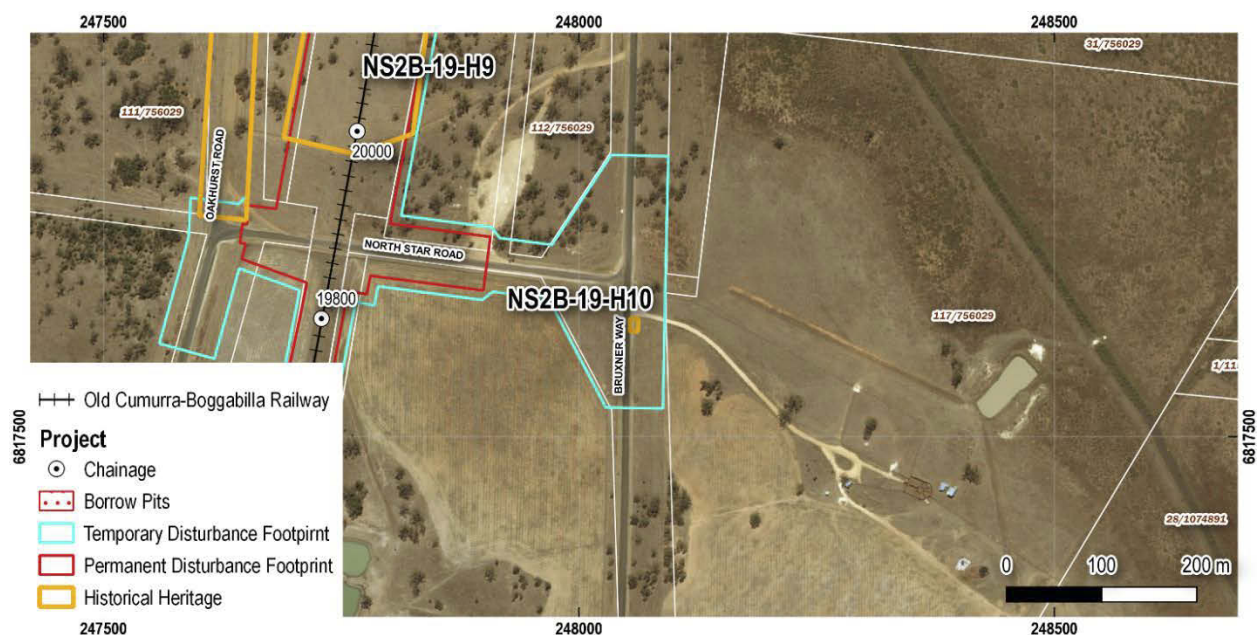
Source: FFJV 2019

5.8 NS2B-19-H10 – Wearne Siding Sign

Description

The sign for Wearne Siding was relocated to the front gate at Wearne Pastoral Station on the eastern side of the Bruxner Way. It is a prefabricated concrete sign identical in construction to that found at Boggabilla Railway Station and North Star Siding. A similar sign is documented for Mungle Siding, but this is no longer present. The sign is of simple construction being two vertical supports with the 'sign' horizontal component bolted through the supports. The sign is currently fixed in place with postholes filled with concrete. It is unclear if this was originally done when the sign was first installed at the siding, or if this is a post-relocation modification. All signs on the Cumurra-Boggabilla line were painted white with black text as was common across the Liverpool Plains.

Location



Key elements	Chainage (m)	GSV	GSI	Easting (GDA94 Z56)	Northing (GDA94 Z56)
Prefabricated concrete sign	Within proposal disturbance footprint	40%	80%	248058mE	6817617mN



Photograph 5.26Wearne Siding sign

Source: FFJV 2019



Photograph 5.27Detail showing vertical support and bolts

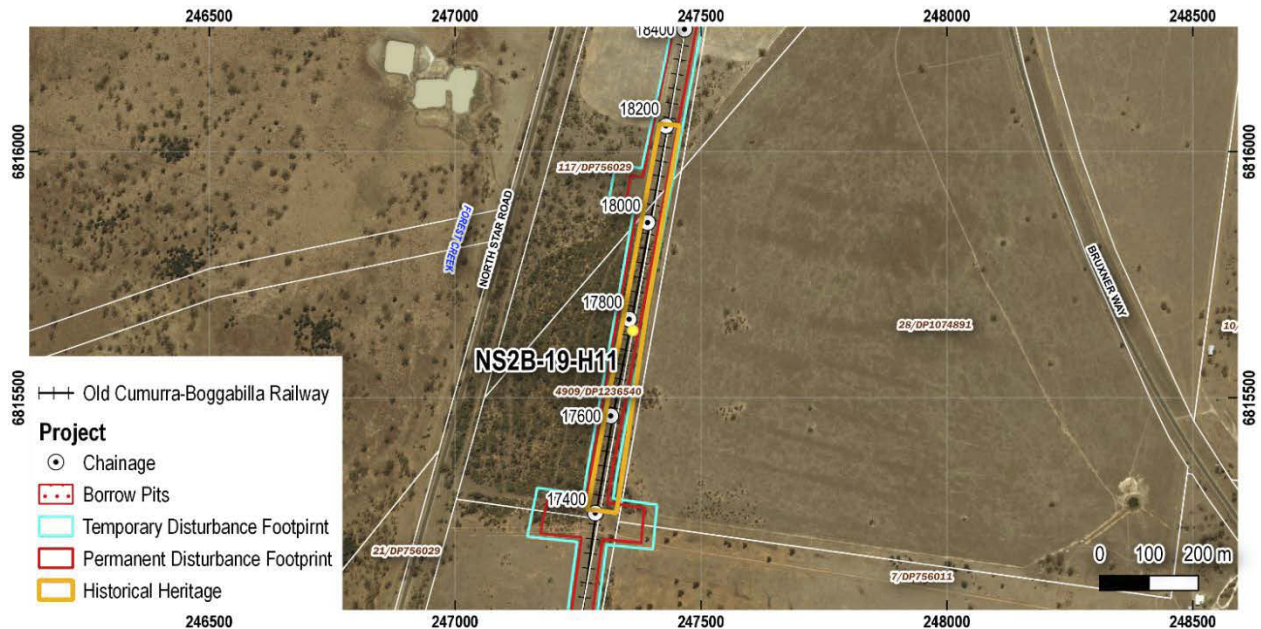
Source: FFJV 2019

5.9 NS2B-19-H11 – Fettler’s Camp #1

Description

Artefacts were largely industrial in nature and extending approximately 400m north and south from a central loading embankment. Artefacts include bricks, concrete and metal. One brick is stamped with “GR” and a possible “A”

Location



Key elements	Chainage (m)	GSV	GSI	Easting (GDA94 Z56)	Northing (GDA94 Z56)
Artefacts were largely industrial in nature, consisting of fragments of fire brick, charcoal, slag, and railway spikes.	17,400-18,200	80%	80%	247361mE	6815636mN



Photograph 5.28 Old padlock

Source: FFJV 2019



Photograph 5.29 Brick is stamped with “GR” and a possible “A”

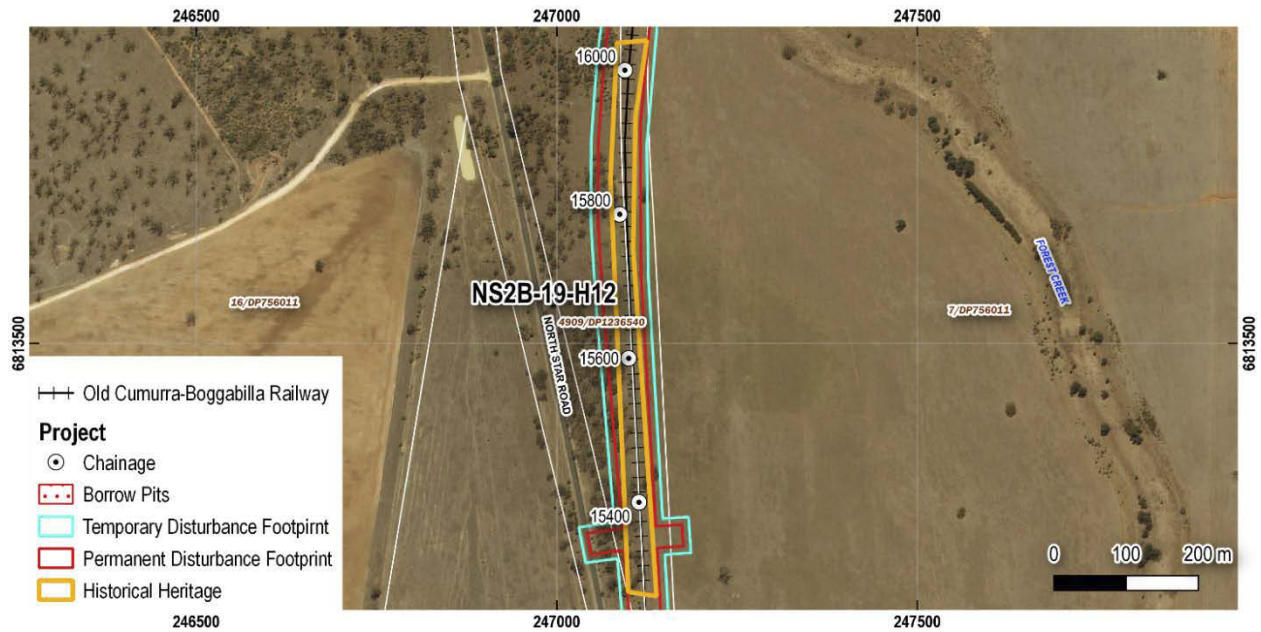
Source: FFJV 2019

5.10 NS2B-19-H12 – Fettler’s Camp #2

Description

Artefacts were largely industrial in nature, consisting of brick, concrete, and sandstone. Additionally, there were two pieces of burnt melted glass most likely from a kiln.

Location



Key elements	Chainage (m)	GSV	GSI	Easting (GDA94 Z56)	Northing (GDA94 Z56)
Artefacts were largely industrial in nature, consisting of fragments of fire brick, charcoal, slag, and railway spikes.	15,300-16,000	40%	60%	248861mE	6824701mN



Photograph 5.30 General context shot of site

Source: FFJV 2019



Photograph 5.31 Kiln bricks adjacent to rail line

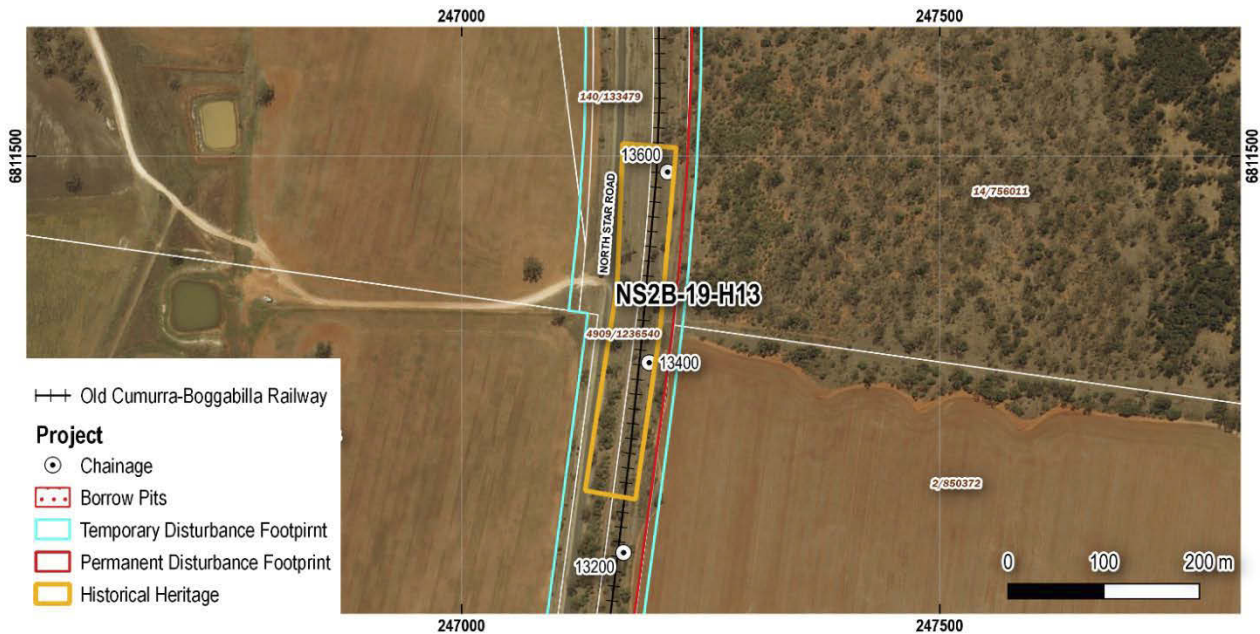
Source: FFJV 2019

5.11 NS2B-19-H13 – Fettler's Camp #3

Description

Approximately 300 m long, continuous low-density linear artefact scatter adjacent to the railway line. Interpreted to be a fettler's camp associated with upgrade/repair/replacement of the railway.

Location



Key elements	Chainage (m)	GSV	GSI	Easting (GDA94 Z56)	Northing (GDA94 Z56)
Artefacts were largely industrial in nature, consisting of fragments of fire brick, charcoal, slag, and railway spikes. A tin opener was also noted.	13,400	80%	80%	247180mE	6811329mN



Photograph 5.32 Brick detail showing slag

Source: FFJV 2018



Photograph 5.33 Tin opener

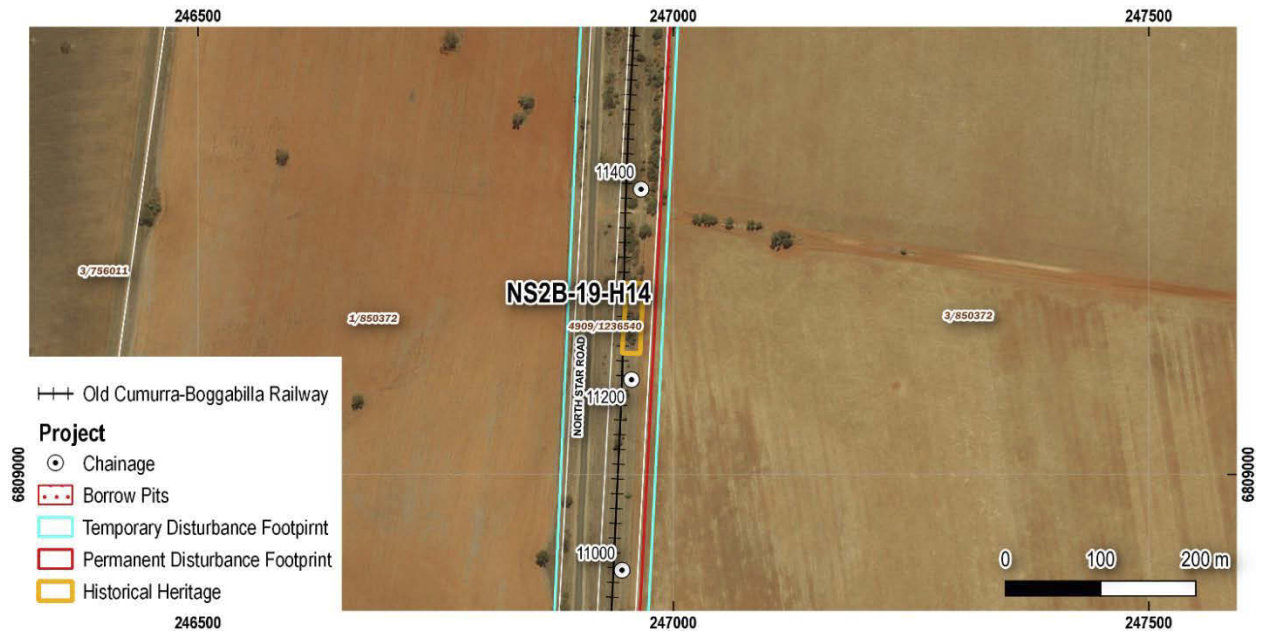
Source: FFJV 2018

5.12 NS2B-19-H14 – Fettler's Camp #4

Description

Approximately 50m long, continuous medium-density linear artefact scatter located to the west of the railway line. Interpreted to be a fettler's camp associated with upgrade/repair/replacement of the railway.

Location



Key elements	Chainage (m)	GSV	GSI	Easting (GDA94 Z56)	Northing (GDA94 Z56)
Artefacts were largely industrial in nature, consisting of fragments of fire brick, charcoal, slag, and railway spikes. Fragment of brick at southern extent retained a partial mark 'CCA'.	11,200	80%	80%	246957mE	6809163mN



Photograph 5.34 Brick detail showing maker's mark CCA

Source: FFJV 2018



Photograph 5.35 Burnt brick

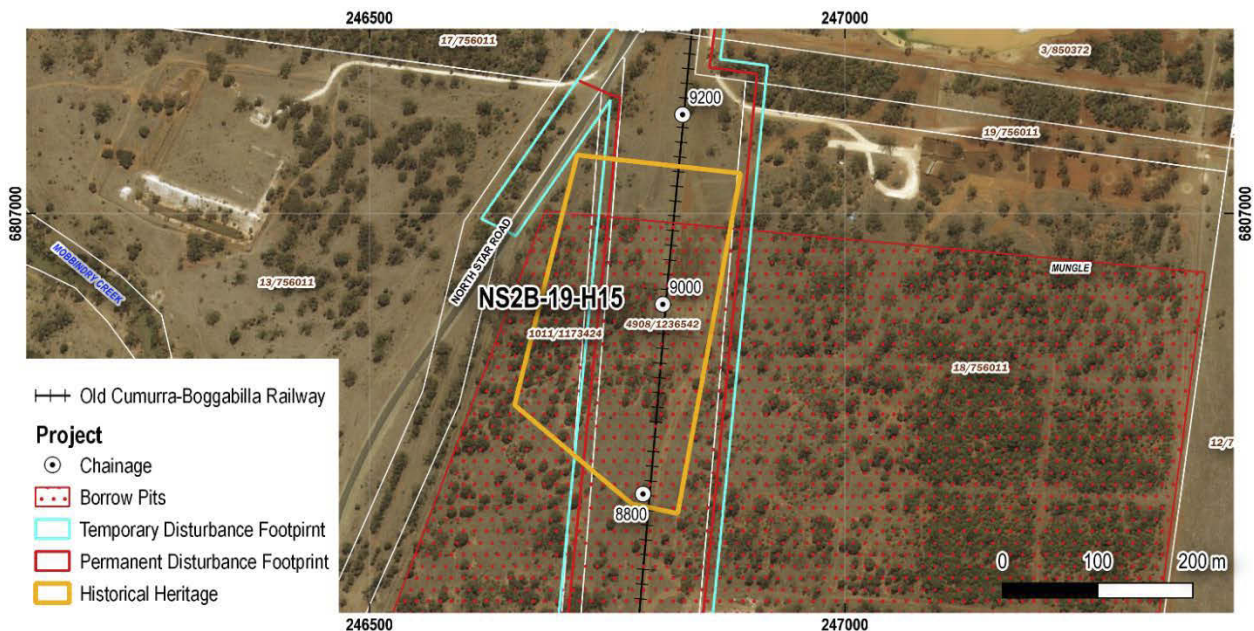
Source: FFJV 2018

5.13 NS2B-19-H15 – Mungle Siding

Description

Site of former Mungle Siding. Currently consists of main rail line, a siding and an earthen embankment supported by a series of 10 concrete panels and braced with off cuts of rail track. All other associated infrastructure known to exist at the site including siding sign has been demolished or removed. The Mungle Siding Platform is the more complete and largest of the siding platforms inspected and is constructed from concrete prepared on site and fastened together using track rail and other rail related fasteners.

Location



Key elements	Chainage (m)	GSV	GSI	Easting (GDA94 Z56)	Northing (GDA94 Z56)
Earthen embankment, concrete foundations, rail siding	246811mE	40%	50%	246811mE	6806906mN



Photograph 5.36 Shot of siding and platform looking south

Source: FFJV 2019



Photograph 5.37 Context photo of entire platform looking west

Source: FFJV 2019



Photograph 5.38 Construction methodology appreciation

Source: FFJV 2019



Photograph 5.39 Concrete spalling damage on platform

Source: FFJV 2019



Photograph 5.40 Shot of siding looking north

Source: FFJV 2019



Photograph 5.41 Detail showing fastener

Source: FFJV 2019



Photograph 5.42 Secondary platform/foundations

Source: FFJV 2019



Photograph 5.43 Detail showing concrete poured between two top rails

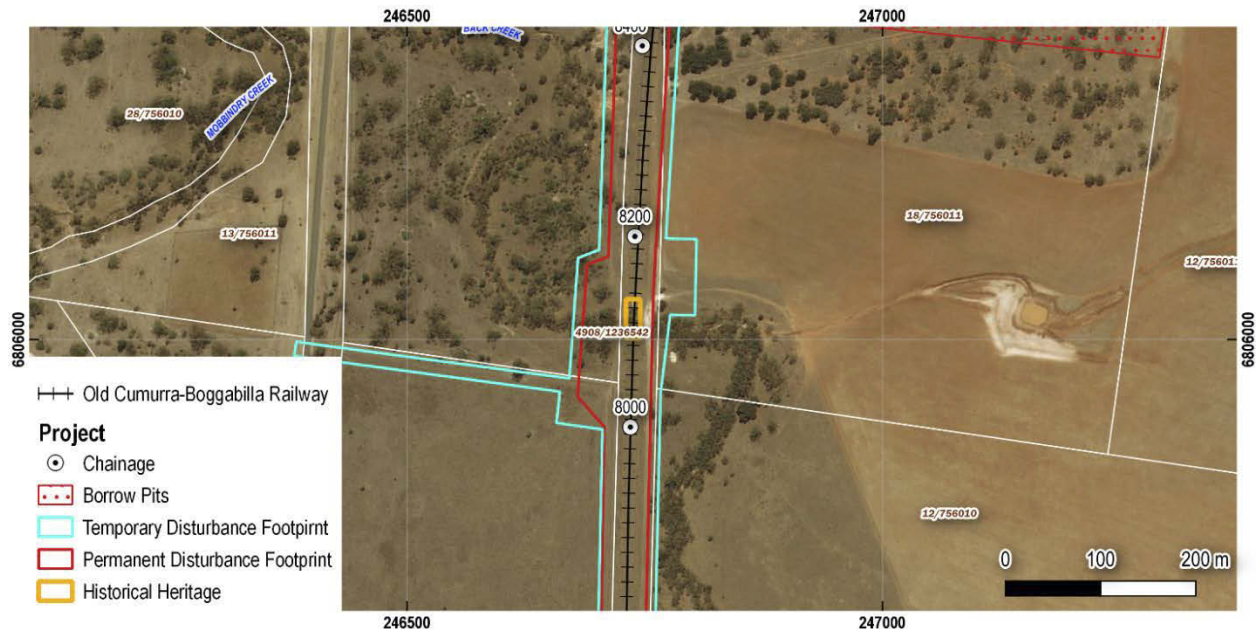
Source: FFJV 2019

5.14 NS2B-19-H16 – Back Creek Rail Bridge

Description

Rail bridge constructed of concrete pylons with steel I-beam frame on top of pylons across Back Creek. Smaller in scale (three concrete pylons) than the Whalan Creek rail bridge (NS2B-19-H4), it is located west of the Bruxner Way and east from the North Star/Boggabilla Road. Each pylon section has three smaller I-beams riveted with braces into the main beams. Steel cross members connect internal I-beams. Wooden sleepers are fastened to the steel I-frame with BHP branded steel rails placed on top.

Location



Key elements	Chainage (m)	GSV	GSI	Easting (GDA94 Z56)	Northing (GDA94 Z56)
Concrete pylons, steel I-beam frame, timber sleepers, steel rails and bolts,	8,000	90%	70%	246738mE	6806022mN



Photograph 5.44 Back Creek Rail Bridge looking west

Source: FFJV 2019



Photograph 5.45 Back Creek Rail Bridge looking south

Source: FFJV 2019

6 Significance assessment

An assessment against significance criteria is provided for each site in accordance with the methodology outlined in Section 3.3. While all sites identified as part of this assessment have some intrinsic value, the significance assessment test provides a framework for evaluating if any sites meet the thresholds for local or State listing. Note also that meeting these thresholds does not guarantee acceptance onto respective heritage registers.

As discussed in Section 5, NS2B-19-H5, NS2B-19-H6 and parts of NS2B-19-H8 are located outside of the proposal construction footprint. These heritage sites were included in the assessment as a result of feedback from local stakeholders identifying them as potentially having significance and being at risk of direct and indirect impacts during construction and operation.

Of the fifteen identified historical heritage sites, eleven were deemed to have met the threshold for local heritage – two of which relating to the shearing complex which could not be inspected due to access constraints but was inspected from the adjoining railway easement (NS2B-19-H5 and NS2B-19-H6). Both items are of historical value to the local community, with the shearing shed having been identified by local residents of the Toomelah and Boggabilla area as having social significance through both employment and as a social dance venue.

The significance assessment is summarised in Table 6.1, and detailed in the Appendix A.

Table 6.1 Summary assessment indicating threshold of significance

Site	A – historical	B – associational	C – aesthetic	D – social	E – research	F – rarity	G – representativeness
NS2B-19-H2	Not met	Not met	Not met	Not met	Not met	Not met	Not met
NS2B-19-H3	Not met	Not met	Not met	Not met	Not met	Not met	Not met
NS2B-19-H4	Local	Not met	Not met	Not met	Not met	Not met	Not met
NS2B-19-H5*	Local	Not met	Not met	Local	Not met	Not met	Not met
NS2B-19-H6*	Local	Not met	Not met	Local	Not met	Not met	Not met
NS2B-19-H7	Not met	Not met	Not met	Not met	Not met	Not met	Not met
NS2B-19-H8	Not met	Not met	Not met	Not met	Not met	Not met	Not met
NS2B-19-H9	Local	Not met	Not met	Not met	Not met	Not met	Not met
NS2B-19-H10	Local	Not met	Not met	Not met	Not met	Not met	Not met
NS2B-19-H11	Local	Not met	Not met	Not met	Not met	Not met	Not met
NS2B-19-H12	Local	Not met	Not met	Not met	Not met	Not met	Not met
NS2B-19-H13	Local	Not met	Not met	Not met	Not met	Not met	Not met
NS2B-19-H14	Local	Not met	Not met	Not met	Not met	Not met	Not met
NS2B-19-H15	Local	Not met	Not met	Not met	Not met	Not met	Not met
NS2B-19-H16	Local	Not met	Not met	Not met	Not met	Not met	Not met

Table note:

* Site could not be inspected due to access constraints

7 Potential impacts

Potential proposal impacts are described in the following sections, and their unmitigated effect on the heritage sites are identified previously. Potential mitigation measures are then proposed, and the potential impact on heritage values reassessed. A discussion of the impact assessment methodology is provided in Section 3.3.

7.1 Proposal activities during construction

The proceeding sections describe activities that will occur within each stage of construction. The construction activities are conventional in nature. However, in some locations, certain activities may be modified to account for site-specific environmental and/or engineering constraints.

The activities are not necessarily presented in order. Some activities may occur concurrently or in a different order due to environmental and/or engineering constraints. The final construction activities, sites and sequencing will be determined during the detailed design phase, taking into account the construction contractor's chosen methodologies and relevant conditions of approval.

The proposal is currently in the project approval phase. During the detailed design phase (2020 to 2021), the proposal will be further refined to minimise impacts. All future refinements will be constrained to the maximum parameters and impacts identified in this EIS. In this way, construction (occurring between 2021 and 2025) and operation (occurring after 2025) of the proposal will be within the parameters and impacts approved through this EIS.

7.1.1 Site establishment and enabling works

Site establishment and enabling works will occur in advance of the main construction works. This includes, but is not limited to, the following low impact work:

- Survey work including carrying out general alignment surveys, installing survey controls (such as global positioning system), installing repeater stations, carrying out surveys of existing and future utilities and infrastructure, archaeological monitoring and road dilapidation surveys
- Investigations including investigative drilling and excavation
- Treatment of contaminated sites
- Establishing construction ancillary facilities such as laydown areas, access tracks, concrete batching plant and water supply infrastructure
- Establishing the construction camp
- Utility diversions and adjustments
- Minor clearing and relocation of vegetation for the purpose of establishing laydown areas, access tracks and the construction camp and undertaking low impact utility relocations and adjustments
- Erection of prefabricated site offices and portable amenities
- Delivering and stockpiling construction materials
- Installing mitigation measures including erosion and sediment controls, temporary exclusion fencing around sensitive areas and at-property acoustic treatments
- Some property adjustment works including installing property fencing
- Archaeological testing under the Code of practice for archaeological investigation of Aboriginal objects in NSW (Department of Environment Climate Change and Water, 2010) and salvaging Aboriginal artefacts
- Demolition and/or maintenance of existing structures needed to facilitate construction of the proposal.

A Site Establishment Management Plan will be prepared to manage safety and environmental risks arising from high impact site establishment and enabling works.

Existing bridges and culverts within the non-operational Boggabilla rail corridor are considered unsuitable for reuse as part of the proposal. They will be demolished and relocated clear of works or offsite.

Prior to commencing work, a detailed demolition plan will be prepared for each bridge structure so that demolition proceeds in a controlled manner and safety and environmental risks are minimised. Demolition will occur in accordance with the relevant waste management requirements.

7.1.2 Main construction works

Following site establishment activities, the main construction works will commence, primarily consisting of earthworks, track works, drainage works, bridge works and road works.

The construction activities presented in this section are not necessarily in order. Some activities may occur concurrently or in a different order due to environmental and/or engineering constraints. The final construction activities, sites and sequencing will be determined during the detailed design phase, taking into account the construction contractor's chosen methodologies. The final methodologies will allow for:

- Site-specific environmental and engineering constraints
- Maintaining sufficient water flow
- In the event of flooding, critical plant and equipment can be quickly evacuated to higher ground.

A Construction Environmental Management Plan will be prepared to manage key environmental and public amenity risks arising from the main construction works.

Earthworks

The anticipated construction methodology for earthworks is as follows:

- Clearing and grubbing
 - To be preceded by pre-construction ecology and heritage surveys
 - Clearing and grubbing will occur progressively during the construction phase in order to minimise soil exposure where practicable
 - Protective measures will be in place in downstream areas to prevent erosion and sedimentation
- Stripping topsoil and stockpiling it for later use
- Excavation of cuttings, including stockpiling cutting material that is unsuitable for reuse
 - Topsoil stripping and excavations will occur progressively during the construction phase in order to minimise soil exposure
 - Surplus material will be assessed for re-use as fill material
 - Surplus material that is unsuitable for re-use as fill material may be used to rehabilitate disturbed areas, or it may be formed into permanent spoil mounds within the rail corridor. Spoil mounds will be neatly formed to prevent erosion and sedimentation. They will not be located in areas where they would impact on flooding or drainage.
- Hauling embankment materials (general fill, structural fill and capping) from borrow pits and local quarries to embankment locations and/or stockpiling areas
- Construction of embankments
 - The embankment foundation will be inspected and tested as it is exposed. Depending on the condition of the foundation, it will either be compacted, dug out and replaced, or treated in situ (e.g. with lime) to ensure the subgrade meets the design requirements. Some locations may be subject to preloading before final placement.

- Embankment materials will undergo moisture conditioning. The material will then be spread, compacted, trimmed and profiled.
- Stabilising batter slopes.

Within the construction footprint, some sections of track within the existing non-operational Boggabilla rail corridor are raised on embankments. There may be an opportunity to reuse these existing embankments for the proposal, resulting in material and time savings.

The anticipated methodology for reusing existing embankments is as follows:

- Removing track, sleepers and ballast from the existing embankment
- Clearing, grubbing and topsoil stripping
- Inspecting the consistency and strength of the existing embankment. If the consistency and strength are acceptable, the embankment may be reused for the proposal. In some cases, the embankment material may need to be blended with other material prior to reuse. If the consistency and strength are still not acceptable, the embankment will be dug out and replaced.

Track works

As per Section 7.1.1, existing bridges and culverts within the non-operational Boggabilla rail corridor are considered unsuitable for reuse as part of the proposal. Therefore, in advance of track works, bridges and culverts within the Boggabilla rail corridor must be demolished and relocated clear of work or offsite.

There are two widely-accepted options for constructing new sections of rail track: using a track laying machine or using an excavator with octopus attachments. During the feasibility design phase, an excavator with octopus attachments was identified as the preferred option. This option can pick up to six sleepers at once and spread them to the correct spacing.

An indicative construction methodology for track works is as follows:

- Placing the bottom layer of ballast
- Laying the sleepers at the required spacing
- Placing the rail
 - A rail handling yard is proposed near North Star (Ch 0.2 km). Rails delivered in short lengths (13.7 m to 27.5 m) can be Flash Butt Welded into longer lengths within the rail handling yard.
- Clipping and welding of the rail
- Placing the top layer of ballast
- Tamping and profiling the ballast under and around the sleepers
- Rail adjustments and stressing.

Turnouts for the crossing loop will be constructed in-situ to avoid having to lift the switch and panels.

Drainage works

Two main types of drainage are associated with the proposal: culverts and track drainage.

Culverts

Culverts associated with the proposal will be a mix of reinforced concrete pipe culverts and reinforced concrete box culverts. Culvert installation will generally involve the following activities:

- Temporarily damming or diverting any water flows
- Excavating to the required depth
- Placing and compacting the culvert bedding material

- Placing the pre-cast culvert structures, including the headwalls and aprons, on the bedding material and fastening them together
- Placing compacted backfill around and over the culvert
- Placing scour protection around the culvert
- Track works over the top of the culvert
- Restoring and revegetating disturbed areas.

Once installed, either side of culverts will be backfilled with support material for the culvert. Scour protection measures may also be installed upstream and downstream of culverts, on disturbed stream banks and around waterfront land to avoid erosion. The placement of scour protection measures will minimise obstructions to fish passage.

Track drainage

Embankment and catch drains will be constructed along the proposed alignment, generally involving:

- Preparing survey control points for planned excavations
- Excavating material from the drain location
- Trimming and compacting the base and sides of the drain
- Lining the drain to prevent erosion (if required).

Bridge works

A total of 11 new bridges are proposed, including an approximately 1.8 km long viaduct that crosses Whalan Creek, Tucka Tucka Road and the Macintyre River. The anticipated methodology for bridge construction works is as follows:

- Establishing bridge laydown areas
 - Protective measures will be installed in downstream areas to prevent erosion and sedimentation of watercourses. The placement of protective measures will minimise obstructions to fish passage.
- Establishing working platforms for piling rigs and cranes
- Constructing substructure components, including piles, pile caps, piers, headstocks and abutments
- Lifting pre-cast concrete girders and deck components into place
 - As all bridges are less than 20 m high, cranes will be used to lift the pre-cast components into place
- Earthworks needed to connect the main track to either end of the bridge
- Installing scour protection
- Placing ballast, sleepers and rail on top of the bridge
- Installing permanent fencing and signage
- Restoring and revegetating disturbed areas.

Road works

Construction works will be undertaken on the six roads listed in Table 7.1 to accommodate level crossings and rail over road bridges. During construction, road drainage will be installed such that the existing flood immunity of these roads will be maintained.

Table 7.1 Summary of proposed road works

Chainage (km)	Road	Infrastructure proposed	Description of proposed works
Ch 7.1	North Star Road	Level crossing	The vertical alignment will be amended to suit the rail level at this location. Access to the adjacent private properties will be re-configured to suit the level crossing and provide safe access across the corridor and to North Star Road.
Ch 12.2	Forest Creek Road	Level crossing	The vertical alignment will be amended to suit the rail level at this location. Safety upgrades are also proposed to bring the intersection with North Star Road up to the current Austroads standard.
Ch 19.9	North Star Road	Level crossing	The vertical alignment will be amended to suit the rail level at this location. Access to the adjacent private properties will be re-configured to suit the level crossing and provide safe access across the corridor, North Star Road and the TSR to the north.
Ch 25.6	Bruxner Way	Bruxner Way rail bridge	A minor realignment of Bruxner Way is required to accommodate the Bruxner Way rail bridge. Bruxner Way will be realigned to the east and then back to the existing Bruxner Way on a slight curve.
Ch 30.1	Tucka Tucka Road	Macintyre River viaduct	No changes to the existing Tucka Tucka Road alignment are proposed; however minor pavement works may be required to accommodate the Macintyre River viaduct.

The anticipated methodology for road works is as follows:

- Implementing traffic management measures
- Earthworks to establish the road formation. This may involve topsoil stripping, excavating, placing fill, compaction and/or subgrade treatment.
- Installation of culverts, headwalls and aprons
- Placing a select layer of earthworks materials on top of the road formation
- Placing and compacting the pavement layer (road base/gravel) over the select layer. This pavement layer may need to be sealed with bitumen.
- Once paving is completed, road furniture such as guard fencing, guide posts and traffic signs will be installed and lines would be marked on the road. Around active level crossings, flashing lights and boom barriers will also be installed.

7.1.3 Testing and commissioning

Testing and commissioning of the proposal will ensure that all infrastructure and systems have been designed, installed and operated according to the proponent's requirements.

7.1.4 Reinstatement

All temporary construction sites, including laydown areas, access tracks and borrow pits, will be rehabilitated having regard to their pre-construction condition and any arrangements with affected landowners. Reinstatement activities will occur progressively during the construction phase, usually involving the following activities:

- Demobilising laydown areas and associated facilities
- Removing all materials, waste and redundant structures from construction sites
- Decommissioning temporary fencing and access tracks that will not be used during the operation phase
- Installing permanent fencing
- Restoring disturbed areas, including revegetation where required.

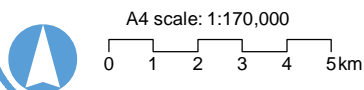
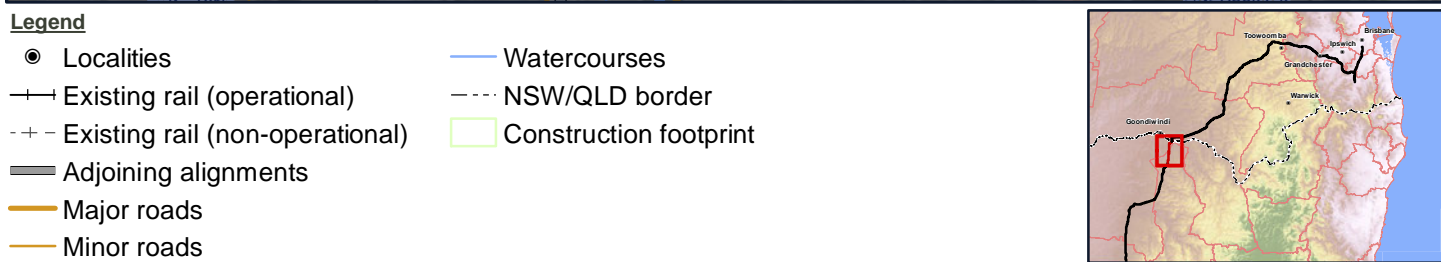
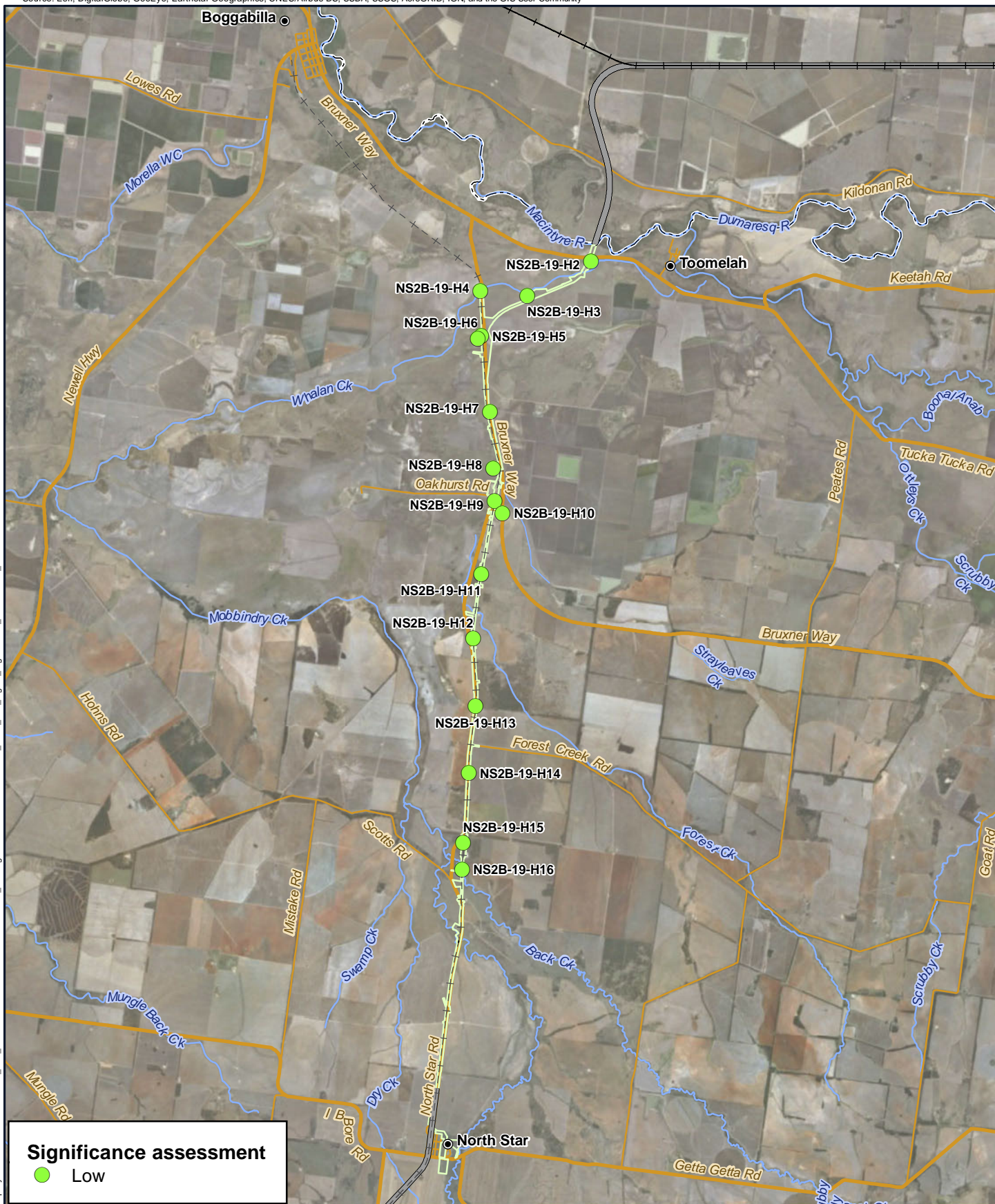
A Reinstatement and Rehabilitation Plan and an Erosion and Sediment Control Plan will be prepared to guide the approach to reinstatement following the completion of construction.

7.2 Assessing sensitivity

The degree of impact an activity will have on a heritage place is partly a factor of the place's heritage significance: the more significant a place is, the more sensitive it will be to change (refer to Section 3.3). An assessment of the sensitivity of each heritage place with the study area is provided in Table 7.2 in accordance with the methodology provided in Section 3.3. Figure 7.1 shows the significance assessment for each site.

Table 7.2 Sensitivity of identified heritage sites

Site ID	Description	Threshold criteria met	Heritage Significance Value	Heritage sensitivity
NS2B-19-H2	Logger's Camp	0	None	Low
NS2B-19-H3	Survey Mark	0	None	Low
NS2B-19-H4	Whalan Creek Rail Bridge	1	Local	Low
NS2B-19-H5	Shearing Shed Archaeological Site	2	Local	Low
NS2B-19-H6	Shearer Accommodation	2	Local	Low
NS2B-19-H7	Modern Roadside Memorial	0	None	Low
NS2B-19-H8	Old Boggabilla/North Star Road Alignment	0	None	Low
NS2B-19-H9	Wearne Siding	1	Local	Low
NS2B-19-H10	Wearne Siding Sign	1	Local	Low
NS2B-19-H11	Fettlers Camp 1	1	Local	Low
NS2B-19-H12	Fettlers Camp 2	1	Local	Low
NS2B-19-H13	Fettlers Camp 3	1	Local	Low
NS2B-19-H14	Fettlers Camp 4	1	Local	Low
NS2B-19-H15	Mungle Siding	1	Local	Low
NS2B-19-H16	Back Creek Rail Bridge	1	Local	Low



8 Impact assessment

8.1 Impacts and magnitude of change

Impacts on heritage sites can be divided into two main types: direct and indirect. Direct impacts occur if a heritage place or site is located directly in a development area and/or would be physically impacted by development. Such impacts include the demolition or substantial alteration of a building, or the disturbance of an archaeological site. Indirect impacts, alternatively, are those that alter the surrounding physical environment in such a way that a heritage place or site is affected. Indirect impacts might include extra vibration from construction activities or subsequent traffic load, as well as additional water runoff or sediment deposition due to changing hydrology. The effects of direct or indirect impacts are measured in terms of the extent to which they alter the heritage values of a heritage place. This is represented as the 'magnitude of change' (refer Section 3.3).

8.1.1 Direct impacts

Direct impacts to heritage are most likely to occur during site preparation as a part of the construction phase. At this time, clearing and stripping activities will require the demolition of heritage structures and the destruction of archaeological sites within the proposal footprint. The heritage places that are within this footprint are listed in Table 8.1, along with the potential nature of impact and magnitude of change.

Table 8.1 Heritage places at risk of direct impact

Site ID	Description	Potential impact	Likely magnitude of change
NS2B-19-H2	Logger's Camp	Disturbance of entire site	Major
NS2B-19-H3	Survey Mark	Disturbance of entire site	Major
NS2B-19-H4	Whalan Creek Rail Bridge	Disturbance of entire site	Major
NS2B-19-H7	Modern Roadside Memorial	Potential for impact during construction	Low
NS2B-19-H8	Old Boggabilla/North Star Road Alignment	Partial disturbance of site	Major
NS2B-19-H9	Wearne Siding	Disturbance of entire site	Major
NS2B-19-H10	Wearne Siding Sign	Sign is located on private land but within construction disturbance footprint	Low
NS2B-19-H11	Fettlers Camp 1	Disturbance of entire site	Major
NS2B-19-H12	Fettlers Camp 2	Disturbance of entire site	Major
NS2B-19-H13	Fettlers Camp 3	Disturbance of entire site	Major
NS2B-19-H14	Fettlers Camp 4	Disturbance of entire site	Major
NS2B-19-H15	Mungle Siding	Disturbance of entire site	Major
NS2B-19-H16	Back Creek Rail Bridge	Disturbance of entire site	Major

8.1.2 Indirect impacts

Indirect impacts may occur during any phase of the proposal, when construction, operation, or reinstatement activities result in excessive dust, noise or vibration which damages heritage structures. Sites at risk of indirect impacts are listed in Table 8.2, along with the potential nature of impact and magnitude of change.

Table 8.2 Heritage places at risk of indirect impact

Site ID	Description	Potential Impact	Likely magnitude of change
NS2B-19-H5	Shearing Shed Archaeological Site	Vibration from construction and operation	Low
NS2B-19-H6	Shearer Accommodation	Vibration from construction and operation	Low

8.2 Assessment of significance of unmitigated impact

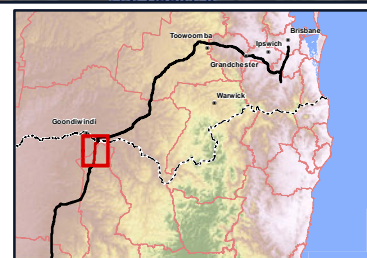
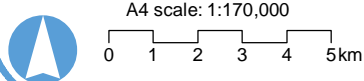
The significance of predicted unmitigated impacts to each of the sites is assessed in Table 8.3, using the rankings established in the previous sections. Figure 8.1 shows the impact assessment for each site.

Table 8.3 Assessment of significance of unmitigated impacts

Site ID	Description	Sensitivity	Magnitude of change	Significance of impact
NS2B-19-H2	Logger's Camp	Low	Major	Slight/Moderate
NS2B-19-H3	Survey Mark	Low	Major	Slight/Moderate
NS2B-19-H4	Whalan Creek Rail Bridge	Low	Major	Slight/Moderate
NS2B-19-H5	Shearing Shed Archaeological Site	Low	Low	Neutral/Slight
NS2B-19-H6	Shearer Accommodation	Low	Low	Neutral/Slight
NS2B-19-H7	Modern Roadside Memorial	Low	Low	Neutral/Slight
NS2B-19-H8	Old Boggabilla/North Star Road Alignment	Low	Major	Slight/Moderate
NS2B-19-H9	Wearne Siding	Low	Major	Slight/Moderate
NS2B-19-H10	Wearne Siding Sign	Low	Low	Neutral/Slight
NS2B-19-H11	Fettlers Camp 1	Low	Major	Slight/Moderate
NS2B-19-H12	Fettlers Camp 2	Low	Major	Slight/Moderate
NS2B-19-H13	Fettlers Camp 4	Low	Major	Slight/Moderate
NS2B-19-H14	Fettlers Camp 3	Low	Major	Slight/Moderate
NS2B-19-H15	Mungle Siding	Low	Major	Slight/Moderate
NS2B-19-H16	Back Creek Rail Bridge	Low	Major	Slight/Moderate



- Legend**
- Localities
 - Existing rail (operational)
 - - - Existing rail (non-operational)
 - Adjoining alignments
 - Major roads
 - Minor roads
 - Watercourses
 - - - NSW/QLD border
 - Construction footprint



8.3 Proposed mitigation measures

The accepted methodology for managing impacts on heritage places is to avoid wherever possible, minimise as far as is practical and then mitigate where avoidance and minimisation is not possible (ICOMOS 2011). Mitigation can include options such as reduced impact, salvage or archival recording to capture relevant information to the understanding of heritage values. Example mitigation measures to achieve these aims are outlined in Table 8.4. Table 8.5 outlines what steps should be undertaken as each stage during the delivery of the proposal. Table 8.6 summarises individual mitigation measures to be applied to individual heritage places.

Table 8.4 Example management and mitigation measures

Measure		Description
Avoidance		<ul style="list-style-type: none"> Consider options to alter disturbance footprint and avoid direct or indirect impacts
Minimisation		<ul style="list-style-type: none"> Tailor construction methodology to limit noise, vibration and dust impacts Consider ways to limit noise, vibration and dust impacts during operation Repair any damage to heritage elements in a way which conserves the heritage values of the place (refer Burra Charter Article 1.4) Implement protocols for responding to unexpected heritage finds
Mitigation	Archival recording	<ul style="list-style-type: none"> Undertake archival photographic recording in accordance with the NSW Heritage Office (NSW Heritage Office 1998, 2006) How to prepare archival records and Photographic recording of heritage items using film or digital capture. Copies of archival records to be lodged with local councils/libraries or historical societies as appropriate
	Relocation	<ul style="list-style-type: none"> Relocation of heritage items is generally undesirable, as setting forms an intrinsic part of heritage value (ICOMOS (Australia) 2013) However, if impacts cannot be managed in any other way, it may be appropriate to relocate structures or items of moveable heritage to another location, such as a local historical society
	Archaeological survey	<ul style="list-style-type: none"> Undertake detailed survey to map all elements of archaeological sites, and identify areas of possible subsurface deposit
	Archaeological excavation	<ul style="list-style-type: none"> If warranted by results of archaeological survey, undertake a two-stage archaeological excavation: <ul style="list-style-type: none"> Stage 1 – test excavation to confirm subsurface deposit Stage 2 – salvage excavation of subsurface deposits (if required)
	Archaeological surface collection	<ul style="list-style-type: none"> Collect archaeological artefacts on the ground surface Depending on nature of site may be undertaken in conjunction with, or in place of, excavation

Table 8.5 Proposed mitigation measures for each delivery phase

Delivery phase	Aspect	Proposed additional mitigation measures
Detailed design	All heritage	<ul style="list-style-type: none"> Undertake archaeological survey to map elements of complex heritage sites within the proposal footprint and identify areas of possible subsurface deposit. Design will respond to the outcomes of heritage assessments undertaken through the detailed design phase. ARTC will consult with owners of heritage places that are expected to be directly or indirectly impacted by the proposal regarding the proposed design and/or construction phase response to the predicted impact. Relocation of heritage items is generally undesirable, as setting forms an intrinsic part of heritage value (Australia ICOMOS 2013b), however, where removal of heritage infrastructure is proposed, the relocation or salvage plans for such infrastructure will be prepared in consultation with the owner of the feature/place or local heritage society (if relevant) and a heritage consultant.

Delivery phase	Aspect	Proposed additional mitigation measures
		<ul style="list-style-type: none"> The requirement for proposal components outside of the proposal footprint will be confirmed through the detailed design process, as the construction approach is refined. Such components may include borrow pits and accommodation camps. If these components are required to support construction, they will be subject to a siting assessment to identify the optimal location option in regards to avoiding or minimising impacts to environmental matters and social receptors, including heritage places.
Pre-construction	All heritage	<ul style="list-style-type: none"> If warranted by results of archaeological survey, undertake a two-stage archaeological excavation: <ul style="list-style-type: none"> Stage 1 – test excavation to confirm subsurface deposit Stage 2 – salvage excavation of subsurface deposits (if required) Construction planning avoids directly impacting on identified sites/items of Aboriginal and historical heritage significance where practicable. If items/sites cannot be avoided, photographic/archival recording of culverts/underbridges with timber components, rail bridges, former rail station sites and other contextual locations/structures of heritage significance will occur. Undertake archival photographic recording in accordance with the NSW Heritage Office (NSW Heritage Office 1998, 2006) How to prepare archival records and Photographic recording of heritage items using film or digital capture. Copies of archival records to be lodged with local councils/libraries or historical societies as appropriate. Where removal of heritage infrastructure is required, the relocation or salvage of such infrastructure will occur prior to the commencement of construction. A Historical Heritage Management sub-plan will be developed as part of the Construction Environmental Management Plan. The sub-plan will detail mitigation and management measures to be implemented during construction in relation to cultural heritage. It will include, as a minimum: <ul style="list-style-type: none"> Requirements for site induction, training, heritage monitors, inspections, audits, corrective actions, notification and classification of environmental incidents, record keeping, monitoring and performance objectives for handover on completion of construction. Heritage management actions to be undertaken by suitably qualified persons. Specific requirements for cultural heritage sites/items that cannot be avoided during construction. Unexpected finds procedure, including assessment by a suitably qualified person and notification obligations under the applicable aboriginal heritage legislation. Procedure for encountering potential burial sites or potential human skeletal material including notification obligations under applicable state regulations Any other requirements necessary to comply with conditions of approval, subsequent approvals, regulatory requirements
Construction	All heritage	<ul style="list-style-type: none"> Clearing extents will be limited to that required to safely and efficiently construct and operate the proposal. If warranted by results of archaeological survey, archaeologists to monitor ground breaking works to identify any subsurface deposits. Clearing extents will be clearly defined with flagging or marking tape, signage or other suitable means to delineate no-go areas. Temporary construction facilities compounds, stockpiles, fuel storage, laydown areas, temporary access roads and staff parking will be sited to minimise the extent of disturbance. Temporary protective barricading will be installed around heritage places or artefacts that are located within the proposal footprint and are to be retained. In the event of the identification of potential sub-surface archaeological deposits work in the area will cease and an appropriately qualified archaeologist be engaged to undertake an assessment of the potential heritage values of the items.

Table 8.6 Proposed mitigation measures for each heritage place

Site ID	Description	Significance of impact	Mitigation
NS2B-19-H2	Logger's Camp	Slight/Moderate	<ul style="list-style-type: none"> Clearance of site through collection and documentation of historical artefacts within construction disturbance footprint Unexpected finds procedure to be implemented Salvaged artefacts to be offered to local heritage society/museum
NS2B-19-H3	Survey Mark	Slight/Moderate	<ul style="list-style-type: none"> The tree should be accurately surveyed, and consultation undertaken with NSW Government Spatial Services to determine if they have a record of this tree. Should NS2B-19-H3 be impacted, ARTC will engage with the NSW Government Spatial Services to discuss requirements for destruction of this survey mark (pre-construction) Photographic archival recording of the tree should be undertaken prior to impact (pre-construction)
NS2B-19-H4	Whalan Creek Rail Bridge	Slight/Moderate	<ul style="list-style-type: none"> Archival recording/mapping of site should be undertaken prior to impact. This will involve: <ul style="list-style-type: none"> Archaeological survey and collection of Aboriginal and historical heritage items prior to disturbance Clearance of vegetation around structure prior to recording Detailed plans are to be prepared and photographic archival recording undertaken according to NSW Standards prior to demolition Salvaged artefacts to be offered to local heritage society/museum
NS2B-19-H5	Shearing Shed Archaeological Site	Neutral/Slight	<ul style="list-style-type: none"> Avoidance of site. Site is outside of the proposal disturbance footprint but may be impacted through unintentional interaction. Works within 200m should note presence of heritage site as part of daily toolboxes <p>If avoidance is identified as not being possible for whatever reason:</p> <ul style="list-style-type: none"> Archaeological survey of the site is to be undertaken Archaeological excavation is to be undertaken in areas identified during the survey as having potential for subsurface deposits Salvaged artefacts to be offered to local heritage society/museum
NS2B-19-H6	Shearer Accommodation	Neutral/Slight	<ul style="list-style-type: none"> Avoidance of site. The site is outside of the proposal disturbance footprint but may be impacted through unintentional interaction. Works within 200m should note presence of heritage site as part of daily toolboxes <p>If avoidance is identified as not being possible for whatever reason:</p> <ul style="list-style-type: none"> Archaeological survey of the site is to be undertaken Archaeological excavation is to be undertaken in areas identified during the survey as having potential for subsurface deposits <p>Salvaged artefacts to be offered to local heritage society/museum</p>

Site ID	Description	Significance of impact	Mitigation
NS2B-19-H7	Modern Roadside Memorial	Neutral/Slight	<ul style="list-style-type: none"> Avoidance of site. <p>If avoidance is identified as not being possible for whatever reason:</p> <ul style="list-style-type: none"> Immediate family of Mr Orchard are to be consulted with on appropriate measures during construction which may include: <ul style="list-style-type: none"> access requirements to memorial temporary relocation, and later reinstatement post-construction
NS2B-19-H8	Old Boggabilla/ North Star Road Alignment	Slight/Moderate	<ul style="list-style-type: none"> Clearance of site through collection and documentation of historical artefacts within construction disturbance footprint Unexpected finds procedure to be implemented Salvaged artefacts to be offered to local heritage society/museum
NS2B-19-H9	Wearne Siding	Slight/Moderate	<ul style="list-style-type: none"> Archival recording/mapping of site should be undertaken prior to impact. This will involve: <ul style="list-style-type: none"> Archaeological survey and collection of Aboriginal and historical heritage items prior to disturbance Clearance of vegetation around structure prior to recording Detailed plans are to be prepared and photographic archival recording undertaken according to NSW Standards prior to demolition Salvaged artefacts to be offered to local heritage society/museum
NS2B-19-H10	Wearne Siding Sign	Neutral/Slight	<ul style="list-style-type: none"> Avoidance of site <p>If avoidance is identified as not being possible for whatever reason:</p> <ul style="list-style-type: none"> Archival recording/mapping of site Consultation with landowner on proposed mitigation measures Temporarily remove structure and reinstate post-construction
NS2B-19-H11	Fettlers Camp 1	Slight/Moderate	<ul style="list-style-type: none"> Documentation and salvage of unique non-kiln related historical artefacts (i.e. not slag or non-descript kiln bricks) within construction disturbance footprint Salvaged artefacts to be offered to local heritage society/museum
NS2B-19-H12	Fettlers Camp 2	Slight/Moderate	<ul style="list-style-type: none"> Documentation and salvage of unique non-kiln related historical artefacts (i.e. not slag or non-descript kiln bricks) within construction disturbance footprint Salvaged artefacts to be offered to local heritage society/museum
NS2B-19-H13	Fettlers Camp 3	Slight/Moderate	<ul style="list-style-type: none"> Documentation and salvage of unique non-kiln related historical artefacts (i.e. not slag or non-descript kiln bricks) within construction disturbance footprint Salvaged artefacts to be offered to local heritage society/museum
NS2B-19-H14	Fettlers Camp 4	Slight/Moderate	<ul style="list-style-type: none"> Documentation and salvage of unique non-kiln related historical artefacts (i.e. not slag or non-descript kiln bricks) within construction disturbance footprint Salvaged artefacts to be offered to local heritage society/museum

Site ID	Description	Significance of impact	Mitigation
NS2B-19-H15	Mungle Siding	Slight/Moderate	<ul style="list-style-type: none"> ■ Archival recording/mapping of site should be undertaken prior to impact. This will involve: <ul style="list-style-type: none"> – Archaeological survey and collection of Aboriginal and historical heritage items prior to disturbance – Clearance of vegetation around structure prior to recording – Detailed plans are to be prepared and photographic archival recording undertaken according to NSW Standards prior to demolition ■ Salvaged artefacts to be offered to local heritage society/museum
NS2B-19-H16	Back Creek Rail Bridge	Slight/Moderate	<ul style="list-style-type: none"> ■ Archival recording/mapping of site should be undertaken prior to impact. This will involve: <ul style="list-style-type: none"> – Archaeological survey and collection of Aboriginal and historical heritage items prior to disturbance – Clearance of vegetation around structure prior to recording – Detailed plans are to be prepared and photographic archival recording undertaken according to NSW Standards prior to demolition ■ Salvaged artefacts to be offered to local heritage society/museum

8.4 Residual impacts

The significance of predicted post-mitigation impacts to each of the sites is assessed in Table 8.7 using the rankings established in the previous sections.

Map by: RB/GN/MEF Z/GIS/GIS_270_NS2B/Tasks/270-ECH-2019/0221331_FFJV_NH_Fig8.2_Mitigations_v3.mxd Date: 13/02/2020 08:58



Mitigation

- Archival Recording/Unexpected Finds Procedure
- Avoidance
- Unexpected Finds Procedure

Legend

- Localities
- Existing rail (operational)
- - - Existing rail (non-operational)
- Adjoining alignments
- Major roads
- Minor roads
- Watercourses
- - - NSW/QLD border
- Construction footprint

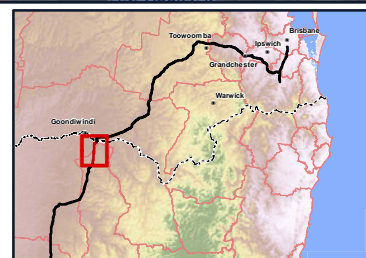


A4 scale: 1:170,000

0 1 2 3 4 5km



Date: 13/02/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56



North Star to NSW/QLD border

Figure 8.2:
Mitigations

Table 8.7 **Assessment of significance of mitigated impacts**

ID	Description	Pre-mitigated Significance			Mitigation Summary	Residual significance	
		Heritage Sensitivity	Magnitude of change before mitigation	Significance of impact before mitigation		Magnitude of change after mitigation	Significance of impact after mitigation (residual impact)
NS2B-19-H2	Logger's Camp	Low	Major	Slight/moderate	<ul style="list-style-type: none"> Archival recording/mapping of site Consider offer to local historical society to collect a sample of artefacts 	Medium	Slight
NS2B-19-H3	Survey Mark	Low	Major	Slight/moderate	<ul style="list-style-type: none"> Archival Recording 	Medium	Slight
NS2B-19-H4	Whalan Creek Rail Bridge	Low	Major	Slight/moderate	<ul style="list-style-type: none"> Archival recording/mapping of site Consider offer to local historical society to collect a sample of artefacts 	Medium	Slight
NS2B-19-H5	Shearing Shed Archaeological Site	Low	Low	Neutral/slight	<ul style="list-style-type: none"> Avoid site Manage indirect impacts <p>If avoidance is not possible:</p> <ul style="list-style-type: none"> Archaeological survey Archaeological excavation 	Negligible	Neutral/slight
NS2B-19-H6	Shearer Accommodation	Low	Low	Neutral/slight	<ul style="list-style-type: none"> Avoid site Manage indirect impacts <p>If avoidance is not possible:</p> <ul style="list-style-type: none"> Archaeological survey Archaeological excavation 	Negligible	Neutral/slight
NS2B-19-H7	Modern Roadside Memorial	Low	Low	Neutral/slight	<ul style="list-style-type: none"> Avoid site <p>If avoidance is not possible:</p> <ul style="list-style-type: none"> Contact family on temporary measures which may include temporary relocation/replacement 	Negligible	Neutral/slight
NS2B-19-H8	Old Boggabilla/ North Star Road Alignment	Low	Major	Slight/moderate	<ul style="list-style-type: none"> Archival recording of location and elevations 	Medium	Slight
NS2B-19-H9	Wearne Siding	Low	Major	Slight/moderate	<ul style="list-style-type: none"> Archival recording/mapping of site Consider offer to local historical society to collect a sample of artefacts 	Medium	Slight

ID	Description	Pre-mitigated Significance			Mitigation Summary	Residual significance	
		Heritage Sensitivity	Magnitude of change before mitigation	Significance of impact before mitigation		Magnitude of change after mitigation	Significance of impact after mitigation (residual impact)
NS2B-19-H10	Wearne Siding Sign	Low	Low	Neutral/slight	<ul style="list-style-type: none"> Avoid site If avoidance is not possible: <ul style="list-style-type: none"> Archival recording/mapping of site Temporarily remove structure and reinstate post-construction 	Negligible	Neutral/slight
NS2B-19-H11	Fettlers Camp 1	Low	Major	Slight/moderate	<ul style="list-style-type: none"> Consider offer to local historical society to collect a sample of artefacts 	Medium	Slight
NS2B-19-H12	Fettlers Camp 2	Low	Major	Slight/moderate	<ul style="list-style-type: none"> Consider offer to local historical society to collect a sample of artefacts 	Medium	Slight
NS2B-19-H13	Fettlers Camp 3	Low	Major	Slight/moderate	<ul style="list-style-type: none"> Consider offer to local historical society to collect a sample of artefacts 	Medium	Slight
NS2B-19-H14	Fettlers Camp 4	Low	Major	Slight/moderate	<ul style="list-style-type: none"> Consider offer to local historical society to collect a sample of artefacts 	Medium	Slight
NS2B-19-H15	Mungle Siding	Low	Major	Slight/moderate	<ul style="list-style-type: none"> Archival recording/mapping of site Consider offer to local historical society to collect a sample of artefacts 	Medium	Slight
NS2B-19-H16	Back Creek Rail Bridge	Low	Major	Slight/moderate	<ul style="list-style-type: none"> Archival recording/mapping of site Consider offer to local historical society to collect a sample of artefacts 	Medium	Slight

9 Cumulative impacts

The potential for cumulative impacts emerges when concurrent or consecutive activities bring about incremental change to heritage places and values. These changes may not be captured in an assessment for any single proposal, and instead need to be considered on a wider physical and temporal scale (ICOMOS 2011).

At present, however, there is no baseline data available on the heritage values of these proposal areas, nor on the likely impacts of the respective proposal activities. Furthermore, the heritage values of the surrounding region remain largely unquantified, meaning there is also no basis on which to assess the wider impacts of all of these proposals (for a wider discussion, Godwin 2011). It is proposed that the proposal be regarded as the first baseline study for this area, and that subsequent assessments consider these findings as a part of their cumulative impact assessment.

10 Summary and recommendations

10.1 Impact assessment summary

This assessment has considered the potential historical heritage impacts of the proposal. A search of heritage registers in addition to the analysis of historical mapping identified 15 places of historical heritage values. Each of these sites was inspected, and an assessment of heritage significance undertaken, finding that 11 are of local heritage significance.

Potential proposal impacts on these places were assessed using ICOMOS standard guidelines (ICOMOS 2011) both before and after the implementation of mitigations (refer Table 10.1). The assessment found that, with appropriate measures, proposal impacts could be reduced to neutral/slight for six places, and slight for the remainder.

Table 10.1 Summary cultural heritage significance and impact assessment

Site ID	Description	Significance	Significance of impact before mitigation	Significance of impact after mitigation
NS2B-19-H2	Logger's Camp	None	Slight/Moderate	Slight
NS2B-19-H3	Survey Mark	None	Slight/Moderate	Slight
NS2B-19-H4	Whalan Creek Rail Bridge	Local	Slight/Moderate	Slight
NS2B-19-H5	Shearing Shed Archaeological Site	Local	Neutral/Slight	Neutral/Slight
NS2B-19-H6	Shearer Accommodation	Local	Neutral/Slight	Neutral/Slight
NS2B-19-H7	Modern Roadside Memorial	None	Neutral/Slight	Neutral/Slight
NS2B-19-H8	Old Boggabilla/North Star Road Alignment	None	Slight/Moderate	Slight
NS2B-19-H9	Wearne Siding	Local	Slight/Moderate	Slight
NS2B-19-H10	Wearne Siding Sign	Local	Neutral/Slight	Neutral/Slight
NS2B-19-H11	Fettlers Camp 1	Local	Slight/Moderate	Slight
NS2B-19-H12	Fettlers Camp 2	Local	Slight/Moderate	Slight
NS2B-19-H13	Fettlers Camp 3	Local	Slight/Moderate	Slight
NS2B-19-H14	Fettlers Camp 4	Local	Slight/Moderate	Slight
NS2B-19-H15	Mungle Siding	Local	Slight/Moderate	Slight
NS2B-19-H16	Back Creek Rail Bridge	Local	Slight/Moderate	Slight

10.2 Other heritage opportunities

The following opportunities have been identified for the proposal to consider but are considered outside of the scope of this heritage impact assessment.

10.2.1 Sustainability

The old Cumurra-Boggabilla railway is littered with construction and maintenance equipment from the operation of the original rail line. Such material includes sleepers, railway spikes and connectors, signage and the rails themselves. Opportunities exist for engagement of local heritage societies and museums (such as the Customs House Museum, Goondiwindi) to donate select salvaged materials for use in their displays and for research. Likewise, there is significant potential for donation of materials to local residents or recycling of salvaged materials collected from the demolition of the Cumurra-Boggabilla railway line. Opportunities exist for the engagement of local businesses in the salvage and reuse of this heritage material.

10.2.2 Boggabilla Station Interpretative and Information Centre

Aboriginal representatives identified that Boggabilla has struggled economically in recent times and all expressed a desire to see conservatory works undertaken at the old Boggabilla Railway Station to promote local tourism. It was suggested that there was potential for this structure to act as a community cultural centre/keeping place for salvaged Aboriginal heritage and interpretative/information centre for the NS2B component of Inland Rail.

It is FFJV's understanding that this structure is currently owned/leased by ARTC but is in a dilapidated state. Reconstruction of this element would serve as an opportunity to promote the Aboriginal community at Boggabilla and Toomelah to the wider public and also provide an opportunity to promote the rail heritage of the Inland Rail Program.

10.2.3 Rail Interpretative Signage

A thematic element of the Camurra-Boggabilla railway is the signage used to identify stations and sidings (refer Table 10.2). These precast concrete items were developed as a cheap solution to identifying stations and sidings along the railway. The use of concrete also served to protect them from termite and fire damage. Three examples remain on or close to the North Star to Boggabilla component of the railway: North Star, Wearne and Boggabilla. If appropriate and not in conflict with operation of the proposal, ARTC can investigate the feasibility of installing replacement signage at those old stops highlighting their location.

Table 10.2 Past location of signage along Camurra-Boggabilla Branch line relevant to the proposal (NSWrail.net)

Name	Chainage
North Star	758.570 km
Bibilah	765.900 km
Mungle	768.600 km
Wearne	779.648 km
Doyles Siding	785.341 km
Boggabilla	796.546 km

10.3 Recommendations

The following recommendations are made with respect to managing the historical heritage items potentially impacted by the proposal.

10.3.1 Mitigations

Table 10.3 outlines the summary of proposed mitigation measures for each identified historical heritage site.

Table 10.3 Proposed mitigation measures for each heritage place

Site ID	Description	Mitigation
NS2B-19-H2	Logger's Camp	<ul style="list-style-type: none">Clearance of site through collection and documentation of historical artefacts within construction disturbance footprintUnexpected finds procedure to be implementedSalvaged artefacts to be offered to local heritage society/museum

Site ID	Description	Mitigation
NS2B-19-H3	Survey Mark	<ul style="list-style-type: none"> ■ The tree should be accurately surveyed, and consultation undertaken with NSW Government Spatial Services to determine if they have a record of this tree. ■ Should NS2B-19-H3 be impacted, ARTC will engage with the NSW Government Spatial Services to discuss requirements for destruction of this survey mark (Pre-Construction) ■ Photographic archival recording of the tree should be undertaken prior to impact (Pre-Construction)
NS2B-19-H4	Whalan Creek Rail Bridge	<ul style="list-style-type: none"> ■ Archival recording/mapping of site should be undertaken prior to impact. This will involve: <ul style="list-style-type: none"> – Archaeological survey and collection of Aboriginal and historical heritage items prior to disturbance – Clearance of vegetation around structure prior to recording – Detailed plans are to be prepared and photographic archival recording undertaken according to NSW Standards prior to demolition ■ Salvaged artefacts to be offered to local heritage society/museum
NS2B-19-H5	Shearing Shed Archaeological Site	<ul style="list-style-type: none"> ■ Avoidance of site. Site is outside of the proposal disturbance footprint but may be impacted through unintentional interaction. ■ Works within 200m should note presence of heritage site as part of daily toolboxes <p>If avoidance is identified as not being possible for whatever reason:</p> <ul style="list-style-type: none"> ■ Archaeological survey of the site is to be undertaken ■ Archaeological excavation is to be undertaken in areas identified during the survey as having potential for subsurface deposits ■ Salvaged artefacts to be offered to local heritage society/museum
NS2B-19-H6	Shearer Accommodation	<ul style="list-style-type: none"> ■ Avoidance of site. Site is outside of the proposal disturbance footprint but may be impacted through unintentional interaction. ■ Works within 200m should note presence of heritage site as part of daily toolboxes <p>If avoidance is identified as not being possible for whatever reason:</p> <ul style="list-style-type: none"> ■ Archaeological survey of the site is to be undertaken ■ Archaeological excavation is to be undertaken in areas identified during the survey as having potential for subsurface deposits <p>Salvaged artefacts to be offered to local heritage society/museum</p>
NS2B-19-H7	Modern Roadside Memorial	<ul style="list-style-type: none"> ■ Avoidance of site. <p>If avoidance is identified as not being possible for whatever reason:</p> <ul style="list-style-type: none"> ■ Immediate family of Mr Orchard are to be consulted with on appropriate measures during construction which may include: <ul style="list-style-type: none"> – access requirements to memorial – temporary relocation, and later reinstatement post-construction
NS2B-19-H8	Old Boggabilla/North Star Road Alignment	<ul style="list-style-type: none"> ■ Clearance of site through collection and documentation of historical artefacts within construction disturbance footprint ■ Unexpected finds procedure to be implemented ■ Salvaged artefacts to be offered to local heritage society/museum
NS2B-19-H9	Wearne Siding	<ul style="list-style-type: none"> ■ Archival recording/mapping of site should be undertaken prior to impact. This will involve: <ul style="list-style-type: none"> – Archaeological survey and collection of Aboriginal and historical heritage items prior to disturbance – Clearance of vegetation around structure prior to recording – Detailed plans are to be prepared and photographic archival recording undertaken according to NSW Standards prior to demolition ■ Salvaged artefacts to be offered to local heritage society/museum

Site ID	Description	Mitigation
NS2B-19-H10	Wearne Siding Sign	<ul style="list-style-type: none"> Avoidance of site If avoidance is identified as not being possible for whatever reason: <ul style="list-style-type: none"> Archival recording/mapping of site Consultation with landowner on proposed mitigation measures Temporarily remove structure and reinstate post-construction
NS2B-19-H11	Fettlers Camp 1	<ul style="list-style-type: none"> Documentation and salvage of unique non-kiln related historical artefacts (i.e. not slag or non-descript kiln bricks) within construction disturbance footprint Salvaged artefacts to be offered to local heritage society/museum
NS2B-19-H12	Fettlers Camp 2	<ul style="list-style-type: none"> Documentation and salvage of unique non-kiln related historical artefacts (i.e. not slag or non-descript kiln bricks) within construction disturbance footprint Salvaged artefacts to be offered to local heritage society/museum
NS2B-19-H13	Fettlers Camp 3	<ul style="list-style-type: none"> Documentation and salvage of unique non-kiln related historical artefacts (i.e. not slag or non-descript kiln bricks) within construction disturbance footprint Salvaged artefacts to be offered to local heritage society/museum
NS2B-19-H14	Fettlers Camp 4	<ul style="list-style-type: none"> Documentation and salvage of unique non-kiln related historical artefacts (i.e. not slag or non-descript kiln bricks) within construction disturbance footprint Salvaged artefacts to be offered to local heritage society/museum
NS2B-19-H15	Mungle Siding	<ul style="list-style-type: none"> Archival recording/mapping of site should be undertaken prior to impact. This will involve: <ul style="list-style-type: none"> Archaeological survey and collection of Aboriginal and historical heritage items prior to disturbance Clearance of vegetation around structure prior to recording Detailed plans are to be prepared and photographic archival recording undertaken according to NSW Standards prior to demolition Salvaged artefacts to be offered to local heritage society/museum
NS2B-19-H16	Back Creek Rail Bridge	<ul style="list-style-type: none"> Archival recording/mapping of site should be undertaken prior to impact. This will involve: <ul style="list-style-type: none"> Archaeological survey and collection of Aboriginal and historical heritage items prior to disturbance Clearance of vegetation around structure prior to recording Detailed plans are to be prepared and photographic archival recording undertaken according to NSW Standards prior to demolition Salvaged artefacts to be offered to local heritage society/museum

10.3.2 Historic Heritage Management Plan

A Historic Heritage Management Plan is recommended to be developed to manage impacts to historical heritage within the proposal footprint. Key elements of the Historic Heritage Management Plan would include the following:

- Archaeological test excavation methodology
- Salvage collection methodology of artefacts
- Conservation of non-impacted sites
- The procedure for managing previously unrecorded historical heritage
- Management of potential human remains
- Management of an historical heritage site database for the proposal.

10.3.3 Unexpected finds procedure

The following unexpected finds procedure is to be implemented for the construction phase of the proposal.

Historical heritage finds may include the following:

- Glass (Coloured glass, bottles (complete or fragmentary etc.)
- Metal (identifiable metallic objects such as cutlery, buckles, framing equipment, woodworking and metal equipment etc.)
- Ceramic (plates, cups, ink wells, pipes etc.)
- Wood (identifiable human manufactured wooden items)
- Stone (identifiable human manufactured stone items)
- Bone and Shell (potential historical food waste dumps).

The following procedure is to be followed:

1. If a suspected unexpected find is identified during the proposed works, work will stop immediately in the immediate area and the Project Manager will be notified of the find.
2. An area of 10 m radius is to be cordoned off by temporary fencing around the suspect archaeological site.
3. The Project Manager must then engage a Cultural Heritage Specialist to assess the find.
4. If the find is determined to be Aboriginal heritage, the Cultural Heritage Specialist under the Project Manager's direction will contact the relevant Aboriginal Party/ies to discuss the find and appropriate mitigation measures.
5. If the find is determined to be historic heritage, the Cultural Heritage Specialist will assess the find's significance and advice on an appropriate mitigation management strategy, the Cultural Heritage Specialist will then update and/or complete site records and advise on possible management strategies as required by law.

10.3.4 Unexpected discovery of human remains

In all cases when human remains are located it is important to remember:

- The discovery of any human remains must as soon as possible be reported to the NSW Police.
- The discovery of human remains must be treated as a crime scene until such point that the NSW Police and/or Coroner advise otherwise
- It is an offence to interfere with human remains, whether buried or not.

In the event that potential human skeletal remains are identified at any point during the life of the development, the following standard procedure (New South Wales Police Force 2015; NSW Health 2013) should be followed.

1. All work in the vicinity of the remains should cease immediately;
2. The location should be cordoned off - work can continue outside of this area as long as there is no risk of interference to the remains or the assessment of the remains;
3. Where it is reasonably obvious from the remains that they are human, the Project Manager (or a delegate) should inform the NSW Police by telephone (prior to seeking advice from a forensic specialist);
4. Where uncertainty over the origin (i.e., human or non-human) of the remains exists, a physical or forensic anthropologist should be commissioned to inspect the exposed remains in situ and make a determination of origin, ancestry (Aboriginal or non-Aboriginal) and antiquity (pre-contact, historic or modern);
5. If the remains are identified as modern and human, notify NSW Police;

6. If the remains are identified as pre-contact or historic Aboriginal, notify DPIE using their Environment Line (131 555);
7. If the remains are identified as historic (non-Aboriginal), notify the NSW Heritage Division.

11 References

- Abbott, H. (1926), November 27 Merawah and the Doyles. *Warialda Standard and Northern Districts' Advertiser*. Warialda.
- At Boggabilla (1939), May 1. *Warialda Standard and Northern Districts' Advertiser* 2. Warialda.
- Australia ICOMOS (2013a) The Burra Charter and Indigenous Cultural Heritage Management. Australia ICOMOS.
- Australia ICOMOS (2013b) Understanding and Assessing Cultural Significance. Australia ICOMOS Incorporated.
- Australian Railway Historical Society (1988) Northern Closures. *Railway Digest* 26(1):24.
- Australian Railway Historical Society (NSW Division) (2014), January Rail line booked out of use due to infrequent train services. *Railway Digest* 11.
- Bedwell, K. (1957) Beginnings of Toowoomba. *Journal of the Royal Historical Society of Queensland* 5(5):1316–1326.
- Boggabilla and North Star. New Lifting Appliances (1937), May 13. *North West Champion* 4.
- Boggabilla Budget: Hospital Subsidy: Stock Movements: Personal: Town Progress (1934), April 20. *The Inverell Times* 2. Inverell.
- Campbell, D., G. Vincent, and T. Chen (2014), November Signalling & Infrastructure. *Railway Digest* 42–43.
- Camurra-Boggabilla Railway (1928a), April 5. *Moree Gwydir Examiner and General Advertiser* 2. Moree.
- Camurra-Boggabilla Railway (1928b), May 17. *Moree Gwydir Examiner and General Advertiser* 3. Moree.
- Camurra-Boggabilla Railway (1930), June 25. *The Australian Worker* 16. Sydney.
- Camurra-Boggavilla Railway (1923), May 17. *Moree Gwydir Examiner and General Advertiser* 2. Moree.
- Camurra Boggabilla Railway (1932), June 6. *Warialda Standard and Northern Districts' Advertiser* 2. Warialda.
- Commissioner of Crown Lands (1837) Memorandum copied from original description of Merawah Run, Gwydir district sent by Commissioner Bligh to James Howe, 29 September 1837. Sydney.
- Death of an old District Resident (1932), September 12. *Warialda Standard and Northern Districts' Advertiser* 2. Warialda.
- Fitzgerald, R. (2007) *Yallaroi: the settler's era: memories from a settler's wife*. North Star, NSW, Self-published.
- Flick, I. and H. Goodall (2004) *Isabel Flick: the many lives of an extraordinary Aboriginal woman*. Crows Nest, Allen & Unwin.
- Godwin, L. (2011) The Application of Assessment of Cumulative Impacts in Cultural Heritage Management: A Critique. *Australian Archaeology* 73(73):88–91.
- Heffron, R.J. (1964), April 24 Bumper Wheat Crops Raise Storage Problem. *Western Herald* 4. Bourke.
- Huge Wheat Silo For Inverell Area (1955, June 10. *The Farmer and Settler* 40. Sydney.
- Human Rights Australia (1988) Toomelah Report: Report on the problems and needs of Aborigines living on the NSW-Queensland boarder. Canberra, Human Rights Australia.
- ICOMOS (2011) Guidance on Heritage Impact Assessments for Cultural World Heritage Places. Paris.
- Ingall, J. (2017a) Army begins six-month program to rebuild NSW Indigenous community of Toomelah ABCOnline. Retrieved 22 November (2018 < <https://www.abc.net.au/news/2017-05-10/aboriginal-community-assistance-program-toomelah/8505812> >.

Ingall, J. (2017b) Army's training program in troubled Toomelah community sees success in building lives ABCOnline. Retrieved 22 November (2018 < <https://www.abc.net.au/news/2017-11-20/army-program-put-a-trainee-back-on-track-to-aged-care/9154570> >.

Jones, I. (2018), August 24 Boars supporter Henry Orchard died in Bruxner Way tragedy. *Goondiwindi Argus*. Goondiwindi.

Licenses Reduction Board (1925), August 31. *Warialda Standard and Northern Districts' Advertiser* 2. Warialda.

Long, J.P. (1970) Aboriginal Settlements: A survey of institutional communities in eastern Australia. Canberra, Australian National University Press.

Milne, R. (1993) The Boggabilla Branch. *Australian Railway Historical Society Bulletin* 44(664 (February)):27–47.

Mrs. A.L. Sutton, North Star (1938), April 29. *The Inverell Times* 2. Inverell.

New Aboriginal Settlement (1938, October 17. *Warialda Standard and Northern Districts' Advertiser* 5. Warialda.

New South Wales Police Force (2015) NSW Police Force Handbook.

North Star. Fire Destroys Scrub (1932), February. *North West Champion* 3.

North Star (1931a), June 18. *Warialda Standard and Northern Districts' Advertiser* 2. Warialda.

North Star (1931b), August 31. *Warialda Standard and Northern Districts' Advertiser* 2. Warialda.

North Star Railway (1937), November 3. *The Inverell Times* 4. Inverell.

NSW Government (1923) Camurra to Boggabilla Railway Act.

NSW Health (2013) Burials - Exhumation of Human Remains. North Sydney.

NSW Heritage Branch (2009) Assessing Significance for Historical Archaeological Sites and 'Relics'. Parramatta.

NSW Heritage Council (2019) Heritage Council of NSW Criteria for Assessing Excavation Directors.

NSW Heritage Office (1998) How to Prepare Archival Records of Heritage Items. Heritage Information Series.

NSW Heritage Office (2001) Assessing Heritage Significance. Parramatta.

NSW Heritage Office (2006) Photographic recording of heritage items using film or digital capture. Parramatta, Heritage Office.

NSW Heritage Office (2008) Levels of Heritage Significance. Parramatta, Heritage Office.

NSW Heritage Office & Department of Urban Affairs & Planning (2002) Statements of Heritage Impact. Parramatta, Heritage Office & Department of Urban Affairs & Planning.

NSW Heritage Office and NSW Department of Urban Affairs and Planning (1996a) NSW Heritage Manual. Parramatta, Heritage Office & Department of Urban Affairs & Planning.

NSW Heritage Office and NSW Department of Urban Affairs and Planning (1996b) Archaeological Assessment Guidelines. Heritage Office and the Department of Urban Affairs and Planning.

Panshanger (1926), December 4 In Northern New South Wales. *The Australasian* 6. Melbourne.

Personal items (1881). *The Bulletin* 7(86):13.

Sites of Towns and Villa (1863), May 7. *The Maitland Mercury & Hunter River General Advertiser* 3. Maitland.

The Maitland Weekly Mercury (1927), January 1 Aboriginies: Protection Board's Report. *The Maitland Weekly Mercury* 2. Maitland.

The Rise of North Star: Northern District Joins Constellation of Important Wheat Centres (1938), February 17. *The Farmer and Settler* 13. Sydney.

Wallace, J. (2014) Contested Histories, Conflicting Narratives: Past and present Aboriginal relationships with Warwick, Queensland, Australia. Monash University.

Warialda P.P. Board (1940), May 27. *Warialda Standard and Northern Districts' Advertiser* 2. Warialda.

Wilby (1915), May 22. *The Tamworth Daily Observer* 3. Tamworth.

Wilby Law Suit: Estate of David Sutton (1936), October 21. *The Inverell Times* 10. Inverell.

Working Bee Prepared Stacking Site at North Star to Receive First Load of New Season's Wheat (1942), November 20. *The Land* 2. Sydney.

APPENDIX



F

Historical Heritage Technical Report

Appendix A Historical Heritage Significance Ratings

NORTH STAR TO NSW/QUEENSLAND BORDER ENVIRONMENTAL IMPACT STATEMENT

ARTC

The Australian Government is delivering
Inland Rail through the Australian
Rail Track Corporation (ARTC), in
partnership with the private sector.

Appendix A

Historical Heritage Significance Ratings

NS2B-19-H2 – Logger's Camp

Criterion	Assessment	Threshold
A – historical	The logger's camp is understood to be a mid to late 20 th century camp for timber getters. It has no particular historical value.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
B – associational	The logger's camp has no known special association with the life or work of a particular person, group or organisation of historical importance.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
C – aesthetic	The logger's camp has no aesthetic values.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
D – social	The logger's camp has no social values.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
E – research	The logger's camp is considered unlikely to contribute new or important information.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
F – rarity	The logger's camp is not considered to be rare as many such examples exist across NSW	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
G – representativeness	There are more intact/complex examples of logger's camps across NSW notably in State forests.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
Overall significance		<input checked="" type="checkbox"/> None <input type="checkbox"/> Local <input type="checkbox"/> State

NS2B-19-H3 – Survey Mark

Criterion	Assessment	Threshold
A – historical	The survey mark has limited historical value beyond reference to early surveying strategies.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
B – associational	The survey mark has no known special association with the life or work of a particular person, group or organisation of historical importance.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
C – aesthetic	The survey mark has limited aesthetic values.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
D – social	The survey mark has no known social values.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
E – research	The survey mark is considered unlikely to contribute new or important information.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
F – rarity	Early survey marks (including arrow types) are still relatively common across the landscape.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
G – representativeness	There are more intact examples of this survey marks across NSW.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
Overall significance		<input type="checkbox"/> None <input checked="" type="checkbox"/> Local <input type="checkbox"/> State

NS2B-19-H4 – Whalan Creek Rail Bridge

Criterion	Assessment	Threshold
A – historical	The Whalan Creek Rail Bridge has historical value as a piece of significant infrastructure on the Cumurra-Boggabilla railway. It provides us with an appreciation into rail construction, particular rural adaptation to standardised construction methodology.	<input type="checkbox"/> Not met <input checked="" type="checkbox"/> Local <input type="checkbox"/> State
B – associational	The railway bridge has no known special association with the life or work of a particular person, group or organisation of historical importance.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
C – aesthetic	The railway bridge has limited aesthetic values.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
D – social	The railway bridge has no known social values.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
E – research	The railway bridge is considered unlikely to contribute new or important information.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
F – rarity	Steel and concrete railway bridges are common across the NSW rail network	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
G – representativeness	There are more intact examples of this steel and concrete rail bridges across the NSW rail network.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
Overall significance		<input type="checkbox"/> None <input checked="" type="checkbox"/> Local <input type="checkbox"/> State

NS2B-19-H5 and NS2B-19-H6 – Shearing Shed Complex

Criterion	Assessment	Threshold
A – historical	The shearing shed complex has historical value as a local industry and employer in addition to its use as social venue for dances in the mid 20 th century.	<input type="checkbox"/> Not met <input checked="" type="checkbox"/> Local <input type="checkbox"/> State
B – associational	The shearing shed complex has no known special association with the life or work of a particular person, group or organisation of historical importance.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
C – aesthetic	The shearing shed complex has limited aesthetic values as the main structure has burnt down.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
D – social	The shearing shed complex has social values to the local community (Toomelah and Boggabilla) as a venue where regular dances were held and community would come together for social events.	<input type="checkbox"/> Not met <input checked="" type="checkbox"/> Local <input type="checkbox"/> State
E – research	The shearing shed complex is considered unlikely to contribute new or important information.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
F – rarity	Shearing sheds and associated infrastructure are still relatively common across the landscape in rural NSW and Queensland.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
G – representativeness	There are more intact examples of shearing shed complexes across NSW and Queensland.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
Overall significance		<input type="checkbox"/> None <input checked="" type="checkbox"/> Local <input type="checkbox"/> State

NS2B-19-H7 – Modern Roadside Memorial

Criterion	Assessment	Threshold
A – historical	The roadside memorial is understood to be a memorial for Mr Henry Orchard, Goondiwindi who was killed in a vehicle accident at this location on 24 August 2018. The roadside memorial is a recent addition to the history of Bruxner Way and does not meet the thresholds for NSW historical heritage significance assessments.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
B – associational	While the roadside memorial is associated with Mr Henry Orchard, in the context of NSW historical heritage significance assessments, the roadside memorial has no known special association with the life or work of a particular person, group or organisation of historical importance.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
C – aesthetic	The roadside memorial is a simple metal cross which has limited aesthetic values in the context of NSW historical heritage significance assessments.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
D – social	The survey mark has no known social values in the context of NSW historical heritage significance assessments.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
E – research	The roadside memorial is considered unlikely to contribute new or important information.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
F – rarity	Roadside memorials are a common feature across the NSW road network.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
G – representativeness	There are numerous formalised road memorials across NSW that are considered representative of the site type.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
Overall significance		<input checked="" type="checkbox"/> None <input type="checkbox"/> Local <input type="checkbox"/> State

NS2B-19-H8 – Old Boggabilla/North Star Road

Criterion	Assessment	Threshold
A – historical	The old Boggabilla/North Star Road has limited historical value beyond reference to early road construction.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
B – associational	This section of the road has no known special association with the life or work of a particular person, group or organisation of historical importance.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
C – aesthetic	This section of the road has limited aesthetic values.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
D – social	This section of the road has no known social values.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
E – research	This section of the road is considered unlikely to contribute new or important information.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
F – rarity	Old road alignments are still relatively common across NSW.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
G – representativeness	There are more intact examples of this old road alignments across NSW.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
Overall significance		<input checked="" type="checkbox"/> None <input type="checkbox"/> Local <input type="checkbox"/> State

NS2B-19-H9 – Wearne Siding

Criterion	Assessment	Threshold
A – historical	The Wearne Siding is a part of the early 20 th century Cumurra-Boggabilla railway line. It has historical value as an important element of the history of the railway line.	<input type="checkbox"/> Not met <input checked="" type="checkbox"/> Local <input type="checkbox"/> State
B – associational	The siding has no known special association with the life or work of a particular person, group or organisation of historical importance.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
C – aesthetic	The siding has limited aesthetic values.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
D – social	The siding has no known social values.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
E – research	The siding is considered unlikely to contribute new or important information.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
F – rarity	Siding are relatively common across the NSW rail network.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
G – representativeness	There are more intact examples of this sidings across the NSW rail network.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
Overall significance		<input type="checkbox"/> None <input checked="" type="checkbox"/> Local <input type="checkbox"/> State

NS2B-19-H10 – Wearne Siding Sign

Criterion	Assessment	Threshold
A – historical	The North Star Siding Sign is a part of the early 20 th century Cumurra-Boggabilla railway line. The item is an important element of the history of the railway line.	<input type="checkbox"/> Not met <input checked="" type="checkbox"/> Local <input type="checkbox"/> State
B – associational	The sign has no known special association with the life or work of a particular person, group or organisation of historical importance.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
C – aesthetic	The sign has limited aesthetic values.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
D – social	The sign has no known social values.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
E – research	The sign is considered unlikely to contribute new or important information.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
F – rarity	Pre-cast concrete signs are understood to be still relatively common across the NSW rail network.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
G – representativeness	There are more intact examples of this type of sign across the NSW rail network.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
Overall significance		<input type="checkbox"/> None <input checked="" type="checkbox"/> Local <input type="checkbox"/> State

NS2B-19-H11 – Fettler’s Camp #1

Criterion	Assessment	Threshold
A – historical	Fettler’s Camp #1 has historical value as a part of the understanding of the construction of the Cumurra-Boggabilla railway. These camps demonstrate rural adaptation to standardised construction methodology.	<input type="checkbox"/> Not met <input checked="" type="checkbox"/> Local <input type="checkbox"/> State
B – associational	Fettler’s Camp #1 has no known special association with the life or work of a particular person, group or organisation of historical importance.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
C – aesthetic	Fettler’s Camp #1 has limited aesthetic values.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
D – social	Fettler’s Camp #1 has no known social values.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
E – research	Fettler’s Camp #1 is considered unlikely to contribute new or important information.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
F – rarity	From our survey of the Cumurra-Boggabilla railway line, it appears that evidence of fettler camps are common across the NSW rural rail network.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
G – representativeness	There are more intact examples of fettler camps across NSW.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
Overall significance		<input type="checkbox"/> None <input checked="" type="checkbox"/> Local <input type="checkbox"/> State

NS2B-19-H12 – Fettler’s Camp #2

Criterion	Assessment	Threshold
A – historical	Fettler’s Camp #2 has historical value as a part of the understanding of the construction of the Cumurra-Boggabilla railway. These camps demonstrate rural adaptation to standardised construction methodology.	<input type="checkbox"/> Not met <input checked="" type="checkbox"/> Local <input type="checkbox"/> State
B – associational	Fettler’s Camp #2 has no known special association with the life or work of a particular person, group or organisation of historical importance.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
C – aesthetic	Fettler’s Camp #2 has limited aesthetic values.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
D – social	Fettler’s Camp #2 has no known social values.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
E – research	Fettler’s Camp #2 is considered unlikely to contribute new or important information.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
F – rarity	From our survey of the Cumurra-Boggabilla railway line, it appears that evidence of fettler camps are common across the NSW rural rail network.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
G – representativeness	There are more intact examples of fettler camps across NSW.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
Overall significance		<input type="checkbox"/> None <input checked="" type="checkbox"/> Local <input type="checkbox"/> State

NS2B-19-H13 – Fettler’s Camp #3

Criterion	Assessment	Threshold
A – historical	Fettler’s Camp #3 has historical value as a part of the understanding of the construction of the Cumurra-Boggabilla railway. These camps demonstrate rural adaptation to standardised construction methodology.	<input type="checkbox"/> Not met <input checked="" type="checkbox"/> Local <input type="checkbox"/> State
B – associational	Fettler’s Camp #3 has no known special association with the life or work of a particular person, group or organisation of historical importance.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
C – aesthetic	Fettler’s Camp #3 has limited aesthetic values.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
D – social	Fettler’s Camp #3 has no known social values.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
E – research	Fettler’s Camp #3 is considered unlikely to contribute new or important information.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
F – rarity	From our survey of the Cumurra-Boggabilla railway line, it appears that evidence of fettler camps are common across the NSW rural rail network.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
G – representativeness	There are more intact examples of fettler camps across NSW.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
Overall significance		<input type="checkbox"/> None <input checked="" type="checkbox"/> Local <input type="checkbox"/> State

NS2B-19-H14 – Fettler’s Camp #4

Criterion	Assessment	Threshold
A – historical	Fettler’s Camp #4 has historical value as a part of the understanding of the construction of the Cumurra-Boggabilla railway. These camps demonstrate rural adaptation to standardised construction methodology.	<input type="checkbox"/> Not met <input checked="" type="checkbox"/> Local <input type="checkbox"/> State
B – associational	Fettler’s Camp #4 has no known special association with the life or work of a particular person, group or organisation of historical importance.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
C – aesthetic	Fettler’s Camp #4 has limited aesthetic values.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
D – social	Fettler’s Camp #4 has no known social values.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
E – research	Fettler’s Camp #4 is considered unlikely to contribute new or important information.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
F – rarity	From our survey of the Cumurra-Boggabilla railway line, it appears that evidence of fettler camps are common across the NSW rural rail network.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
G – representativeness	There are more intact examples of fettler camps across NSW.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
Overall significance		<input type="checkbox"/> None <input checked="" type="checkbox"/> Local <input type="checkbox"/> State

NS2B-19-H15 – Mungle Siding

Criterion	Assessment	Threshold
A – historical	The Mungle Siding is a part of the early 20 th century Cumurra-Boggabilla railway line. It has historical value as an important element of the history of the railway line.	<input type="checkbox"/> Not met <input checked="" type="checkbox"/> Local <input type="checkbox"/> State
B – associational	The siding has no known special association with the life or work of a particular person, group or organisation of historical importance.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
C – aesthetic	The siding has limited aesthetic values.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
D – social	The siding has no known social values.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
E – research	The siding is considered unlikely to contribute new or important information.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
F – rarity	Siding are relatively common across the NSW rail network.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
G – representativeness	There are more intact examples of this sidings across the NSW rail network.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
Overall significance		<input type="checkbox"/> None <input checked="" type="checkbox"/> Local <input type="checkbox"/> State

NS2B-19-H16 – Back Creek Rail Bridge

Criterion	Assessment	Threshold
A – historical	The Back Creek Rail Bridge has historical value as a piece of significant infrastructure on the Cumurra-Boggabilla railway. It provides us with insight into rail construction, particular rural adaptation to standardised construction methodology.	<input type="checkbox"/> Not met <input checked="" type="checkbox"/> Local <input type="checkbox"/> State
B – associational	The railway bridge has no known special association with the life or work of a particular person, group or organisation of historical importance.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
C – aesthetic	The railway bridge has limited aesthetic values.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
D – social	The railway bridge has no known social values.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
E – research	The railway bridge is considered unlikely to contribute new or important information.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
F – rarity	Steel and concrete railway bridges are common across the NSW rail network	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
G – representativeness	There are more intact examples of this steel and concrete rail bridges across the NSW rail network.	<input checked="" type="checkbox"/> Not met <input type="checkbox"/> Local <input type="checkbox"/> State
Overall significance		<input type="checkbox"/> None <input checked="" type="checkbox"/> Local <input type="checkbox"/> State