TECHNICAL PAPER

07

Statement of heritage impact

NARRABRI TO NORTH STAR—PHASE 2 ENVIRONMENTAL IMPACT STATEMENT

Narrabri to North Star Phase 2 Moree to Camurra North

Statement of Heritage Impact

2-0001-262-EAP-00-RP-0036

Report to IRDJV

Moree Plains Local Government Area

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EXECUTIVE SUMMARY

The Australian Government has committed to delivering a significant piece of national transport infrastructure by constructing a high performance and direct interstate freight rail corridor between Melbourne and Brisbane. The Inland Rail programme (Inland Rail) involves the design and construction of a new inland rail connection, about 1,700 kilometre (km) long, between Melbourne and Brisbane, via central-west New South Wales (NSW) and Toowoomba in Queensland. Inland Rail would enhance Australia's existing national rail network and serve the interstate freight market.

Australian Rail Track Corporation Ltd (ARTC) (the proponent) was granted approval to construct and operate the Narrabri to North Star (N2NS) section of Inland Rail on 13 August 2020. Since then, the alignment within what is now the N2NS Phase 2 area has changed (Inland Rail Design Joint Venture (IRDJV), 2019a). Specifically, modifications are required to upgrade a section of the corridor from Moree to the Camurra North hairpin, including the crossings of the Mehi and Gwydir rivers. The upgrade involves changes to the vertical and horizontal alignment to manage flooding as well as a new greenfield section in the north to allow for a bypass of the current hairpin turn at Camurra (the Camurra Bypass). The original N2NS Environmental Impact Statement (EIS) did not assess these changes. Consequently, this section of the N2NS alignment was removed from the original project and therefore requires separate assessment under the *Environmental Planning and Assessment Act 1979* (EP&A Act). The project will be subject to assessment by the Department of Planning, Industry and Environment (DPIE) as Critical State Significant Infrastructure (CSSI) 10054.

IRDJV on behalf of ARTC have engaged Artefact Heritage Services Pty Ltd (Artefact Heritage) to complete a standalone Statement of Heritage Impact (SoHI) for inclusion in an EIS to assist with planning approvals for N2NS Phase 2. The aim of this SoHI is to identify heritage items and potential archaeological resources that may be impacted by the proposal, determine the level of heritage significance of each item, assess potential impacts to those items, identify management and statutory obligations for the proposal, and to address the Secretary's Environmental Assessment Requirements (SEARs) for N2NS Phase 2.

Overview of findings

The main findings of the SoHI are as follows:

- The proposal would not occur within the curtilage of any heritage items on the statutory World Heritage List (WHL), Commonwealth Heritage List (CHL), National Heritage List (NHL), or State Heritage Register (SHR). The proposal would not occur within the curtilage of any non-statutory listed items on the Register of the National Trust (RNT) or the Register of the National Estate (RNE)
- The CIZ contains two heritage items listed on the ARTC s170 Heritage and Conservation Register, with one of these also being listed on the Country Regional Network (CRN) s170 Heritage and Conservation Register:
  - Mehi River Bridge (ARTC s170 State Heritage Inventory [SHI] no. 4281692)
  - Camurra, Gwydir River Underbridge (ARTC and CRN s170 SHI no. 4281693)
- The study area contains two items listed on the Moree Plains Local Environmental Plan (LEP) 2011 and one item listed on the RailCorp s170 Heritage and Conservation Register:
  - Moree Railway Station (LEP no. I025; SHI no. 4801208)

  - Victoria Hotel (LEP no. I022)
- The study area contains one unlisted heritage item:
  - Moree Hotel
- Two additional potential heritage items that were identified as being within the CIZ, 'Railway line and associated infrastructure' and the 'Timber constructed underbridges and culverts', have been assessed as unlikely to reach the threshold for local significance
- The proposed works associated with N2NS Phase 2 would result in the following impacts:
  - Mehi River Bridge (ARTC s170 SHI no. 4281692) – major direct (physical), indirect (visual) and potential direct (physical) impacts
  - Camurra, Gwydir River Underbridge (ARTC and CRN s170 SHI no. 4281693) – major direct (physical), indirect (visual) and potential direct (physical) impacts
  - Moree Railway Station (LEP no. I025; SHI no. 4801208) – neutral direct and potential direct (physical) impacts and negligible indirect (visual) impacts
  - Victoria Hotel (LEP no. I022) – neutral direct and potential direct (physical) impacts and negligible indirect (visual) impacts
  - Moree Hotel (unlisted item) – neutral direct (physical) impacts and negligible indirect (visual) and potential direct (physical) impacts
- The proposed works would result in the complete removal of Mehi River Bridge (SHI no. 4281692) and Camurra, Gwydir River Underbridge (SHI no. 4281693), and would result in the delisting of the heritage items. The cumulative impact to the collective heritage group of Pratt Truss Bridges across NSW as a result of the removal of Mehi River Bridge (SHI no. 4281692) and Camurra, Gwydir River Underbridge (SHI no. 4281693) would be low to moderate
- The proposed works would not impact the overall significance of the Moree Railway Station (LEP no. I025; SHI no. 4801208), the Victoria Hotel (LEP no. I022) and the unlisted Moree Hotel
- The CIZ has been assessed as having low potential to contain locally significant archaeological remains of Phase 3 Aboriginal camping at Steel Bridge Camp near Mehi River Bridge (SHI no. 4281692)
- The proposed excavations for the demolition of Mehi River Bridge (SHI no. 4281692) and construction of a new bridge would result in minor archaeological impacts to the local archaeological record of Aboriginal fringe camps in Moree dating to the twentieth century
- Other potential archaeological remains within the CIZ are unlikely to reach the threshold of local significance.

Recommendations and mitigation measures

The following recommendations and mitigation measures would be implemented to mitigate impacts to listed and unlisted items of heritage significance, historic landscapes and streetscapes and potential archaeological remains resulting from N2NS Phase 2.

	Mitigation measure / recommendation	Timing	Goal of management measure
NAH1 **Bridge designs**	Due to design constraints it has been determined that the retention of the Mehi River Bridge (SHI no. 4281692) and the Camurra, Gwydir River Underbridge (SHI no. 4281693) is not feasible. Therefore, to mitigate the impacts resulting from the removal of the bridges it is recommended that design elements of the Mehi and Gwydir River Bridges be incorporated into the new bridge designs. The project should not adopt the standard ARTC bridge design for the replacements of the extant bridges. Instead, a more sympathetic design that incorporates or references the original design of the steel Pratt truss bridges is recommended so that they reflect the heritage values of the Mehi River Bridge (SHI no. 4281692) and Camurra, Gwydir River Underbridge (SHI no. 4281693). The new bridges should be designed in consultation with suitably qualified Heritage Consultants and Heritage Architects. Options for the reuse of original elements of the existing bridges for non-structural elements or in interpretation near to the bridges should also be considered for the new bridges during the detailed design stage. Landscape design and the rehabilitation of the landscape should incorporate interpretation and native plants	Design	Ongoing identification of the potential to reduce impacts to non-Aboriginal heritage
NAH2 **Vibration impacts**	In order to minimise and control any risks to heritage fabric or items as a result of vibration impacts, the following mitigation measures are recommended: • Dilapidation study to be undertaken for heritage items within 50m of the CIZ prior to works commencing • A vibrations assessment be carried out for items within 50m of the CIZ as per the: – *British Standard BS 7385: Part 2: Evaluation and Measurement for Vibrations in Buildings – Part 2 Guide to Damage Levels from Ground-Borne Vibration* – *German Standard DIN 4150, Part 3: Structural Vibration in Buildings: Effects on Structures.* This would take place prior to works commencing, during the construction program and once the project is operational.	Pre-construction/ Construction	Mitigation of impact to heritage items

	Mitigation measure / recommendation	Timing	Goal of management measure
	If vibration monitors are attached to the heritage items, they must not be attached with permanent fixings. They should be removable without causing damage. Bees wax may be a suitable attachment method. If it is identified that levels of vibration are causing damage to heritage fabric, works must cease, and the construction methodology reviewed by the project engineers in consultation with a Heritage Consultant in order to mitigate further impacts. A temporary protection plan to outline protection measures required for significant fabric during activities causing potential vibration impacts would be prepared prior to commencement of works. This mitigation measure would be required for the unlisted heritage item of Moree Hotel		
NAH3 Delisting of heritage items	The demolition of Mehi River Bridge (SHI no. 4281692) and Camurra, Gwydir River Underbridge (SHI no. 4281693) would remove the significance of these items. The ARCT and CRN s170 Heritage and Conservation Registers would need to be amended to remove these items from the registers. An s170 notification must be submitted to Heritage NSW, Department of Premier and Cabinet (Heritage NSW, DPC) prior to any works that will significantly modify and/or remove the Mehi River Bridge (SHI no. 4281692) and Camurra, Gwydir River Underbridge (SHI no. 4281693)	Pre-construction	Heritage management
NAH4 Photographic archival recording	A comprehensive photographic archival recording, in accordance with the Heritage Division's guidelines (Heritage Office 1998 and 2006), should be conducted where the proposed works would result in physical impacts to the heritage item, or indirect (visual) impacts that are minor or greater than minor in nature. As the proposed works would result in the removal of Mehi River Bridge (SHI no. 4281692) and Camurra, Gwydir River Underbridge (SHI no. 4281693) a photographic archival recording would need to be undertaken for these heritage items prior to impacts occurring. If the dilapidation study and vibrations assessment confirm that the Moree Hotel would be impacted by vibrations caused by the proposed works, then an archival recording of the Moree Hotel should be undertaken. The archival recording should follow guidelines set out in *How to Prepare Archival Recording of Heritage Items* (NSW Heritage Office 1998) and *Photographic Recording of Heritage Items Using Film or Digital Capture* (NSW Heritage Office 2006) and focus on any buildings, structures and surrounding landscapes that would be altered by the proposed woks	Pre-construction	Mitigation of impact to heritage items

	Mitigation measure / recommendation	Timing	Goal of management measure
NAH5 Archaeological management	It has been assessed that the CIZ has low potential to contain locally significant archaeological remains associated with Aboriginal camping at Steel Bridge Camp at Mehi River Bridge. Due to the low potential for significant archaeological remains, excavations associated with the proposed works should be managed under an Unexpected Finds Procedure to be developed for N2NS Phase 2. If State significant archaeological remains or archaeological relics not identified in Section 6.0 of this report are encountered during the project, Heritage NSW, DPC must be notified in accordance with Section 146 of the NSW *Heritage Act 1977* (Heritage Act). No further archaeological assessment is required for N2NS Phase 2	Construction	Heritage management during construction
NAH6 Aboriginal archaeological management	If Aboriginal items or evidence of Aboriginal occupation are identified, including archaeological remains associated with the Steel Bridge Camp, these must be managed in conjunction with the mitigation measures outlined in the N2NS Phase 2 Aboriginal Cultural Heritage Assessment Report (ACHAR)	Construction	Heritage management during construction
NAH7 Heritage induction	All relevant construction staff, contractors and subcontractors must be made aware of their statutory obligations for heritage under the Heritage Act and best practice as outlined in *The Burra Charter* (Australia ICOMOS 2013) to ensure no archaeological remains or heritage fabric are impacted during the proposed works without appropriate mitigation measures in place. This will be implemented through a heritage induction carried out prior to works commencing and continued throughout the works program	Construction	Heritage management during construction
NAH8 Building salvage strategy	Where the proposed works would result in the removal of significant heritage fabric, such as the removal of Mehi River Bridge (SHI no. 4281692) and Camurra, Gwydir River Underbridge (SHI no. 4281693), a salvage strategy should be prepared prior to the commencement of works in order to identify the significant fabric to be salvaged during demolition. At a minimum, the salvage strategy should include an assessment of the condition, significance, storage requirements and the potential reuse of each of the elements of the structures. This should be prepared in conjunction with a Heritage Interpretation Strategy (discussed further in NAH9) in order to identify the fabric for reuse in interpretation or as part of the design of the new bridges	Pre-construction/ Construction	Salvage of identified heritage fabric / Mitigation of impact to heritage items

	Mitigation measure / recommendation	Timing	Goal of management measure
NAH9 Heritage Interpretation Strategy	In order to mitigate impacts to the historic landscape and heritage listed railway bridges, it is recommended that a Heritage Interpretation Strategy be incorporated into future designs and planning, particularly in the location of Mehi River Bridge (SHI no. 4281692) and Camurra, Gwydir River Underbridge (SHI no. 4281693). Opportunities for interpretive displays in appropriate locations along accessible portions of the proposed route, such as at the south end of the CIZ closer to the township of Moree, should be explored. This could include the development of interpretive displays utilising salvaged material from the heritage bridges. Heritage interpretation should also take into consideration Aboriginal cultural heritage values and existing heritage interpretation on the south side of the Mehi River crossing. Any impacts to the existing interpretive footpath on the south side of the river must be made good following the completion of the works. The Heritage Interpretation Strategy should also consider the option of the undertaking of an oral history project (discussed further in NAH10) and incorporating consultation with relevant stakeholders (discussed further in NAH11). In particular, the asset manager/ asset owner should consider contacting organisations such as local Council, railway historical societies and/ or local historical societies to assist with ideas for the development of heritage interpretation	Pre-construction/ Construction	Development of heritage interpretation for the project
NAH10 Oral History	An oral history project should be undertaken in consultation with the local archives, library and history societies in order to record memories and experiences of the railway workers, the local Aboriginal people living in Steel Bridge Camp and other members of the local community and their interactions with the railway, and Mehi and Gwydir River Bridges in the twentieth century	Pre-construction/ Construction	Development of heritage interpretation for the project/ Ongoing community consultation for the project to mitigate the impact to heritage items
NAH11 Consultation with relevant stakeholders	Consultation with the Moree Plains Shire Council, ARTC, John Holland (manager of the CRN s170 Heritage and Conservation Register) and other relevant stakeholders is recommended to mitigate and manage major impacts to Mehi River Bridge (SHI no. 4281692) and Camurra, Gwydir River Underbridge (SHI no. 4281693) and the implementation of heritage interpretation. Consultation should be undertaken during the detailed design stage to ensure impacts to the significant bridges are as sympathetic as practicable to the historical values of the area, such as by incorporating design elements of the existing bridges into the design of the proposed bridges or the development of heritage interpretation	Pre-construction/ Construction	Development of heritage interpretation for the project/ Ongoing community consultation for the project to mitigate the impact to heritage items

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1.0 INTRODUCTION

1.1 Background

The Australian Government has committed to delivering a significant piece of national transport infrastructure by constructing a high performance and direct interstate freight rail corridor between Melbourne and Brisbane. The Inland Rail programme (Inland Rail) involves the design and construction of a new inland rail connection, about 1,700 kilometre (km) long, between Melbourne and Brisbane, via central-west New South Wales (NSW) and Toowoomba in Queensland. Inland Rail would enhance Australia's existing national rail network and serve the interstate freight market.

The Inland Rail programme consists of 13 separate projects, seven of which are located within NSW. Each of these projects (and, in some cases as appropriate, separate work sites within a project) are subject to an assessment and, if required, approval, under the relevant planning or project laws in the relevant jurisdictions. Each assessment will consider its part in the Inland Rail programme. Australian Rail Track Corporation Ltd (ARTC) (the proponent) was granted approval to construct and operate the Narrabri to North Star (N2NS) section of Inland Rail on 13 August 2020.

A non-Aboriginal Heritage Impact Statement (HIS) was prepared by Umwelt in 2017[1] for inclusion in the 2017 N2NS EIS.[2] The HIS assessed the listed and potential unlisted non-Aboriginal heritage items and the heritage impact caused by the project along the full length of the N2NS alignment, comprising 183km of railway line and a 500 metre (m) wide visual buffer zone, in addition to assessing non-Aboriginal archaeological potential and potential impacts.

Since then, the alignment within what is now the N2NS Phase 2 area has changed (Inland Rail Design Joint Venture (IRDJV), 2019a). Specifically, modifications are required to upgrade a section of the corridor from Moree to the Camurra North hairpin, including the crossings of the Mehi and Gwydir rivers. The upgrade involves changes to the vertical and horizontal alignment to manage flooding as well as a new greenfield section in the north to allow for a bypass of the current hairpin turn at Camurra (the Camurra Bypass). The original N2NS Environmental Impact Statement (EIS) did not assess these changes. Consequently, this section of the N2NS alignment was removed from the original project and therefore requires separate assessment under the *Environmental Planning and Assessment Act 1979* (EP&A Act).

Inland Rail Design Joint Venture (IRDJV) on behalf of ARTC have engaged Artefact Heritage Services Pty Ltd (Artefact Heritage) to complete a standalone Statement of Heritage Impact (SoHI) for inclusion in an EIS to assist with planning approvals for N2NS Phase 2.

1.2 Construction impact zone and study area

N2NS Phase 2 covers approximately 15km of rail corridor between Moree and Camurra. About 1.6km of the rail line consists of a realigned rail corridor through 'greenfield' areas. N2NS Phase 2 is located within the Moree Plains Shire Council Local Government Area (LGA) on the western side of the Great Dividing Range in the New England Tablelands of northern NSW. It is located within the Parishes of Moree, Boolooroo and Mia Mia within the County of Courallie.

For the purposes of this SoHI, the assessment area for N2NS Phase 2 considers both the construction impact zone (CIZ) and the study area. The CIZ is defined as the construction footprint of the proposed 15km railway corridor where physical works would be undertaken as part of N2NS

[1] Umwelt, 2017. *Australian Rail Track Corporation Inland Rail Narrabri to North Star EIS – Non-Aboriginal Heritage Impact Statement.* Report to ARTC.
[2] ARTC Inland Rail, 2017. *Inland Rail Programme Narrabri to North Star project EIS*. Report to Australian Government.

Phase 2 (Figure 1-1). In order to assess the visual impacts resulting from N2NS Phase 2, the larger study area consists of an additional 300m visual buffer zone around the perimeter of the CIZ.

The CIZ commences immediately to the north of Gwydir Highway and Moree Railway Station, located to the south-east of the town centre of Moree. The CIZ follows the path of the existing railway corridor over the Mehi River, Duffys Creek and Skinners Creek, before crossing the Gwydir River. North of the Gwydir River crossing the CIZ splits in two, with one section following the curve of the rail corridor to the east while the second section runs in a north-northeast direction before re-joining the railway corridor as it heads east towards Boggabilla (Figure 1-1). The deviation crosses predominantly Crown Land and privately-owned greenfield land, consisting of cropping land with dispersed native and non-native trees and isolated areas of bushland. The deviation also crosses Back Pally Road and a large artificial irrigation channel. The CIZ also includes three borrow pit/quarries with access roads from Newell Highway, as well as additional offshooting sections of public and private roads and access tracks, including part of Gwydirfield Road (Figure 1-1).

The location of the CIZ and study area as delineated in this SoHI is shown in Figure 1-1.

1.3 Project description

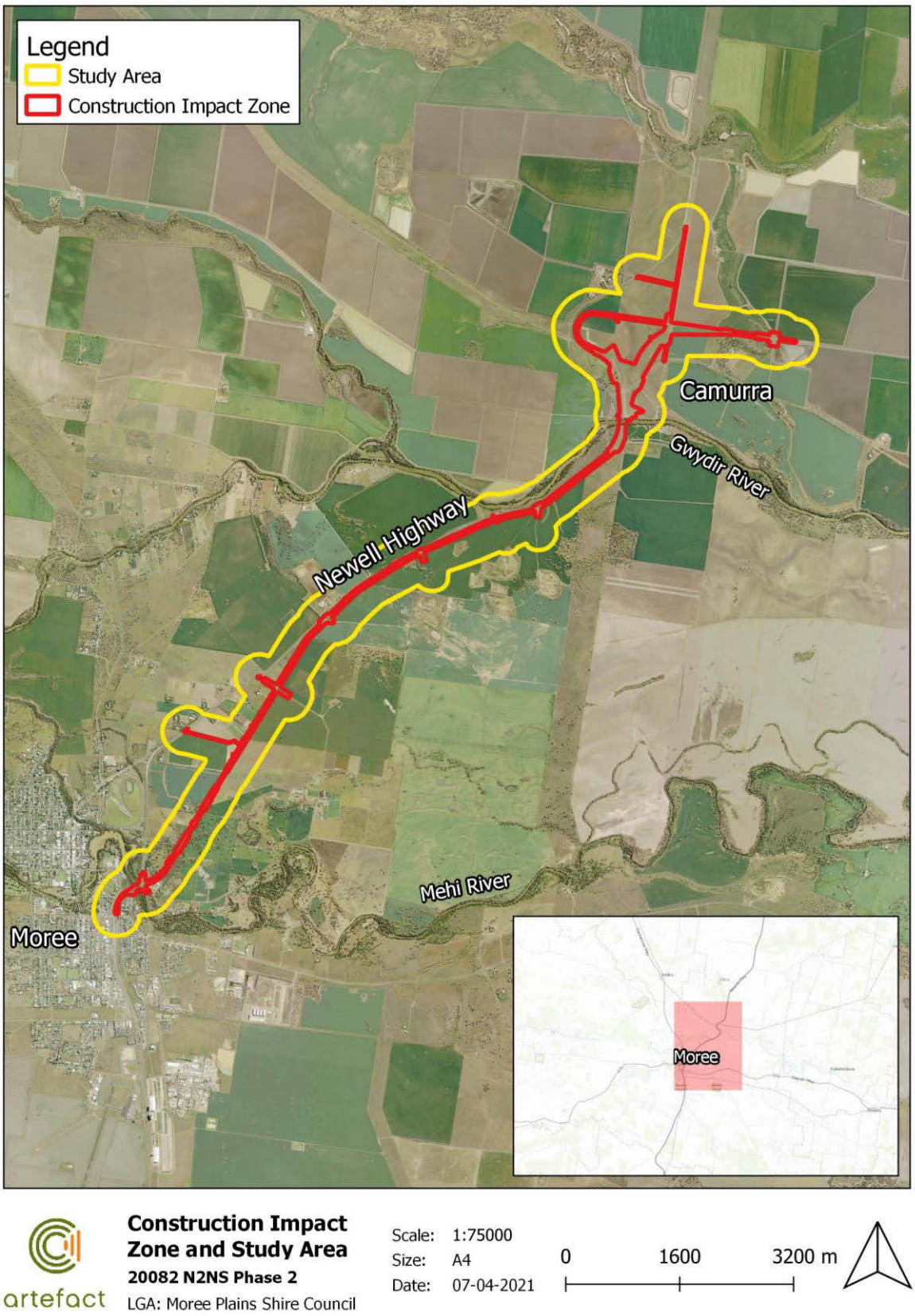
The works for N2NS Phase 2 Moree to Camurra North represent a small portion of the overall N2NS section of Inland Rail, which in total covers approximately 183km of existing rail corridor. The project includes the upgrade of the existing rail corridor between Moree and Camura North, with a small portion (about 1.6km) of greenfield re-alignment at Camurra to bypass the existing hairpin turn. The project will include replacing two existing rail bridges, establishing new sections of track and undertaking significant flood management works. A detailed description of these works is provided in Section 7.1.

1.4 Study objective

The purpose of this SoHI is to:

- Provide a historical background for the land within the N2NS Phase 2 study area
- Identify listed and potential unlisted heritage items within the study area and provide significance assessments for these items
- Provide an assessment of the potential historical archaeological resources that may be present within the study area and identify the significance of the archaeological resources
- Undertake an analysis of the built fabric and potential archaeological resources that may be impacted by the proposed works within the study area
- Provide an assessment of the impacts of the proposal on the heritage values of the identified built heritage and potential archaeological resources.
- Outline heritage management and mitigation strategies to avoid or reduce heritage impacts resulting from the proposed works associated with N2NS Phase 2.

Figure 1-1: Location of the CIZ and study area



1.5 Report structure

The structure and content of this SoHI is as follows:

- Section 1.0 – Introduction: Provides an introduction and background to N2NS Phase 2 and outlines the analysis methodology
- Section 2.0 – Legislative context: Describes the relevant heritage legislation and provides an overview of the listed heritage items within the study area
- Section 3.0 – Historical background: Outlines the historical context of the study area
- Section 4.0 – Site analysis: Provides a description of the CIZ as observed during a site inspection undertaken for the project, including an analysis of built heritage fabric, potential archaeological remains and impacts to views and vistas from surrounding heritage listed items
- Section 5.0 – Built heritage assessment: Outlines the heritage significance of the study area, heritage listed items in the vicinity of the study area and identifies potential unlisted heritage items
- Section 6.0 – Historical archaeological assessment: Provides an assessment of the potential historical archaeological resources in the study area and a significance assessment of the potential archaeological resources
- Section 7.0 – Heritage impact assessment: Provides further information on the scope of the proposed works and assesses impacts to heritage listed items and potential archaeological resources resulting from the proposed works
- Section 8.0 – Conclusions and recommendations: Presents a summary of the findings of the SoHI and provides advice to avoid or mitigate impacts to heritage items and potential archaeological remains within the study area
- Section 9.0 – References: Provides a list of the references utilised in the preparation of this SoHI
- Section 10.0 – Appendices.

1.6 Basis for this report

The project has been declared Critical State Significant Infrastructure (CSSI) under clause 7(3), Schedule 5 of the State Environmental Planning Policy (Planning Systems) 2021 and is subject to assessment against the Department of Planning, Industry and Environment (DPIE) Secretary's Environmental Assessment Requirements (SEARs). The SEARs were issued on 14 October 2020.[3] The relevant SEARs for non-Aboriginal heritage and archaeology, and where they have been addressed in this report, are provided in Table 1-1.

The final non-Aboriginal heritage and archaeology SEARs for N2NS Phase 2 were informed by Heritage NSW, Department of Premier and Cabinet's (Heritage NSW, DPC) response to the draft SEARs. Heritage NSW, DPC's recommendations for the SEARs, and where they have been addressed in this report, are provided in Table 1-2.

[3] Secretary of the NSW Department of Planning, Industry and Environment, 2020. *Planning Secretary's Environmental Assessment Requirements: Inland Rail – Narrabri to North Star Phase 2.* SSI-10054. Issued 14 October 2020.

Table 1-1: SEARs requirements for non-Aboriginal heritage and archaeology

SEARs	Requirement description	Addressed in this report
6.1	*Direct and/or indirect impacts (including cumulative impacts) to the significance of:* *c) environmental heritage, as defined under the Heritage Act 1977;* *d) items listed on the State, National and World Heritage lists;* *e) heritage items, areas of cultural significance and conservation areas identified in environmental planning instruments applicable to the project area* *f) heritage items in relevant Section 170 Heritage and Conservation Registers.*	Section 7.0 Heritage Impact Assessment: provides an assessment of the direct, indirect, and cumulative impact to the significance of the heritage items identified within the study area. No items listed on State, National or World Heritage Lists have been identified within the study area
6.2	*Where impacts to heritage items are identified, the assessment must:* *a) include a significance assessment, a statement of heritage impact for all heritage items and a historical archaeological assessment;* *b) assess the consistency of the project against conservation policies of any relevant conservation management plan;* *c) 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, drainage infrastructure, contamination remediation and site compounds (as relevant);* *d) outline measures to avoid and minimise those impacts during construction and operation in accordance with the current guidelines;* *e) be undertaken by a suitably qualified heritage consultant(s), cultural consultant(s) and/or historical archaeologist (note: where archaeological excavations are proposed the relevant consultant must meet the NSW Heritage Council's Excavation Director criteria).*	a) Section 5.0 Built Heritage Significance: identifies and provides a significance assessment for the listed and potential unlisted heritage items. a) Section 6.0 Archaeological Assessment: provides an assessment of the potential and significance of historical archaeological resources. b) There are no existing conservation management plans for the identified heritage items in Section 5.0. c) Section 7.0 Heritage Impact Assessment: provides an assessment of the heritage impacts that would result to heritage items and potential archaeological resources d) Section 8.0 Conclusions and Recommendations: outlines measures to avoid and minimise heritage impacts e) Section 1.8 Report Authorship: Outlines the qualifications of the heritage consultants who completed this assessment.

Table 1-2: Heritage NSW, DPC response to draft SEARs requirements

SEARs recommendation	Recommendation description	Addressed in this report
6.1	*Direct and/or indirect impacts (including cumulative impacts) to the significance of:* *f) heritage items in relevant Section 170 Heritage and Conservation Registers.*	Section 7.0 Heritage Impact Assessment: provides an assessment of the direct, indirect, and cumulative impact to the significance of the s170 heritage items identified within the study area
6.2	*Where impacts to heritage items are identified, the assessment must:* *d) include consideration of alternatives and options to avoid or minimise heritage impacts. The assessment must contain sufficient detail to enable an understanding of why the preferred alternative to and options(s) are recommended.*	Section 7.0 Heritage Impact Assessment: provides a discussion of the alternative options that have been considered for N2NS Phase 2 and the justification for these options
6.5	*The historical archaeological assessment should identify and address any archaeological potential and significance on the site and evaluate the impacts the SSI proposal might have on this significance. Where harm is likely to occur, it is recommended that the significance of the archaeological resource be carefully considered in determining an appropriate mitigation strategy. In the event that harm cannot be avoided in whole or part, an appropriate Research Design and Excavation Methodology should also be prepared and submitted to the satisfaction of HNSW to guide any proposed excavations.*	Section 6.0 Archaeological Assessment: provides an assessment of the archaeological potential and significance of potential archaeological resources within the CIZ Section 7.0 Heritage Impact Assessment: provides an assessment of the impact that N2NS Phase 2 would have on the significant archaeological resources within the project area, and provides recommendations for the management of the potential archaeological resources

1.7 Report methodology and limitations

This SoHI has been prepared in accordance with the guidelines outlined by the NSW Heritage Office, now Heritage NSW, DPC, the Department of Urban Affairs & Planning, the Heritage Branch Department of Planning and Australia International Council on Monuments and Sites (ICOMOS), as identified in the following documents:

- NSW Heritage Office 2001. *NSW Heritage Manual: Assessing Heritage Significance*
- NSW Heritage Office 2002. *NSW Heritage Manual: Statements of Heritage Impact*
- NSW Heritage Branch, Department of Planning 2009. *Assessing Significance for Historical Archaeological Sites and 'Relics'*
- Australia ICOMOS 2013. *The Burra Charter. The Australian ICOMOS Charter for Places of Cultural Significance*.

1.7.1 NSW heritage significance assessment

Determining the significance of heritage items or a potential archaeological resource is undertaken by utilising a system of assessment centred on the *Burra Charter* of Australia ICOMOS.

The principles of the charter are relevant to the assessment, conservation and management of sites and relics. The assessment of heritage significance is outlined through legislation in the *NSW Heritage Act 1977* (Heritage Act) and implemented through the *NSW Heritage Manual*[4] and the *Archaeological Assessment Guidelines*.[5] The criteria specified by the guidelines encompass the four values identified in the *Burra Charter,* historical significance, aesthetic significance, scientific significance and social significance, and also consider representativeness and rarity values.

If an item meets one of the seven heritage criteria, and retains the integrity of its key attributes, it can be considered to have heritage significance. The significance of an item or potential archaeological site can then be assessed as being of local or state significance. If a potential archaeological resource does not reach the local or state significance threshold, then it is not classified under the Heritage Act.

'State heritage significance' in relation to a place, building, work, relic, moveable object or precinct, means significance to the State in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item.

'Local heritage significance' in relation to a place, building, work, relic, moveable object or precinct, means significance to an area in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item.[6]

The overall aim of assessing archaeological significance is to identify whether an archaeological resource, deposit, site or feature is of cultural value. The assessment will result in a succinct statement of heritage significance that summarises the values of the place, site, resource, deposit or feature. The heritage significance assessment criteria are described in Table 1-3 below.

Table 1-3: NSW heritage significance assessment criteria

Criteria	Description
A – Historical Significance	An item is important in the course or pattern of the local area's cultural or natural history
B – Associative Significance	An item has strong or special associations with the life or works of a person, or group of persons, of importance in the local area's cultural or natural history
C – Aesthetic Significance	An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in the local area
D – Social Significance	An item has strong or special association with a particular community or cultural group in the local area for social, cultural or spiritual reasons
E – Research Potential	An item has potential to yield information that will contribute to an understanding of the local area's cultural or natural history
F – Rarity	An item possesses uncommon, rare or endangered aspects of the local area's cultural or natural history

[4] NSW Heritage Office 2001. *NSW Heritage Manual: Assessing Heritage Significance.*
[5] NSW Heritage Council 1996. "Archaeological Assessment Guidelines," in *NSW Heritage Manual.* New South Wales: Heritage Office.
[6] This section is an extract based on the NSW Heritage Branch, Department of Planning 2009. *Assessing Significance for Historical Archaeological Sites and Relics*, p. 6.

G – Representativeness	An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places of cultural or natural environments (or the cultural or natural history of the local area)

1.7.2 Assessment of heritage impact

This SoHI has been prepared using the document *Statement of Heritage Impact* 2002, contained within the *NSW Heritage Manual,* as a guideline.

Impacts on heritage significance are identified as either:

- Direct (physical) impacts, resulting in the demolition or alteration of fabric of heritage significance
- Indirect (visual) impacts, resulting in changes to the setting or curtilage of heritage items or places, historic streetscapes, views or vistas.
- Potential direct impacts, resulting in impacts from factors including, but not limited to, vibration, subsidence and demolition of adjoining structures

Specific terminology and corresponding definitions are used in this assessment to consistently identify the magnitude of the proposal's direct, indirect or potentially indirect impacts on heritage items or archaeological remains. The terminology and definitions are based on those contained in guidelines produced by ICOMOS and are shown in Table 1-4.[7] It is assumed that all direct and potential direct impacts are a result of construction. Indirect impacts are assumed to be operational unless specified as temporary in which case they are related to construction.

Table 1-4: Terminology for assessing the magnitude of heritage impact

Magnitude	Definition
Major	Actions that would have a long-term and substantial impact on the significance of a heritage item. Actions that would remove key historic building elements, key historic landscape features, or significant archaeological materials, thereby resulting in a change of historic character, or altering of a historical resource. These actions cannot be fully mitigated.
Moderate	Actions involving the modification of a heritage item, including altering the setting of a heritage item or landscape, partially removing archaeological resources, or the alteration of significant elements of fabric from historic structures. The impacts arising from such actions may be able to be partially mitigated.
Minor	Actions that would result in the slight alteration of heritage buildings, archaeological resources, or the setting of an historical item. The impacts arising from such actions can usually be mitigated.
Negligible	Actions that would result in very minor changes to heritage items.
Neutral	Actions that would have no heritage impact.

[7] Including the document *Guidance on Heritage Impact Assessments for Cultural World Heritage Properties*, ICOMOS, January 2011.

1.7.3 Assessment of potential direct and visual impacts

It is expected that any direct and archaeological impacts resulting from N2NS Phase 2 would be restricted to the project boundary where the proposed works would be undertaken. However, visual and potential direct impacts resulting from the proposed works would extend beyond the confines of the CIZ and are assessed within the study area.

Heritage items that are located within 300m of the project boundary have been assessed for potential visual impacts (the study area). Both the views *towards* heritage items (whether the proposal would impair views of the item's significant visual characteristics) and views *away* from the items (whether the proposal would impair views of the heritage-significant surroundings or character of the items) have been assessed. While it is possible that additional heritage items outside of the visual assessment area would have views to and from the new development, it is expected that these items are located at a sufficient distance from the CIZ that there would effectively be no discernible change to general views of the area under normal circumstances. As a result, heritage items located outside of the 300m visual assessment area have not been included in this SoHI.

In order to assess potential direct impacts, the guidelines provided in Transport for New South Wales' (Transport for NSW) *Construction Noise and Vibration Strategy* are followed.[8] The strategy provides recommendations on the minimum safe working distances from heritage items when utilising vibration intensive plant in order to avoid cosmetic damage. These recommended minimum working distances are provided in Table 1-5 below.

Table 1-5: Recommended minimum working distances from vibration intensive plant[9]

Plant item	Approximate size/ weight/ model	Minimum distance – cosmetic damage (BS 7385)
Vibratory Roller	1-2 tonne (t)	5m
	2-4t	6m
	4-6t	12m
	7-13t	15m
	13-18t	20m
	>18t	25m
Small Hydraulic Hammer	300kg (5 to 12t excavator)	2m
Medium Hydraulic Hammer	900kg (12 to 18t excavator)	7m
Large Hydraulic Hammer	1600kg (18 to 34t excavator)	22m
Pile Driver – Vibratory	Sheet piles	2m to 20m
Piling Rig – Bored	<800 millimetres (mm)	2m (nominal)
Piling Rig – Hammer	12 t down force	15m

[8] Transport for NSW, 2019. *Construction Noise and Vibration Strategy: Standard – Applicable to Infrastructure and Place.* ST-157/4.1. Report last updated 24 April 2019.
[9] Transport for NSW, 2019. *Construction Noise and Vibration Strategy: Standard – Applicable to Infrastructure and Place*, 71.

Jackhammer	Hand held	1m (nominal)

For the purposes of this SoHI a conservative approach to vibration levels is followed based on the use of the largest plant items causing the most amount of vibration: >18t vibratory rollers. An indicative minimum working distance of 25m is recommended for >18t vibratory rollers. As a result, it is assumed that any heritage item within at least 25m of the CIZ, and potentially up to 50m away (depending on the nature of the heritage item), could be subject to vibrational impacts as a result of the proposed N2NS works. It is assumed that any heritage items located more than 50m from the edge of the CIZ would be located at a sufficient distance that vibrations resulting from the proposed works would not cause structural damage.

1.7.4 Historical archaeological assessment

An archaeological assessment has been undertaken for this SoHI. Historical archaeological potential is defined as the potential of a site to contain significant archaeological remains, including works or relics as identified in the Heritage Act. The assessment of historical archaeological potential is based on the identification of former land uses and evaluating whether subsequent actions (either natural or human) may have impacted on archaeological evidence for these former land uses. Knowledge of previous archaeological investigations, understanding of the types of archaeological remains likely to be associated with various land uses, and the results of site inspection are also taken into consideration when evaluating the potential of an area to contain archaeological remains.

The potential for the survival of archaeological remains in a particular place is significantly affected by activities which may have caused ground disturbance. These processes include the physical development of the site (for example, phases of building construction) and the activities that occurred there. The likelihood for the survival of these remains (i.e. their archaeological potential) is distinct from the 'archaeological significance' and 'archaeological research potential of these remains', should any exist. These designations refer to the cultural value of potential archaeological remains and are the primary basis of the recommended management actions included in this document. For example, there may be 'low potential' for certain remains to survive, but if they do, they may be assessed as being of state significance.

The *NSW Heritage Manual* provides the framework used for the significance assessment of the potential archaeological remains within the construction footprint. These guidelines incorporate the aspects of cultural heritage value identified in the *Burra Charter*. The Heritage Council also issued the 1996 *Archaeological Assessment Guidelines*[10] and the Heritage Branch (now Heritage NSW, DPC) issued the 2009 *Assessing Significance for Historical Archaeological Sites and 'Relics*.[11] The assessment of historical archaeological sites requires a specialised framework in order to consider the range of values of an archaeological site.

The grades of archaeological potential used in this report are outlined in Table 1-6 below.

[10] NSW Heritage Council 2009. "Archaeological Assessment Guidelines".
[11] NSW Heritage Branch, Department of Planning 2009. *Assessing Significance for Historical Archaeological Sites and 'Relics'*.

Table 1-6: Grades of archaeological potential

Grading	Justification
Nil	No evidence of historical development or use, or where previous impacts such as deep basement structures would have removed all archaeological potential
Low	Research indicates little or low intensity historical development, or where there have been substantial previous impacts, disturbance and truncation in locations where some archaeological remains such as deep subsurface features may survive
Moderate	Analysis demonstrates known historical development and some previous impacts, but it is likely that archaeological remains survive with some localised truncation and disturbance
High	Evidence of multiple phases of historical development and structures with minimal or localised twentieth century development impacts, and it is likely the archaeological resource would be largely intact.

1.7.5 Limitations

This SoHI provides an assessment of listed and potential unlisted non-Aboriginal heritage items and potential historical archaeological resources only. This SoHI does not provide an assessment for Aboriginal heritage values, which is detailed in a separate technical paper for the N2NS Phase 2 EIS.

A small number of private properties along the eastern side of the CIZ were not accessible during the survey due to lack of property access agreements. However, these properties could be at least partially visually inspected from the accessible portions of the CIZ. Some portions of the CIZ also could not be accessed due to overgrown vegetation that was present. Where these areas could not be accessed and inspected, a desktop assessment has been undertaken.

Note that for the purpose of this report, the locations of archaeological potential are indicative only due to the inherent inaccuracies involved with overlaying historical maps.

1.8 Authorship and acknowledgements

This report has been prepared by Elanor Pitt (Heritage Consultant, Artefact Heritage) and Jayden van Beek (Senior Heritage Consultant, Artefact Heritage). Sandra Wallace (Managing Director, Artefact Heritage) provided management input and technical review.

The site survey was attended by Jayden van Beek and Alyce Haast (Senior Heritage Consultant, Artefact Heritage). Kerrie Saunders (Site Officer, Moree Local Aboriginal Land Council), Stanley Cutmore (Site Officer, Gomeroi Native Title Claimants), Mehi French (Site Officer, Gomeroi Native Title Claimants) and Scott Talbott (Site Officer, Natasha Rodgers) also participated in the site survey.

The qualifications of the heritage consultants involved in the production of the report is included in Table 1-7.

Table 1-7: Qualifications of report authors

Name	Qualification	Experience	Role
Elanor Pitt	Bachelor of Arts (Archaeology) Bachelor of Engineering (Civil) Masters in the Archaeology of Buildings	4 years	Author
Jayden van Beek	Bachelor of Arts (Archaeology) Master of Professional Archaeology	5 years	Author
Sandra Wallace	Doctorate (Archaeology)	20 years	Reviewer

1.9 Abbreviations

Acronym	Definition
ACHAR	Aboriginal Cultural Heritage Assessment Report
ARTC	Australian Rail Track Corporation
Artefact Heritage	Artefact Heritage Services Pty Ltd
CHL	Commonwealth Heritage List
CIZ	Construction Impact Zone
CRN	Country Regional Network
CSSI	Critical State Significant Infrastructure
EIS	Environmental Impact Statement
EP&A Act	*Environmental and Planning Assessment Act 1979*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
Heritage NSW, DPC	Heritage NSW, Department of Premier and Cabinet
HIS	Heritage Impact Statement
HLRV	Historical Land Records Viewer
ICOMOS	International Council on Monuments and Sites
Inland Rail	Inland Rail Programme
IRDJV	Inland Rail Design Joint Venture (JV between Mott MacDonald and WSP Australia Pty Ltd P)
LEP	Local Environmental Plan
LGA	Local Government Area
N2NS	Narrabri to North Star

Acronym	Definition
NHL	National Heritage List
RNE	Register of National Estate
RNT	Register of the National Trust
s170	Section 170
SEARs	Secretary's Environmental Assessment Requirements
SHI	State Heritage Inventory
SHR	State Heritage Register
SLNSW	State Library New South Wales
SoHI	Statement of Heritage Impact
TfNSW	Transport for New South Wales
WHL	World Heritage List

2.0 LEGISLATIVE CONTEXT

2.1 Introduction

There are several items of local, State, National Commonwealth legislation that are relevant to this SoHI. A summary of these Acts and the potential legislative implications follow.

Heritage listed items within the project are and study area were identified through a search of the following relevant state and federal statutory and non-statutory heritage registers:

- World Heritage List (WHL)
- Commonwealth Heritage List (CHL)
- National Heritage List (NHL)
- State Heritage Register (SHR)
- Section 170 (s170) Heritage and Conservation Registers
- Moree Plains Local Environmental Plan (LEP) 2011
- NSW State Heritage Inventory (SHI) Database
- Register of the National Estate (RNE)
- National Trust Register (NSW) [NTR].

Items listed on these registers have been previously assessed against the NSW heritage assessment guidelines. Statements of heritage significance, based on the NSW Heritage Assessment guidelines, as they appear in relevant heritage inventory sheets and documents, are provided in this assessment.

2.1.1 Commonwealth legislation and policy

2.1.2 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a legislative framework for the protection and management of matters of national environmental significance, that is, flora, fauna, ecological communities and heritage places of national and international importance. Heritage items are protected through their inscription on the WHL, NHL, or the CHL.

The EPBC Act stipulates that a person who has proposed an action that will or is likely to have; a significant impact on the relevant heritage values of a World, National or Commonwealth heritage site must refer the action to the Minister for the Environment (hereafter the Minister). The Minister would then determine if the action requires approval under the EPBC Act. If approval is required, an environmental assessment would need to be prepared. The Minister would approve or decline the action based on this assessment.

2.1.2.1 World Heritage List

The WHL contains sites that have been listed by General Conference of the United Nations Educational, Scientific and Cultural Organisation (UNESCO) as being of special cultural or natural significance. State Parties must nominate their national sites for UNESCO listing consideration. In Australia, this process is undertaken by the Australian branch of the International Council of Monuments and Sites (ICOMOS Australia) and places must be listed on the NHL for consideration of UNESCO listing.

The concept of a buffer zone was first included in the *Operational Guidelines for the Implementation of the World Heritage Convention* in 1977 and recognises the value of the environment that surrounds

a site. The buffer zone acts as an additional layer of protection for World Heritage sites. It is a space that is itself not of outstanding universal value, but that influences the value of a World Heritage site.

There are no heritage items within the CIZ or study area listed on the WHL.

2.1.2.2 Commonwealth Heritage List

The CHL was established by the EPBC Act to protect Indigenous, historic, and natural heritage places owned or controlled by the Australian Government. The CHL and EPBC Act contain provisions for the management and protection of listed places under Commonwealth ownership or control.

There are no heritage items within the CIZ or study area listed on the CHL.

2.1.2.3 National Heritage List

The NHL was established by the EPBC Act to protect places of significant natural or cultural heritage value at a national level. The EPBC Act requires NHL places to be managed in accordance with the National Heritage Management Principles. Under sections 15B, 15C and section 68 of the EPBC Act, a referral must be made to the Department of the Agriculture, Water and the Environment for actions that are likely to have a significant impact on NHL properties.

There are no heritage items within the CIZ or study area listed on the NHL.

It is noted that the HIS prepared by Umwelt in 2017 for N2NS Phase 1 identified the nationally significant Moree Baths and Swimming Pool (NHL ID 106098) as being located 100m from the Phase 1 proposal site. However, Moree Baths and Swimming Pool (NHL ID 106098) is located outside of the study area for N2NS Phase 2, being 320m south-west of the CIZ. As a result, it is assessed that there would be no discernible visual impact to the heritage item and therefore discussion of it has been excluded from this report.

2.2 State legislation and policy

2.2.1 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A) establishes the framework for cultural heritage values to be formally assessed in the land use planning and development consent process. The EP&A Act requires that environmental impacts are considered prior to land development; this includes impacts on cultural heritage items and places as well as archaeological sites and deposits. The project has been declared to be SSI and so approval from the Minister for Planning and Public Spaces is required under Part 5 Division 5.2 of the EP&A Act before the project can proceed. The proponent of the project in this case, ARTC) must prepare an EIS in accordance with the SEARs issued by the Secretary of the DPIE (see section 1.5 above). The EIS is then reviewed by the Department and, once finalised, is placed on public exhibition. After the public exhibition has finished, the proponent will prepare a report for the Department responding to the submissions and, as part of the post-exhibition process, will have an opportunity to modify the project. The Department will then conclude its assessment and prepare a report to the Minister for determination of the proponent's request for approval.

Part 3 of the EP&A Act also requires that local governments prepare planning instruments (such as LEPs and Development Control Plans [DCPs]) in accordance with the EP&A Act to provide guidance on the level of environmental assessment required. The construction footprint falls within the boundaries of the Moree Plains Shire Council LGA. Schedule 5 of the Moree Plains LEP 2011 includes a list of items/sites of heritage significance within the Moree Plains Shire Council LGA.

2.2.1.1 Moree Plains Local Environmental Plan 2011

Heritage items listed on the Moree Plains LEP 2011 are managed in accordance with the provisions of Part 5.10 Heritage Conservation of this LEP. Clause 5.10(1) of this section of the Moree Plains LEP 2011 states that:

> *(1) **Objectives***
> *The objectives of this clause are as follows:*
>
> *(a) to conserve the environmental heritage of Moree,*
>
> *(b) to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and views,*
>
> *(c) to conserve archaeological sites,*
>
> *(d) to conserve Aboriginal objects and Aboriginal places of heritage significance.*

Although the effect of section 5.22(2) of the EP&A Act is that LEP controls do not apply to SSI projects, relevant LEP lists were reviewed for the purpose of preparing this EIS. **There are no heritage items within the CIZ listed on the Moree Plains LEP. The following heritage items listed on the Moree Plains LEP are within the study area:**

- Brick Railway Station Building (LEP no. I025)
- Victoria Hotel (LEP no. I022).

2.2.1.2 Moree Plains Development Control Plan 2013

The Moree Plains DCP 2013 is a supporting document that complements the provisions contained within the Moree Plains LEP 2011 and provides specific design detail in regard to sympathetic development on, or in the vicinity of, items listed on Schedule 5 of the Moree Plains LEP 2011

2.2.2 NSW Heritage Act 1977

The NSW *Heritage Act 1977* (Heritage Act) is the primary piece of legislation affording protection to heritage items (natural and cultural) in NSW. Under the Heritage Act, 'items of environmental heritage' include places, buildings, works, relics, moveable objects and precincts identified as significant. Significance is based on historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic values. State significant items can be listed on the NSW SHR and are given automatic protection under the Heritage Act against any activities that may damage an item or affect its heritage significance. The Heritage Act also protects 'relics', which can include archaeological material, features and deposits.

Section 5.23(1) of the EP&A Act states that archaeological permits and approvals under the Heritage Act are not required for SSI projects and would therefore not be required for N2NS Phase 2.

2.2.2.1 State Heritage Register

The SHR was established under Section 22 of the Heritage Act and is a list of places and objects of particular importance to the people of NSW, including archaeological sites. The SHR is administered by Heritage NSW, DPC and includes a diverse range of over 1500 items, in both private and public ownership. To be listed, an item must be deemed to be of heritage significance for the whole of NSW.

To carry out activities within the curtilage of an item listed on the SHR, approval must be gained from the Heritage Council by securing a Section 60 permit. In some circumstances, under Section 57(2) of

the Heritage Act, a Section 60 permit may not be required if works are undertaken in accordance with the NSW Heritage branch document *Standard Exemptions for Works Requiring Heritage Council Approval*[12] or in accordance with agency specific exemptions. This includes works that are only minor in nature.

There are no heritage items within the CIZ or study area listed on the SHR.

2.2.2.2 Section 170 Heritage and Conservation Registers

Under the Heritage Act, all government agencies are required to identify, conserve and manage heritage items in their ownership or control. Section 170 of the Act requires all government agencies to maintain a Heritage and Conservation Register that lists all heritage assets and an assessment of the significance of each asset. They must also ensure that all items inscribed on its list are maintained with due diligence in accordance with State Owned Management Principles approved by the Government on advice of the NSW Heritage Council. These principles serve to protect and conserve the heritage significance of items and are based on NSW heritage legislation and guidelines. These requirements also apply to ARTC.

The following heritage items are located within the CIZ and are listed on s170 heritage and conservation registers:

- Mehi River Bridge (ARTC s170 Register – SHI no. 4281692)
- Camurra, Gwydir River Underbridge (Country Regional Network [CRN] and ARTC s170 Registers – SHI no. 4281693).

The following heritage item is located within the study area and is listed on an s170 heritage and conservation register:

- Moree Railway Station (RailCorp s170 Register – SHI no. 4801208).

2.2.2.3 Relics Provisions

The Heritage Act also provides protection for 'relics', which includes archaeological material or deposits. According to Section 139 (Division 9: Section 139, 140-146):

> (1) A person must not disturb or excavate any land knowingly or having reasonable cause to suspect that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, damaged or destroyed unless the disturbance is carried out in accordance with an excavation permit.
> (2) A person must not disturb or excavate any land on which the person has discovered or exposed a relic except in accordance with an excavation permit.
> (3) This section does not apply to a relic that is subject to an interim heritage order made by the Minister or a listing on the State Heritage Register.
> (4) The Heritage Council may by order published in the Gazette create exceptions to this section, either unconditionally or subject to conditions, in respect of any of the following:
> (a) Any relic of a specified kind or description

[12] Heritage Council of New South Wales, 2009. *Standard Exemptions for Works Requiring Heritage Council Approval.*

(b) Any disturbance of excavation of a specified kind or description

(c) Any disturbance or excavation of land in a specified location or having specified features or attributes,

(d) Any disturbance or excavation of land in respect of which an archaeological assessment approved by the Heritage Council indicates that there is little likelihood of there being any relics in the land.

Section 4(1) of the Heritage Act (as amended in 2009) defines a relic as:

> *…Any deposit, artefact, object or material evidence that: relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and is of State or local heritage significance.*

A relic has been further defined as:

> *Relevant case law and the general principles of statutory interpretation strongly indicate that a 'relic' is properly regarded as an object or chattel. A relic can, in some circumstances, become part of the land be regarded as a fixture (a chattel that becomes permanently affixed to land).*[13]

As previously noted, Section 5.23(1) of the EP&A Act states that archaeological permits and exceptions under the Heritage Act are not required for State significant infrastructure projects and would therefore not be required for N2NS Phase 2. This includes excavation permits issued by the Heritage Council of NSW, or its delegate, under Section 140 of the Heritage Act for relics outside SHR curtilages or under Section 60 for significant archaeology within SHR curtilages, or an exception under Section 139 (4) or an exemption under Section 57 (2) of the Heritage Act for minor works that will have a minimal impact on archaeological relics. However, in accordance with Heritage NSW, DPC archaeological guidelines, an Archaeological Research Design (ARD) would still be prepared if it is expected that archaeological investigations would be undertaken as part of the project. Furthermore, Section 5.23(1) of the EP&A Act does not extinguish the requirements of Section 146 of the Heritage Act to notify Heritage NSW, DPC (as a delegate of the NSW Heritage Council) in the event of the discovery of 'relics'.

2.2.2.4 Works

The Heritage Act defines 'works' as being in a separate category to archaeological 'relics'. 'Works' refer to remnants of historical structures which are not associated with artefactual material that may possess research value. 'Works' may be buried, and therefore archaeological in nature, however, exposure of a 'work' does not require approved archaeological excavation permits under the Act.

The following examples of remnant structures have been considered to be 'works' by the NSW Heritage Council:

- Former road surfaces or pavement and kerbing
- Evidence of former drainage infrastructure, where there are no historical artefacts in association with the item

[13] NSW Heritage Branch, Department of Planning 2009. *Assessing Significance for Archaeological Sites and 'Relics'*, p. 7.

- Building footings associated with former infrastructure facilities, where there are no historical artefacts in association with the item
- Evidence of former rail track, sleepers or ballast
- Evidence of former rail platforms and former platform copings.

Where buried remnants of historical structures are located in association with historical artefacts in controlled stratigraphic contexts (such as intact historic glass, ceramic or bone artefacts), which have the potential to inform research questions regarding the history of a site, the above items may not be characterised as 'works' and may be considered to be 'relics'. The classification of archaeological remains as a 'work' therefore is contingent on the predicted remains being associated with historical structures as well as there being no prediction of the recovery of intact artefactual deposits which may be of research interest.

2.3 Non-statutory heritage registers

In addition to the heritage registers established by State and Commonwealth legislation, there are a number of relevant non-statutory registers which should be considered. The following non-statutory registers were searched:

- NTR
- RNE.

The RNE lists historic, Aboriginal and natural heritage places throughout Australia. Originally established under the *Australian Heritage Commission Act 1975*, the RNE entered more than 13,000 places into the register. The RNE was frozen on 19 February 2007 following amendments to the *Australian Heritage Council Act 2003.* It ceased to be a statutory register in February 2012. The RNE is now maintained on a non-statutory basis as an archive and education resource.

There are no non-statutory heritage items within the CIZ and study area listed on the NTR or the RNE.

2.4 Summary of heritage listings

A search of all relevant registers was undertaken on 3 August 2020. Table 2-1 and Figure 2-1 provide a summary of heritage listed items within the project and study areas.

Potential unlisted items within the CIZ and study area are listed in Table 2-2 and shown in Figure 2-1 to Figure 2-3. Two of these unlisted items have been previously identified by Heritage NSW, DPC as part of response to the SEARs conditions and by Umwelt as part of the 2017 HIS,[14] with an additional item identified by Artefact Heritage as part of this SoHI. Note that the potential unlisted heritage item 'Railway line and associated infrastructure', is not shown in Figure 2-1 to Figure 2-3 for clarity of viewing, however it follows the current alignment of the railway line. Further assessment of these items is provided in Section 5.0 of this report.

[14] Umwelt, 2017, pp. 11-12.

Table 2-1: Summary of heritage items within the CIZ and study area. Heritage items within the CIZ are shaded

Item	Address	Listing no.	Significance	Relationship to CIZ	Relationship to study area
Mehi River Bridge	Mungindi Line, Moree NSW 2400	ARTC s170 Register SHI no. 4281692	Local	Within	Within
Camurra, Gwydir River Underbridge	Mungindi Line, Camurra, NSW 2400	ARTC s170 Register CRN s170 Register SHI no. 4281693	Local	Within	Within
Moree Railway Station	Morton Street, Moree NSW 2400	LEP no. I025; RailCorp s170 Register SHI no. 4801208	Local	200m south of CIZ	Within
Victoria Hotel	339 Gosport St, Moree NSW 2400	LEP no. I022	Local	265m south-west of CIZ	Within

Table 2-2: Summary of potential unlisted heritage items within the study area

Item	Address/Location	Identified by	Relationship to CIZ	Relationship to study area
Railway line and associated infrastructure	Along entire CIZ	Heritage NSW, DPC – SEARS Umwelt 2017	Within	Within
Timber constructed underbridges and culverts	Underbridge (Chainage 666.645) Underbridge (Chainage 666.945) Underbridge (Chainage 667.21) Underbridge (Chainage 667.37) Underbridge (Chainage 667.945)	Heritage NSW, DPC – SEARS Umwelt 2017	Within	Within
Moree Hotel	7 Alice Street, Moree NSW 2400	Artefact Heritage	30m east of CIZ	Within

In addition to the potential unlisted heritage items listed in Table 2-2, it is noted that the HIS prepared by Umwelt also identified Moree Showground and Jellicoe Park as potential heritage items.[15] That HIS identified that both of these items had been previously listed on the Moree Plains LEP 1995 but were not included on the current Moree Plains LEP 2011. It was also identified that the items had been recommended for nomination on the SHR. However, a search of the current and previous nominations for the SHR undertaken as part of this SoHI did not find references to the nominations of these items. Although these items would be present within the study area, with Moree Showground located 75m north-west of the CIZ and Jellicoe Park located 220m west, they are visually separated from the CIZ by the embankment that runs alongside Newell Highway and therefore there would be little to no visual impact. As a result, because of this and the fact that the items have been removed from the Moree Plains LEP 2011, discussion of them has been excluded from this SoHI.

The HIS prepared by Umwelt also identified Surveyors blazes (historical scar tree) along the 2017 N2NS EIS route. These were noted by Heritage NSW, DPC's requirements for the N2NS Phase 2

[15] Umwelt, 2017, pp. 11-12.

SEARs.[16] However, the surveyors trees identified by Umwelt were located outside of the N2NS Phase 2 CIZ, and no scarred trees were identified during the site survey undertaken from 19-23 October 2020. As a result, these have been excluded from this heritage assessment and the impact assessment.

[16] Inland Rail, 2020. *Scoping Report Phase 2 Narrabri to North Star Inland Rail.* Report to Australian Rail Track Corporation (ARTC). Approved 31 May 2020, p. 42; Heritage NSW, DPC. 2020. *Request for Secretary's Environmental Assessment Requirements (SEARS) for Inland Rail – Narrabri to North Star Phase 2 (SSI 10054).* Dated 30 July 2020.

Figure 2-1: Listed heritage items and potential unlisted items within the study area. Note that the potential unlisted item of the Railway line has not been mapped for clarity

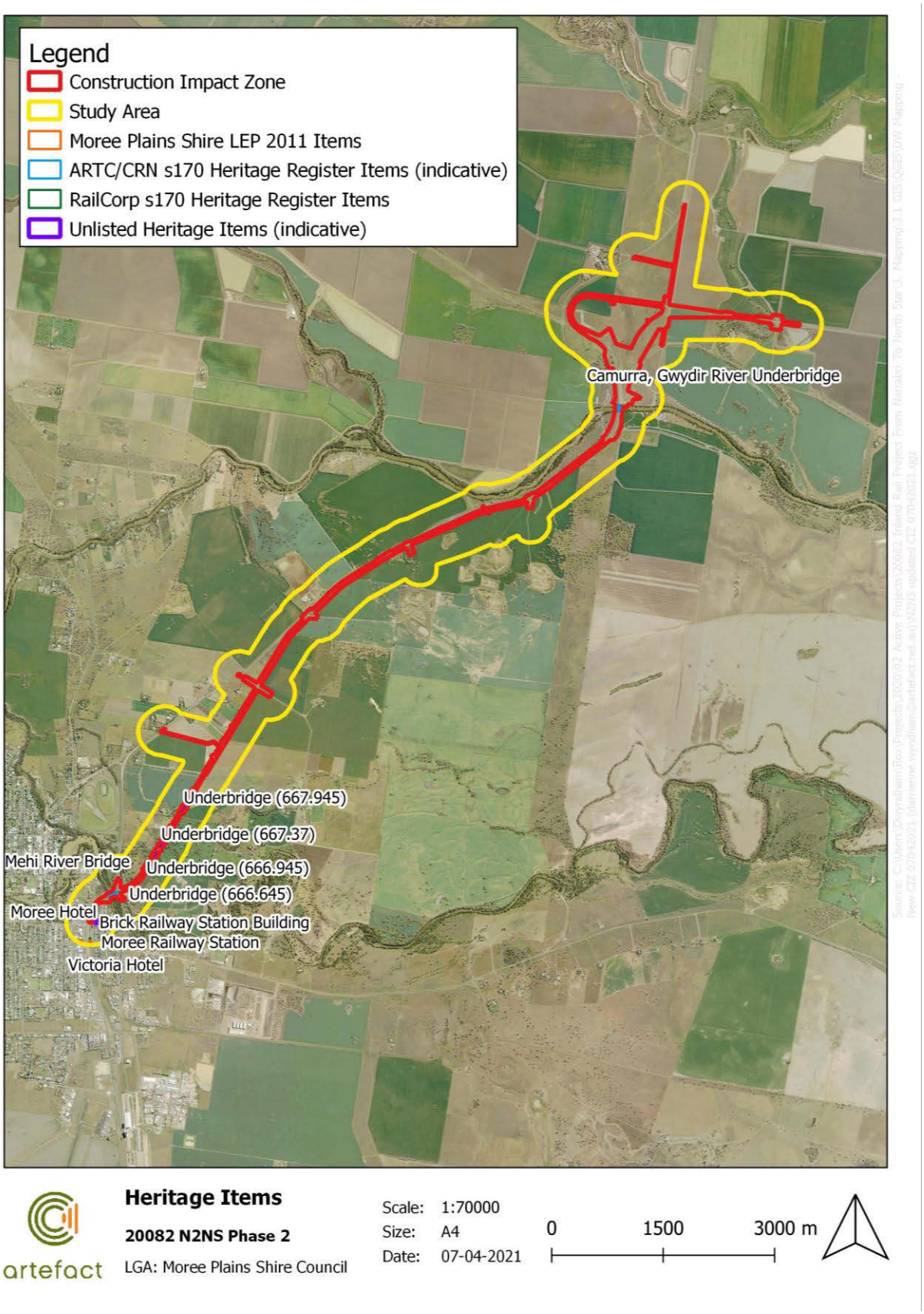


Figure 2-2: Heritage items within the study area in the vicinity of the Gwydir River crossing, near the northern end of the study area

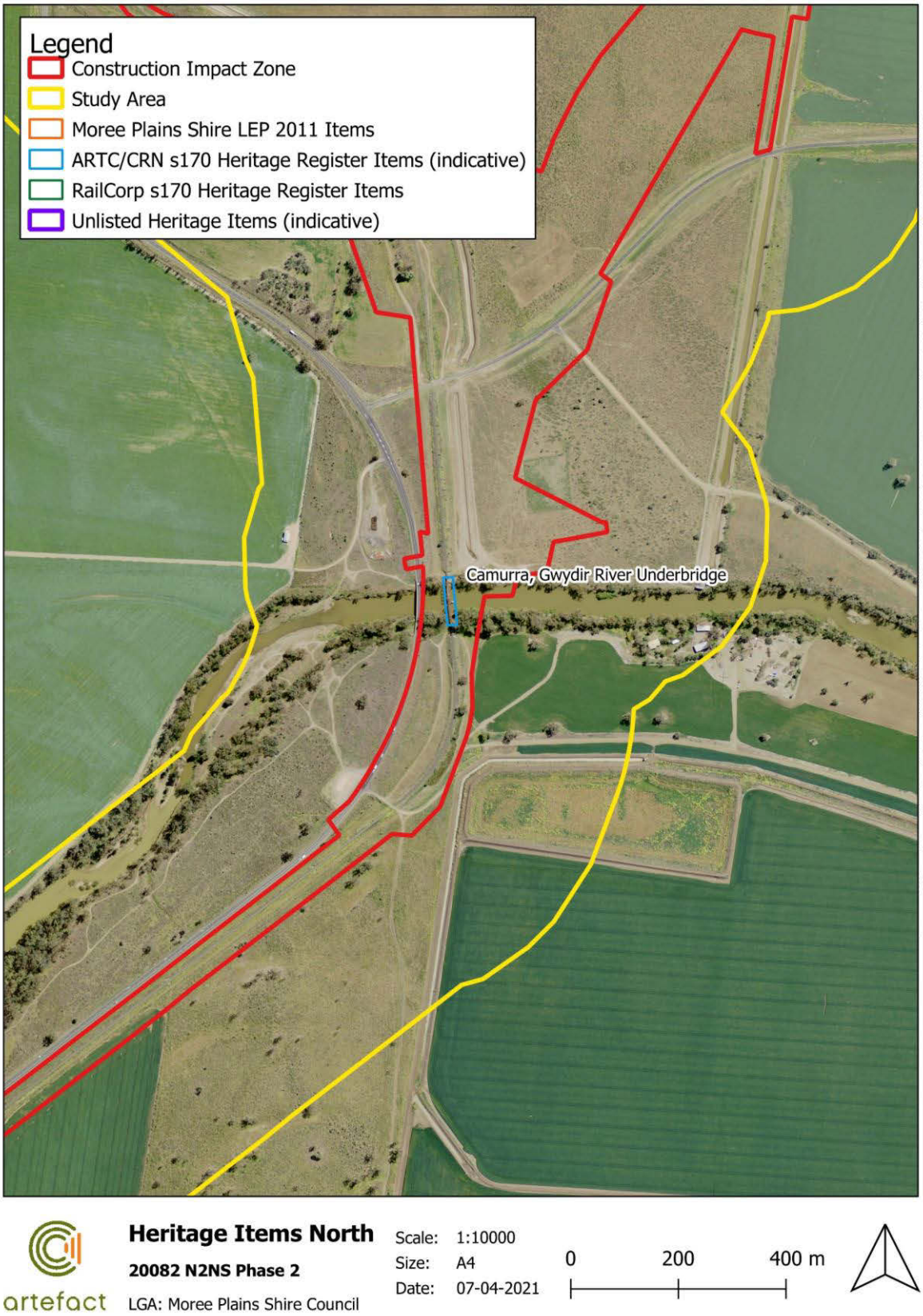
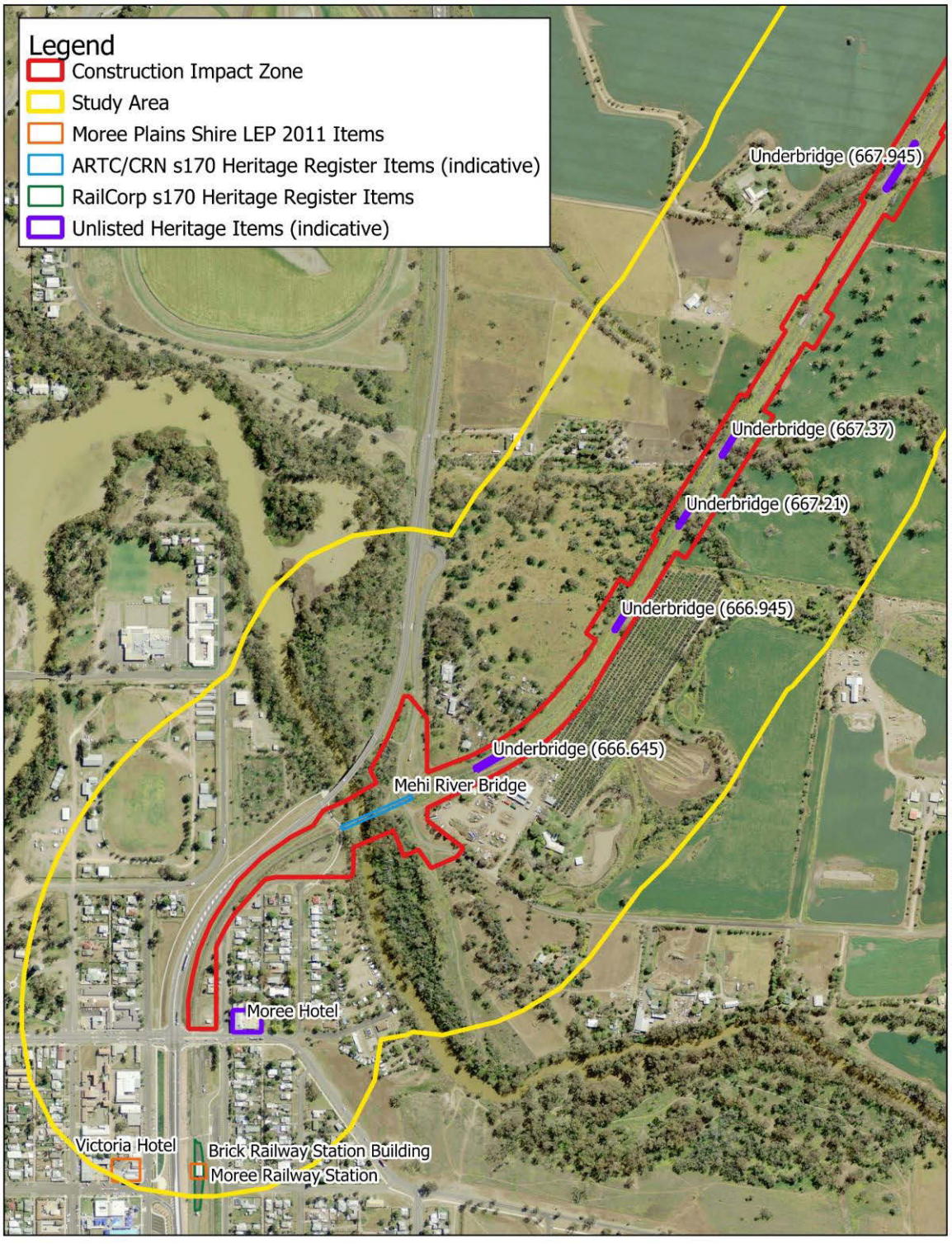


Figure 2-3: Heritage items within the study area in the vicinity of the Mehi River crossing and township of Moree, at the southern end of the study area



artefact

Heritage Items South

20082 N2NS Phase 2

LGA: Moree Plains Shire Council

Scale: 1:10000
Size: A4
Date: 07-04-2021

0 200 400 m

3.0 HISTORICAL BACKGROUND

3.1 Aboriginal history

There are differences in accounts regarding the identity and language groups of the Aboriginal people who lived in the Moree area: the fluidity of the boundaries of Aboriginal societal groups in the area has led to a number of debates between scholars.[17] However, the study area is generally agreed to be within the country of the Gomeroi, a nation of Aboriginal people comprised of various smaller groups.[18] Gomeroi is also known as Kamilaroi, Gamilaroi or Gamilaraay. Gomeroi country extended from today's Queensland border west to Coonabarabran and south to the Upper Hunter Valley. The Gomeroi people are recorded as relying on vegetation and both land-dwelling and water-dwelling fauna as food sources. Food such as fish, yams, melons, fruits, roots, tubers, berries, and water yams/wild potatoes are recorded as having been eaten by the members of the Gomeroi people,[19] supplemented by baking flour made from ground-up grass seeds.[20] Due to its distance from Sydney and relative isolation, the Aboriginal communities of the Gwydir/Moree region initially escaped the devastating impacts of colonisation felt by their southern neighbours. O'Rourke estimates that the population of Gomeroi people may have been as large as 12,000 prior to the invasion of 1788.[21]

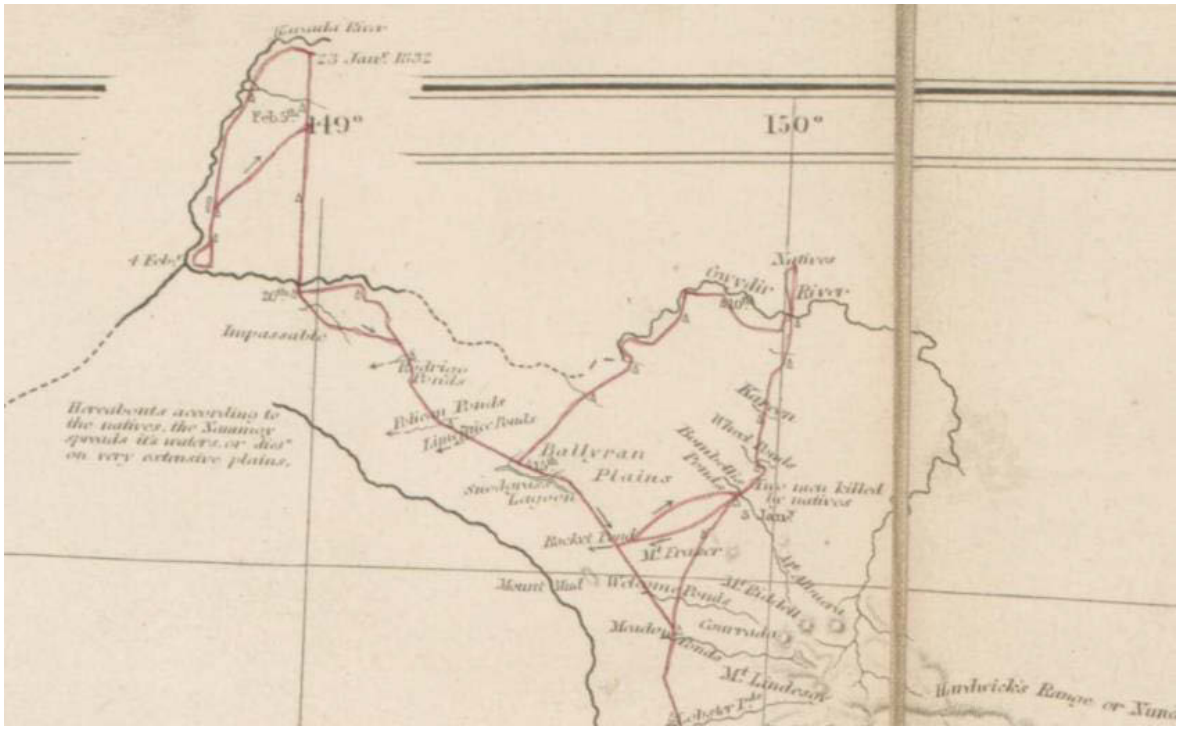
3.2 Phase 1: Early Non-Aboriginal settlement and land use (1812 - 1860)

3.2.1 Non-Aboriginal explorers

The first non-Aboriginal explorer of the Moree area was John Oxley, who became the Surveyor General of New South Wales in 1812. He was followed by Captain James Sturt from 1827 to 1829, who found that the Castlereagh and Macquarie Rivers drained into the Darling River.[22] Thomas Mitchell, who was later promoted to Surveyor General in 1838, also explored the Moree area as part of his 1831-2 expedition and recorded the Macintyre, Gwydir, Namoi and Boggabri Rivers (Figure 3-1). Both Mitchell's 1831-2 and Charles Coxen's 1835 exploration led to pastoral and squatting activity in the area due to their reports of good pastoral land.[23]

[17] Heritage Concepts Pty Ltd, 2009. *Aboriginal Heritage Study: Moree Plains Shire Council Local Environmental Plan*. Report to Moree Plains Shire Council. Final Report, January 2009, p. 31.
[18] Milliss, R. 1992. *Waterloo Creek*. McPhee Gribble: Victoria.
[19] Heritage Concepts Pty Ltd, 2009., p. 34.
[20] Umwelt 2017, p. 14.
[21] O'Rourke, M. 1997. *The Kamilaroi Lands*. Canberra.
[22] Umwelt 2017, p. 15; Heritage Office and Department of Urban Affairs & Planning, 1996. *Regional Histories of New South Wales*, p. 80.
[23] Umwelt 2017, p. 16.

Figure 3-1: An 1838 map of the area surveyed by T. Mitchell and B.R. Davies, showing the Gwydir River (NLA, Mitchell, 1838, MAP NK 1476)



3.2.2 Relationships with local Aboriginal people

Thomas Mitchell's 1832 expedition, which was guided by the local Aboriginal people, indicates that early contact between the local Aboriginal people and the non-Aboriginal settlers was amicable. However, conflict between the groups soon arose.[24] This is thought to be due to the pressure that land uses by non-Aboriginal settlers placed on the resources of the Aboriginal population. From the late 1830s, this conflict led to the death of hundreds of Aboriginal people through massacres, diseases and famine.[25]

As a result of this conflict a number of missions were established in the Moree Shire area from 1838 onwards. The missions aimed to control all aspects of the lives of the Aboriginal people in the area. The main missions were located at Narrabri, Wee Waa, Terry Hie Hie and Euraba.[26]

3.2.3 Pastoralism

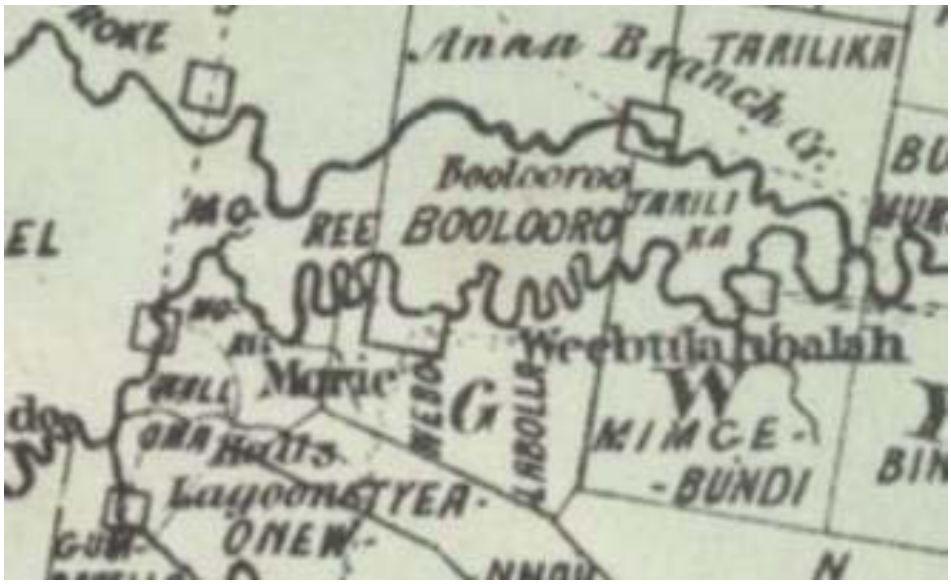
Until 1825, land grants of up to 30 acres were free but could only be granted by the Governor within the boundaries of the settlement of NSW at that time. This led to the illegal occupation of Crown land. Efforts by the government to limit the area of settlement included such measures as Governor Sir Ralph Darling's Limits of Location in 1826, which prohibited the settlement of land outside a specified geographical extent. The boundaries of the Limits of Location were extended by a Government Order in 1829 due to the insistent push from pastoralists to the north and west, creating the Nineteen Counties around Sydney, which extended from the Murrumbidgee River to the Liverpool Range and Manning River.[27] Despite these limits, pastoralists purposely ventured outside these areas in order to make use of the good pastoral land as reported by the explorers. These pastoralists, who had no

[24] Umwelt 2017, p. 14.
[25] Umwelt 2017, p. 14.
[26] Umwelt 2017, pp. 14-15; Briggs-Smith, N., W. McGregor, 1997. *Winanga-Li = To remember/family research.* Moree, NSW: Northern Regional and Information Service, p. 4.
[27] Umwelt 2017, pp. 15-19

legal right to the land but became some of the wealthiest people in the colony, became known as ‘squatters’.

Squatters had moved in to the New England and Darling Plains areas by 1832 and to Moree and Wee Waa by 1836, following further distribution of land during Sir Richard Bourke’s time as the Governor of NSW (1831-1837).[28] By 1848, the country had been partitioned into pastoral runs, with the north-east runs, such as Namoi and Gwydir, predominately used for cattle due to the risks to sheep of dingo attacks and the rough grazing.[29] In August 1844, James Cox was recorded as owning a large pastoral property named ‘Moree’.[30] James Cox’s pastoral run, comprising 23,040 acres by 1848, was taken over by Parnell by 1850.[31] The pastoral opportunities drew people to the area, spurring James and Mary Brand to open a general store in 1852. This had become a combined general store and post office by 30 August 1853.[32] Moree is recorded on a pastoral map from 1860 (Figure 3-2).

Figure 3-2: An 1860 pastoral map of the area, showing Moree (NLA, Reuss and Browne, 1860, MAP NK 5928)



3.3 Phase 2: Town and agricultural development (1860 - 1895)

3.3.1 Residences and agricultural development

By March 1859, the popularity of the Moree area led the existing residents of the Gwydir District to petition for a town to be established.[33] In 1860, surveys for the official establishment of the town were undertaken, resulting in the gazetting of the town as comprising 530 acres with a further 1500 acres of suburban boundaries, followed by the sale of the first town and suburban lots on 25 June 1862 (Figure 3-2 and Figure 3-3).[34] Prior to the lot sales, by 1861 a post office and two general stores and inns had been opened, for a population of 43.[35] Though a courthouse and lockup were constructed in 1850 in the nearby early pastoral centre of Warialda, the need for an additional court led to the

[28] Umwelt 2017, pp. 15-19
[29] Umwelt 2017, p. 19; Heritage Office and Department of Urban Affairs & Planning, 1996, p. 80.
[30] Umwelt 2017, p. 33; Heritage NSW, DPC 2007c. *SHI Listing for All Saints Anglican Church Group.* Accessed at: https://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=2050070 (31/07/2020).
[31] Umwelt 2017, p. 33; Heritage NSW, DPC 2007c.
[32] “New Post Offices” 1853, August 30. New South Wales Government Gazette (Sydney, NSW : 1832 - 1900), p. 1471. Accessed at: http://nla.gov.au/nla.news-article231517187 (31/07/2020); Forsyth, J. H. 2002. *New South Wales Railway Stations. An Alphabetical Arrangement of Railway Station and Place Names. Australian Railway and Historical Society New South Wales Division*, pp. 161-2; Umwelt 2017, p. 33.
[33] Heritage NSW, DPC 2007c.
[34] Forsyth, J. H. 2002, pp. 161-2; Umwelt 2017, p. 33; Heritage NSW, DPC 2007c.
[35] Heritage Office and Department of Urban Affairs & Planning. 1996, p. 83.

opening of a court in 1862 in Moree.[36] Moree soon became the 'capital' of the area.[37] By 1871, Moree's population had grown to 107, served by a school, saddler, butcher and three hotels (Figure 3-3).[38] The 1880s saw further population growth, accompanied by three churches, a newspaper office and a Land Office (Figure 3-4).[39] In 1890, land at the south-eastern end of the town was resumed for the construction of a railway station and railway line (Figure 3-7). Moree was declared to be a municipality in 1891, by which time the town additionally had its own hospital, School of Arts and post office.[40] The surrounding area appears to have been mostly used for agricultural purposes at this time, which were likely to have been mostly utilised as wheat and cattle farms (Figure 3-4 and Figure 3-6). In addition, roads to the surrounding areas began to be formalised, such as the road to the north-east of Moree towards Camurra and Boolooroo (Boggabilla Road, now the Newell Highway) [Figure 3-5].

Figure 3-3: An 1863 map of NSW, showing Moree designated as a town (NLA, Reuss and Browne, 1860)

[36] Heritage Office and Department of Urban Affairs & Planning. 1996, p. 83.
[37] Heritage Office and Department of Urban Affairs & Planning. 1996, pp. 83-84.
[38] Heritage Office and Department of Urban Affairs & Planning. 1996, p. 83.
[39] Heritage Office and Department of Urban Affairs & Planning. 1996, p. 84.
[40] Heritage Office and Department of Urban Affairs & Planning. 1996, p. 84; Heritage NSW, DPC 2007c.

Figure 3-4: An overlay of the southern end of the CIZ (red) overlaid on an 1876 town map of Moree showing the allotments north and south of the river (HLRV, Historical Parish Maps, Town of Moree 1876).

Figure 3-5: An overlay of the southern end of the CIZ (red) overlaid on an 1882 parish map of Moree (HLRV, Historical Parish Maps, Parish of Moree 1882).

Figure 3-6: An overlay of the southern end of the CIZ (red) overlaid on an 1885 parish map of Moree (HLRV, Historical Parish Maps, Parish of Moree 1885).

3.4 Phase 3: The railway, township and agricultural development (1895 - present)

3.4.1 Agriculture

The first bore hole in Moree was dug in 1895, and though the water contained minerals not suitable for crop irrigation, the high temperature was recognised as useful in the wool-scouring industry, the latter of which became a significant part of the local economy.[41]This led to the replacement of the large cattle pastoral holdings in the area with mixed wheat and sheep farms in the centre and east of the Darling Plains, as well as large sheep farms to the north and west, during the early twentieth century.[42] The 1895 and 1900 Land Acts resulted in the resumption of land by the government for subdivision; the Acts, teamed with private subdivision caused by high taxation rates, increasing land values and inheritance, led to the establishment of a large number of small farms in the Moree area. The area soon became a major producer of wool, with wheat following at a slower pace due to the high summer rainfall. Mixed wheat and sheep farms, focusing on the production of wool and wheat, became popular in the 1920s.[43] The small land holdings established in the first half of the twentieth century were ideally suited for wheat production. Research into hardy wheats that could survive the harsh summer conditions of the area led to Moree's identity as the centre of a highly profitable wheat-producing area by 1946. The mixed wheat and sheep farms had become the predominant land use in the Darling Plains by the end of the twentieth century. By this time, the amalgamation of land holdings and increasing mechanisation led to the wheat-sheep properties comprising a few thousand acres

[41] Umwelt 2017, pp. 14-15.
[42] Heritage Office and Department of Urban Affairs & Planning. 1996, p. 84.
[43] Heritage Office and Department of Urban Affairs & Planning. 1996, pp. 84-87.

and those solely for sheep comprising nine through to twenty thousand acres.[44] The Moree area soon became known as the Golden Wheatbelt for its high quality and plentiful wheat production.[45] In the 1960s, pecan farming was established to the south of Moree and by the twenty-first century, contributed to 95% of the pecan production in Australia.[46] The surrounding area of Moree continued to be utilised for agricultural pursuits throughout the twentieth and early twenty-first centuries, with wheat, sorghum, chickpea, cotton, cattle farming, wool production and pecan farming still present in the area.[47]

3.4.2 The railway

In response to the need for greater accessibility of the north-western agricultural area of NSW, a contract for the construction of the Mungindi line between Moree and Narrabri was awarded to J. Timms, W. Finlayson and H. Smith on 10 July 1895.[48] Moree Railway Station, located along this Mungindi line with a single line from Narrabri Junction, was opened in 1897 as the major railhead designed to service the large sheep stations.[49] For this reason, the station had not only a platform, station building and urinals, but also a goods shed on a separate goods platform, cattle yards, sheep pens, a loading bank for wool, carriage shed, weighbridge, station master's residence and a locomotive servicing depot (Figure 3-7).[50] The station was designed as an economical timber Pioneer style station, with the buildings receiving criticisms from the then Mayor, A.B.F. Zlotkowski, as to its modesty and utilitarian nature.[51] The railway was fundamental to the survival of Moree due to the connections it provided to the rest of NSW.[52]

In 1901, the branch line between Moree and Inverell led to the development of the locomotive depot and the engine shed, with new inspection and ash pits, rest house and water tank. The rise in the exportation of pastoral produce from Moree and the extension of the North Western Railway Line led to the establishment of Moree Railway Station as a junction station in 1903-4. This resulted in the construction of a larger, but still timber, station building on a new island platform for passengers in order to provide better amenities for staff and passengers alike.[53]

The railway line was extended from Moree to Camurra between 1910 and 1913 and reached Mungindi by 1914, with the route running north across both the Mehi and Gwydir Rivers from Moree to Camurra, where it changed course north-west from Camurra to Mungindi. This led to the need to construct steel Pratt truss bridges for the railway over the Mehi and Gwydir Rivers.[54] In response to the popularity of the station and the new line, a new station master's residence was built on Morton Lane on railway land. Additional cottages were built to house the railway workers during the construction of the Moree to Mungindi line. These houses were built from timber and fibro with corrugated iron roofs.[55] Further work at the station in the first half of the twentieth century included the extension of the carriage shed in 1911, the extension of the rest house in 1918, the construction of a

[44] Heritage Office and Department of Urban Affairs & Planning. 1996, pp. 84-87.
[45] Tourism Moree, 2020. *Agriculture.* Accessed at: https://www.moreetourism.com.au/about-moree-plains/agriculture.html (05/08/2020).
[46] Tourism Moree, 2020. *Agriculture*.
[47] Tourism Moree, 2020. *Agriculture.*
[48] Umwelt 2017, p. 42.
[49] Heritage NSW, DPC 2015. *SHI Listing for Moree Railway Station.* Accessed at: https://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=4801208 (31/07/2020); Messner, Love, Henderson, Harper and Taaffe 2002. *Moree Railway Station, 1897-2002.*
[50] Heritage NSW, DPC 2015. *SHI Listing for Moree Railway Station.*; Messner, Love, Henderson, Harper and Taaffe 2002.
[51] Heritage NSW, DPC 2015. *SHI Listing for Moree Railway Station;* Messner, Love, Henderson, Harper and Taaffe 2002. *Moree Railway Station, 1897-2002.*
[52] Umwelt 2017, p. 28.
[53] Umwelt 2017, p. 34; Heritage NSW, DPC 2015. SHI Listing for Moree Railway Station; Messner, Love, Henderson, Harper and Taaffe 2002. *Moree Railway Station, 1897-2002.*
[54] Umwelt 2017, p. 38.
[55] Umwelt 2017, p. 34.

refreshment room in 1928-9, and an additional extension to the engine shed and new water supply amenities in 1930 (Figure 3-8).[56]

With the opening of the Camurra to Boggabilla line in 1932, Moree became a busy station due to being a junction for the three separate lines of Boggabilla, Inverell and Mungindi. By 1939, a 60-foot diameter turntable replaced the original 50-foot turntable. Alterations were made to the platforms during World War II and in 1943, a new timber booking office was constructed on the platform (Figure 3-9). This booking office was demolished and replaced in 1964 by a combined parcels, good and booking office along the western side of the station, with the earlier parcels office converted for use as a waiting room.[57] In 1964 and 1967, a wheat silo and depot constructed at the station. A wheat silo and depot were constructed in 1963 and 1967.[58] Further alterations were made to the refreshment facilities from 1964 onwards, finally with the refreshment room converted into a switch room, staff room, offices and teleprinter room by the mid-1970s. Equipment for servicing steam trains was removed by the 1960s due to the use of diesel-electric locomotives, while the depot at the station had been closed and the majority of the depot and platform buildings were demolished by c.2000 (Figure 3-10).[59]

From the 1930s, a number of Aboriginal families who stayed in the area worked in the railway industry. They were responsible for the construction, maintenance and operation of the railway lines all over New South Wales, but this work ended with the mechanisation of the network in the second half of the twentieth century.[60]

Figure 3-7: A plan of Moree Railway Station, dated 1896 (Umwelt 2017, 48)

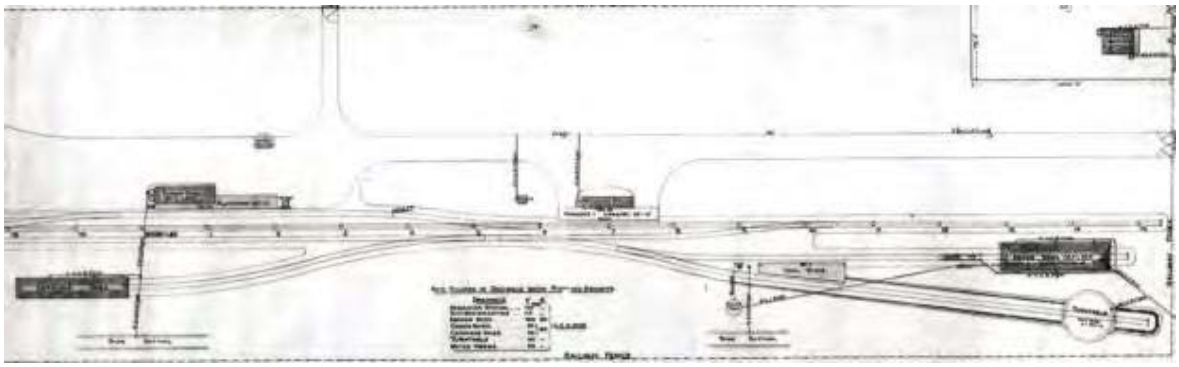
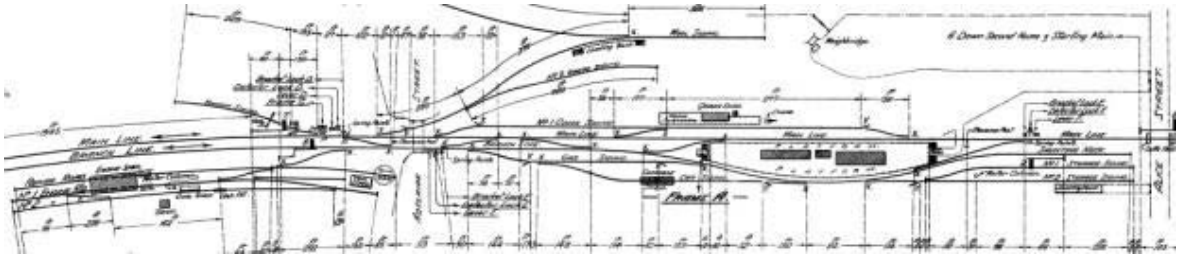


Figure 3-8: A detailed plan of Moree Railway Station, dated 1929 (Umwelt 2017, 48)



[56] Umwelt 2017, p. 34; Heritage NSW, DPC 2015. *SHI Listing for Moree Railway Station*; Messner, Love, Henderson, Harper and Taaffe 2002. *Moree Railway Station, 1897-2002.*
[57] Heritage NSW, DPC 2015. *SHI Listing for Moree Railway Station*; Messner, Love, Henderson, Harper and Taaffe 2002. *Moree Railway Station, 1897-2002.*
[58] Umwelt 2017, p. 48.
[59] Umwelt 2017, p. 34; Heritage NSW, DPC 2015. *SHI Listing for Moree Railway Station*; Messner, Love, Henderson, Harper and Taaffe 2002. *Moree Railway Station, 1897-2002.*
[60] Umwelt 2017, p. 15; Hickey, M. 2005. 'Railway Mechanisation in New South Wales 1957 – 1977'. Permanent Way Institution Inc, 28 October 2005 Annual Convention, Convention Journal, pp. 26-39.

Figure 3-9: A photograph of Moree Railway Station, dated 28 March 1963 (State Archives & Records, 17420_a014_a014000669)

Figure 3-10: A photograph of Moree Railway Station, dated 2018 (Sydney Trains 2018 in Heritage NSW, DPC 2015, 4801208)

3.4.2.1 Pratt truss bridges

Early railway bridge technology in NSW relied heavily on the use of conservative, expensive and elaborate British designs, primarily utilising expensive wrought iron lattice bridges and Queen-post timber trusses, due to the reluctance of the then Engineer-in-Chief, John Whitton, to utilise American technologies.[61] Although the earliest steel Pratt road bridge, the Denison Bridge in Bathurst, was completed in 1870 (Figure 3-11),[62] the first steel Pratt rail bridge on a main line was constructed along the Far North Coast railway line between Lismore and Murwillumbah in 1894.[63] The change in rail bridge design was initiated by the new Commissioner of the NSW Government Railways, E.M.G. Eddy, as a cost-saving response to the financial depression of the 1890s.[64] As the rural Pioneer Lines of the late nineteenth and early twentieth centuries were aimed at providing cost effective solutions to railway construction, the intent was not to provide expensive major bridges along these lines.[65] The American steel Pratt truss consequently became the standard design for new railway bridges, particularly on these Pioneer Lines, from 1894 onwards due to their economic efficiency, constructability and low maintenance.[66]

These American style steel Pratt trusses were utilised where spans of over 33 m were required in order to cross wide rivers.[67] James Waller Roberts, as an engineer for the Department of Public Works Railway Construction Branch, produced a standard of three sizes of steel Pratt trusses for spanning major rivers: 61 m, 48 m and 36.6 m. Steel plate web girders of 20 m were designated for 8 m to 30 m spans and 8 m transom-topped timber openings for narrow river crossings.[68] Approximately 80 steel Pratt trusses are known to have been constructed between 1894 and c.1925 in NSW, with the majority constructed along railway lines.[69] Such steel Pratt bridges were constructed along rail lines throughout NSW from 1894 until the 1960s, when prestressed concrete structures became a more popular construction material.[70]

The two bridges over the Mehi and Gwydir Rivers within the CIZ are examples of such early twentieth-century steel Pratt bridges along a rural Pioneer line. While the Gwydir River Underbridge exhibits two steel Pratt 36.6 m trusses,[71] the Mehi River Bridge exhibits a single 36.6 m steel Pratt truss flanked by 20 m steel web plate girders,[72] both following James Waller Roberts' standard designs.

[61] Fraser, Donald J. 2010. "American Bridges in New South Wales, 1870-1932", *Australian Journal of Multi-disciplinary* Engineering, Institution of Engineers Australia. 8(1): 23-31, p. 23.
[62] Heritage NSW, DPC. 2003. *SHI listing for Denison Bridge*. Accessed at: https://apps.environment.nsw.gov.au/dpcheritageapp/ViewHeritageItemDetails.aspx?ID=5051846 (02/11/2020).
[63] Fraser, Donald J. 2010, p. 25.
[64] Fraser, Donald J. 2010, p. 24.
[65] Fraser, Donald and Nicholas, Amie, 2019. "Developing the truss", *The Timber Truss Bridge Book. Roads and Maritime Services.* Accessed at: https://www.rms.nsw.gov.au/about/environment/protecting-heritage/timber-truss-bridge/chapter-2.html (02/11/2020).
[66] Fraser, Donald J. 2010, pp. 24-25.
[67] Fraser, Donald J. 2010, p. 25.
[68] Fraser, Donald J. 2010, p. 28.
[69] Fraser, Donald J. 1995. "Introduction of American Bridge Technology into New South Wales, Australia." *IA. The Journal of the Society for Industrial Archeology* 21, no. 1: 33-46, p. 45. Accessed at: http://www.jstor.org/stable/40968295 (19/102020).
[70] Fraser, Donald J. 1995, p. 45.
[71] Heritage NSW, DPC 2007b. *SHI Listing for Camurra, Gwydir River Underbridge*. Accessed at: https://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=4281693 (10/08/2020).
[72] Heritage NSW, DPC 2007a. *SHI Listing for Mehi River Bridge*. Accessed at: https://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=4281692 (10/08/2020);

Figure 3-11: The 1870 Denison Bridge over the Macquarie River in Bathurst, exhibiting the earliest use of the steel Pratt truss in road bridge design (Bowie 1992)

Figure 3-12: The 1894 steel Pratt truss bridge over Dunbible Creek design (CRIA, n.d. in Heritage NSW, DPC 2005)

3.4.3 The township

The town of Moree continued to grow in the late nineteenth century and throughout the twentieth century, boosted by the agricultural boom and the increased accessibility provided by the railway. By the 1890s, the former courthouse, constructed in 1884, was outgrown by the increasing population, resulting in the construction of a new courthouse between 1900 and 1903, designed by the Government Architect at the time, Walter Liberty Vernon (Figure 3-15).[73] From the 1910s to 1920s, several fires resulted in the destruction of a number of residences, businesses and hotels in the central business district of Moree. In response to this destruction, the reconstruction program of the area of Moree led to the construction of a large number of Inter-War and Post-War Art Deco style buildings, creating a stylistically cohesive town centre.[74]

A number of highways and bypasses have been diverted past and through Moree, constructed during the late twentieth and early twentieth century. The Moree Town Centre Bypass, constructed in 2005-6, to the north of the railway station, reduced the northern boundary of the railway station and led to the demolition of associated residences including the station master's residence and cottage at 56 Morton Lane.[75]

Figure 3-13: A photograph of the town of Moree, taken from the water tank, dated 1895-1910 (State Library of NSW, H. Billington & Co., c.1895-1910, PXA 1554 FL653570)

[73] Heritage NSW, DPC 2010. *SHI Listing for Moree Courthouse.* Accessed at: https://www.heritage.nsw.gov.au/search-for-heritage/search-for-nsw-heritage/ (05/08/2020);
[74] Heritage NSW, DPC 2007c.
[75] Heritage NSW, DPC 2015. *SHI Listing for Moree Railway Station*; Egis 2002. *EIS: Proposed Newell Highway Bypass of Moree Town Centre*. Report to NSW Roads and Traffic Authority on behalf of the Commonwealth Department of Transport and Regional Services. Accessed at: https://www.rms.nsw.gov.au/documents/projects/western-nsw/moree-town-centre-bypass-stage-2/moree-bypass-stage-2-ch15to23.pdf (31/07/2020).

Figure 3-14: A photograph of the outskirts of the town of Moree (State Library of NSW, H. Billington & Co., c.1895-1910, PXA 1554 FL653582)

Figure 3-15: A photograph the Moree courthouse constructed c.1900-1903 (State Library of NSW, H. Billington & Co., c.1895-1910, PXA 1554 FL653588)

Figure 3-16: A parish map of Moree, dated 1896, showing the reservation of land for the construction of the railway line (HLRV, Historical Parish Maps, Parish of Moree 1896)

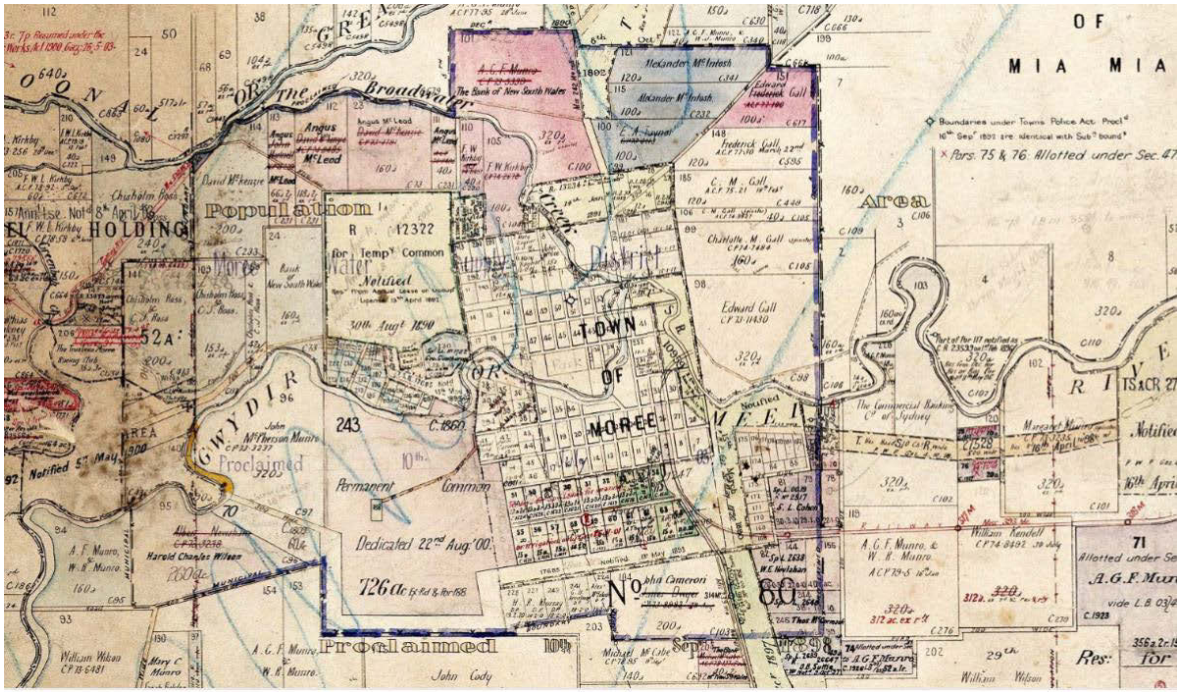


Figure 3-17: A town map of Moree, dated 1922, showing the development of the town and the railway line (HLRV, Historical Parish Maps, Town of Moree 1922)

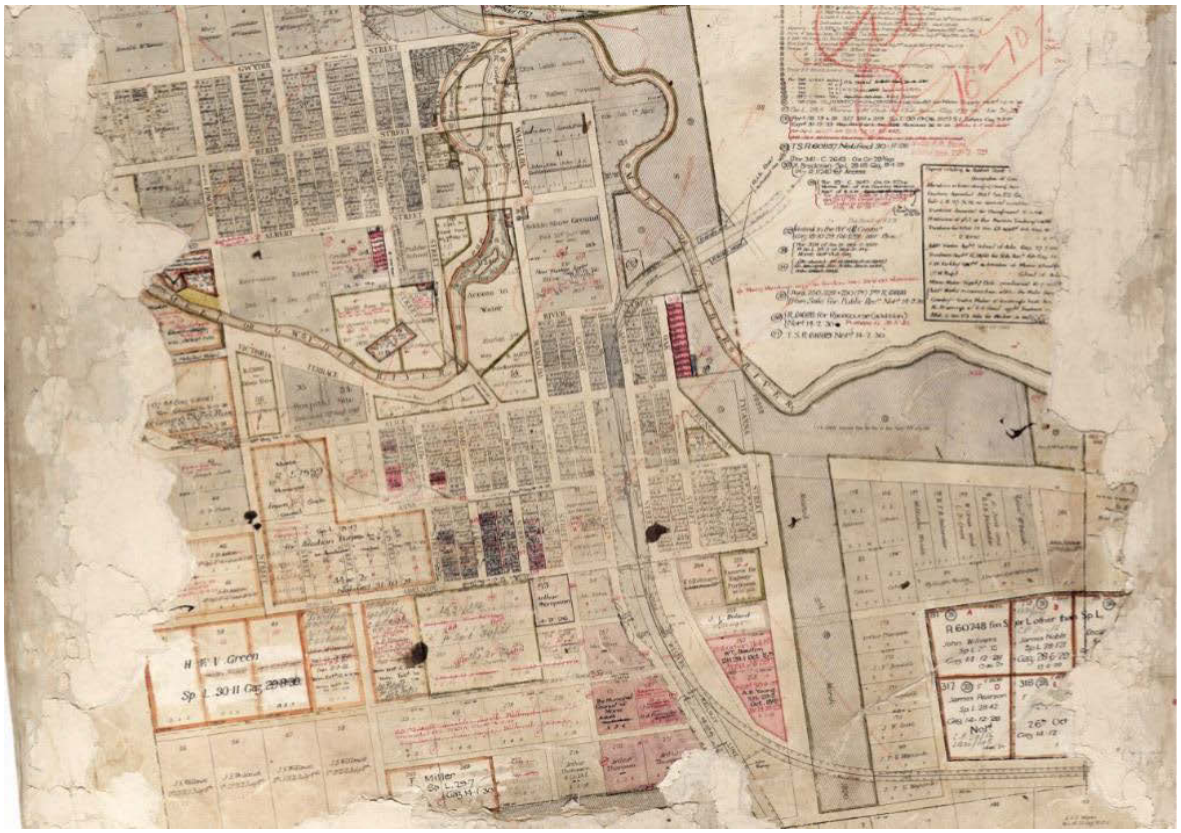


Figure 3-18: A parish map of Moree, dated 1947, showing the development of the town (HLRV, Historical Parish Maps, Town of Moree 1947)

3.4.4 Ongoing Aboriginal occupation of the area

Following the establishment of the Aboriginal Protection Board in the 1880s, Terry Hie Hie to the south-east of Moree was designated as a reserve for people of the Gomeroi language group in 1895.[76] However, the *Aboriginal Protection Act 1909* allowed children in Aboriginal reserves to be forcibly separated from their families. This often led to families leaving the reserves to fringe camps or unofficial reserves on the outskirts of towns.[77] At Terry Hie Hie reserve to the south-east of Moree, the separation of children from their parents led to a number of families relocating and establishing unofficial 'fringe camps' near Moree. One such camp, 'Steel Bridge Camp', was located at the Mehi River crossing within the study area.[78] The structures of the fringe camp were later demolished after the abandonment of the reserve in the 1960s, but assemblages associated with the Aboriginal use of the area are likely to remain.[79] 'Top Camp', to the south-east of the Mehi River, was also an unofficial reserve, with the Aboriginal people living there from the 1920s to 1967, when the Aboriginal Welfare Board moved the residents to Stanley Village.[80] The Gomeroi people continue to live in Moree.

In the second half of the twentieth century, Moree played an important role in the 1965 Freedom Rides which aimed to bring to light the racism, discrimination, injustice and inequality experienced by Aboriginal people in Australia, particularly in rural New South Wales.[81] The Moree Baths and Swimming Pool, in particular, was a scene of a large protest by the Dr Charles Nelson Perrurle Perkins, the Freedom Fighters and the Student Action for Aborigines (SAFA) group on the 19 February 1965 due to a Moree Council by-law which prevented Aboriginal people from using the pool (Figure 3-19). After hours of protesting and negotiations, the protest culminated in the Moree Council

[76] Australian Government National Landcare Program, n.d. *Terry Hie Hie Cemetery project Dhawunma*. Accessed at: http://www.nrm.gov.au/indigenous-nrm/north-west/terry-hie-hie-cemetery-project (05/08/2020).
[77] Egis 2002, p. 15-2.
[78] Umwelt 2017, pp. 14-15; Briggs-Smith, N., W. McGregor, 1997. *Winanga-Li = To remember/family research.* Moree, NSW: Northern Regional and Information Service, p. 4.
[79] Umwelt 2017, pp. 14-15.
[80] Monument Australia, 2020. *Top Camp.* Accessed at: http://monumentaustralia.org.au/themes/culture/indigenous/display/22190-top-camp (05/08/2020).
[81] Umwelt 2017. *Australian Rail Track Corporation Inland Rail Narrabri to North Star EIS Non-Aboriginal Heritage Impact Statement*. Report on behalf of Australian Rail Track Corporation, p. 15.

rescinding the by-law. This protest is seen as a pivotal event in Australian Aboriginal rights movement.[82] The entrance to the public pool was altered in the late twentieth century (Figure 3-20).

Figure 3-19: A photograph of the 1965 SAFA protest at Moree Baths and Swimming Pool (Mitchell Library, State Library of New South Wales and Courtesy SEARCH Foundation, FL449165)

[82] Australian Government Department of Agriculture, Water and the Environment, 2013a. National Heritage Places - Moree Baths and Swimming Pool Complex. Accessed at: www.environment.gov.au/heritage/places/national/moree-baths (31/07/2020); Australian Government Department of Agriculture, Water and the Environment, 2013b. Australian Heritage Database - Moree Baths and Swimming Pool, Anne St, Moree, NSW, Australia. Accessed at: http://www.environment.gov.au/cgi-bin/ahdb/search.pl?mode=place_detail;place_id=106098 (31/07/2020).

Figure 3-20: A photograph of the entrance to the Moree Baths and Swimming Pool (McAulay 2010, dig007849)

3.5 The study area

3.5.1 Phase 1: Early Non-Aboriginal settlement and land use (1812 - 1860)

The study area was a part of James Cox's 23,040 acre cattle pasture from 1844, known as 'Moree', which was taken over Parnell by 1850 (Figure 3-1 and Figure 3-2).[83] The study area is likely to have been used as part of the cattle pasture at this time.

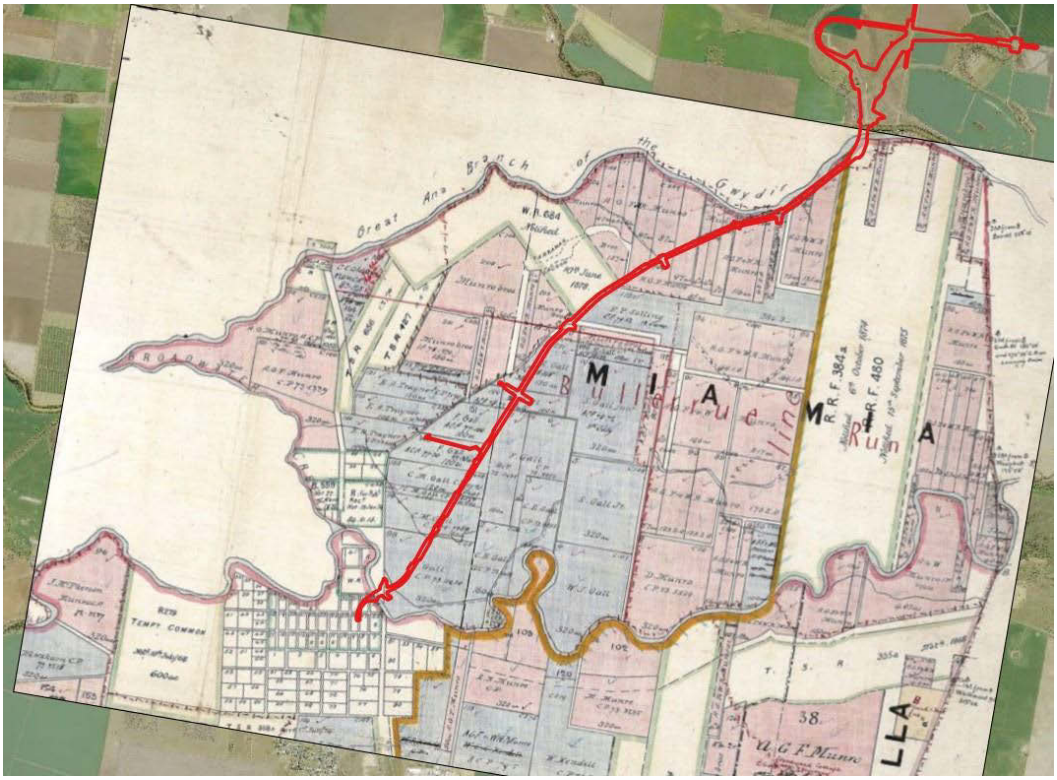
3.5.2 Phase 2: Town and agricultural development (1860 - 1895)

The majority of the study area was located to the north-east of the town centre of Moree during the nineteenth century, falling within the boundary of the adjacent parish of Mia Mia (Figure 3-21). A pastoral map from the 1870s shows the Gall, Solling and Munro families to have owned much of the study area (Figure 3-21). This continued into the 1880s; of the land inside the boundaries of the Mia Mia Parish, the south-eastern land of the study area was noted as being under the ownership of Edward and Fred Gall between 1882 to 1885 (Figure 3-22 and Figure 3-24). Land to the north of the Gall allotments was owned by F.P. Solling, A.G.F. and W.R. Munro (Figure 3-22). The study area ran along the southern side of a major road leading to Camurra, recorded as early as the 1870s, though the road may have earlier origins (Figure 3-21 and Figure 3-22). The northern end of the study area was located in the Parish of Boolooroo, on the northern side of The Great Ana Branch of Gwydir River. It is likely that the land was generally used for grazing and other pastoral activities at this time, as Edward Gall is recorded as a grazier,[84] F.P Solling as a surveyor who married the daughter of a prominent squatter,[85] and A.G.F. Munro as a cattle and sheep farmer who moved on to solely cattle

[83] Umwelt 2017. *Australian Rail Track Corporation Inland Rail Narrabri to North Star EIS Non-Aboriginal Heritage Impact Statement*. Report on behalf of Australian Rail Track Corporation, p. 33; Heritage NSW, DPC 2007c.
[84] "Coramba" 1928, February 2. *Daily Examiner*. Grafton (NSW: 1915 – 1954), p. 4. Accessed at: http://nla.gov.au/nla.news-article195466082 (03/08/2020).
[85] "Death of Mr. F. P. Solling" 1923, January 20. *The Sydney Morning Herald* (NSW: 1842 - 1954), p. 14. Accessed at: http://nla.gov.au/nla.news-article16042978 (03/08/2020)/

rearing in c.1909.[86] W.R. Munro is recorded as having bought Weebollabolla Station in 1873 with his brother, A.G.F. Munro, but later sold his shares to his brother and bought Boombah Station.[87] It is therefore likely that the majority of the study area was used for sheep and cattle grazing in the second half of the nineteenth century. An exception was the designation of the Boolooroo Provisional School at the northern end of the study area in the 1880s (Figure 3-23). Provisional Schools were intended for 15 to 24 local children, indicating that there was sufficient need for the children of local farmers and workers to attend a school outside of the township of Moree.[88] Provisional School buildings and furniture were funded by the school parents and it is unclear as to whether or not a temporary or permanent school building was constructed.[89] Although the school is recorded as being open only from January 1893 to December 1893,[90] later maps from the twentieth century continued to record the area as the Boolooroo Provisional School site (Figure 3-33). Another exception to the general use of the study area for grazing was the southern extent of the study area, which was located within the township (Figure 3-25). This land comprised small allotments managed by a variety of owners by 1891, including M.B.T Sweetman, K. McDonald, W.A.F. McDouall, M. Dobbie, William Nairn and George Shaw (Figure 3-25). It is unclear as to whether or not these allotments were constructed upon or remained empty until the resumption of the land for the railway line in the early twentieth century, but undocumented features may have been constructed on this land at this time (see Section 3.5.3).

Figure 3-21: A late pastoral map with the CIZ overlaid in red, c.1870s (HLVR Pastoral Maps, Weebollabolla, Moree Land District 1870s)



[86] "Obituary" 1929, November 7. *Moree Gwydir Examiner and General Advertiser* (NSW: 1901 - 1940), p. 2. Accessed at: http://nla.gov.au/nla.news-article111721758 (03/08/2020).
[87] "Obituary" 1944, May 25. *Balonne Beacon* (St. George, Qld: 1909 - 1954), p. 4. Accessed at: http://nla.gov.au/nla.news-article213896648 (03/08/2020).
[88] NSW Government Department of Education 2020a. "Glossary of School Types", *History of New South Wales Government* Schools. Accessed at: https://education.nsw.gov.au/about-us/our-people-and-structure/history-of-government-schools/school-database-search/glossary#letterP (21/10/2020).
[89] NSW Government Department of Education, 2020a.
[90] NSW Government Department of Education, 2020b. "Boolooroo", *School history database* search. Accessed at: https://nswgovschoolhistory.cese.nsw.gov.au/schoolHistory?schoolId=902 (21/10/2020).

Figure 3-22: A parish map of Mia Mia, dated 1882, showing the road along the northern boundary of the CIZ (HLRV, Historical Parish Maps, Parish of Mia Mia 1882)

Figure 3-23: A parish map of Boolooroo, dated 1884, with the northern end of the CIZ overlaid, showing the Boolooroo Provisional School (HLRV, Historical Parish Maps, Parish of Boolooroo 1884)

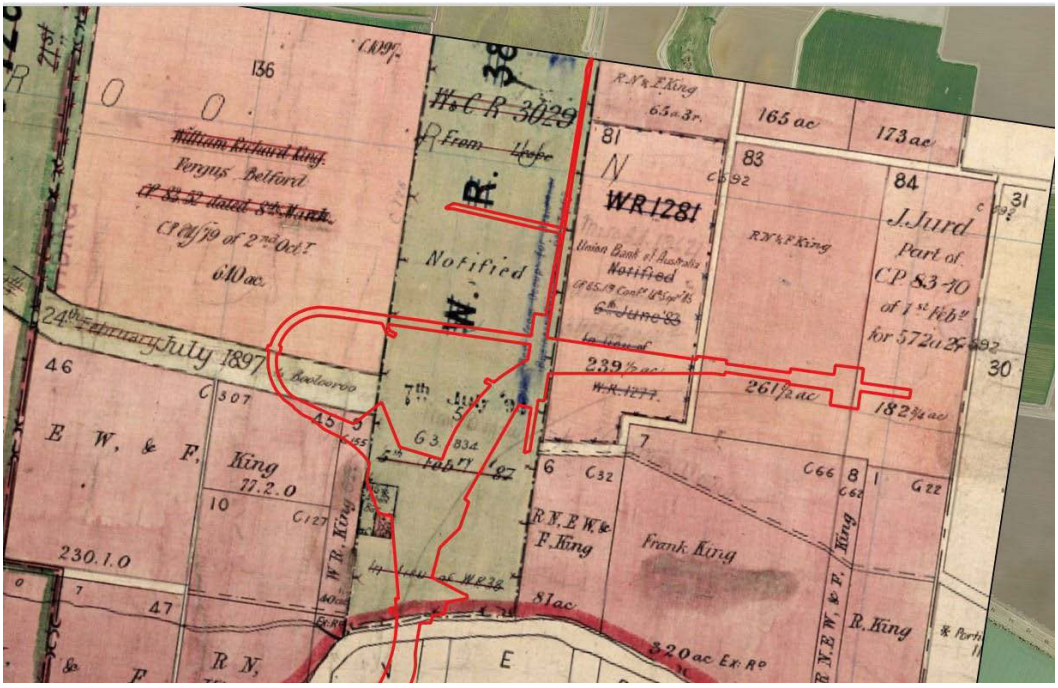


Figure 3-24: An overlay of the CIZ (red) on an 1885 parish map of Moree, showing the area set out for the railway at the southern end of the CIZ (HLRV, Historical Parish Maps, Town of Moree 1885)

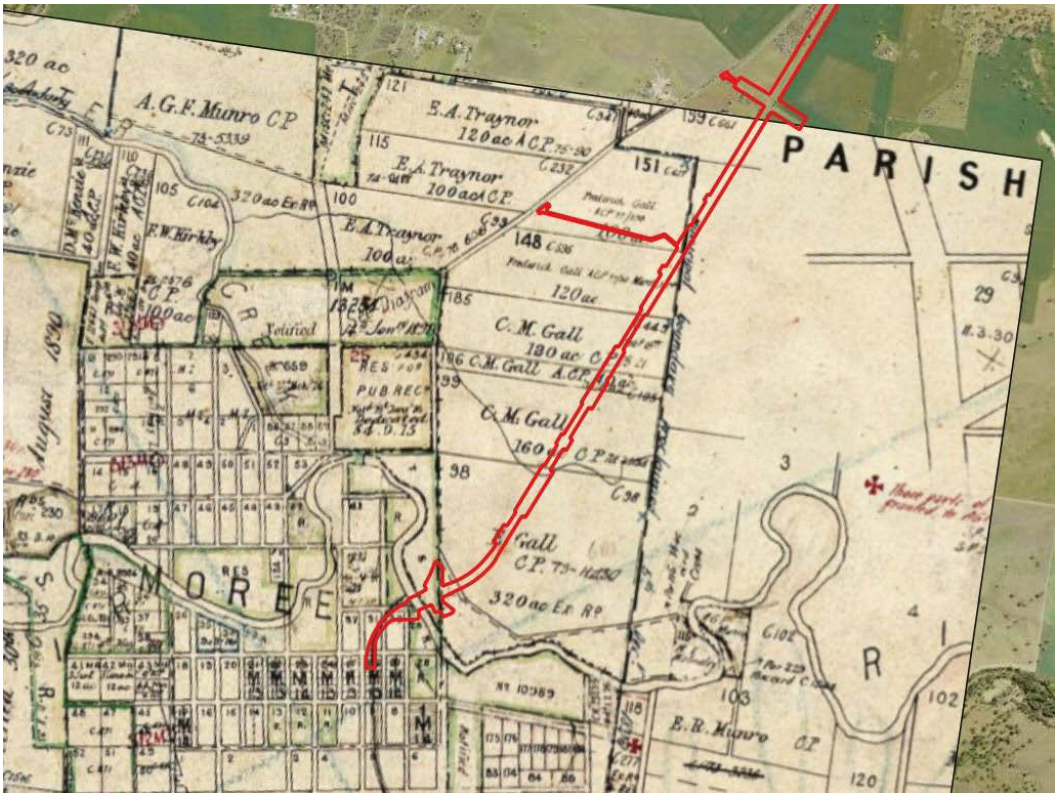
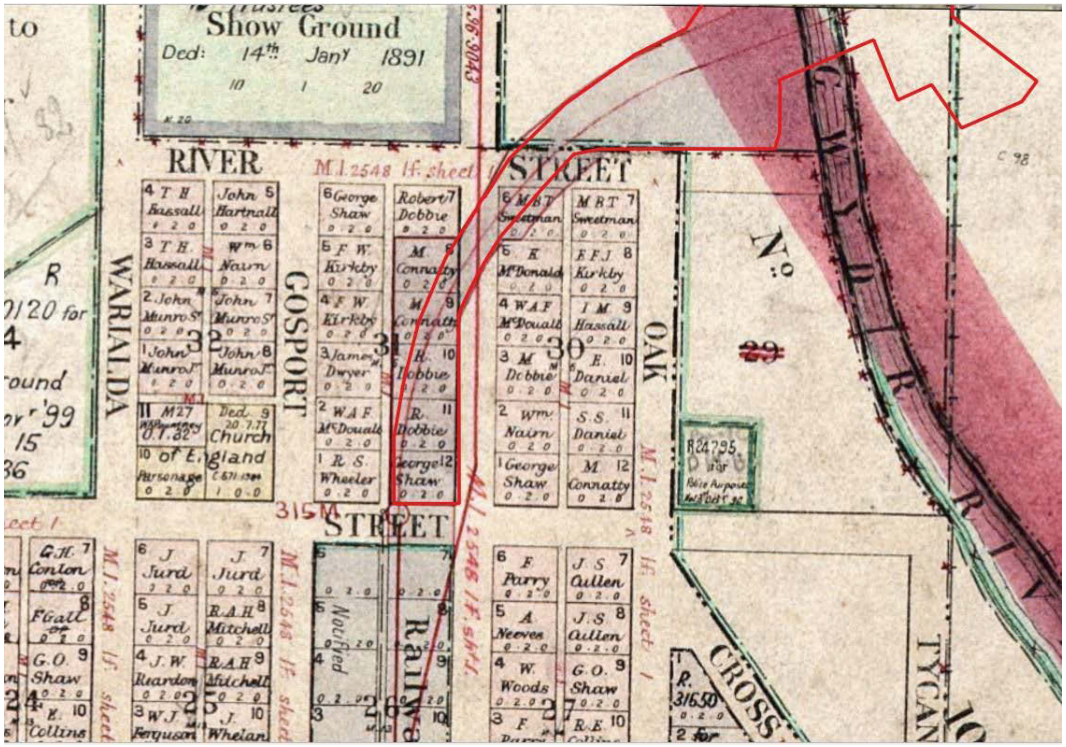


Figure 3-25: An overlay of the CIZ (red) over an 1891 parish map of Moree, showing the delineation of the (then) future railway line (HLRV, Historical Parish Maps, Town Map of Moree 1891)



3.5.3 Phase 3: The railway, township and agricultural development (1895 - present)

Moree Railway Station, located immediately south of the CIZ, was opened in 1897.[91] The line was then expanded from Moree to Camurra between 1910 and 1913, with the route running north across both the Mehi and Gwydir Rivers from Moree to Camurra Station (Figure 3-26 and Figure 3-27). During the construction of the railway between 1910 and 1913, steel Pratt truss bridges were built over the Mehi and Gwydir Rivers (Figure 3-27).[92] A station was also constructed at Camurra at this time, as noted on contemporary maps (Figure 3-26). The station, including the platform and station building, was used until the late twentieth century, when the line between Moree and Boggabilla was closed (Figure 3-35). Following the closure of the line, the station was demolished in the 1990s (Figure 3-35). Two unofficial Aboriginal fringe camps were located along the railway line near the Mehi River between during the 1910s to 1960s, known as 'Top Camp' and 'Steel Bridge Camp'. These were located to the south-east and north-east of the railway line respectively, and were home to the local Gomeroi People who had fled the official Terry Hie Hie Reserve.[93] While waiting for accommodation to become available in the camps, the local Gomeroi People would temporarily camp underneath the Mehi River Bridge.

Quarrying for sand and stone in the area to the north-east of Moree appears to have begun in the mid-twentieth century, according to aerial photography from 1958 (Figure 3-31) and continued through the second half of the twentieth century (Figure 3-36) and into the twenty-first century.

The northern extent of the study area that deviates from the existing railway corridor was part of a section of land that was gazetted as crown land on 7 July 1894 (C.R. 20997), as shown on historical Department of Lands maps (Figure 3-26). The eastern land boundary running NNE-SSE from this gazetted area of land is crossed by the study area and is now used as an irrigation channel, but it is unclear as to when the land boundary was transformed into an irrigation channel. This northern extent of the study area outside of the existing railway corridor appears to have been used for agricultural and pastoral purposes other than the road it crosses: Camurra Warialda Road/Back Pally Road (Figure 3-26). A Government Gazette from 3 September 1930 records the task of 'forming and gravelling Camurra-Warialda road' as part of the works declared under the *Prevention and Relief of Unemployment Act, 1930*, indicating that the road was first laid in c.1930 as part of the unemployment relief scheme during the depression of the 1930s.[94] The full text of the works to Camurra-Warialda Road is included below.

> *(j) Forming and gravelling Camurra-Warialda road ; bank formation on Terlings Park-Yallaroi, Gurley Siding to Terry Hie Hie, Moppin to Boggabilla, and Moree-Rocky Creek roads, within the Shire of Boolooroo.*[95]

Although the site of the Boolooroo Provisional School to the west of Camurra Station continued to be labelled as such into the 1960s, it is unlikely that the site was used for this purpose since its closure in

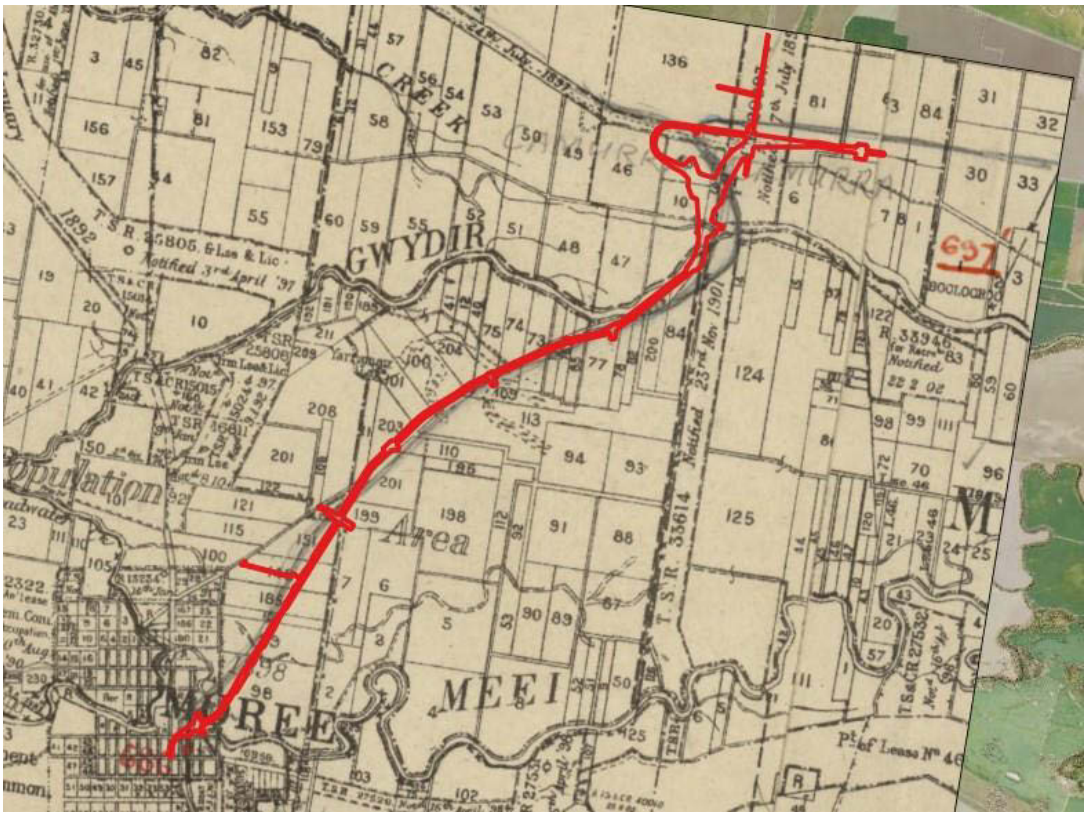
[91] Heritage NSW, DPC 2015. *SHI Listing for Moree Railway Station.* Accessed at: https://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=4801208 (31/07/2020); Messner, Love, Henderson, Harper and Taaffe 2002. *Moree Railway Station, 1897-2002.*
[92] Umwelt 2017, p. 38.
[93] Monument Australia, 2020. *Top Camp.* Accessed at: http://monumentaustralia.org.au/themes/culture/indigenous/display/22190-top-camp (05/08/2020).
[94] "Prevention and Relief of Unemployment Act, 1930" 1930, September 3. *Government Gazette of the State of New South Wales* (Sydney, NSW: 1901 - 2001), p. 3528. Accessed at: http://nla.gov.au/nla.news-article223053547 (10/08/2020).
[95] [95] "Prevention and Relief of Unemployment Act, 1930" 1930, September 3. *Government Gazette of the State of New South Wales* (Sydney, NSW: 1901 - 2001), p. 3528. Accessed at: http://nla.gov.au/nla.news-article223053547 (10/08/2020).

December 1893 (Figure 3-33).[96] A 1958 aerial photograph shows no evidence of structures on the school site (Figure 3-30).

In addition to the above uses of the study area, the area on the eastern side of Mehi River near Mehi Bridge was used as an unofficial 'fringe camp' by local Aboriginal people during the early twentieth century until the 1960s. The Aboriginal people who lived there had fled the Terry Hie Hie reserve following the establishment of the Aboriginal Protection Act in 1909, which allowed children in Aboriginal reserves to be forcibly separated from their families.[97] The exact location of the 'Steel Bridge Camp' is unknown and an aerial photograph from 1958 does not show any structures relating to this camp (Figure 3-32). However, as the structures are recorded as being 'tin huts' at 'Top Camp' to the south,[98] it is also likely that similar structures were used at 'Steel Bridge Camp' and would be difficult to identify in a historical aerial photograph.

The study area continued to be used for a mix of railway, agricultural and road usages during the twentieth century and into the twenty-first century.

Figure 3-26: An overlay of the CIZ (red) on a 1907 map of the County of Courallie, showing the area set out for the railway along the route of the study area drawn in at a later date (NLA New South Wales. Department of Lands, 1907, MAP G8971.G46 svar)



[96] NSW Government Department of Education 2020b.
[97] Egis 2002, p. 15-2.
[98] Monument Australia, 2020. *Top Camp.* Accessed at: http://monumentaustralia.org.au/themes/culture/indigenous/display/22190-top-camp (05/08/2020).

Figure 3-27: Pre-1917 photograph of Gwydir Bridge, including a timber bridge for the road in the foreground that at the time of the photograph did not appear to span the entire width of the river (Museums Victoria Collections, Chisholm, pre-1917, Item MM 1036)

Figure 3-28: An overlay of the CIZ (red) on a 1930 Courallie County map (NLA, New South Wales. Department of Lands, 1930, MAP G8971.G46 svar [Copy 1])

Figure 3-29: An overlay of the CIZ (red) on a 1958 aerial photograph of the northern end of the CIZ (NSW Government Spatial Services, Historical Imagery Viewer, 1958a)

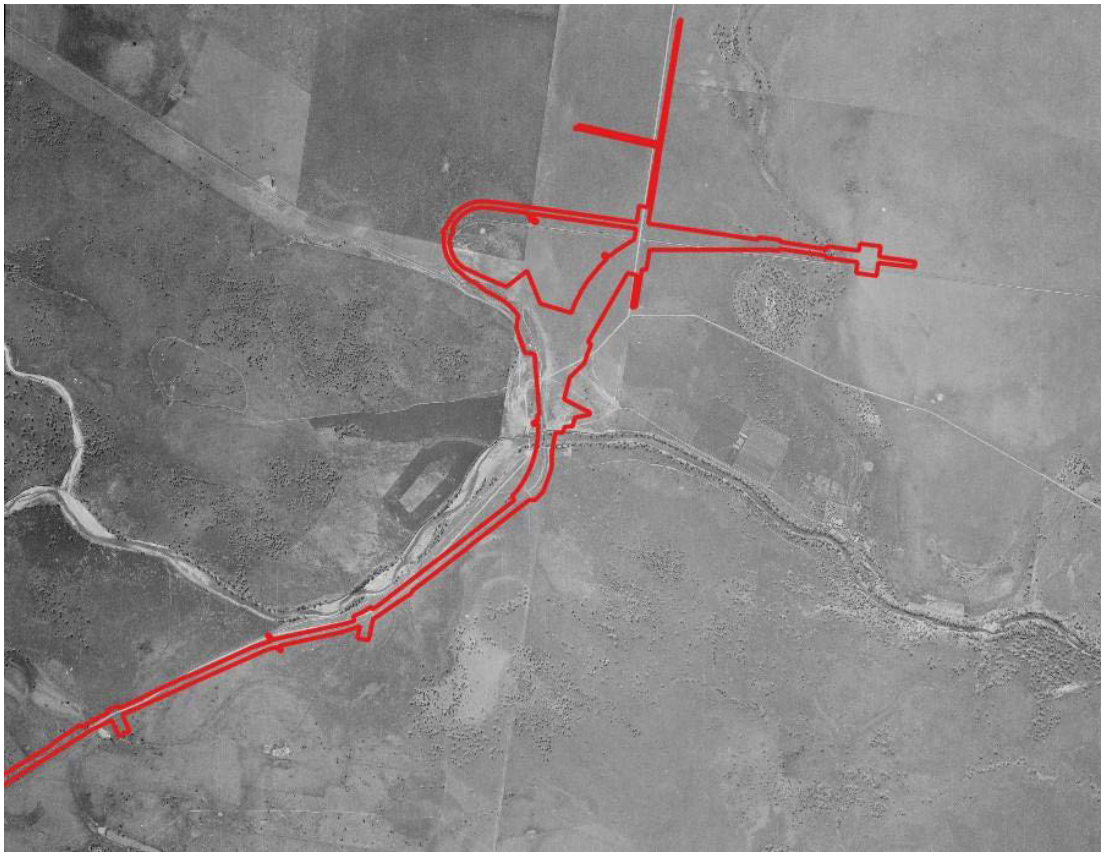


Figure 3-30: Detail of the overlay of the CIZ (red) on a 1958 aerial photograph, showing the former Camurra Railway Station and the location of the former Provisional School (NSW Government Spatial Services, Historical Imagery Viewer, 1958a)

Figure 3-31: A 1958 aerial view of quarrying being undertaken to the east of the CIZ (red) (NSW Government Spatial Services, Historical Imagery Viewer, 1958b)

Figure 3-32: An overlay of the CIZ (red) on a 1958 aerial photograph, showing the Mehi River Bridge and structures on Lot 1 DP 836431 at the southern end of the CIZ (NSW Government Spatial Services, Historical Imagery Viewer, 1958b)

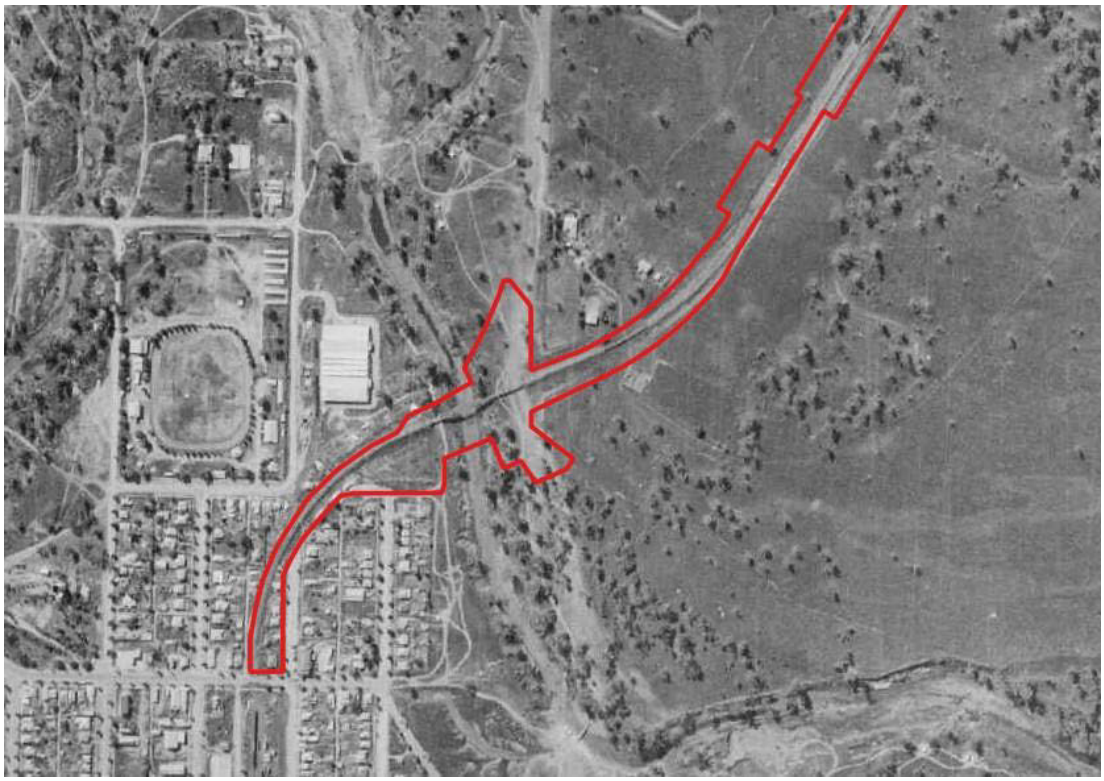


Figure 3-33: An overlay of the CIZ (red) over a 1968 Parish Map of Boolooroo in Courallie County (NLA, New South Wales. Department of Lands, 1968, MAP G8971.G46 svar)

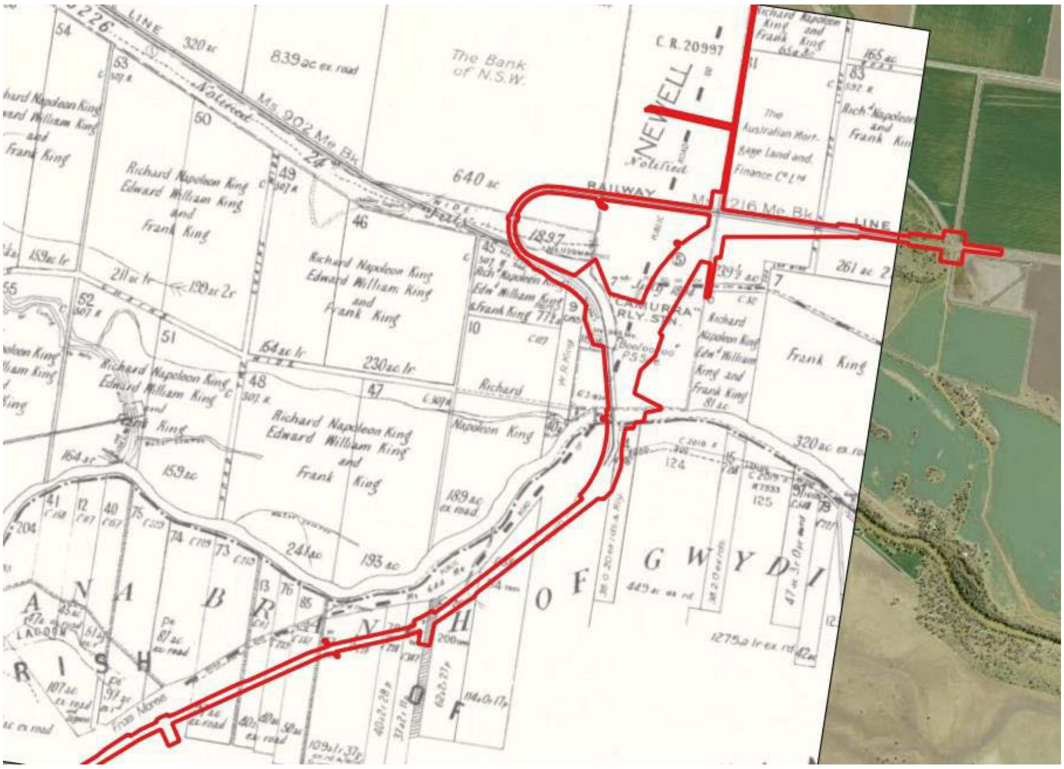


Figure 3-34: An overlay of the CIZ (red) on a 1991 aerial photograph (NSW Government Spatial Services, Historical Imagery Viewer, 1991)

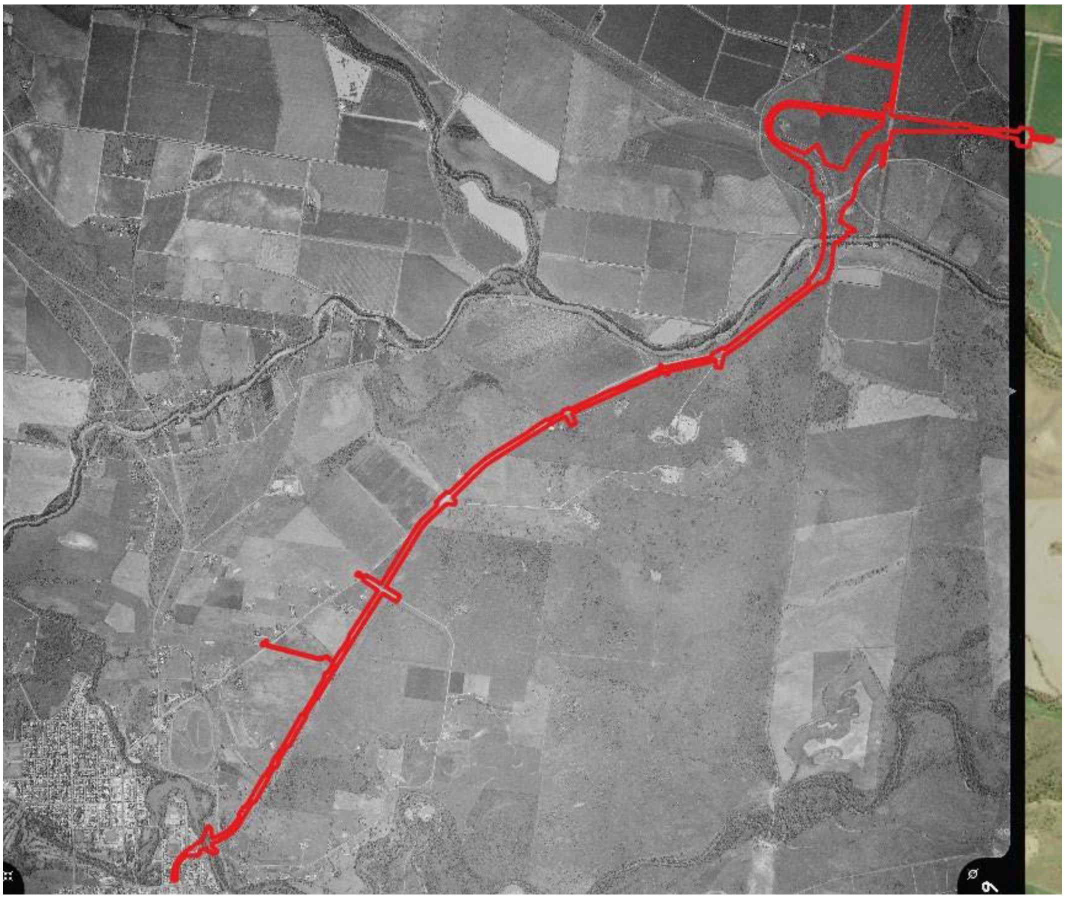
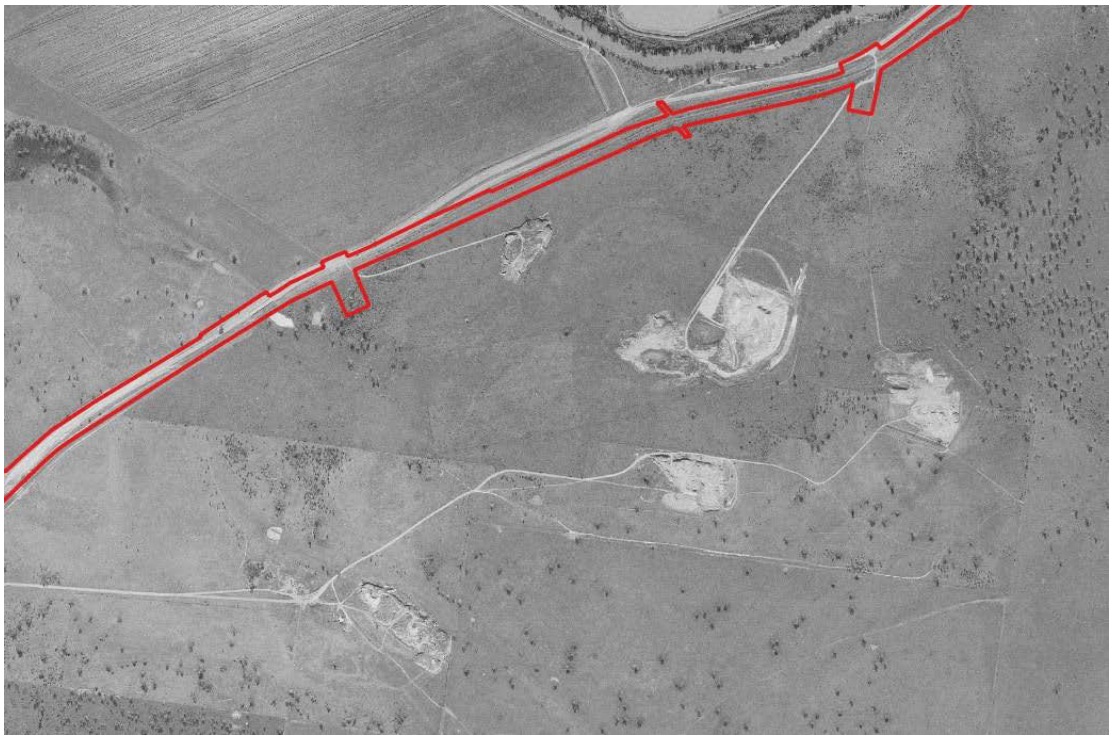


Figure 3-35: Northern detail of an overlay of the northern end of the CIZ (red) on a 1991 aerial photograph, showing Camurra Railway Station (NSW Government Spatial Services, Historical Imagery Viewer, 1991)

Figure 3-36: Detail of an overlay of the middle section of the CIZ (red) on a 1991 aerial photograph, showing the continuation of quarrying to the east of the CIZ (NSW Government Spatial Services, Historical Imagery Viewer, 1991)



4.0 SITE ANALYSIS

4.1 Introduction

A survey of the CIZ and relevant heritage listed and potential unlisted items was undertaken by Alyce Haast and Jayden van Beek of Artefact Heritage on 19 to 23 October 2020. All photographs contained in this report were taken by Artefact Heritage during this survey unless otherwise specified.

The survey followed the proposed route of the N2NS Phase 2 CIZ with an aim to review the nature of the area, identify any heritage items and unlisted items, and assess historical archaeological potential. The survey also assessed sight lines to and from listed and potential unlisted heritage items within the surrounding study area. The survey was undertaken on foot using physical maps and a GPS. A photographic record of the survey was also taken. In order to simplify the results of the survey, the CIZ has been divided into the following three sections:

- Area 1 – The northern portion of the CIZ to the north of the Gwydir River crossing
- Area 2 – The middle portion of the CIZ from the Gwydir River crossing to the Mehi River crossing
- Area 3 – The southern portion of the CIZ from the Mehi River crossing to Alice Street, Moree.

4.1.1 Area 1 – North of Gwydir River crossing

The northern portion of the CIZ, Area 1, comprises the area along the existing railway corridor between the Gwydir River crossing to the south and the northernmost section of the hairpin turn of the railway line to the north. This section includes a single railway line with timber sleepers, steel rails and ballast along raised embankments through a generally cleared flat plain used for agricultural purposes (Figure 4-1). A mix of reinforced concrete and stone, concrete and corrugated iron culverts are located along the line of the railway corridor at intersections with roads and drainage channels (Figure 4-2). Area 1 also includes a large open irrigation channel that runs along the eastern side of the railway corridor (Figure 4-3), and additional unnamed access roads between the railway line and Newell Highway.

The area between the south-western end of Back Pally Road and the intersection of Camurra Lane and the Newell Highway includes the sites of the former Boolooroo Provisional School and Camurra Railway Station. A small area of scattered brick and a timber post were present on the surface in the vicinity of the former Camurra Railway Station; however, no intact structural remains of the former structure were identifiable (Figure 4-5). The remains of a concrete and steel structure for a water tank and discarded timber sleepers from upgrades to the railway were also present along the east side of the rail line (Figure 4-6 and Figure 4-7). No surface remains of the Boolooroo Provisional School were visible.

To the east of the drainage channel between Gwydir River and the railway line, Area 1 largely consisted of a greenfield area. This area comprises largely undeveloped scrubland designated as crown grazing lands (Figure 4-4). The only development in this area consisted of Back Pally Road and large open irrigation channels.

The south end of Area 1 is bounded by the Gwydir River. The rail line crosses the river on the ARTC and CRN s170 listed Camurra, Gwydir River Underbridge (SHI no. 4281693). The bridge is a double span American-type steel Pratt truss railway bridge on reinforced concrete piers flanked by timber beam approach spans (Figure 4-8). The railway bridge was constructed in c.1910-1913 and has retained the majority of its original fabric including the timber sleepers and steel rails (Figure 4-8). More recent changes have been made to the abutments including the installation of corrugated metal sheeting along the southern earthen abutment and reinforced concrete at the northern end. To the west of the Gwydir River Underbridge is the concrete road bridge for the Newell Highway.

Figure 4-1: The northern end of the rail corridor passing through the flat plain

Figure 4-2: An example of a concrete, stone and corrugated iron culvert

Figure 4-3: Open irrigation channels

Figure 4-4: Scrubland within the greenfield area of Area 1

Figure 4-5: Scattered historical material in the vicinity of the former Camurra Railway Station, including a timber post and bricks

Figure 4-6: Discarded timber sleepers from the railway line

Figure 4-7: The remains of a structure for a water tank along the railway line

Figure 4-8: The Camurra, Gwydir River Underbridge from the north bank of the river

4.1.2 Area 2 – The Gwydir River crossing to the Mehi River crossing

Area 2 comprises the 10km stretch of the CIZ from the Gwydir River at the north end to the Mehi River at the south end. The CIZ in Area 2 generally follows the railway corridor, passing through predominately cleared paddocks used for agricultural purposes and over several creeks (Figure 4-9). The railway line comprises timber sleepers, ballast and steel rails along raised embankments and over culverts and underbridges (Figure 4-10). The northern half of Area 2 follows the alignment of the Newell Highway and contains several concrete culverts dating to the late twentieth century (Figure 4-11).

Through the southern half of Area 2 the railway line is located further to the east of Newell Highway and is separated from it by a series of rural properties, which feature a mix of cleared and sparsely treed paddocks and uncleared land around Duffs Creek. The railway line also runs over five historical timber constructed underbridges with concrete and timber piers (Figure 4-12 to Figure 4-16). Two underbridges cross Skinners Creek (Chainage 667.945; Figure 4-12), one crosses Duffy's Creek (Chainages 667.37 and 667.21; Figure 4-13 and Figure 4-14) and the remaining two cross variations in the landscape along the railway line (Figure 4-15 and Figure 4-16).

At the south end of Area 2 the railway again runs alongside the highway where it crosses the Mehi River and the Mehi River Bridge (described in Area 3). The area on the north side of the river includes a short section of Gwydirfield Road and small portions of surrounding cleared land and remnant bushland between the river and Gwydirfield Road (Figure 4-19 and Figure 4-20). The southern section of the cleared area is currently used for storage containers. No remnant historical remains or scatters of historical material could be seen on the surface in this area.

A section of the CIZ deviates from the alignment of the railway corridor, providing access from the railway corridor to Newell Highway near Stirton Road (Figure 4-17 to Figure 4-18). This section comprises an unnamed compacted earth access track running between ploughed paddocks and past a large dam (Figure 4-17 to Figure 4-18). The areas surrounding the access track are covered in low scrub and grass (Figure 4-17).

At the time the survey was undertaken Area 2 also included three active borrow pits located to the east of Newell Highway and the railway line. However, design amendments to the CIZ during the

preparation of this report have removed the borrow pits from the project scope. As a result, they are not discussed as part of this report.

Figure 4-9: Paddocks used for agricultural purposes

Figure 4-10: The timber sleepers and steel rails of the railway line over an underbridge

Figure 4-11: The northern half of this section follows the line of the Newell Highway

Figure 4-12: The 14 span timber and concrete constructed underbridge over Skinners Creek at Chainage 667.945

Figure 4-13: The 12 span timber and concrete constructed underbridge over Duffy's Creek at Chainage 667.37

Figure 4-14: The 13 span timber and concrete constructed underbridge over Duffy's Creek at Chainage 667.21

Figure 4-15: The 12 span timber and concrete constructed underbridge at Chainage 666.945

Figure 4-16: The 17 span timber and concrete constructed underbridge at Chainage 666.645

Figure 4-17: The compacted earth access track between the railway line and Newell Highway

Figure 4-18: The dam at the eastern end of the compacted earth access track between the railway line and Newell Highway

Figure 4-19: The cleared areas and remnant bushland to the east of Gwydirfield Road

Figure 4-20: The remnant bushland between Gwydirfield Road and Mehi River

4.1.3 Area 3 – South of Mehi River crossing to Alice Street, Moree

Area 3 comprises the area between the Mehi River crossing to the north and Alice Street in the town of Moree to the south. The rail line crosses the Mehi River on the ARTC s170 listed Mehi River Bridge (SHI no. 4281692). The bridge is a single span steel Pratt truss bridge with steel web plate girders and timber beam approaches, supported by concrete, steel and timber piers, spanning over Gwydirfield Road to the north-east and the western bank of the Mehi River to the south-west (Figure 4-21 and Figure 4-22). This steel Pratt truss bridge was built in c.1910-1913 as part of the expansion of the railway line to Camurra and has retained the majority of its original fabric, with most of the replaced fabric comprising a small number of reinforced concrete and steel piers over Gwydirfield Road (Figure 4-22).

At the south-western end of the Mehi River crossing, the timber beam constructed approach to the Mehi River Bridge spans a formalised pedestrian footpath which leads to interpretation of the Steel Bridge Camp under the road bridge over the Mehi River to the north, installed as part of the Newell Highway bypass project (Figure 4-23 and Figure 4-24).

To the south of the Mehi River, the CIZ comprises the existing rail corridor along a raised earthen embankment, open parkland to the west of the Mehi River and small portions of the rear of several residential lots of the town of Moree along Morton Street (Figure 4-25 to Figure 4-27). The houses along Morton Street mostly comprise late nineteenth to mid-twentieth-century fibro houses used by the railway workers (Figure 4-28). A large earthen embankment runs between the Newell Highway to the north-west and the curved section of the railway corridor (Figure 4-26). At the southern end of the CIZ is a small lot containing a recently constructed substation on the north-west corner of the intersection of Morton Street and the Gwydir Highway (Lot 2 DP 836431) [Figure 4-29]. No remnant historical remains or scatters of historical material could be seen on the surface in this area.

From the south end of the CIZ at Alice Street/Gwydir Highway, two listed heritage items and one potentially unlisted heritage item can be seen. Directly to the east of Lot 2 DP 836431 on the corner of Morton Street and Alice Street is the Moree Hotel, a late nineteenth-century rural style timber-constructed hotel (Figure 4-30). Directly south of the CIZ along the railway line is the locally listed heritage item of Moree Railway Station (LEP no. I025; SHI no. 4801208) [Figure 4-31]. The station features an island platform constructed on the western side in brick in 1904, and on the eastern side in c.1929 using precast concrete post and panel platform. The extant platform building comprises a brick island platform building originally constructed in 1929 and later used as a refreshment room (Figure 4-30). To the south-west of the CIZ on the corner of Gosport Street and Anne Street is the locally listed heritage item of Victoria Hotel (LEP no. I022), an early twentieth-century rural style timber-constructed hotel with a wrap-around veranda (Figure 4-31 and Figure 4-32). The Victoria Hotel originally featured Art Deco motifs, but these have since been removed.

Figure 4-21: The steel Pratt truss bridge and steel web plate girders of the Mehi Bridge over the Mehi River

Figure 4-22: The north-eastern section of the Mehi Bridge over Gwydirfield Road, comprising replaced steel and concrete piers

Figure 4-23: The pedestrian footpath under the south-western span of the Mehi River Bridge leading to interpretation under the Newell Highway bridge

Figure 4-24: An interpretative panel next to the Newell Highway bridge

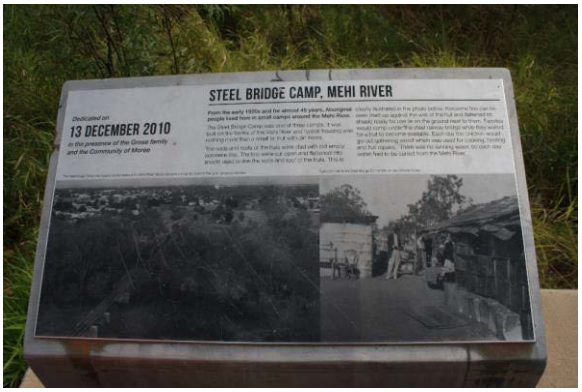


Figure 4-25: The railway line along Area 3, looking south of Mehi River Bridge towards Moree

Figure 4-26: Unoccupied residential allotments within the southern end of the CIZ

Figure 4-27: Raised earthen embankment between the railway corridor and the Newell Highway

Figure 4-28: Examples of fibro houses along Morton Street

Figure 4-29: A recently constructed substation at the southern end of the CIZ (Lot 2 DP 836431)

Figure 4-30: The unlisted heritage item of Moree Hotel at 7 Alice Street, Moree

Figure 4-31: South view towards the locally listed Moree Railway Station

Figure 4-32: The locally listed heritage item of Moree Railway Station

Figure 4-33: The locally listed heritage item of Victoria Hotel at 339 Gosport Street, Moree

Figure 4-34: North-east view towards the CIZ from the first floor veranda of the Victoria Hotel

5.0 BUILT HERITAGE ASSESSMENT

5.1 Introduction

This section provides an overview description, significance assessment and statement of significance for the listed heritage items within the CIZ. Where heritage items have been identified outside of the CIZ but inside the study area, only an overview description and statement of heritage significance have been included as these items would not be directly impacted. Information for each item has been extracted from their respective SHI database listings on the Heritage NSW, DPC website. Text extracted from the SHI is identified in italics. Where assessments are incomplete or there have been changes to the listed items, assessments of significance against the NSW heritage significance criteria outlined in Table 1-3 have been updated by Artefact Heritage.

Where potential heritage items have been identified as part of this SoHI, an assessment of significance has been undertaken in order to determine if the item would reach the threshold of significance. Items that are assessed as being unlikely to reach the threshold of significance are excluded from further discussion in this SoHI.

5.2 Listed heritage items

This section provides the details of the listed heritage items that are identified in Table 2-1. In total, two listed heritage items have been identified as being within the CIZ that would be directly impacted by the proposed works, and two additional heritage items have been identified within the wider study area.

5.2.1 Mehi River Bridge (SHI no. 4281692)

Table 5-1 below provides an overview of the Mehi River Bridge, which is listed on the ARTC s170 Heritage and Conservation Register (SHI no. 4281692). The listing details extracted from the SHI sheet for the heritage item have been expanded with further assessment undertaken by Artefact Heritage. Details extracted from the SHI for the heritage item are identified in italics.

Table 5-1: Details of the Mehi River Bridge (SHI no. 4281692)[99]

Mehi River Bridge (SHI no. 4281692)		
Images	**Figure 5-1: Mehi River Bridge, view north. Source: Artefact Heritage** 	**Figure 5-2: Mehi River Bridge, view north. Source: Artefact Heritage** 

[99] Heritage NSW, DPC 2007a. *SHI Listing for Mehi River Bridge*. Accessed at: https://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=4281692 (10/08/2020).

Mehi River Bridge (SHI no. 4281692)	
Overview	Railway bridge over the Mehi River, constructed in c.1910-1913. The bridge comprises a single American-type steel Pratt truss bridge on concrete piers, retaining the majority of its original fabric. The truss measures 36.6m long, with 20.1m spans of steel plate web girders and 7.3m timber openings at each end.[100]
Location	Railway Location, Mungindi Line 663.34km, NSW 2400
Relationship to project and study area	Within the CIZ (direct impact to heritage curtilage and setting)
Level of Significance	Local
A – Historical Significance	*The bridge is a major component of infrastructure on the branch railway to Mungindi.* The Mehi River Bridge represents the expansion of the railway from Moree to Mungindi in the early twentieth century, reflecting the intensification of the agricultural development of the area and the increasing connectivity of the area to the rest of NSW via the railway line. The design of the single span steel Pratt truss on concrete piers additionally reflects the historical shift from British to American bridge technology from the 1890s onwards.[101] Changes to the bridge over time demonstrate the continued use of the railway line, necessitating upgrades, from the early to late twentieth century. **The Mehi River Bridge meets the threshold for local significance under this criterion**
B – Associative Significance	The Mehi River Bridge is broadly associated with the railway workers who were responsible for constructing the Moree to Camurra branch of the Mungindi railway line from c.1910 to 1913. The bridge is likewise associated with railway workers, including members of the local Aboriginal population, who were responsible for upgrading and repairing the railway line until the 1960s. However, with the exception of the broader working group the bridge is not associated with a specific person or group of importance to the cultural history of the local area. **The Mehi River Bridge does not meet the threshold for local significance under this criterion**
C – Aesthetic Significance	*The bridge has an imposing appearance in its rural setting.* The Mehi River Bridge has aesthetic significance for its demonstration of the technical innovation of American style steel Pratt truss bridges in an Australian context. The design of the single span steel Pratt truss reflects the shift from British to lightweight American bridge technology, utilising lightweight steel rather than heavier British wrought iron lattice.[102] The bridge demonstrates intact original fabric from c.1910 to 1913, which comprises a central steel Pratt truss flanked by steel plate sections on concrete piers with a timber section on timber posts on the western end of the bridge and timber section on late 19th-century or early 21st century steel and concrete piers at the eastern end of the bridge. The Mehi River Bridge additionally has landmark and scenic qualities as a bridge at the south-eastern edge of the town of Moree, with significant views from the Moree Bypass (A39) bridge to the north, Oak Street and River Street to the south-east and Gwydirfield Road to the east passing underneath the eastern extent of the bridge, as well as from the surrounding bushland and banks of the river. It is considered to be a major landmark for the local area. **The Mehi River Bridge meets the threshold for local significance under this criterion**

[100] Heritage NSW, DPC 2007a.
[101] Heritage NSW, DPC 2007a.
[102] Heritage NSW, DPC 2007a.

Mehi River Bridge (SHI no. 4281692)	
D – Social Significance	*The bridge has contributed to the social and commercial benefits of the railways to the north west region of New South Wales.* Consultation with the local community has identified that the Mehi River Bridge is of some social significance to the local community and contributes the community's sense of place as a significant landmark on the outskirts of the town. In addition, its connection to Aboriginal people who had fled the official Aboriginal reserves and temporarily lived under the bridge whilst waiting for accommodation in the Steel Bridge Camp is of significance to the local Aboriginal population. **The Mehi River Bridge meets the threshold for local significance under this criterion**
E – Research Potential	*The bridge was designed and built at a time when the changeover from British to American bridge technology had become consolidated.* The Mehi River Bridge has research potential as an example of a steel Pratt truss bridge with steel web plate girders on concrete piers constructed in c.1910 to 1913, demonstrating the application of American style steel bridge designs in a rural NSW context. By the time of construction of the bridge, steel Pratt truss designs had become the standard bridge design in NSW.[103] **The Mehi River Bridge meets the threshold for local significance under this criterion**
F – Rarity	The Mehi River Bridge, as a steel Pratt truss bridge with steel web plate girders on concrete piers constructed in c.1910 to 1913, is not considered to be rare in the local area due to the frequent use of the Pratt truss bridge at this time along NSW railway lines and roads. There are numerous other surviving examples of Pratt truss bridges in NSW and the local region (see Section 7.5 and Appendix A) **The Mehi River Bridge does not meet the threshold for local significance under this criterion**
G – Representativeness	*The bridge is a good example of a steel, through Pratt truss*. The Mehi River Bridge is a good representative example of a single span steel Pratt truss bridge with flanking steel web plate girders on concrete piers which were used throughout NSW from the late 19th to early 20th centuries at the local level. **The Mehi River Bridge meets the threshold for local significance under this criterion**
Statement of significance	*The bridge has some significance because: (a) it is a major component of infrastructure on the branch railway line to Mungindi; (b) it has an imposing appearance in its rural setting; (c) it has contributed to the social and commercial benefits of railway development to the north west region of New South Wales; and (d) it was designed and built at a time when the changeover from British to American bridge technology had become consolidated.* *The bridge is a good example of a steel Pratt truss bridge which retains its original fabric.*[104]

5.2.2 Camurra, Gwydir River Underbridge (SHI no. 4281693)

Table 5-2 below provides an overview of the Gwydir River Underbridge, which is listed on the ARTC and CRN s170 Heritage and Conservation Registers (SHI no. 4281693). The listing details extracted from the SHI sheet for the heritage item have been expanded with further assessment undertaken by Artefact Heritage. Details extracted from the SHI for the heritage item are identified in italics.

[103] Heritage NSW, DPC 2007a.
[104] Heritage NSW, DPC 2007a.

Table 5-2. Details of the Camurra, Gwydir River Underbridge (SHI no. 4281693)[105]

Camurra, Gwydir River Underbridge (SHI no. 4281693)	
Images	**Figure 5-3: Camurra, Gwydir River Underbridge, view south. Source: Artefact Heritage**  **Figure 5-4: Camurra, Gwydir River Underbridge, view west. Source: Artefact Heritage** 
Overview	Railway bridge over the Gwydir River, constructed in c.1910-1913. The bridge comprises two American-type steel Pratt trusses on concrete piers flanked by timber beam spans, retaining the majority of its original fabric. The trusses measure 36.6m in length.[106]
Location	676.220km Moree To Mungindi Railway, Camurra, NSW 2400
Relationship to project and study area	Within the CIZ (direct impact to heritage curtilage of the item and setting)
Level of Significance	Local
A – Historical Significance	*The bridge is a major component of infrastructure on the pioneer branch railway to Mungindi.* The Gwydir River Underbridge represents the expansion of the railway from Moree to Mungindi in the early 20th century, reflecting the intensification of the agricultural development of the area and the increasing connectivity of the area to the rest of NSW via the railway line. The design of the double span steel Pratt truss on concrete piers additionally reflects the historical shift from British to American bridge technology from the 1890s onwards.[107] Changes to the bridge over time demonstrate the continued use of the railway line, necessitating upgrades, from the early to late twentieth century. **The Gwydir River Underbridge meets the threshold for local significance under this criterion**
B – Associative Significance	The Gwydir River Underbridge is broadly associated with the railway workers who were responsible for constructing the Moree to Camurra branch of the Mungindi railway line from c.1910 to 1913. The bridge is likewise associated with railway workers, including members of the local Aboriginal population, who were responsible for upgrading and repairing the railway line until the 1960s. However, with the exception of the broader working group the bridge is not associated with a specific person or group of importance to the cultural history of the local area. **The Gwydir River Underbridge does not meet the threshold for local significance under this criterion**

[105] Heritage NSW, DPC 2007b. *SHI Listing for Camurra, Gwydir River Underbridge*. Accessed at: https://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=4281693 (10/08/2020).
[106] Heritage NSW, DPC 2007b.
[107] Heritage NSW, DPC 2007b.

Camurra, Gwydir River Underbridge (SHI no. 4281693)	
C – Aesthetic Significance	*The bridge has an imposing appearance in its rural setting.* The Gwydir River Underbridge has aesthetic significance for its demonstration of the technical innovation of American style steel Pratt truss bridges in an Australian context. The design of the double span steel Pratt truss reflects the shift from British to lightweight American bridge technology, utilising lightweight steel rather than heavier British wrought iron lattice.[108] The bridge demonstrates intact original fabric from c.1910 to 1913, which comprises a double span Pratt truss concrete piers flanked by timber beam spans with a timber section on timber posts and concrete piers on each end of the bridge. The Gwydir River Underbridge additionally has landmark and scenic qualities as a bridge over the Gwydir River in a rural setting, with significant views from the Newell High to the east, the railway line, the banks of the Gwydir River and the surrounding paddocks. It is considered to be a major landmark for the local area. **The Gwydir River Underbridge meets the threshold for local significance under this criterion**
D – Social Significance	*The bridge has contributed to the social and commercial benefits of the railways to the north west region of New South Wales.* Consultation with the local community has identified that the Gwydir River Underbridge is of some social significance to the local community and contributes the community's sense of place as a significant landmark on the outskirts of the town. **The Gwydir River Underbridge meets the threshold for local significance under this criterion**
E – Research Potential	*The bridge was designed and built at a time when the changeover from British to American bridge technology had become consolidated.* The Gwydir River Underbridge has research potential as an example of a double span steel Pratt truss bridge on concrete piers constructed in c.1910 to 1913, demonstrating the application of American style steel bridge designs in a rural NSW context. By the time of construction of the bridge, steel Pratt truss designs had become the standard bridge design in NSW.[109] **The Gwydir River Underbridge meets the threshold for local significance under this criterion**
F – Rarity	The Gwydir River Underbridge, as a double span steel Pratt truss bridge with steel web plate girders on concrete piers constructed in c.1910 to 1913, is not considered to be rare in the local area due to the frequent use of the Pratt truss bridge at this time along NSW railway lines and roads There are numerous other surviving examples of Pratt truss bridges in NSW and the local region (see Section 7.5 and Appendix A). **The Gwydir River Underbridge does not meet the threshold for local significance under this criterion**
G – Representativeness	*The bridge is a good example of a steel through Pratt truss.* The Gwydir River Underbridge is a good representative example of a double span steel Pratt truss bridge with flanking steel web plate girders on concrete piers which were used throughout NSW from the late nineteenth to early twentieth centuries at the local level. **The Gwydir River Underbridge meets the threshold for local significance under this criterion**

[108] Heritage NSW, DPC 2007a.
[109] Heritage NSW, DPC 2007a.

Camurra, Gwydir River Underbridge (SHI no. 4281693)	
Statement of significance	*The bridge has some significance because: (a) it is a major component of infrastructure on the historic branch railway to Mungindi; (b) it has an imposing appearance in its rural setting; (c) it is associated with the social and commercial benefits to the north western region of New South Wales of the railways; and (d) it was designed and built at a time when the changeover from British to American bridge technology had become consolidated.* *The bridge is a good example of a steel Pratt truss bridge which retains its original fabric.*[110]

5.2.3 Moree Railway Station (LEP no. I025; SHI no. 4801208)

Table 5-3 below provides an overview of the Moree Railway Station, which is listed on the Moree Plains LEP (no. I025) and the RailCorp s170 Heritage and Conservation Register (SHI no. 4801208). The listing details extracted from the SHI sheet for the heritage item have been expanded with further assessment undertaken by Artefact Heritage. Details extracted from the SHI for the heritage item are identified in italics.

Table 5-3: Moree Railway Station (Moree no. I025; SHI no. 4801208)[111]

Moree Railway Station (LEP no. I025; SHI no. 4801208)		
Images	**Figure 5-5: Moree Railway Station, view south. Source: Artefact Heritage** 	**Figure 5-6: View north from Moree Railway Station to the CIZ. Source: Artefact Heritage** 
Overview	Moree Railway Station is a rural train station originally constructed in the cost-effective Pioneer style when opened in the 1890s. The remaining structures at the station comprise a 1904 brick straight island platform (Platform 1), a c.1929 precast concrete convex island platform (Platform 2) and a 1929 brick platform building utilised as a refreshment room. Goods yard structures were removed in 2008 due to road widening works and in 2009 the timber station building was demolished due to fire damage. A number of items of movable heritage are located at the station.	
Location	Morton Street, Moree, NSW 2400	
Relationship to project and study area	200m south of the CIZ, within the study area (visual impact only)	
Significance	Local	

[110] Heritage NSW, DPC 2007b. *SHI Listing for Camurra, Gwydir River Underbridge*. Accessed at: https://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=4281693 (10/08/2020).
[111] Heritage NSW, DPC 2015. *SHI Listing for Moree Railway Station.* Accessed at: *https://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=4801208* (10/08/2020).

Moree Railway Station (LEP no. I025; SHI no. 4801208)	
A – Historical Significance	*Moree railway station is historically significant as part of the Mungindi railway line which was constructed during the 1890s to capture the border trade market between NSW and Queensland. Moree was a significant location in the line as the rail head for a number of years until the line was extended to Mungindi, as a junction of three branch lines, and as a locomotive servicing centre.* **Moree Railway Station meets the threshold for local significance under this criterion**
B – Associative Significance	Moree Railway Station is broadly associated with railway workers who worked on the railway station, the railway line and at the station from the 1890s to the late 20th century. It is also associated with the members of the local community who used the station for trade and transport. However, with the exception of the broader working group the bridge is not associated with a specific person or group of importance to the cultural history of the local area. **Moree Railway Station does not meet the threshold for local significance under this criterion**
C – Aesthetic Significance	*The remaining station building at Moree is aesthetically significant as an early 1900s railway building, although having no particular specific aesthetic or technical significance*. **Moree Railway Station meets the threshold for local significance under this criterion**
D – Social Significance	*The site is of social significance to the local community on account of its lengthy association with providing an important source of employment, trade and social interaction for the local area. The site is significant for its ability to contribute to the local community's sense of place and provides an important connection to the community's past. The parcels office demonstrates the importance of the former use of the site to the regional centre*. **Moree Railway Station meets the threshold for local significance under this criterion**
E – Research Potential	Moree Railway Station has research potential as an 1890s rural railway station that has undergone a number of alterations in response to changing demands and uses over time. There is archaeological potential for the earlier structures and configurations of the station. **Moree Railway Station meets the threshold for local significance under this criterion**
F – Rarity	*Moree station has some unusual and unique features, including its layout as an island platform on a single line (though there are other examples at Casino, Dungog, and Kiama), a refreshment room built to the design of a standard early 1900s station building and a booking and parcels office located 'off platform'. While these features are unusual they do not appear to demonstrate any particular features of exceptional importance*. **Moree Railway Station meets the threshold for local significance under this criterion**
G – Representativeness	*The station building is representative of similar railway architecture found at many other railway sites across the state*. **Moree Railway Station meets the threshold for local significance under this criterion**

Moree Railway Station (LEP no. I025; SHI no. 4801208)	
Statement of significance	*Moree Railway Station is significant at a local level as an important location on the 1890s section of the Mungindi line, being the rail head and the junction of three branch lines as well as a locomotive servicing centre. The remaining station building is of aesthetic significance as a representative example of a standard platform building and is similar in design to other station buildings constructed throughout NSW during the early 20th century.*[112]

5.2.4 Victoria Hotel (LEP no. I022)

Table 5-4 below provides an overview of the Victoria Hotel (LEP no. I022), which is listed on the Moree Plains LEP 2011. An SHI sheet is not available for the heritage item; therefore a full assessment has been undertaken by Artefact Heritage.

Table 5-4: Victoria Hotel (LEP no. I022)

Victoria Hotel (LEP no. I022)	
Images	**Figure 5-7:View of the southern elevation of Victoria Hotel with the CIZ in the background. Source: Artefact Heritage**  **Figure 5-8: The view north-east towards the CIZ from Victoria Hotel. Source: Artefact Heritage** 
Overview	The Victoria Hotel was first constructed in 1897 and was run by Joseph Lillyman, a prominent member of Moree society and owner of a saddlery business, public houses and cordial factory.[113] The first hotel was burnt down in a fire in December 1917 and was subsequently rebuilt and reopened in December 1918 by James Lillyman, the brother of Joseph Lillyman.[114] James Lillyman was also a prominent member of the Moree community before moving to Queensland and Sydney.[115] The 1918 hotel comprises a two-storey timber-framed and timber-clad hotel building with a corrugated metal hipped roof, originally laid out with a U-shaped plan. The building has a first-floor wrap-around balcony on the eastern and southern elevations with timber balustrades and posts and with four enclosed balcony bays along the southern elevation. The roof has lost its original Art Deco style roof parapets and chimneys.
Location	339 Gosport St, Moree NSW 2400

[112] Heritage NSW, DPC 2015.
[113] Our Family Past Pty Ltd, 2020. 'Joseph Leonard Lillyman', *Our Family Past.* Accessed at: https://www.ourfamilypast.com/person-article/joseph-leonard-lillyman (23/10/2020).
[114] Fire at Moree. (1917, December 1). The Armidale Chronicle (NSW: 1894 - 1929), p. 9. Retrieved October 23, 2020, from http://nla.gov.au/nla.news-article191890245; The Hotel Victoria. (1918, December 20). *Moree Gwydir Examiner and General Advertiser (NSW*: 1901 - 1940), p. 2. Retrieved October 23, 2020, from http://nla.gov.au/nla.news-article115779091.
[115] "Obituary." *Moree Gwydir Examiner and General Advertiser* (NSW: 1901 - 1940) 18 September 1930: 2. Retrieved October 23, 2020, from http://nla.gov.au/nla.news-article111697039.

Victoria Hotel (LEP no. I022)	
Relationship to project and study area	265m south-west of the CIZ, within the study area (visual impact only)
Significance	Local
A – Historical Significance	The Victoria Hotel has historical significance at the local level as an early 20th-century hotel in Moree, demonstrating the continued historical development of the town. The construction of a new hotel within one year of the former hotel being burnt down demonstrates a continuity in the demand for pubs in the local area. The continued use of the hotel since its reconstruction in 1918 demonstrates the ongoing use of and demand for pubs in the local area. As a significant portion of Moree was rebuilt between the 1910s and 1950s in the Art Deco style,[116] the Victoria Hotel is an early example of this significant phase in the history of Moree. **Victoria Hotel meets the threshold for local significance under this criterion**
B – Associative Significance	The Victoria Hotel has associative significance at the local level for its connection with the Lillyman family, a prominent family in the local area. V**ictoria Hotel meets the threshold for local significance under this criterion**
C – Aesthetic Significance	The Victoria Hotel has aesthetic significance at the local level as an early example of a building constructed in the Art Deco style in Moree. Despite the loss of the Art Deco style parapets, the hotel has retained its overall form, the original timber balustrades and veranda, the proportions of the first-floor openings and the roof form. As a significant portion of Moree was rebuilt between the 1910s and 1950s in the Art Deco style, the Victoria Hotel is an early example of this architectural style in Moree.[117] The building likewise has landmark value for its prominent location at the corner of Gosport and Anne Streets. **Victoria Hotel meets the threshold for local significance under this criterion**
D – Social Significance	Consultation with the local community has not yet been undertaken in order to determine the social significance of the Victoria Hotel to the local community. However, the Victoria Hotel has been used as a pub by locals, workers and travellers alike for over one hundred years. It is therefore likely that it is a significant building to the local community. Its proximity to Moree Railway Station has resulted in its frequent use by workers and travellers. **Victoria Hotel meets the threshold for local significance under this criterion**
E – Research Potential	The Victoria Hotel has research potential for its built fabric, demonstrating the changes to the hotel over the years, as well as for the potential archaeological remains of the former hotel on the site. **Victoria Hotel meets the threshold for local significance under this criterion**
F – Rarity	The Victoria Hotel cannot be considered a rare example of an Art Deco motif due to the vast number of Art Deco buildings in Moree. Although it is an early example of a 20th-century hotel, the Art Deco motifs have been removed and therefore its aesthetic rarity has been diminished. **Victoria Hotel does not meet the threshold for local significance under this criterion**

[116] Lawrence Consulting, 2007. *Art Deco Moree: A Guide to Moree's Exquisite Period Architecture*. Accessed at: https://www.mpsc.nsw.gov.au/index.php/publications-documents/maps/80-art-deco-buildings-in-moree-map/file (27/10/2020).
[117] Lawrence Consulting, 2007. *Art Deco Moree: A Guide to Moree's Exquisite Period Architecture*. Accessed at: https://www.mpsc.nsw.gov.au/index.php/publications-documents/maps/80-art-deco-buildings-in-moree-map/file (27/10/2020).

Victoria Hotel (LEP no. I022)	
G – Representativeness	Although the Victoria Hotel no longer has Art Deco style parapets, it retains much of its original form and remains a representative example of a rural hotel in Moree. **Victoria Hotel meets the threshold for local significance under this criterion**
Statement of significance	The Victoria Hotel has historical, aesthetic, social, associative and representative value at the local level. The building has historical and aesthetic significance as a representative example of a rural style timber-clad hotel constructed in Moree the early 20th century. The Victoria Hotel has associative significance at the local level for its association with the Lillyman family, who were a prominent family in the local area. The hotel has social significance for its use as a pub and hotel by the local community and visitors to the area for over 100 years.

5.3 Unlisted heritage items

In addition to the heritage listed items identified in Section 5.2 above, a number of additional items have been identified as potentially reaching the threshold of local significance. These items, identified in Table 2-2 and mapped in Figure 2-1 and Figure 2-3 in Section 2.4, have been identified through a combination of the site survey undertaken by Artefact Heritage as well as those that were previously identified in the 2017 HIS prepared by Umwelt, the N2NS Phase 2 Scoping Report and Heritage NSW, DPC's response to the project SEARs.[118]

Table 5-5, Table 5-6 and Table 5-7 below provide an overview description of the potential unlisted heritage items that have been identified within the study areal. Preliminary assessments of significance for the items based on the NSW Heritage Criteria have been prepared in order to determine if they would meet the threshold for local significance. Items that have been assessed as being unlikely to reach the threshold of significance are excluded from further discussion in this SoHI.

5.3.1 Railway line and associated infrastructure

Table 5-5 below provides an overview of the railway line and associated infrastructure within the CIZ that has been identified as a potential unlisted heritage item.

[118] Inland Rail, 2020. *Scoping Report Phase 2 Narrabri to North Star Inland Rail.* Report to Australian Rail Track Corporation (ARTC). Approved 31 May 2020, p. 42; Heritage NSW, DPC. 2020. *Request for Secretary's Environmental Assessment Requirements (SEARS) for Inland Rail – Narrabri to North Star Phase 2 (SSI 10054).* Dated 30 July 2020.

Table 5-5: Railway line and associated infrastructure

Railway line and associated infrastructure		
Images	**Figure 5-9:Example of the railway line to the south of Mehi River Bridge, view south-west. Source: Artefact Heritage** 	**Figure 5-10: Example of the railway line along the approach to the Gwydir River Underbridge, view north-east. Source: Artefact Heritage** 
Overview	The Mungindi Railway Line to the north of the station within the study area was constructed between 1910 and 1913, following construction of Moree Station in 1897 and associated line to Camurra. Infrastructure associated with the line includes rails, sleepers, ballast, brick footings, embankments, drainage channels, sidings, signals, platforms and switches	
Location	Moree, NSW 2400	
Relationship to project and study area	The CIZ largely follows the line of the Mungindi railway line, but the Camurra loop bypass would bypass the existing Camurra hairpin turn. The majority of the existing railway line in the CIZ would be removed as part of the proposed works	
A – Historical Significance	The railway line and associated infrastructure is associated with the expansion of the Mungindi line from Moree to Camurra in c.1910 to 1913, and on to Mungindi in 1914, to provide rail connections for the transport of local agricultural products, including wool and wheat. This expansion was a response to the agricultural intensification of the area. The railway line and infrastructure represent the expansion of NSW railways in the area, the construction process of the Mungindi Railway Line and development of the towns along the line. However, these historical processes are already better represented by the heritage listed Moree Railway Station (LEP no. I025; SHI no. 4801208), Mehi River Bridge (SHI no. 4281692), and Camurra, Gwydir River Underbridge (SHI no. 4281693). **The railway line and associated infrastructure does not reach the threshold for local significance under this criterion**	
B – Associative Significance	The railway line and associated infrastructure between Moree and Camurra Stations, as well as the hairpin turn to the north of the site of Camurra Station, is broadly associated with the railway workers who were responsible for constructing the Moree to Mungindi railway line from c.1910 to 1914. The railway line and associated infrastructure is likewise associated with railway workers, including members of the local Aboriginal population, who were responsible for upgrading and repairing the railway line until the 1960s. However, there is no specific evidence of work undertaken by Aboriginal labourers, and with the exception of the broader working group the railway line is not associated with a specific person or group of importance to the cultural history of the local area. **The railway line and associated infrastructure does not reach the threshold for local significance under this criterion**	

Railway line and associated infrastructure	
C – Aesthetic Significance	The railway line between Moree and the hairpin turn to the north of the site of the former Camurra Station is a visually identifiable landmark with its raised embankments as it meanders through the landscape. However, the railway line and associated infrastructure are of fairly standard design do not demonstrate particularly significant aesthetic characteristics or technical achievements. **The railway line and associated infrastructure does not reach the threshold for local significance under this criterion**
D – Social Significance	Community consultation undertaken for the project has identified that the railway line and associated infrastructure has some social significance as a visible landmark between the township of Moree to Camurra and Mungindi to the north, and through its connection to local Aboriginal people who worked on the railway line from the 1930s to 1960s. However, because of the current disuse of the railway line as a method of transport between these areas, and because the development of the rail transport is already represented by the heritage listed Moree Raiway Station (LEP no. I025; SHI no. 4801208), Mehi River Bridge (SHI no. 4281692), and Camurra, Gwydir River Underbridge (SHI no. 4281693), it is unlikely that the railway line itself and associated infrastructure would be of particular significance to the local community. **The railway line and associated infrastructure does not reach the threshold for local significance under this criterion**
E – Research Potential	The railway line and associated infrastructure may demonstrate evidence of changes and modification over time. However, the railway line itself does not appear to have been significantly modified over time, with the main changes to the railway line likely being fairly superficial such as the replacement of former timber sleepers, and modifications to the associated infrastructure likely largely being limited to the replacement or installation of culverts. These minor modifications are unlikely to demonstrate significant technological changes over time. **The railway line and associated infrastructure does not reach the threshold for local significance under this criterion**
F – Rarity	As railway lines in rural areas dating to the early 20th century are widespread in NSW, the railway line and associated infrastructure within the CIZ cannot be considered rare at the local level. **The railway line and associated infrastructure does not reach the threshold for local significance under this criterion**
G – Representativeness	The railway line and associated infrastructure are representative of railway lines in rural areas dating to the early 20th century, which are widespread in NSW. However, because of how widespread the railway lines are, the railway line in the CIZ offers little that is not already represented by other examples, including other railway lines which are still in use today. **The railway line and associated infrastructure does not reach the threshold for local significance under this criterion**
Statement of significance	The railway line and associated infrastructure within the CIZ represent the construction process of the Mungindi Railway Line and development of the towns along the line, and are a visible landmark in the local area. Some of the repairs and replacements dating to the 1930s to 1960s are also likely to have been undertaken by members of the local Aboriginal community. However, the historical development of the railway line is already better represented by other examples in the local region that unlike this section of the Mungindi railway line are still regularly used today. The railway line and associated infrastructure are also mostly associated with broader working groups and labourers rather than specific groups of historical significance, and the railway line is not rare and does not demonstrate particular aesthetic or technologically significant characteristics. As a result, it is unlikely that the railway line and associated infrastructure would be of particular significance to the local community

Railway line and associated infrastructure	
Would the item meet the threshold for local significance?	It is assessed that the railway line and associated infrastructure do not reach the threshold of local significance

5.3.2 Timber constructed underbridges and culverts

Table 5-6 below provides an overview of the timber constructed underbridges and culverts within the CIZ that have been identified as potential unlisted heritage items. The five timber constructed underbridges and culverts identified within the CIZ have been assessed as a group.

Table 5-6: Timber constructed underbridges and culverts

Timber constructed underbridges and culverts	
Images	**Figure 5-11: Example of underbridges along the railway line over Skinners Creek. Source: Artefact Heritage**  **Figure 5-12: Example of underbridges along the railway line over Duffy's Creek. Source: Artefact Heritage** 
Overview	The five timber constructed underbridges and culverts along the railway line from Moree to Camurra mostly comprise a mix of concrete and timber piers with timber beams constructed to continue the elevation of the railway line in lower areas and over creeks as well as to allow access under the railway line
Location	Moree (Chainage: 666.645, 666.945, 667.21, 667.37, 667.945)
Relationship to project and study area	Within the CIZ. All five underbridges would be removed as part of the proposed works
A – Historical Significance	The timber constructed underbridges and culverts along the railway line from Moree to Camurra demonstrate the expansion of the Mungindi line in c.1910 to 1913 to provide rail connections for the transport of local agricultural products, including wool and wheat. This expansion was a response to the agricultural intensification of the area. The timber constructed underbridges and culverts represent the expansion of NSW railways in the area, the construction process of the Mungindi Railway Line and the continued need for access across the railway line. However, these historical processes are already better represented by the heritage listed Moree Railway Station (LEP no. I025; SHI no. 4801208), Mehi River Bridge (SHI no. 4281692), and Camurra, Gwydir River Underbridge (SHI no. 4281693). **The timber constructed underbridges and culverts do not reach the threshold for local significance under this criterion**

Timber constructed underbridges and culverts	
B – Associative Significance	The timber constructed underbridges and culverts between Moree and Camurra Stations are broadly associated with the railway workers who were responsible for constructing the Moree to Mungindi railway line from c.1910 to 1914. The timber constructed underbridges and culverts are likewise associated with railway workers, including members of the local Aboriginal population, who were responsible for upgrading and repairing the railway line until the 1960s. However, there is no specific evidence of work undertaken by Aboriginal labourers, and with the exception of the broader working group the railway line is not associated with a specific person or group of importance to the cultural history of the local area. **The timber constructed underbridges and culverts do not reach the threshold for local significance under this criterion**
C – Aesthetic Significance	The timber constructed underbridges and culverts between Moree and Camurra Stations are modified versions of Henry Deane's (Engineer-in-Chief for Railway Construction) timber girder bridge design often used on Pioneer Lines of the early 20th century. However, while the underbridge across Skinners Creek is a more intact original example of Deane's timber girder bridge design, the remaining underbridges within the CIZ have been more substantially modified and as a result the overall group has reduced aesthetic significance. The underbridges are also of a standard design and the modifications do not reflect unique technological changes to adapt to local conditions. As a result, the underbridges do not demonstrate a high degree of technical achievement. **The timber constructed underbridges and culverts do not reach the threshold for local significance under this criterion**
D – Social Significance	Community consultation undertaken for the project has identified that the timber constructed underbridges and culverts have some social significance to the local community. However, although the timber constructed underbridges and culverts may contribute to the local community's sense of place, because of the current disuse of the railway line they are they are not of high significance to the local community. **The timber constructed underbridges and culverts do not reach the threshold for local significance under this criterion**
E – Research Potential	The timber constructed underbridges and culverts show evidence of having been modified over time. However, the modifications do not represent a high degree of technological achievement and therefore are unlikely to demonstrate innovation and resourcefulness over time through upgrades undertaken during the 20th century. **The timber constructed underbridges and culverts do not reach the threshold for local significance under this criterion**
F – Rarity	As timber constructed underbridges and culverts associated with pioneer railway lines in rural areas dating to the early 20th century are widespread in NSW, the timber constructed underbridges and culverts within the CIZ cannot be considered rare at the local level. **The timber constructed underbridges and culverts do not reach the threshold for local significance under this criterion**
G – Representativeness	Timber constructed underbridges and culverts associated with pioneer railway lines in rural areas dating to the early 20th century are widespread in NSW. Although the timber constructed underbridges with concrete piers contain some original timber components of Deane's timber girder bridge design, particularly at Skinners Creek, because of the collective degree of modifications to the underbridges the degree to which they are reflective of early bridges along Pioneer Lines has been reduced. **The timber constructed underbridges and culverts do not reach the threshold for local significance under this criterion**

Timber constructed underbridges and culverts	
Statement of significance	The timber constructed underbridges and culverts within the CIZ are associated with the construction process of the Mungindi Railway Line and have some aesthetical and representative heritage values as examples of adaptation of Deane's timber girder bridge design along Pioneer Lines. However, the historical development of the railway line is already better represented by other examples in the local region that unlike this section of the Mungindi Railway Line are still regularly used today, and this type of underbridge is common throughout NSW. Furthermore, because of the collective degree of modifications to the underbridges within the CIZ, the aesthetical heritage value and the degree to which the underbridges are reflective of early bridges along Pioneer Lines has been reduced. As a result, it is unlikely that the timber constructed underbridges and culverts would be of particular significance to the local community
Would the item meet the threshold for local significance?	It is assessed that the timber constructed underbridges and culverts do not reach the threshold of local significance

5.3.3 Moree Hotel

Table 5-7 below provides an overview of the Moree Hotel within the study area, which has been identified as a potential unlisted heritage item.

Table 5-7: Moree Hotel (7 Alice Street, Moree)

Moree Hotel		
Images	**Figure 5-13: View from the southern end of the CIZ to the Moree Hotel. Source: Artefact Heritage** 	**Figure 5-14: View from the Moree Hotel to the southern end of the CIZ: Source. Artefact Heritage** 
Overview	Moree Hotel was constructed by John Toohey and subsequently sold to Andrew McElhone, after which it became commonly known as the McElhone Hotel.[119] The hotel was the meeting place for the railway worker community, the Labor Party supporters and unionists during the 20th century.[120] The railway workers had a strong relationship with the local Aboriginal community due to their shared poverty, close proximity to the fringe camps and working together on the railway.[121] The Moree Hotel is associated with Mary Gaudron's father, Ted Gaudron, who was known to share his political views at this pub in the middle of the 20th century.[122] Mary Gaudron was the first female Justice of the High Court of the Australia and presided over the successful Mabo case in 1992.[123]	
Location	7 Alice Street, Moree, NSW 2400	

[119] "Former Moree couple reach wedding milestone". *Moree Champion.* November 9. 2016. Retrieved October 23, 2020, from https://www.moreechampion.com.au/story/4282699/wedding-milestone-reached/
[120] Burton, P., 2010. *From Moree to Mabo: The Mary Gaudron Story*. UWA Publishing: Crawley, WA.
[121] Burton, P., 2010. *From Moree to Mabo: The Mary Gaudron Story*. UWA Publishing: Crawley, WA.
[122] Burton, P., 2010. *From Moree to Mabo: The Mary Gaudron Story*. UWA Publishing: Crawley, WA.
[123] Burton, P., 2010. *From Moree to Mabo: The Mary Gaudron Story*. UWA Publishing: Crawley, WA.

Moree Hotel	
Relationship to project and study area	30m east of the CIZ, within the study area (visual and potential direct impacts only)
A – Historical Significance	The Moree Hotel has historical significance at the local level as a late 19th-century hotel in Moree, demonstrating the development of the south-eastern end of the town in close proximity to the Moree Railway Station. The main historical significance of the Moree Hotel lies in its connection to the railway worker community, Labor Party supporters and unionists during the 20th century. **The Moree Hotel meets the threshold for local significance under this criterion**
B – Associative Significance	The Moree Hotel has associative significance at the local level for its strong connection with the railway worker community, Labor Party supporters and unionists during the 20th century. The railway workers had a strong relationship with the local Aboriginal community due to their shared poverty, close proximity to the fringe camps and working together on the railway. The Moree Hotel is also associated with Mary Gaudron's father, Ted Gaudron, who was known to share his political views at this pub in the middle of the 20th century. Mary Gaudron was the first female Justice of the High Court of the Australia and presided over the successful Mabo case in 1992. **The Moree Hotel meets the threshold for local significance under this criterion**
C – Aesthetic Significance	Although the Moree Hotel is currently in poor condition, the building has aesthetic significance at the local level as an example of a late 19th century two-storey timber constructed hotel with a wrap-around veranda with decorative timber corner brackets and a hipped roof, despite later extensions to the east. The building has some landmark value for its prominent location at the corner of Morton Street and the Gwydir Highway. **The Moree Hotel meets the threshold for local significance under this criterion**
D – Social Significance	Formal consultation has not been undertaken with the local community in order to determine the social significance of the Victoria Hotel. However, the Moree Hotel has been used as a pub and for accommodation by locals, workers and travellers alike for over one hundred years. It also fostered a strong connection with the railway worker community, Labor Party supporters and unionists during the 20th century. As a result it may be of some social significance to the local community. **The Moree Hotel may meet the threshold for local significance under this criterion**
E – Research Potential	As a late 19th century hotel, the Moree Hotel has limited research potential. It is unlikely that the building itself would provide information regarding the lives of its patrons, including the railway worker community, Labor Party supporters and unionists during the 20th century, that is not available from alternative historical sources. **The Moree Hotel would not reach the threshold for local significance under this criterion**
F – Rarity	Late 19th century rural style timber constructed hotels such as the Moree Hotel are widespread and therefore are not considered to be rare. However, it is noted that due to the number of fires in Moree in the early 20th century, several late 19th and early 20th-century hotels burnt down, leaving few hotels from this period. The Moree Hotel is therefore a rare survivor from this period in Moree. **The Moree Hotel may meet the threshold for local significance under this criterion**
G – Representativeness	The Moree Hotel is a representative example of a timber constructed rural hotel in Moree from the late 19th century that is common in the region. **The Moree Hotel meets the threshold for local significance under this criterion**

Moree Hotel	
Statement of significance	Moree Hotel has historical, social, aesthetic, associative and representativeness heritage values at the local level as an example of a 19th-century rural style timber hotel. It has a strong association with the railway workers, unionists and Labor Party of the 20th century in Moree.
Would the item meet the threshold for local significance?	It is assessed that the Moree Hotel would reach the threshold of local significance

6.0 HISTORICAL ARCHAEOLOGICAL ASSESSMENT

6.1 Introduction

The following section contains an assessment of archaeological potential within the CIZ. This assessment is based on an analysis of available historical plans, secondary sources and an understanding of previous impacts within the proposal corridor. The aim of this assessment is to identify portions of the CIZ with potential to contain significant archaeological resources which will require further management as part of N2NS Phase 2.

Historical archaeological potential is defined here as the potential of a site to contain historical archaeological remains. The assessment of historical archaeological potential is based on the identification of former land uses and evaluating whether subsequent actions (either natural or human) may have impacted on archaeological evidence for these former land uses.

6.2 Summary of historical land use phases

6.2.1 Phase 1 (1812 – 1860)

During Phase 1, the CIZ may have been subject to illegal pastoral squatting, use as part of travelling stock routes, and used as temporary campgrounds. Historical records indicate that by the mid-nineteenth century, the area had been partitioned into pastoral runs, with the north-east runs predominately used for cattle. Early access to the area was likely to have been undertaken using horse drawn carts and bullock drays, with access via the rivers utilised later in this phase. While land clearance or minor landscape modification may have occurred during this phase, it is likely that archaeological evidence of these activities has been impacted by subsequent phases of activity.

Archaeological remains associated with Phase 1 are likely ephemeral in nature and limited to low intensity land use and are therefore unlikely to survive. Such remains may include evidence of land clearance, tree boles, field drains, fence lines, dirt or gravel road surfaces, and evidence of squatter / campsite occupation including timber, brick or stone footings, post holes, refuse pits, and isolated artefact scatters.

6.2.2 Phase 2 (1860 – 1895)

Land use within the CIZ during Phase 2 was largely defined by agricultural activity. A road was constructed within the north-western portion of the CIZ during this phase and it is likely that other informal dirt roads and tracks were also laid out. However, there are little to no documented structures present within the CIZ during this phase. In the township of Moree at the south end of the CIZ land was subdivided into allotments during this phase (Figure 3-4), however, it is unknown if the allotments within the CIZ were developed.

The only documented building was the former Boolooroo Provisional School that was located along the eastern boundary of the CIZ north of the Gwydir River (Figure 3-23). The school was noted to have only been open for a single year, opening in January 1893 and then closing by December. Considering the short timespan of the school and the remote location it is likely that the school would have been a relatively simple timber building, and it is likely that any additional elements that may have been associated with it are likely to have been limited to small timber outbuildings, toilet facilities, and fences. It is also possible that given the supposed short lifespan of the school, the site for the school may have been designated but never officially used.

Archaeological remains associated with Phase 2 are likely limited to agricultural activities including evidence of land clearance, tree boles, field drains / drainage channels, fence lines, dirt or gravel road surfaces, camp sites, and evidence of the former Boolooroo Provisional School or undocumented

structures including timber, brick or stone foundations, post holes, refuse pits, yard surfaces, cisterns, services, and isolated artefact scatters.

6.2.3 Phase 3 (1895 – present)

Phase 3 is defined by the development of the Mungindi Railway Line and the associated railway workers camps and houses, and the development of Camurra Station. Historical sources also indicate that an Aboriginal fringe camp was established beneath the Mehi River Bridge.

The development of the railway line through Moree facilitated the need for the development of railway workers camps. A number of camps were known to have been established although specific information regarding the location and nature of the camps is limited. Although these camps were not subject to detailed records, it can be assumed that they would have been established within close proximity to the railway corridor and contained simple timber structures and tents. If significant remains were uncovered associated with these camps, they may reach the threshold for local significance. More permanent accommodation for the railway workers was likely constructed in the first half of the twentieth century in Lot 1 DP 836431 at the south end of the CIZ. Aerial photographs from 1958 show houses present along the railway line and adjacent to the houses that are still extant today (Figure 3-32 and Figure 3-36). These houses had been demolished by 1991. Like the extant buildings, the former houses are likely to have consisted of simple fibro houses built for the railway workers.

On the west side of the CIZ to the north of the Gwydir River the former Boolooroo Provisional School, if constructed, may still have been present at the start of the twentieth century, even if it was not in use. The building had likely been demolished by 1913 when the Camurra Railway Station was built in the same area. Aerial imagery of the former station indicates that it was a relatively small structure located on the west side of the tracks (Figure 3-30). It is likely that the station building would have been of brick construction and similar in appearance to the extant Moree Railway Station. The station may also have featured an island platform, although this is not clearly depicted in the historical imagery. There would also have been associated rail infrastructure at the station and along the railway line which has since been removed (Figure 4-7), as well as evidence of modifications and upgrades to the railway line over time.

During the early twentieth century until the 1960s, the land around and beneath the Mehi River Bridge was used as an unofficial fringe camp, called ‘Steel Bridge Camp’, by local Aboriginal people. After having fled the Terry Hie Hie reserve following the establishment of the Aboriginal Protection Act in 1909, Aboriginal people would temporarily camp under the bridge while waiting for accommodation to become available at the more established camps to the north and south. Although camps such as ‘Top Camp’ featured tin huts made from reused gasoline cans, these would not have been present in the immediate vicinity of the rail bridge. Instead, evidence of the fringe camp in the immediate vicinity of the bridge would likely be limited to more scattered remains associated with temporary occupants coming and going. Because of the temporary nature of the camp it is likely that any associated deposits would likely be shallow, and the majority of the refuse from the camp would have been either thrown or washed down into the river. It is noted that although historical records indicate that Aboriginal people camped temporarily under the Mehi River Bridge, there is no defined boundary to the campsite and archaeological evidence of camping could be found over a larger area in the vicinity of the bridge due to the likelihood of movement around the campsite. Previous assessments undertaken for the Newell Highway Bypass EIS have defined the boundary of the fringe camp as being within ‘an area varying from 20 to 50 metres westward from the western riverbank, and varying from 30 to 70 metres eastward from the eastern riverbank’.[124]

[124] Egis 2002. *EIS: Proposed Newell Highway Bypass of Moree Town Centre*.

Archaeological remains associated with Phase 3 may include evidence of documented and undocumented structures including residential houses and working buildings, formalisation of roads and services, continued agricultural practices, development of the railway line including the former Camurra Station and ongoing upgrades to the railway line, and evidence of the Aboriginal fringe camp 'Steel Bridge Camp' in the vicinity of the Mehi River Bridge.

6.3 Previous impacts

It is expected that subsequent phases of development within the CIZ would have likely impacted and/or removed evidence of the preceding phases of historical development. Some of the key historical impacts would include the construction of the Mungindi Railway Line and New England Highway, and continued land clearance and ploughing associated with extensive agricultural development in the region. Although archaeological remains of earlier phases may have survived these impacts, the extent of the impacts associated with these key developments affects the overall archaeological potential within the CIZ.

Mungindi Railway Line

The construction of the Mungindi Railway Line would have required extensive land disturbance for the establishment of the railway corridor itself. This included establishing embankments, cuttings, drainage channels and culverts.

The construction of embankments may have sealed and protected evidence of previous structures and land use from Phases 1 and 2, however, excavation associated with cuttings and drainage channels would have removed and truncated potential archaeological remains.

In addition, Camurra Station was constructed over mapped location of the Boolooroo Provisional School within the CIZ. Such construction works are likely to have disturbed any intact remains of the school within the CIZ.

Services

It is likely that various nineteenth and twentieth century services such as gas, water and sewerage pipelines have also been incorporated into the CIZ over time. This is likely to have resulted in significant localised impacts to potential archaeological remains within the CIZ.

Road construction, maintenance and upgrades

The construction, maintenance and upgrading of roads from Moree to Camurra has occurred throughout the nineteenth and twentieth century. This process is likely to have resulted in disturbance or truncation of shallow archaeological remains from Phases 1 and 2. The level of impact to archaeological remains would depend on the depth of previous drainage channel and culvert construction and grading and resurfacing activities.

Redevelopment and construction impacts

Redevelopment and construction within Moree are likely to have caused significant impacts to potential archaeological remains associated with Phases 2 and 3 particularly where significant services have been installed, and land graded or modified to accommodate new structures.

Agricultural and pastoral activities

Agricultural and pastoral activities such as tree clearing, ploughing, dam construction and the establishment of fence lines is likely to have disturbed or truncated potential archaeological remains within the CIZ associated with Phases 1 and 2.

6.4 Summary of archaeological potential

Table 6-1 provides a summary of the potential archaeological remains which may survive within the CIZ. The assessed level of archaeological potential is based on the known historic land uses and the previous impacts that have occurred as outlined in the previous sections. The assessed level of archaeological potential is also based on the potential for encountering more intact and substantial archaeological remains rather than minor and heavily truncated archaeology.

Table 6-1: Assessment of archaeological potential for the CIZ

Phase	Known developments/activities	Archaeological potential
Phase 1 1812 - 1860	Evidence of low intensity land use, livestock grazing and agricultural practices including fence posts, tree stumps, furrows and field drains; undocumented informal domestic occupation/settlement; informal road networks including dirt or gravel roads and associated elements such as drainage; camp sites and isolated artefact scatters	Nil to low
Phase 2 1860 - 1895	Evidence of undocumented formal and informal residential and commercial settlement including stone, brick and timber footings, fence posts and post holes, occupation and refuse deposits, rubbish pits, garden soils, deeper subsurface features such as wells, cisterns and privies, yard surfaces and artefact scatters; structural remains of the Boolooroo Provisional School including timber and brick footings and evidence of undocumented outbuildings; informal and formalised road networks including dirt or gravel roads, stone kerbs and drainage; evidence of agricultural activities and livestock grazing including fence posts, property boundaries and post holes, land modifications, furrows and field drains; campsites and isolated artefact scatters	Nil to low
Phase 3 1895 - present	Evidence of documented and undocumented residential and commercial buildings and outbuildings, including brick and timber footings, fence posts and post holes, occupation and refuse deposits, rubbish pits, garden soils, pathways, deeper subsurface features such as cisterns and privies, yard surfaces and artefact scatters; informal and formalised road networks including dirt, gravel and asphalt roads, stone kerbs and drainage; evidence of agricultural activities and livestock grazing including fence posts, property boundaries and post holes, land modifications, furrows and field drains; Evidence of Camurra Station and rail infrastructure including brick footings, timber sleepers, culverts, modified embankments, rail track switches and other infrastructure	Low to moderate
	Evidence of the Steel Bridge Camp including undocumented structures, camp sites and artefact scatters	Low

6.5 Assessment of archaeological significance

In 2009, the NSW Heritage Division of the Office of Environment and Heritage (now Heritage NSW, DPC) issued a new set of guidelines titled *Assessing Significance for Historical Archaeological Sites and 'Relics'*. These guidelines call for broader consideration of multiple values of archaeological sites beyond their research potential. Under the guidelines, the significance of a potential archaeological site can then be assessed as being of local or State significance. If a potential relic is not considered to reach the local or State significance threshold, then it is not a relic under the Heritage Act. The overall aim of assessing archaeological significance is to identify whether an archaeological resource, deposit, site or feature is of cultural value.

Table 6-2 provides a significance assessment for the significant archaeological remains that may be present within the CIZ. The potential archaeological remains have been assessed against the guidelines outlined in Table 1-3.

It is noted that an assessment has only been provided for the archaeological remains which are considered likely to reach the threshold of significance. Based on the summary of historical land use and archaeological assessment in the previous sections, it is assessed that the only archaeological remains within the CIZ which would potentially reach the threshold of local significance are potential remains of the Steel Bridge Camp associated with Phase 3.

It is considered unlikely that the other potential archaeological remains within the CIZ would reach the threshold of significance due to factors such as having nil to low potential to consist of substantial and intact archaeology, being limited to minor remains such as post holes, or due to primarily dating to the twentieth century when similar examples are still common and extant today and therefore not providing information which is not available from alternative sources. As a result, discussion of these remains is not included in Table 6-2.

Areas of significant archaeological potential are illustrated in Figure 6-1.

Table 6-2: Assessment of archaeological significance

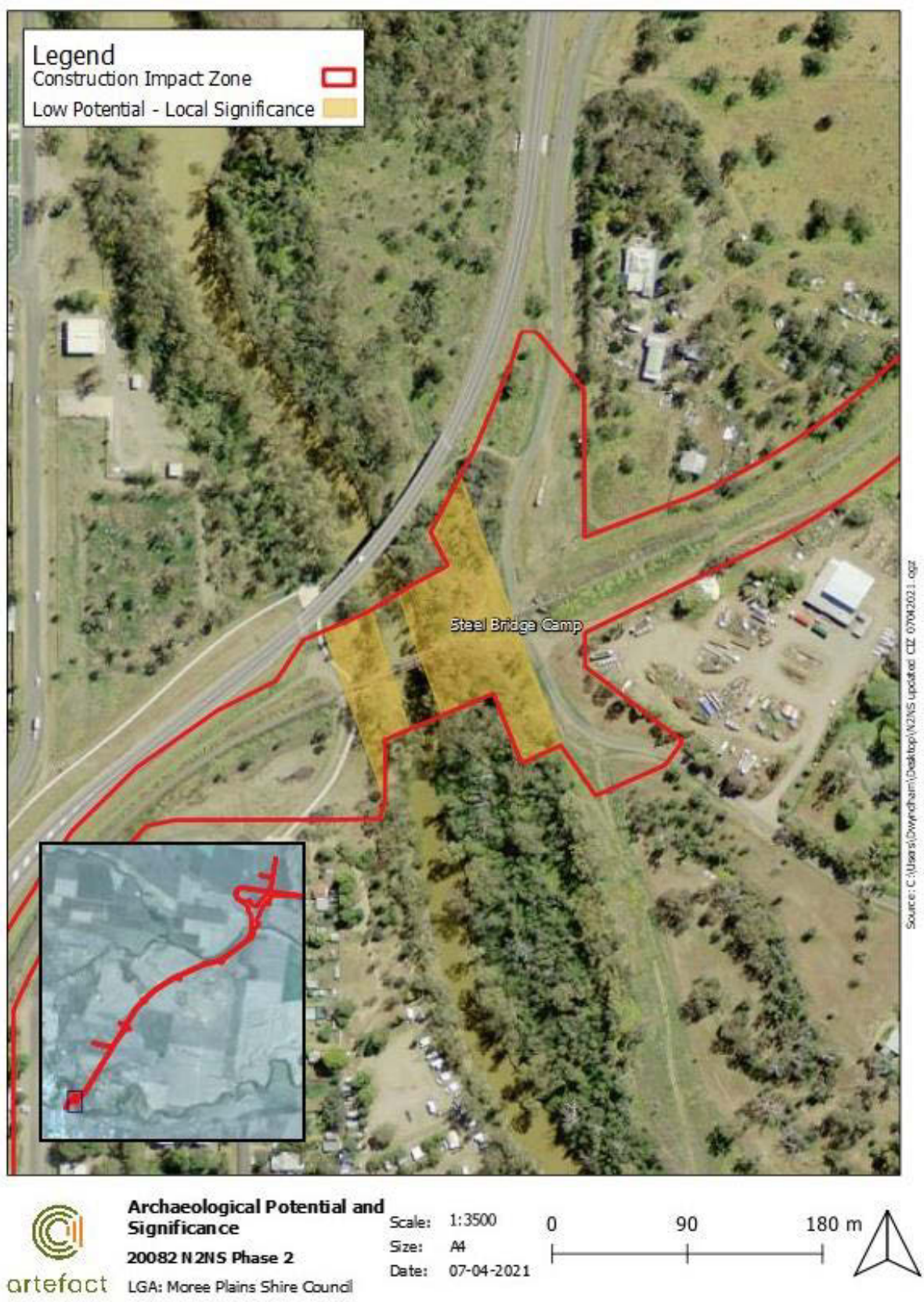
Criteria	Description
A – Historical Significance	The establishment and continued use of the Steel Bridge Camp would represent an important event in the Aboriginal history of the area and NSW in general, as a reaction against the formalised reserves and forced removal of children from families on reserves. The establishment of the camp and others nearby reflect a period of turmoil following the establishment of the Aboriginal Protection Act in 1909, which resulted in local Aboriginal people fleeing Terry Hie Hie reserve. Evidence of Steel Bridge Camp would be likely to reach the threshold for local significance, due to their demonstration of fringe camps established by displaced local Aboriginal people. **Archaeological remains associated with Steel Bridge Camp would reach the threshold of local significance under this criterion**
B – Associative Significance	Potential archaeological remains of Steel Bridge Camp would have a special association with the local Aboriginal people who fled the Aboriginal reserves and set up fringe camps near towns. The remains would also have a special association with the descendants of those who lived in the camp. Such remains are likely to be ephemeral and comprise scattered artefacts and refuse deposits rather than larger intact assemblages due to the area under the bridge being reserved for temporary use by newcomers whilst they waited for tin huts to become available in the more established camps. The remains of Steel Bridge Camp would be likely to reach the threshold for local significance as an example of the use of fringe camps by Aboriginal people in the local area. **Archaeological remains associated with Steel Bridge Camp would reach the threshold of local significance under this criterion**
C – Aesthetic Significance	Although it is recognised that exposed *in situ* archaeological remains may have distinctive/attractive visual qualities and may have visual characteristics with the ability to connect communities and individuals to the past in a tangible way, the potential archaeological remains associated with the Steel Bridge Camp are unlikely to demonstrate particular aesthetic characteristics. If assemblages or sites of traditional manufacturing techniques using traditional and non-traditional materials survive at Steel Bridge Camp these remains may demonstrate technical achievement associated with the interaction between traditional lifeways and introduced historical material. However, due to the temporary nature of the camps in the immediate vicinity of the bridge and the twentieth century date of the use of the area, there is less likely to be traditionally worked materials present. Furthermore, because of the temporary nature of the camping at the bridge it is not expected that any of the huts

Criteria	Description
	constructed of repurposed gasoline cans, which would have more technical significance, would have been present in this location. **Archaeological remains associated with Steel Bridge Camp would not reach the threshold of local significance under this criterion**
D – Social Significance	The Aboriginal community in Moree would have a special association with archaeological remains of the temporary use of the area under the Mehi River Bridge by those waiting for accommodation in the Steel Bridge Camp. This significance to the local community is demonstrated by the extant heritage interpretation along Grose Walk on the west side of the river which describes the camp. **Archaeological remains associated with Steel Bridge Camp would reach the threshold of local significance under this criterion**
E – Research Potential	Archaeological remains of the Steel Bridge Camp may have the ability to inform our understanding of living conditions, consumption habits and use of traditional manufacturing techniques on traditional and non-traditional materials by Aboriginal people who had fled the reserves in the early twentieth century. Although the camps around the bridge were temporary in nature and are therefore less likely to produce a substantial archaeological record, there is currently limited surviving evidence of these camps and as are result the archaeological remains may provide information that is not available from alternative historical sources. **Archaeological remains associated with Steel Bridge Camp would reach the threshold of local significance under this criterion**
F – Rarity	If substantial and intact archaeological remains associated with the use of the Steel Bridge Camp by the local Aboriginal population are found, such remains would be rare at the local level as such camps often leave little material remains. **Archaeological remains associated with Steel Bridge Camp would reach the threshold of local significance under this criterion**
G – Representativeness	Potential archaeological remains associated with Steel Bridge Camp, which was constructed and used by the local Aboriginal population, would be representative of such camps at a local level. The camps are representative of the period of turmoil faced by the local Aboriginal population following the establishment of the Aboriginal Protection Act in 1909. **Archaeological remains associated with Steel Bridge Camp would reach the threshold of local significance under this criterion**

6.5.1 Statement of archaeological significance

Archaeological remains of Steel Bridge Camp would have historical, associative, social, research potential and representativeness significance at the local level. Archaeological remains of the camp are reflective of the period of turmoil faced by the local Aboriginal people in the early twentieth century following the establishment of the Aboriginal Protection Act in 1909, which resulted in local Aboriginal people fleeing Terry Hie Hie reserve. Physical evidence of these camps is rare and as a result may provide information that is not available from alternative sources, particularly if the archaeological remains demonstrate evidence of traditional Aboriginal manufacturing processes using non-traditional materials. The local Aboriginal people have a strong social and cultural connection to the area around the bridge, which is reflected in the extant heritage interpretation in the area.

Figure 6-1: Map of the area of significant archaeological potential within the CIZ associated with the Steel Bridge Camp



7.0 HERITAGE IMPACT ASSESSMENT

7.1 Proposed development

The project involves an upgrade of approximately 13.7km of existing rail corridor between Moree and Camurra North, in addition to the construction of about 1.6km of realigned rail corridor within greenfield area.

Key features of the project are:

- Enhancement of about 13.7km of existing track through minor adjustments to the vertical and horizontal alignment, and the construction of about 1.6km of new rail corridor, including rail embankments
- Demolition and reconstruction of eight underbridges, at the Mehi River, Gwydir River, Skinners Creek, Duffys Creek and at four other un-named water courses
- Installation of approximately 1,100 new flood relief box culverts along the formation
- Three new signalised level crossings at Gwydirfield Road, the Rocks Road and Back Pally Road replacing the existing level crossings
- Realignment and changes to six private level crossings (including closure of one private level crossing)
- New turnout between the Gwydir River and Back Pally Road, immediately north of the new Gwydir underbridge, to provide a connection to the Inland Rai l / North Star line to the east and the Weemelah line to the west
- Decommissioning and removal of the Camurra hairpin and associated formation through the construction of the greenfield Camurra Bypass, providing connections to the existing rail lines to the east and the Weemelah line to the west
- Reconstruction of a new rail spur for the Weemelah line.

Associated works would include installation of signalling systems, signage, fencing, drainage, the relocation of services and utilities where necessary and the formation of rail maintenance access roads (RMARs) within the rail corridor adjacent to the line. The construction and operation of the proposal would also require the following ancillary facilities:

- Construction access and haul roads linking to the surrounding public road network
- Construction storage and laydown areas
- Associated earth works for the construction of pads for piling rigs and cranes at underbridge locations.

Ancillary facilities could also include mobile batch plant, accommodation for construction workers, and construction water supply and storage.

The proposal would require temporary occupation and permanent acquisition of land along the alignment. A total of 27 lots would be impacted by permanent land acquisition, including approximately 4 hectares (ha) of private land within 12 lots and 9ha of Crown Land within 15 lots

Further detail of the proposed works is provided in Section 7.1.1 to 7.1.7.

7.1.1 Track upgrade and realignment

The majority of the existing track would be upgraded within the existing rail corridor, for a distance of about 15km from chainage 666.000 in Moree to chainage 675.800 just south of the Gwydir River bridge.

Track reconstruction would involve replacing the existing track and formation. Between chainages 672.600 and 675.800, a minor horizontal realignment (10m) of the track to the east is required to solve short-stacking issues between the Newell Highway and existing level crossings. Minor curve easing is also required.

An assessment of any short stacking issues was undertaken for the alignment using the Australian Level Crossing Assessment Model (ALCAM) to assess potential risks at all the level crossings. Short-stacking occurs when a long vehicle such as a semi-trailer does not have enough space to completely clear the crossing and stops while part of the vehicle is still within the crossing. Level crossing 3070 would need to be shifted slightly (approximately 10m) to the south-east, requiring the purchase of a narrow portion of private agricultural land to safely accommodate the level crossing. Another minor portion of agricultural land would be needed to ensure a wide enough curve (curve easing) to maintain an 800m radius curve which is needed for the new trains.

Upgrades of the rail line will use the existing formation and ballast. These materials will be blended at the site and tested to determine whether the new formation complies with the design requirements. Where additional material is required, this will be imported from an external source. Once the formation achieves the required structural performance, a new ballast layer will be imported and placed on the formation to allow placement of sleepers and rail.

The height of the rail line would also need to be increased between 300mm and 1000mm to prevent the flooding of the rail line during large flood events (i.e. greater than a 1 in 10 year event).

7.1.2 Camurra Bypass

The project also involves the realignment of the existing track between Ch 675800 and Ch 678200 along the Camurra North section. The realignment will replace the existing Camurra hairpin turn. The realignment will involve the construction of about 2.4km of new, single track standard gauge railway, within a maximum grade of 1:100. About 1.6km of the new track is within greenfield site.

The Camurra bypass would involve:

- 1.6km of new track to the east of the existing turn, with an 800m radius
- Constructing seven culverts
- Connections to the existing rail lines to the east and the Mungindi line to the west
- Property adjustment works relating to property acquisition, including 50m of irrigation channel and a portion of a travelling stock reserve.

The Camurra Bypass would be constructed on fill.

Construction of the bypass would mean that the existing hairpin turn would no longer be required. The hairpin turn would be demolished and the formation material would be excavated, treated and redistributed to other parts of the project where possible.

7.1.3 Turnouts

Turnouts allow the train to be guided from one track to another. The project involves providing a turnout at Ch 676.450, immediately north of the new Gwydir underbridge, to enable a connection from the new rail track to the Weemelah line.

Currently, the Weemelah turnout is positioned along the existing hairpin curve which will be decommissioned. The turnout would be moved from this current position to chainage 676.450 and a new track will be constructed between the new and original turnout point.

7.1.4 Bridges

The project involves the reconstruction of existing underbridges over Mehi River and Gwydir River, as the existing bridges do not meet Inland Rail structural requirements. The project also involves the upgrade of six underbridges required for other river and creek crossings.

Depending on geotechnical conditions, driven steel piles, are proposed for the bridge structures' foundations, all of which have been designed to be made of reinforced concrete. All bridge piers would consist of reinforced concrete headstock supported on circular reinforced concrete columns or blade piers.

7.1.5 Culverts

The project would require approximately 1550 culverts to be installed of varying types and sizes along the project site. This number would be refined through further flood modelling during detailed design.

7.1.6 Road modifications

Modifications to local and arterial roads would be required where the track needs to be realigned and where new or upgraded crossings are installed. The following roads will require modification where they cross the rail track:

- Gwydirfield Road (north crossing)
- The Rocks Road
- Back Pally Road.

7.1.7 Ancillary works and infrastructure

Ancillary works for the project include:

- Surface drains (swale drains) would be installed within the rail corridor adjacent to the track. These surface drains would be located to the side of the tracks and would remove water that percolates through the ballast and flows along the capping layer towards the outside of the track formation
- The RMARs would run the length of the project in various locations within the project site. Generally, the RMARs would be left unsealed and with no specific pavement treatment. Where necessary for access arrangements, the RMARs would be constructed with a 200mm layer of compacted and graded capping. Similarly, a wearing course layer may be adopted in some circumstances as a means to armouring the surface for improved trafficability.
- Signalling and communications would be newly installed as part of the level crossing works at the Gwydirfield Road and Back Pally Road level crossings, to enable the public level crossings with new active controls to suit the new track and operational requirements.

- New fencing would be installed along the majority of the project boundary, potentially only absent through exclusively cropping land, such as the area at chainage 681.00. Where the project abuts a public road, fencing would be installed on the non-road side only. The fencing would generally consist of a standard stock fence (1.2m high). Existing fencing along the existing rail corridor would be replaced as required.
- Excess material due to excavation of the Camurra hairpin, track formation and surface drains would be tested and, if found to be suitable, treated and reused in the new formation. Where material is found to be unsuitable, it would be categorised and alternative arrangements made to use the material either within the project footprint or on nearby projects.
- Typical signage within the rail corridor would include kilometre posts, creep markers, and track geometry and control markers, and would be provided where required
- Property adjustment works relating to temporary and permanent acquisition of land.

7.2 Heritage impact assessment

A full heritage assessment for the listed and potential unlisted heritage items is provided in Sections 7.2.1 and 7.2.2. A summary of the heritage impacts is provided in Section 7.4.

7.2.1 Listed heritage items

7.2.1.1 Mehi River Bridge (SHI no. 4281692)

Direct (physical) impacts

The proposed works associated with N2NS Phase 2 project would involve the complete removal of the heritage listed railway bridge over the Mehi River. This would remove all significant fabric of the bridge structure within the heritage curtilage and would remove all significance values associated with the heritage listing.

Overall, the proposed works would result in a **major** direct impact to Mehi River Bridge (SHI no. 4281692) and would result in loss of significance and the delisting of the heritage item.

Potential direct (physical) impacts

The proposed works would remove the entire heritage listed railway bridge over the Mehi River. Overall, the proposed works would result in a **major** direct impact to Mehi River Bridge (SHI no. 4281692) and would result in loss of significance and the delisting of the heritage item.

Indirect (visual) impacts

The proposed works would involve the complete removal of the heritage listed railway bridge over the Mehi River. This would remove all visual characteristics of the bridge structure and view lines towards it, and would remove all aesthetical heritage values associated with the heritage listing.

Overall, the proposed works would result in a **major** visual impact to Mehi River Bridge (SHI no. 4281692) and would result in loss of significance and the delisting of the heritage item.

7.2.1.2 Camurra, Gwydir River Underbridge (SHI no. 4281693)

Direct (physical) impacts

The proposed works associated with N2NS Phase 2 would involve the complete removal of the heritage listed railway bridge over the Gwydir River. This would remove all significant fabric of the bridge structure within the heritage curtilage and would remove all heritage values associated with the heritage listing.

Overall, the proposed works would result in a **major** direct impact to Camurra, Gwydir River Underbridge (SHI no. 4281693) and would result in loss of significance and the delisting of the heritage item.

Potential direct (physical) impacts

The proposed works would remove the entire heritage listed railway bridge over the Gwydir River. Overall, the proposed works would result in a **major** potential direct impact to Camurra, Gwydir River Underbridge (SHI no. 4281693) and would result in loss of significance and the delisting of the heritage item.

Indirect (visual) impacts

The proposed works would involve the complete removal of the heritage listed railway bridge over the Gwydir River. This would remove all visual characteristics of the bridge structure and view lines towards it, and would remove all aesthetical heritage values associated with the heritage listing.

Overall, the proposed works would result in a **major** visual impact to Camurra, Gwydir River Underbridge (SHI no. 4281693) and would result in loss of significance and the delisting of the heritage item.

7.2.1.3 Moree Railway Station (LEP no. I025; SHI no. 4801208)

Direct and potential direct (physical) impacts

Moree Railway Station (LEP no. I025; SHI no. 4801208) is located about 200m south from the edge of the CIZ. As a result, it would not be directly impacted by the proposed works and would be located well outside of the recommended minimum safe working distance (25m) for avoiding cosmetic damage to heritage structures resulting from vibration intensive plant (as identified in Table 1-5).

Overall, the proposed works would result in **neutral** direct and potential direct (physical) impacts to Moree Railway Station (LEP no. I025; SHI no. 4801208).

Indirect (visual) impacts

Moree Railway Station (LEP no. I025; SHI no. 4801208) has a direct sight line from the end of the platform to the south end of the CIZ, and vice-versa. This view is relatively unobstructed, with only minor rail infrastructure and the Gwydir Highway road crossing present between the two. As a result, in addition to visual impacts associated with the temporary construction works, the proposed works would introduce additional permanent visual clutter within view of the heritage item. However, the proposed works would largely consist of upgrading the existing railway line with visually similar material. As a result, visual impacts associated with the proposed works would be extremely negligible in nature and would not interrupt views to and from the heritage item.

Overall, the proposed works would result in a **negligible** indirect (visual) impact to Moree Railway Station (LEP no. I025; SHI no. 4801208), however this impact would not affect the overall significance of the heritage item.

7.2.1.4 Victoria Hotel (LEP no. I022)

Direct and potential direct (physical) impacts

Victoria Hotel (LEP no. I022) is located about 265m south-west from the edge of the CIZ. As a result, it would not be directly impacted by the proposed works and would be located well outside of the recommended minimum safe working distance (25m) for avoiding cosmetic damage to heritage structures resulting from vibration intensive plant (as identified in Table 1-5).

Overall, the proposed works would result in **neutral** direct and potential direct (physical) impacts to Victoria Hotel (LEP no. I022).

Indirect (visual) impacts

Victoria Hotel (LEP no. I022) has a sight line from the building to the south end of the CIZ, and nice-versa. This view is partially obstructed by a screen of street trees and traffic, with less obstructed views from the balcony on the first floor of the hotel. As a result, in addition to visual impacts associated with the temporary construction works, the proposed works would introduce additional permanent visual clutter within view of the heritage item. However, the proposed works would largely consist of upgrading the existing railway line with visually similar material, and the existing street trees would help to screen any visual changes from the ground floor of the hotel. As a result, visual impacts associated with the proposed works would be extremely negligible in nature and would not interrupt views to and from the heritage item.

Overall, the proposed works would result in a **negligible** indirect (visual) impact to Victoria Hotel (LEP no. I022), however this impact would not affect the overall significance of the heritage item.

7.2.2 Unlisted heritage items

7.2.2.1 Moree Hotel

Direct (physical) impacts

Moree Hotel is located 30m east from the edge of the CIZ and would not be directly impacted by the proposed works. As a result, the proposed works would result in **neutral** direct impacts to Moree Hotel.

Potential direct (physical) impacts

Moree Hotel is located 30m east from the edge of the CIZ and as a result would not be directly modified or affected issues such as subsidence or altered historical arrangements. At this distance the hotel would be located outside of the recommended minimum safe working distance (25m) for avoiding cosmetic damage to heritage structures resulting from vibration intensive plant (as identified in Table 1-5). However, given the somewhat dilapidated condition of the structure, there is an increased risk that vibrations associated with the proposed works could result in potential direct vibration impacts to the fabric of the hotel. As a result, the recommended minimum safe working for vibration intensive activities undertaken in the vicinity of Moree Hotel would be greater than the standard minimum distance recommended in Table 1-5. However, the works undertaken within 25m of Moree Hotel would be relatively minor in nature, and the primary works along the railway line would be located 50-60m from Moree Hotel. As a result, it is expected that potential direct vibration impacts resulting from the proposed works would be minimal.

Overall, the proposed works would result in a **negligible** potential direct impact to Moree Hotel, however this impact would not affect the significance of the potential heritage item.

Indirect (visual) impacts

Moree Hotel is located immediately adjacent to the southern portion of the CIZ and has a clear sight line from the building to the CIZ. Currently this sight line is only interrupted by the existing substation in Lot 2 DP 836431. In addition to visual impacts associated with the temporary construction works, the proposed works would introduce additional permanent visual clutter within view of the potential heritage item. However, the proposed works would largely consist of upgrading the existing railway line with visually similar material. Furthermore, although the hotel has a direct sight line to the south end of the CIZ, it only has views of the CIZ to the north end of Morton Street and views of a portion of that area is obstructed by the existing houses on the west side of Morton Street. As a result, visual impacts associated with the proposed works would be negligible in nature and would not interrupt views to and from the hotel from the surrounding streetscape.

Overall, the proposed works would result in a **negligible** indirect (visual) impact to Moree Hotel, however this impact would not affect the significance of the potential heritage item.

7.3 Historical archaeological impact assessment

It has been assessed in Section 6.5 that the majority of the potential archaeological remains within the CIZ would not reach the threshold of local significance. As a result, potential impacts to significant archaeological remains in the CIZ as a result N2NS Phase 2 would primarily be associated with earthworks in the vicinity of the Mehi River Bridge, which may cause impacts to potential archaeological remains associated with the Steel Bridge Camp.

Earthworks in this location would primarily be associated with the demolition of the existing bridge and the construction of a new bridge. It is expected that these works would require substantial excavations for the removal of the existing bridge piers and for the construction of the new ones. This would result in impacts on both sides of the river and would likely remove all potential archaeological remains in the immediate vicinity of the bridge. Impacts from general construction work and movement of plant around the bridge and Gwydirfield Road would be shallower in nature but may also impact potential archaeological remains further from the bridge.

However, due to the temporary nature of the camps at the bridge it is not expected that the area in the immediate vicinity of the bridge would contain a substantial archaeological record. It is likely that a substantial degree of the archaeological remains associated with temporary camping at the bridge would have been either discarded or washed into the river. Furthermore, while the area in the immediate vicinity of the bridge was the main temporary camp for the displaced Aboriginal population, the more permanent and established camps were located further away from the bridge. These areas would likely feature a more substantial and diverse archaeological record and therefore would be more representative of the Aboriginal fringe camps and have a greater degree of significance.

Overall, it is assessed that if archaeological remains of the temporary camp at Steel Bridge Camp survive within the project footprint and would be impacted by the proposed works, this would result in a **minor** impact to the local archaeological record of the Aboriginal fringe camps in Moree from the twentieth century.

7.4 Summary of heritage impacts

Table 7-1 below provides a summary of impacts that the proposed works associated with N2NS Phase 2 would cause to the heritage items identified within the project and study areas. The table also identifies which heritage items would require active mitigation measures prior to or during the project construction phase (discussed in further detail in Section 8.2). Table 7-2 provides a summary of the impacts and recommended archaeological management for potential archaeological remains within the CIZ.

Table 7-1: Heritage impact assessment and mitigation measures for listed items within the study area

Item name and heritage listing/s	Significance	Proposed impacts	Direct (physical) impact	Visual (indirect) impact	Potential direct (physical) impact	Overall impact	Mitigation measures
Mehi River Bridge ARTC s170 Register SHI no. 4281692	Local	The proposed work would occur within the s170 listed curtilage of the Mehi River Bridge. The proposed works would involve the full demolition and removal of the existing s170 listed bridge and the replacement with a new bridge. These would remove all fabric of the bridge and permanently alter views and vistas to and from the item	Major	Major	Major	Major	Active mitigation measures would be required (detailed in Section 8.2). Active mitigation measures may include, but not be limited to: • Detailed design to incorporate design elements of the Pratt Truss style into the design of the new bridge so as to reflect the heritage values of the Mehi River Bridge • Preparation of a Photographic Archival Recording • Preparation of a heritage fabric register and salvage strategy • Salvage of significant fabric during demolition
Camura, Gwydir River Underbridge ARTC & CRN s170 Registers SHI no. 4281693	Local	The proposed work would occur within the s170 listed curtilage of the Camurra, Gwydir River Underbridge. The proposed works would involve the full demolition and removal of the existing s170 listed bridge and the replacement with a new bridge. These would remove all fabric of the bridge and permanently alter views and vistas to and from the item	Major	Major	Major	Major	Active mitigation measures would be required (detailed in Section 8.2). Active mitigation measures may include, but not be limited to: • Detailed design to incorporate design elements of the Pratt Truss style into the design of the new bridge so as to reflect the heritage values of the Gwydir River Underbridge • Preparation of a Photographic Archival Recording • Preparation of a heritage fabric register and salvage strategy • Salvage of significant fabric during demolition

Item name and heritage listing/s	Significance	Proposed impacts	Direct (physical) impact	Visual (indirect) impact	Potential direct (physical) impact	Overall impact	Mitigation measures
Moree Railway Station LEP no. I025; RailCorp s170 Register SHI no. 4801208	Local	The proposed works would occur outside of the curtilage of the locally listed Moree Railway Station (200m south). Visual impacts only	Neutral	Negligible	Neutral	Negligible	No active mitigation measures required
Victoria Hotel LEP no. I022	Local	The proposed works would occur outside of the curtilage of the locally listed Victoria Hotel (265m south-west). Visual impacts only	Neutral	Negligible	Neutral	Negligible	No active mitigation measures required
Moree Hotel Unlisted item	Local	The proposed works would occur outside of the curtilage of the unlisted heritage item (30m east). Visual impacts and potential direct (physical) impacts from vibrations	Neutral	Negligible	Negligible	Negligible	Active mitigation measures would be required (detailed in Section 8.2). Active mitigation measures may include, but not be limited to: • Structural assessment to determine risk of impacts from vibrations • Vibration monitoring and condition assessments.

Table 7-2: Archaeological impact assessment and mitigation measures for potential archaeological remains within the CIZ

Phase/ feature	Potential remains	Works causing impacts	Potential	Significance	Impacts	Mitigation measures
Phase 3 Steel Bridge Camp	Evidence of the temporary camps at Steel Bridge Camp including undocumented structures, camp sites and artefact scatters	Bulk excavations associated with the demolition of the Mehi River Bridge and construction of the new bridge	Low	Local	Minor	Due to the low potential for significant archaeological remains, it would be appropriate to manage the proposed excavations under an Unexpected Finds Procedure. No further archaeological assessment is required. Archaeological remains of Aboriginal occupation must be managed in conjunction with the mitigation measures outlined in the N2NS Phase 2 Aboriginal Cultural Heritage Assessment Report (ACHAR)

7.5 Cumulative impact assessment

It has been assessed that the proposed works associated with N2NS Phase 2 would result in major impacts to Mehi River Bridge (SHI no. 4281692) and Camurra, Gwydir River Underbridge (SHI no. 4281693), which are both listed on the ARTC s170 Heritage and Conservation Register, with the Gwydir River Underbridge also being listed on the CRN s170 Heritage and Conservation Register. However, in addition to impacting the significant fabric of the two heritage listed bridges, their removal would also have an impact on the collective heritage group of Pratt Truss bridges across NSW. Therefore, the cumulative impact to the heritage values of the collective group of Pratt Truss across NSW as a result of N2NS Phase 2 needs to be considered.

Pratt Truss bridges were a common bridge design used across the NSW road and railway networks from the late nineteenth century through the first half of the twentieth century. Details of over 100 heritage listed Pratt Truss bridges in NSW are included in Appendix A.

There are three Pratt Truss bridges on the NSW rail network listed on the SHR that remain in use today. These include:

- Emu Plains (Nepean River Underbridge) [SHR no 01830]
- Hawkesbury River Rail Bridge and Long Island Group (SHR no. 01040) – includes Pratt Truss spans and K-Truss spans
- Moss Vale rail overbridge over Argyle Street (SHR no. 01049) – heavy duty Pratt Truss.

There is one Pratt Truss bridge listed on the SHR that is no longer in use:

- Yass Town rail bridge over Yass River (SHR no. 01292).

The above Pratt Truss bridge examples have demonstrated State significance values, and the items that are still in use act as integral parts of heavily used sections of the NSW rail network. There are no currently known plans in place to significantly modify or remove the rail Pratt Truss bridge examples listed on the SHR.

There are numerous Pratt Truss rail bridge examples, both in use and no longer in use, listed on local government and s170 heritage registers across NSW (see Appendix A). Examples of currently used Pratt Truss bridges of local significance include:

- Casino Railway Bridge over the Richmond River (North Coast railway line) – Richmond Valley LEP 2012 (I058)
- Camberwell Glennies Creek Underbridge (Main North railway line) – SHI no. 4281689

Examples of out of use Pratt Truss bridges on the NSW rail network, similar to the Gwydir and Mehi bridges, include:

- Booyong, Pearce's Creek Underbridge (SHI no. 3150097) – Murwillumbah railway line
- Woodlawn, Coopers Creek Underbridge (SHI no. 3150095) – Murwillumbah railway line
- Eltham, Wilsons Creek Underbridge (SHI no. 4280409) – Murwillumbah railway line
- Stokers Siding, Dunbible Creek No 2 Railway Underbridge (SHI no. 3150098) – Murwillumbah railway line.

In the local area there are two listed Pratt Truss bridges across the Gwydir River at Gravesend, approximately 50km east of Moree. These include:

- Rail – Gravesend, Gwydir River Underbridge (SHI no. 3150115) – out of use
- Road – Bridge over Gwydir River (SHI no. 4301679) – in use.

The Gwydir River and Mehi River bridges are therefore not rare examples of Pratt Truss bridges on the rail network in NSW. There are more significant Pratt Truss bridge examples that are still in use, including the SHR listed examples at Emu Plains, Hawkesbury River, and Moss Vale. There are also numerous examples of heritage listed Pratt Truss bridges no longer in use, including a series of Pratt Truss bridges on the Murwillumbah railway line. In the local area there are other Pratt Truss bridge examples that are no longer in use (Gravesend – rail) and still in use (Gravesend – road).

Although not rare or particularly significant examples of Pratt Truss bridges in the context of NSW, the removal of the Gwydir River and Mehi River bridges represents the removal of a non-renewable heritage resource. The Pratt Truss bridge design is no longer used for new bridges on the NSW rail network, and due to the large number of Pratt Truss bridges on closed regional branch lines the remaining examples are likely to either be removed or fall further into disrepair.

Based on low rarity values, removal of a non-renewable heritage resource, and consideration of the number of Pratt Truss bridges on closed branch lines that are likely to either be removed or fall into disrepair in the future, the cumulative impact of removing the Gwydir River and Mehi River Pratt Truss bridges is assessed as **low to moderate**.

7.6 Project justification and options

7.6.1 Inland rail

Alternative freight transport solutions with the potential to address Australia's current and future freight challenges were considered as part of a strategic options assessment set out in the Programme Business Case (ARTC, 2015 and addendum 2016), and examined in the Inland Rail Implementation Group Report (Inland Rail Implementation Group, 2015).

Three options were assessed by the Programme Business Case (ARTC, 2015):

- Progressive road upgrades
- Upgrading the existing east coast railway
- An inland railway.

These options were subjected to a rigorous assessment consistent with Infrastructure Australia's Reform and Investment Framework Guidelines. The options were assessed against seven equally weighted criteria:

- Capacity to serve east coast future inter-capital regional/bulk freight market needs
- Foster economic growth through improved freight productivity and service quality (including improved reliability and resilience)
- Optimise environmental outcomes
- Alleviate urban constraints
- Enable regional development
- Ease of implementation
- Cost-effectiveness.

Overall, constructing an inland railway ranked highest, with an average high likelihood of improving outcomes across all criteria. Progressive road upgrades and upgrading the existing east coast railway both had an average medium overall ranking across all criteria. In relation to individual criteria, progressive road upgrades outranked an inland railway only in relation to ease of implementation and ranked equally with an inland railway in relation to enabling regional development outcomes. An inland railway was found to be the best option across all other criteria.

7.6.2 N2NS Phase 2

The approach to design development has included a focus on avoiding and/or minimising the potential for impacts during all key phases of the project. For N2NS Phase 2, a design was completed based on detailed imagery, updated cadastral (land ownership) data, site investigations, geotechnical investigations, and hydrological assessments.

The project as described in this EIS is based on the outcomes of the current design described in Chapter 7 (Proposal features and operation). The design approach aims to remove or minimise various types of impacts influenced by the proposed section of rail upgrade between Moree and Camurra North.

The Mehi-Gwydir floodplain forms a large proportion of the N2NS Phase 2 section of rail between Moree and Camurra North. This focused area is particularly sensitive to flood events which could see extensive impacts to the rail corridor, road flooding (including the Newell Highway), and property. Mitigating these potential flooding impacts and improving the existing hydrology conditions is critical to the overall objective of the design. Flood modelling of the existing and proposed conditions, together with community consultation feedback was used to identify sensitive areas to manage flooding impacts most efficiently across the proposed corridor. The proposed rail alignment design has been developed in response to the flood modelling which has been a key input to achieve the required ARTC flood immunities for the rail line. The design will provide for efficient construction methodologies and reduce impacts to the drainage and to utility adjustments. Additionally, the design will improve train operations by providing larger radius curves along the existing alignment.

Further discussion of the projects development and alternative options are further discussed in Chapter 6 of the EIS.

7.6.3 Bridge demolition

N2NS Phase 2 involves the demolition and replacement of two heritage listed steel Pratt timber bridges, the Mehi River Bridge (SHI no. 4281692) and Camurra, Gwydir River Underbridge (SHI no. 4281693). The upgrades to the railway line are required to make them compatible with Inland Rail requirements.

Several options were considered during the design stage of the N2NS Phase 2 in order to minimise heritage impact to the heritage listed Mehi River Bridge (SHI no. 4281692) and Camurra, Gwydir River Underbridge (SHI no. 4281693). The following options have been considered:

1. Full retention of the existing bridges and the realignment of the rail corridor around the bridges
2. Retention and upgrades to the existing bridges for reuse along the existing alignment
3. Full demolition of the Mehi River Bridge (SHI no. 4281692) and construction of a new bridge, and retention of the Camurra, Gwydir River Underbridge (SHI no. 4281693) with the construction of a new bridge on a new alignment
4. Full demolition of the extant bridges and the construction of new bridges.

The first option, the realignment of the rail corridor around the bridges and retention of the extant Mehi River Bridge (SHI no. 4281692) and Camurra, Gwydir River Underbridge (SHI no. 4281693), is the preferred option from a heritage perspective, as it would result in the retention of the bridges in accordance with the recommendations from Heritage NSW, DPC on the 2017 N2NS EIS.[125] The retention of the existing bridge and the realignment of the railway corridor to the north-west or south-east of the existing Mehi River Bridge (SHI no. 4281692) has been considered as part of the design phase of the project. This option, however, has been discounted due to the issues of land acquisition, demolition of existing houses, impact to commercial properties, the impact to the community, potential flood impacts due to the retained bridge, potential safety impacts due to the proximity to the Newell Highway and the complexity of the design.[126] The proposed design of the Gwydir River crossing involves the realignment of the railway corridor and therefore the construction footprint would not impact the existing Camurra, Gwydir River Underbridge (SHI no. 4281693). The justification for the demolition of this bridge involves the potential for increased flooding impacts caused by its presence causing obstructions in the waterway.[127]

The second option, the retention and upgrades to the existing bridges for reuse along the existing alignment, has been considered and investigated by IRDJV.[128] The retention and reuse of the Mehi River Bridge (SHI no. 4281692) was discounted due to the non-compliant nature of the existing bridge, which has insufficient lateral and vertical clearance within the existing truss and half through girders to allow for the new larger, heavier and faster trains than those for which it was originally designed.[129] In addition, the bridge's exceedance of a 100 year design life may indicate steel fatigue and therefore the bridges may not be capable of supporting the live loads caused by the new trains passing over the bridges.[130] As insufficient information is available to determine the existing load rating of the bridges, the bridges are therefore not compliant with the Inland Rail design requirements for retained structures and would have to be replaced.[131] The retention of the bridges, however, would be compliant with the 1% annual exceedance probability (AEP) flood clearances.[132]

The option to retain only the piers of the Mehi River Bridge and reconstruct the superstructure was additionally considered as part of this option, but was discounted for the additional reasons of non-compliance with the 1% AEP level and the extensive modifications required to the top of the piers to accept the superstructure.[133] Because the Camurra, Gwydir River Underbridge (SHI no. 4281693) is outside of the proposed new alignment of the bridge and railway corridor required for the new faster, heavier and longer trains, a new bridge would be required and therefore it would not be possible to reuse this bridge in the new railway corridor.[134] New bridges would therefore need to be built due to the inability to demonstrate compliance of the existing bridges to the Basis of Design and Code of Practice required for the Inland Rail project.[135]

The third option, involving the full demolition Mehi River Bridge (SHI no. 4281692) and replacement with a new bridge, and the retention of the Camurra, Gwydir River Underbridge (SHI no. 4281693) with the construction of a new bridge on a new alignment, was additionally considered as part of the project design. This option is possible because the required realignment of the Gwydir River crossing

[125] Heritage NSW, DPC (formerly Heritage Council of NSW, 2017. *Review of Environmental Impact Statement for Inland Rail – Narrabri to North Star (SSI 7474).* File No. SF17/52552. DOC17/560755. Report date 15 December 2017.
[126] ARTC 2021, N2NS Phase 2 Moree to Camurra North Environmental Impact Statement, Section 6.5.3, p 6-15.
[127] ARTC 2021, Section 6.5.3, p 6-15.
[128] ARTC 2021, Section 6.5.3, p 6-16; WSP and Mott MacDonald, 2020. *Technical and Approvals Consultancy Services: Narrabri to North Star*. Memo to Butch Rossouw and Brendan Rutter (02/10/2020).
[129] WSP and Mott MacDonald 2020, p. 2.
[130] WSP and Mott MacDonald 2020, p. 2.
[131] WSP and Mott MacDonald 2020, p. 2.
[132] WSP and Mott MacDonald 2020, p. 3.
[133] WSP and Mott MacDonald 2020, p. 2.
[134] WSP and Mott MacDonald 2020, p. 2.
[135] ARTC 2021, Section 6.5.3, p 6-17; WSP and Mott MacDonald 2020.

would not affect the existing Camurra, Gwydir River Underbridge (SHI no. 4281693). This option has been discounted though because retaining the bridge may provide additional obstructions within the waterway and due to the costs that would be involved in the ongoing maintenance and conservation of the existing Camurra, Gwydir River Underbridge (SHI no. 4281693).[136]

The fourth option involves the full demolition of the extant bridges and the construction of new bridges. After it was determined that the three options discussed above were not feasible for the reasons stated, the fourth option was selected as the chosen option for the project due to the compliance with the Inland Rail requirements. It is noted that this option would result in the most substantial heritage impact and therefore is not the preferred option from a heritage perspective. However, options for mitigating the heritage impact resulting from the demolition of the Mehi River Bridge (SHI no. 4281692) and Camurra, Gwydir River Underbridge (SHI no. 4281693) would be investigated during detailed design stage of the project. This would include investigating options for incorporating design elements of the Pratt Truss style into the new bridge designs so that they reflect the heritage values of the Mehi River Bridge (SHI no. 4281692) and Camurra, Gwydir River Underbridge (SHI no. 4281693) (discussed further in Section 8.2).

7.7 Statement of heritage impact

The statement of heritage impact summarised in Table 7-3 has been developed from the Heritage Division's (now Heritage NSW, DPC) guidelines for *Statements of Heritage Impact* (2002).

Table 7-3: Statement of heritage impact for N2NS Phase 2

Heritage Consideration	Discussion
What aspects of the proposal respect or enhance the heritage significance of the study area and nearby heritage items?	At the south end of the CIZ within the township of Moree, the proposed works would largely consist of upgrading the railway line with similar material. As a result, visual impacts to heritage items within Moree, including Moore Railway Station (LEP no. 025, SHI no. 4801208), Victoria Hotel (LEP no. 022) and Moree Hotel (unlisted heritage item) would be negligible. These heritage items would also be located outside of the CIZ and therefore would not be directly modified. Excavations associated with the proposed works would be undertaken within areas that have been assessed as generally having nil to low potential to contain archaeological remains of local significance. As a result, the proposed works would not impact State significant archaeological remains and impacts to locally significant remains would be negligible
What aspects of the proposal could have a detrimental impact on the heritage significance of the study area nearby heritage items?	The proposed works would result in the demolition of the heritage listed Mehi River Bridge (SHI no. 4281692) and Camurra, Gwydir River Underbridge (SHI no. 4281693). This would remove all significant fabric of the structures, causing major impacts to the heritage values of the heritage items and resulting in the items being delisted. The proposed works would also cause negligible visual impacts to the heritage items within the surrounding study area at the south end of the CIZ, including Moree Railway Station (LEP no. 025, SHI no. 4801208), Victoria Hotel (LEP no. 022) and Moree Hotel (unlisted heritage item), and may result in potential direct vibration impacts to Moree Hotel. Cumulatively, the proposed works would result in a low to moderate impact to the collective heritage group of Pratt Truss bridges in NSW. The proposed works would result in the removal of the railway line and associated infrastructure and the timber constructed underbridges and culverts, which were initially identified as potential heritage items within the CIZ. However, this SoHI has assessed that these items are unlikely to reach the threshold of local significance

[136] ARTC 2021, Section 6.5.3, p 6-15.

Heritage Consideration	Discussion
Is the proposal sited on any known, or potentially significant archaeological deposits? If so, have alternative positions for the additions been considered?	The CIZ is located within an area assessed as having low potential to contain locally significant archaeological remains associated with temporary Aboriginal camping at Steel Bridge Camp near Mehi River Bridge. The proposed excavations for the demolition of the bridge and construction of the new bridge would result in minor archaeological impacts to the local archaeological record of Aboriginal fringe camps in Moree dating to the twentieth century. Impacts to the archaeological remains could be mitigated through the retention and reuse of the extant Mehi River Bridge rather than the demolition and replacement of the bridge. However, this option has been discarded due to the Inland Rail design requirements

8.0 CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions

This SoHI has determined the following:

- The proposal would not occur within the curtilage of any heritage items on the statutory WHL, CHL, NHL, or SHR. The proposal would not occur within the curtilage of any non-statutory listed items on the RNT or the RNE
- The CIZ contains two heritage items listed on the ARTC s170 Heritage and Conservation Register, with one of these also being listed on the CRN s170 Heritage and Conservation Register:
  - Mehi River Bridge (ARTC s170 SHI no. 4281692)
  - Camurra, Gwydir River Underbridge (ARTC and CRN s170 SHI no. 4281693)
- The surrounding study area contains two items listed on the Moree Plains LEP 2011 and one item listed on the RailCorp s170 Heritage and Conservation Register:
  - Moree Railway Station (LEP no. I025; SHI no. 4801208)
  - Victoria Hotel (LEP no. I022)
- The surrounding study area contains one unlisted heritage item:
  - Moree Hotel
- Two potential heritage items within the CIZ, railway line and associated infrastructure and the timber constructed underbridges and culverts, have been assessed as unlikely to reach the threshold for local significance
- The proposed works associated with N2NS Phase 2 would result in the following impacts:
  - Mehi River Bridge (ARTC s170 SHI no. 4281692) – major direct (physical), indirect (visual) and potential direct (physical) impacts
  - Camurra, Gwydir River Underbridge (ARTC and CRN s170 SHI no. 4281693) – major direct (physical), indirect (visual) and potential direct (physical) impacts
  - Moree Railway Station (LEP no. I025; SHI no. 4801208) – neutral direct and potential direct (physical) impacts and negligible indirect (visual) impacts
  - Victoria Hotel (LEP no. I022) – neutral direct and potential direct (physical) impacts and negligible indirect (visual) impacts
  - Moree Hotel (unlisted item) – neutral direct (physical) impacts and negligible indirect (visual) and potential direct (physical) impacts
- The proposed works would result in the complete removal of Mehi River Bridge (SHI no. 4281692) and Camurra, Gwydir River Underbridge (SHI no. 4281693), and would result in the delisting of the heritage items. The cumulative impact to the collective heritage group of Pratt Truss Bridges across NSW as a result of the removal of Mehi River Bridge (SHI no. 4281692) and Camurra, Gwydir River Underbridge (SHI no. 4281693) would be low to moderate
- The proposed works would not impact the overall significance of the remaining heritage items within the visual buffer zone of the study area

- The CIZ has been assessed as having low potential to contain locally significant archaeological remains of Phase 3 Aboriginal camping at Steel Bridge Camp near Mehi River Bridge (SHI no. 4281692)
- The proposed excavations for the demolition of Mehi River Bridge (SHI no. 4281692) and construction of a new bridge would result in minor archaeological impacts to the local archaeological record of Aboriginal fringe camps in Moree dating to the twentieth century
- Other potential archaeological remains within the CIZ are unlikely to reach the threshold of local significance.

8.2 Recommendations and mitigation measures

The following recommendations and mitigation measures outlined in Table 8-1 would be implemented to reduce and avoid impacts to listed and unlisted items of heritage significance, historic landscapes and streetscapes and potential archaeological remains within the study area.

Table 8-1: Recommendations and mitigation measures

	Mitigation measure / recommendation	Timing	Goal of management measure
NAH1 **Bridge designs**	Due to design constraints it has been determined that the retention of the Mehi River Bridge (SHI no. 4281692) and the Camurra, Gwydir River Underbridge (SHI no. 4281693) is not feasible. Therefore, to mitigate the impacts resulting from the removal of the bridges it is recommended that design elements of the Mehi and Gwydir River Bridges be incorporated into the new bridge designs. The project should not adopt the standard ARTC bridge design for the replacements of the extant bridges. Instead, a more sympathetic design that incorporates or references the original design of the steel Pratt truss bridges is recommended so that they reflect the heritage values of the Mehi River Bridge (SHI no. 4281692) and Camurra, Gwydir River Underbridge (SHI no. 4281693). The new bridges should be designed in consultation with suitably qualified Heritage Consultants and Heritage Architects. Options for the reuse of original elements of the existing bridges for non-structural elements or in interpretation near to the bridges should also be considered for the new bridges during the detailed design stage. Landscape design and the rehabilitation of the landscape should incorporate interpretation and native plants	Design	Ongoing identification of the potential to reduce impacts to non-Aboriginal heritage
NAH2 **Vibration impacts**	In order to minimise and control any risks to heritage fabric or items as a result of vibration impacts, the following mitigation measures are recommended: • Dilapidation study to be undertaken for heritage items within 50m of the CIZ prior to works commencing • A vibrations assessment be carried out for items within 50m of the CIZ as per the: – *British Standard BS 7385: Part 2: Evaluation and Measurement for Vibrations in Buildings – Part 2 Guide to Damage Levels from Ground-Borne Vibration* – *German Standard DIN 4150*, *Part 3: Structural Vibration in Buildings: Effects on Structures.* This would take place prior to works commencing, during the construction program and once the project is operational. If vibration monitors are attached to the heritage items, they must not be attached with permanent fixings. They should be removable without causing damage. Bees wax may be a suitable attachment method. If it is identified that levels of vibration are causing damage to heritage fabric, works must cease, and the construction methodology reviewed by the project engineers in consultation with a Heritage Consultant in order to mitigate further impacts. A temporary protection plan to outline	Pre-construction/ Construction	Mitigation of impact to heritage items

	Mitigation measure / recommendation	Timing	Goal of management measure
	protection measures required for significant fabric during activities causing potential vibration impacts would be prepared prior to commencement of works. This mitigation measure would be required for the unlisted heritage item of Moree Hotel		
NAH3 Delisting of heritage items	The demolition of Mehi River Bridge (SHI no. 4281692) and Camurra, Gwydir River Underbridge (SHI no. 4281693) would remove the significance of these items. The ARCT and CRN s170 Heritage and Conservation Registers would need to be amended to remove these items from the registers. An s170 notification must be submitted to Heritage NSW, DPC prior to any works that will significantly modify and/or remove the Mehi River Bridge (SHI no. 4281692) and Camurra, Gwydir River Underbridge (SHI no. 4281693)	Pre-construction	Heritage management
NAH4 Photographic archival recording	A comprehensive photographic archival recording, in accordance with the Heritage Division's guidelines (Heritage Office 1998 and 2006), should be conducted where the proposed works would result in physical impacts to the heritage item, or indirect (visual) impacts that are minor or greater than minor in nature. As the proposed works would result in the removal of Mehi River Bridge (SHI no. 4281692) and Camurra, Gwydir River Underbridge (SHI no. 4281693) a photographic archival recording would need to be undertaken for these heritage items prior to impacts occurring. If the dilapidation study and vibrations assessment confirm that the Moree Hotel would be impacted by vibrations caused by the proposed works, then an archival recording of the Moree Hotel should be undertaken. The archival recording should follow guidelines set out in *How to Prepare Archival Recording of Heritage Items* (NSW Heritage Office 1998) and *Photographic Recording of Heritage Items Using Film or Digital Capture* (NSW Heritage Office 2006) and focus on any buildings, structures and surrounding landscapes that would be altered by the proposed woks	Pre-construction	Mitigation of impact to heritage items
NAH5 Archaeological management	It has been assessed that the CIZ has low potential to contain locally significant archaeological remains associated with Aboriginal camping at Steel Bridge Camp at Mehi River Bridge. Due to the low potential for significant archaeological remains, excavations associated with the proposed works should be managed under an Unexpected Finds Procedure to be developed for N2NS Phase 2. If State significant archaeological remains or archaeological relics not identified in Section 6.0 of this report are encountered during the project, Heritage NSW, DPC must be notified in accordance with Section 146 of the Heritage Act.	Construction	Heritage management during construction

	Mitigation measure / recommendation	Timing	Goal of management measure
	No further archaeological assessment is required for N2NS Phase 2		
NAH6 Aboriginal archaeological management	If Aboriginal items or evidence of Aboriginal occupation are identified, including archaeological remains associated with the Steel Bridge Camp, these must be managed in conjunction with the mitigation measures outlined in the N2NS Phase 2 Aboriginal Cultural Heritage Assessment Report (ACHAR)	Construction	Heritage management during construction
NAH7 Heritage induction	All relevant construction staff, contractors and subcontractors must be made aware of their statutory obligations for heritage under the Heritage Act and best practice as outlined in *The Burra Charter* (Australia ICOMOS 2013) to ensure no archaeological remains or heritage fabric are impacted during the proposed works without appropriate mitigation measures in place. This will be implemented through a heritage induction carried out prior to works commencing and continued throughout the works program	Construction	Heritage management during construction
NAH8 Building salvage strategy	Where the proposed works would result in the removal of significant heritage fabric, such as the removal of Mehi River Bridge (SHI no. 4281692) and Camurra, Gwydir River Underbridge (SHI no. 4281693), a salvage strategy should be prepared prior to the commencement of works in order to identify the significant fabric to be salvaged during demolition. At a minimum, the salvage strategy should include an assessment of the condition, significance, storage requirements and the potential reuse of each of the elements of the structures. This should be prepared in conjunction with a Heritage Interpretation Strategy (discussed further in NAH9) in order to identify the fabric for reuse in interpretation or as part of the design of the new bridges	Pre-construction/ Construction	Salvage of identified heritage fabric / Mitigation of impact to heritage items

	Mitigation measure / recommendation	Timing	Goal of management measure
NAH9 Heritage Interpretation Strategy	In order to mitigate impacts to the historic landscape and heritage listed railway bridges, it is recommended that a Heritage Interpretation Strategy be incorporated into future designs and planning, particularly in the location of Mehi River Bridge (SHI no. 4281692) and Camurra, Gwydir River Underbridge (SHI no. 4281693). Opportunities for interpretive displays in appropriate locations along accessible portions of the proposed route, such as at the south end of the CIZ closer to the township of Moree, should be explored. This could include the development of interpretive displays utilising salvaged material from the heritage bridges. Heritage interpretation should also take into consideration Aboriginal cultural heritage values and existing heritage interpretation on the south side of the Mehi River crossing. Any impacts to the existing interpretive footpath on the south side of the river must be made good following the completion of the works. The Heritage Interpretation Strategy should also consider the option of the undertaking of an oral history project (discussed further in NAH10) and incorporating consultation with relevant stakeholders (discussed further in NAH11). In particular, the asset manager/ asset owner should consider contacting organisations such as local Council, railway historical societies and/ or local historical societies to assist with ideas for the development of heritage interpretation	Pre-construction/ Construction	Development of heritage interpretation for the project
NAH10 Oral History	An oral history project should be undertaken in consultation with the local archives, library and history societies in order to record memories and experiences of the railway workers, the local Aboriginal people living in Steel Bridge Camp and other members of the local community and their interactions with the railway, and Mehi and Gwydir River Bridges in the twentieth century	Pre-construction/ Construction	Development of heritage interpretation for the project/ Ongoing community consultation for the project to mitigate the impact to heritage items
NAH11 Consultation with relevant stakeholders	Consultation with the Moree Plains Shire Council, ARTC, John Holland (manager of the CRN s170 Heritage and Conservation Register) and other relevant stakeholders is recommended to mitigate and manage major impacts to Mehi River Bridge (SHI no. 4281692) and Camurra, Gwydir River Underbridge (SHI no. 4281693) and the implementation of heritage interpretation. Consultation should be undertaken during the detailed design stage to ensure impacts to the significant bridges are as sympathetic as practicable to the historical values of the area, such as by incorporating design elements of the existing bridges into the design of the proposed bridges or the development of heritage interpretation	Pre-construction/ Construction	Development of heritage interpretation for the project/ Ongoing community consultation for the project to mitigate the impact to heritage items

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TECHNICAL PAPER

07

Statement of heritage impact

Appendix A List of the extant rail and road steel Pratt trusses in NSW

NARRABRI TO NORTH STAR—PHASE 2 ENVIRONMENTAL IMPACT STATEMENT

10.0 APPENDICES

Appendix A: List of the extant rail and road steel Pratt trusses in NSW

Name	Type (rail/ road)	Register	Statement of Significance
Bethanga Bridge	Road	SHR NTR	*Bethanga Bridge was built between 1927 and 1930 as a joint venture between New South Wales and Victoria as part of the Hume Dam project as a key element of the River Murray Waters Agreement put in place in 1915 by the Victorian, New South Wales, South Australian and Federal governments to regulate the flow of the Murray River as a provision against drought and to ensure that the three states received their agreed share of water.* *The use of Pratt trusses is unusual in Victoria, not being readily taken up as a viable bridge design. However they are more common in New South Wales. The use of the Pratt truss in this instance reflects the mode of construction employed during the construction of the Hume Dam whereby the New South Wales Department of Public Works and the Victorian State Rivers and Water Supply Commission were jointly responsible for the design and construction of the bridge. The bridge was designed in New South Wales by Department of Main Roads engineer Percy Allen and the trusses were built by Vickers Ruwolt in Melbourne.* *The Murray River boundary between New South Wales and Victoria is the top of the southern bank of the river. As such all structures of the river are considered to be in New South Wales. Because of its unique location, over the waters of a dam with the border running down the centre of the body of water, the Bethanga bridge is the only built structure shared by both New South Wales and Victoria.* *Bethanga Bridge is of historical and scientific (technical) significance to New South Wales* *Bethanga Bridge is of historical significance to New South Wales for its associations with the construction of Hume Dam. It is also of historical significance for its associations with The River Murray Waters Agreement and the River Murray Commission which had the task of putting the agreement into effect. The Agreement was a landmark document that drew on the cooperation of New South Wales, Victoria and South Australia to regulate the flow of the Murray River.* *Bethanga Bridge is of scientific (technical) significance for the unusual use in Victoria of Pratt trusses, a predominantly NSW technology, its construction. The Pratt truss was frequently used in New South Wales but this represents a rare example of its use in Victoria. The use of this system in this instance, its design by New South Wales and construction by Victoria, also represents the cooperation of New South Wales and Victoria in the development and ongoing use of major infrastructure.*
Denison Bridge	Road	SHR NTR	*The Denison Bridge, a three-span wrought iron bridge, is an early metal truss bridge built in 1870. Its advanced design was a major engineering achievement at the time and represents the maximum achievable by truss spans. The bridge is associated with three important colonial engineers: William Christopher Bennett (Commissioner and Engineer for Roads), Gustavus Alphonse Morrell (Assistant Engineer and designer) and Peter Nicol Russell (P N Russell & Co). The bridge is a prominent local landmark which has played an important role in the history of Bathurst and the Central West. It was the fifth oldest metal truss bridge in Australia until recently but is still the second oldest in NSW (after Gundagai 1867).* *Date significance updated: 11 Sep 03*

Name	Type (rail/ road)	Register	Statement of Significance
Emu Plains (Nepean River) Underbridge	Rail	SHR RailCorp s170	*The 1907 Nepean River Underbridge is significant as one of the largest steel truss bridges in NSW, and remains the oldest truss bridge still in use in the metropolitan area, with a continuous railway use for over 100 years. The bridge is an imposing landmark structure over a major waterway and is an excellent example of a railway Pratt truss underbridge. Its significance is enhanced by its location adjacent to the 1867 Whitton era railway bridge which together demonstrate the evolution of railway bridge design from British railway technology from the mid 19th century through to the change to American technology of the early 20th century.* *The bridge is significant for its historical associations with James Fraser, Chief Railway Commissioner of the NSW Railways (1917-29) and Transport Commissioner (1931-32), who was responsible for the design of the bridge during his role as Engineer-in-Chief for existing lines (1903-14). The bridge was constructed as part of the duplication of the Main West Line and used innovative construction techniques to avoid interruption of the construction programme in case of severe flooding. The bridge is also significant as its fabrication by the local firm of R Tulloch & Co. which proved the capacity of local steelworks to handle projects of such magnitude, with the bridge becoming a benchmark for railway bridge construction throughout NSW.*
Hampden Bridge	Road	SHR S.170 Regional Enviro Plan Local Enviro Plan NTR Institution of Engineers Historic Marker Register National Estate	*Hampden Bridge is of state significance as the second major suspension bridge in NSW, and as the only surviving timber decked vehicular suspension bridge constructed in the nineteenth century (1898). The bridge is associated with engineer Ernest Macartney de Burgh, and builders Loveridge and Hudson. Hampden bridge has the capacity to represent some of the key characteristics of a small class of Australian suspension bridges, both vehicular and footbridges; many of which do not survive, or do not survive in their original form. The Hampden Bridge also has historic significance because it facilitated the agricultural prominence of the Kangaroo Valley area in the first decades of the twentieth century. The form of the bridge, its relatively sophisticated structural design and elaborate tower castellations, reflects the cultural importance of this crossing at its time of construction, on what was then both a major route to the south of the state, and an area of emerging prosperity. The bridge now facilitates the growing importance of the area as a tourist destination. It is readily viewed and interpreted from the surrounding recreational areas and is held in high esteem by the local and wider community for its historic, aesthetic and technical qualities.* *Date significance updated: 10 Jul 18*
Hawkesbury River Rail Bridge and Long Island Group	Rail	SHR S.170	*The Long Island Group and in particular the current and former Hawkesbury River Rail Bridges, have State heritage significance. The group as a whole forms a railway precinct of exceptional significance, with elements in an outstanding setting that represent key events in the history of railway development in NSW and demonstrate high levels of engineering achievement and the changes in railway technology in NSW in the period between the 1880s and 1970s.* *The completion of the 1886 Hawkesbury River Railway Bridge saw the linkage not only of the significant Sydney to Newcastle Railway link but also in effect, the railway systems of South Australia, Victoria, New South Wales and Queensland were joined by continuous rail with the opening of the bridge. The Bridge was used by Sir Henry Parkes as a powerful symbol of Federation and he gave the address at the opening of the bridge, which has been claimed by some as his first Federation speech. The abutments and piers of the bridge as well as the 1886 Long Island tunnel are tangible reminders of these significant events and the symbolic power they had for people at the time not only in NSW but throughout Australia. Both the 1889 and 1946 bridges and associated infrastructure on Long Island also demonstrate the significant investment in the railway system of NSW in the late nineteenth and early twentieth centuries. The workmanship of both*

Name	Type (rail/ road)	Register	Statement of Significance
			bridges demonstrates the significant pride and confidence in the railways at the time. *The surviving sandstone elements of the former Hawkesbury River Bridge and the current Bridge have exceptional aesthetic value in their setting on the Hawkesbury River. The contrast of the man-made bridges and tunnels with the rugged and beautiful natural landscape of Hawkesbury River allows passengers and visitors to appreciate the engineering achievements of the railway line's construction. The vantage point of the approach to Long Island and the bridge also allows passengers to appreciate views of the natural landscape. Both of these factors have made the railway journey a destination in itself for generations of rail passengers.* *The 1889 Hawkesbury River Bridge, Long Island Tunnel, Woy Woy Tunnel and the heavy earthworks and tunnels of the Cowan bank were the key engineering works on the Sydney to Newcastle rail link (The Short North). Together they demonstrate a high degree of engineering achievement in building a railway line in difficult and dangerous terrain. The 1889 Hawkesbury River Bridge in particular was a major technical achievement at the time: it was the fourth largest bridge constructed in the world, one of its caissons reached 49m, had the deepest bridge footing in the world and it was the longest bridge in Australia, pushing bridge design and construction techniques to the limit. The bridge was also the first of the American designed truss bridges that were introduced to Australia in the late 1880s and 1890s and thus the first to utilise the American principles of lightweight bracing, pin joints and eye bar tension members. It was the only steel trussed bridge of its type in Australia when it was built and the first major use of steel for bridges with previous examples being built in wrought iron. Its remains are tangible evidence of the change in engineering technology from British to American at this time and the decline of John Whitton's British based design influence on the NSW railway system. There is enough extant fabric in the remaining abutments, piers and the Long Island tunnel to demonstrate the engineering achievements of the original Hawkesbury River crossing.* *The 1946 railway bridge was also a major technical achievement at the time of its construction, its large riveted steel trusses and its footings were still among the deepest in the world. It remains the longest purpose built rail bridge in the NSW network. The bridge itself as well as the remnant construction docks, platform and power station demonstrate the technical achievements in the construction of the bridge. The docks in particular provide direct evidence for the method of construction and the challenges associated with construction in this estuarine environment.* *Date significance updated: 10 Nov 10*
Moss Vale rail underbridge over Argyle Street	Rail	SHR S.170	*The Argyle Street railway truss in Moss Vale is highly significant because it is an important item of infrastructure on the historic Main South Railway and has been in use for 85 years, it is a dominant feature of the Moss Vale townscape, it shares in the enormous social and commercial contribution that the Main South Railway has made to New South Wales and the bridge has technical significance because of it was one of the new heavy duty trusses of the American style Pratt truss which had become standard for large span bridges. The skew design and construction adds to the technical significance. The skew construction is relatively rare for major bridges. The bridge is a highly visible and fine example of a heavy duty, steel Pratt truss bridge, which retains its original fabric.* *Date significance updated: 11 Apr 07*
Wambool old-rail truss overbridges	Road	SHR S.170	*Two old-rail Pratt overbridges that are good examples of bridge construction from the period of reconstruction of the line from Lithgow. Constructed in 1896 they represent the two major forms of bridge construction, steel and brick.*

Name	Type (rail/ road)	Register	Statement of Significance
			Date significance updated: 20 Mar 06
Yass Town rail bridge over Yass River	Rail	SHR S.170	*The Yass Town railway truss is highly significant because it was the major component of infrastructure on the historic (infamous) Yass Tramway, it is a highly visible and imposing structure and it set the course for the adoption of American bridge technology in lieu of the previous dominance of British bridges so favoured by John Whitton. Despite being abandoned, it still retains its original fabric. It is a landmark structure in the history of railway bridges in New South Wales.* *Date significance updated: 16 Mar 06*
Annandale (Johnston Street) Underbridge	Rail	S.170	*The Annandale (Johnston Street) underbridge has local significance as an integral part of a separate railway network built between 1910 and 1922 for freight trains to traverse the metropolitan area independent of the passenger train network. The independent freight train network was a highly effective solution to the competing demands of the freight and passenger services on an otherwise congested metropolitan system. The riveted steel half-through Pratt truss bridge is significant as an example of a heavy-duty structure in keeping with NSW Railways design policy to allow for anticipated future heavy traffic loads, locomotives and rolling stock. This type of half-through Pratt truss is comparatively rare in the NSW railway system. The bridge retains its original fabric and structure.* *Date significance updated: 24 Jun 09*
Annandale (Railway Parade) Railway Bridge	Rail	S.170	*The Annandale (Railway Parade) railway bridge has local significance as an integral part of a separate railway network built between 1910 and 1922 for freight trains to traverse the metropolitan area independent of the passenger train network. The independent freight train network was a highly effective solution to the competing demands of the freight and passenger services on an otherwise congested metropolitan system. The riveted steel half-through truss bridge is a heavy-duty structure in keeping with design policy to allow for future heavy traffic loads, locomotives and rolling stock. This type of half-through Pratt truss is comparatively rare in the NSW railway system. The bridge retains its original fabric and structure.* *Date significance updated: 14 May 09*
Bathurst Railway Station, Station Masters Residence, Cottage, Railway Institute and Warehouse Buildings	Rail	LEP	*Bathurst station group is one of the major country railway sites in NSW with a substantial first class station, residence and workshop group. The station is located at the end of Keppel St, one of the main streets of Bathurst and the buildings form a significant civic group in the town of Bathurst, particularly with the location of the residences and engineer's office in Havannah St and the orientation of the station building to the town. The design of Bathurst station building is different to any other building on the system and reflects a one-off approach not often seen, but respecting the importance of the largest city west of the mountains.* *The Rocket Street over-bridge was the first steel truss bridge to be used on the State Rail system. It is well known to all Bathurstians as an elegant, light weight steel structure of 1888-89 located at the end of Rocket Street over the Western Rail line. It comprises a half-through Schweidler truss or an (American) Pratt Truss design. The bridge is embellished in a Victorian tradition with folded looped balustrade, brick and sandstone abutments and Royal Crests. The shaped upper chord of he trusses make the bridge unique amongst other Pratt Truss designs, with the materials thus kept to a minimum, over a maximum single, long span of approximately 41.2m (135ft). It is an important bridge historically and aesthetically and provided an important transport link between Bathurst and the Vale region of Perthville and beyond.* *Bathurst station group is one of the major country railway sites in NSW with a substantial first class station, residence and workshop group. The buildings form a significant civic group and the design of Bathurst station building constructed in 1876 and opened by the then governor*

Name	Type (rail/ road)	Register	Statement of Significance
			of NSW Sir Hercules Robinson; is different to any other building on the system and reflects a one-off approach not often seen. *A Victorian Tudor façade with decorative gabled wings; a long front verandah with ornate Gothic valance. Walls are painted with stone Quoining.* *The station masters house was built a year later and is a simpler styled two storey building in full brick, with stone quoining and a slate roof with original elaborate chimneys. A decorative gable faces Keppel Street. A third element is a small timber cottage building. The group is impressive in scale and contributes significantly to the street view down Keppel Street.* *Date significance updated: 04 Nov 16*
Bellingen River Bridge	Road	S.170	*The Bellingen River Bridge at Raleigh has Local historical and social significance. It was built in the context of the broader state highways improvement programme carried out by the DMR from the 1930s, which aimed to bring the State's road up to a standard suited to motor vehicle traffic. The bridge provided an important link for the township and the region, to the Northern Railway line and the highway. It is linked to the NSW historical themes of transport, communication, and pastoralism and the national theme of developing local, regional and national economies. Its location has the capacity to demonstrate the evolution of the road system from early tracks to main highway to byway, and the crossing of waterways via fords, rope and petrol ferries and ultimately a substantial high level bridge. As such it has technical and research significance that is enhanced by the surviving documentation associated with its construction and site history. It is also representative of the steel truss on concrete pier bridge type and may be rare, as while it has suffered some damage from use there have been no major changes to its structure. It may also have social significance to the townspeople due to its association with the production of the film 'Danny Deckchair' made in the town in 2002. To those townspeople and to the people of the region it has importance because of the connections and local development that it made possible.* *Date significance updated: 18 Jun 08*
Bethanga Bridge	Raod	LEP	*Bethanga Bridge is of State significance. Built between 1927 and 1930, it was the product of the Hume Dam joint venture project of the NSW and Victorian governments. It was a important component of the 1915 River Murray Waters Agreement signed by the Victorian, New South Wales, South Australian and Federal governments to regulate the flow of the Murray River and manage water rights between the three states.* *The construction of the Hume Dam whereby the New South Wales Department of Public Works and the Victorian State Rivers and Water Supply Commission were jointly responsible for the design and construction of the bridge. The bridge was designed in New South Wales by Department of Main Roads engineer Percy Allen and the trusses were built by Vickers Ruwolt in Melbourne.* *Bethanga Bridge is of scientific (technical) significance for the unusual use in Victoria of Pratt trusses, a predominantly NSW technology, its construction. The Pratt truss was frequently used in New South Wales but this represents a rare example of its use in Victoria. The use of this system in this instance, its design by New South Wales and construction by Victoria, also represents the cooperation of New South Wales and Victoria in the development and ongoing use of major infrastructure.* *It is a very fine representative of its type and is rare in its location being specifically sited to cross a reservoir and consequently being of great length and having considerable aesthetic appeal* *Date significance updated: 13 Oct 10*

Name	Type (rail/ road)	Register	Statement of Significance
Bethanga Bridge over the Murray River	Road	S.170	*ethanga Bridge is of State significance. Built between 1927 and 1930, it was the product of the Hume Dam joint venture project of the NSW and Victorian governments. It was a important component of the 1915 River Murray Waters Agreement signed by the Victorian, New South Wales, South Australian and Federal governments to regulate the flow of the Murray River and manage water rights between the three states.* *The construction of the Hume Dam whereby the New South Wales Department of Public Works and the Victorian State Rivers and Water Supply Commission were jointly responsible for the design and construction of the bridge. The bridge was designed in New South Wales by Department of Public Works engineer Percy Allan and the trusses were built by Vickers Ruwolt in Melbourne.* *Bethanga Bridge is of scientific (technical) significance for the unusual use in Victoria of Pratt trusses, a predominantly NSW technology, its construction. The Pratt truss was frequently used in New South Wales but this represents a rare example of its use in Victoria. The use of this system in this instance, its design by New South Wales and construction by Victoria, also represents the cooperation of New South Wales and Victoria in the development and ongoing use of major infrastructure.* *It is a very fine representative of its type and is rare in its location being specifically sited to cross a reservoir and consequently being of great length and having considerable aesthetic appeal* *Date significance updated: 03 Jun 11*
Booyong, Pearce's Creek Underbridge	Rail	S.170	*The five steel railway trusses on the Lismore to Murwillumbah Railway are highly significant in two of the heritage criteria (a) they are part of the historic 1894 Lismore to the Tweed (Murwillumbah) Railway, the first section of a North Coast Railway, albeit bypassed in 1932 and (b) they confirmed the change over to American bridge technology for railways (and for later major road bridges) in New South Wales. They retain their original fabric and are a landmark group of bridges. Nearly all the bridges on this branch line are originals so they represent an excellent example of late-colonial bridge engineering which set the pattern/standard for the next 30 years. The five sets of trusses built on this line were the first major application of American bridge technology to NSW railways.* *Date significance updated: 28 Dec 05*
Bridge over Tuross River	Road	S.170	*The Tuross River Bridge has been assessed as being of Local significance. The Bridge represents one of the improvements undertaken to the Princes Highway in the 1950s and replaced an earlier timber truss bridge that collapsed as a result of its infestation with teredo. The Tuross River Bridge is a typical steel truss bridge which forms a local landmark north of Bodalla. The design employed is well represented in many other road and rail bridges of the period and as such it has been assessed as being of low local significance.*
Brooklyn Former Railway Platform (Long Island)	Rail	S.170	*The remnant Brooklyn Railway Platform is of local significance. While not of particular interest for its design or construction technique, the platform is a tangible reminder of the interim transport arrangements of Rail to Ferry on the Short North line while the 1889 railway bridge was under construction. The platform also has historic associations with the locally significant General Gordon paddle steamer that serviced the Hawkesbury region at the time and transported goods and passengers between the Hawkesbury River and Wondabyne.* *Date significance updated: 26 Nov 14*
Camberwell Glennies Creek Underbridge	Rail	S.170	*The bridge is a fine example of an American-type steel Pratt truss bridge.* *The Glennies Creek railway bridge has some significance because: (a) it is an important component of infrastructure on the Great Northern Railway; (b) it is an imposing four-span truss bridge in a rural setting;*

Name	Type (rail/ road)	Register	Statement of Significance
Camden Haven River Rail Bridge	Rail	LEP	*(c) it derives some social significance from its contribution to the social and commercial benefits the Main North Railway made to northern N S W; and (d) it was the last of the transition series of American-type steel Pratt trusses during the decade of changeover from British to American technology.* *The Camden Haven River Railway Bridge is representative of the light engineering practice and technology of the North Coast Railway.* *It makes a contribution to the understanding of the development of communications within the Northern Rivers Region.* *It illustrates the importance of the railway to the economy of Kendall.*
Camurra, Gwydir River Underbridge	Rail	S.170	*The bridge has some significance because: (a) it is a major component of infrastructure on the historic branch railway to Mungindi; (b) it has an imposing appearance in its rural setting; (c) it is associated with the social and commercial benefits to the north western region of New South Wales of the railways; and (d) it was designed and built at a time when the changeover from British to American bridge technology had become consolidated.* *The bridge is a good example of a steel Pratt truss bridge which retains its original fabric.* *Date significance updated: 19 Jul 07*
Carramar (Sandal Crescent) Railway Bridge	Rail	S.170	*The Sandal Crescent/Prospect Creek steel underbridge at Carramar has local historical significance because it was built as part of the extension of the Lidcombe-Regents Park Line to Cabramatta which was constructed in the early 1920s to reduce pressure on the Main South and Main West Lines. The bridge has aesthetic and technical significance as a good example of a steel Pratt Truss bridge. As well as possessing the principal characteristics ofthis type of structure, its setting within a river parkland at Prospect Creek, its imposing size and its high visibility give it landmark qualities.* *Date significance updated: 13 Jul 09*
Casino Railway Bridge over Richmond River	Rail	LEP	*The steel truss bridge is historically significant for its association with the development of the North Coast railway, particularly its extension into Queensland in the late 1928. It replaced an earlier 1905 bridge of a similar design. It is a good representative and early example of this type of bridge.* *Date significance updated: 15 Sep 06*
Casino, Richmond Ri ver Underbridge	Rail	S.170	*The Richmond River underbridge at Casino is a good representative example of a steel through Pratt truss. It is a prominent and highly intact example of early twentieth century railway engineering and is associated with the early development of the North Coast Railway.* *Date significance updated: 28 Jul 10*
Cockle Creek Railway Bridge	Rail	LEP	*SIGNIFICANCE - 1993: The 2nd Cockle Creek Railway Bridge is important as an essential part of the main northern line linking Newcastle and Sydney.* *It is a fine looking bridge, and although the riveted construction is outdated for 1957, it is nevertheless a fine example of craftsmanship. This is seen particularly in the finish of the base structure, which demonstrates a regard for appearance seldom found in contemporary engineering structures.* *The bridge is something of a local landmark, being overlooked from Lake Rd.* *LEVEL of SIGNIFICANCE - 1993: Regional Significance - Moderate Local Significance - High. (also see RT-03)* *Date significance updated: 07 Jun 16*
Cockle Creek Railway Underbridge	Rail	S.170	*The Cockle Creek Railway Underbridge has local heritage significance as a local landmark and an attractive example of a mid 20th century overhead braced truss double span rail bridge. In particular, the finish of the base structure is finely crafted which is rare for an engineering structure of this period. Built in 1957 it was the last truss bridge built in the NSW railway network.* *Date significance updated: 05 Nov 09*

Name	Type (rail/ road)	Register	Statement of Significance
Denison Bridge	Road	LEP	*The Denison Bridge, a three-span wrought iron bridge, is an early metal truss bridge built in 1870. Its advanced design was a major engineering achievement at the time and represents the maximum achievable by truss spans. The bridge is associated with three important colonial engineers: William Christopher Bennett (Commissioner and Engineer for Roads), Gustavus Alphonse Morrell (Assistant Engineer and designer) and Peter Nicol Russell (P N Russell & Co). The bridge is a prominent local landmark which has played an important role in the history of Bathurst and the Central West. It was the fifth oldest metal truss bridge in Australia until recently but is still the second oldest in NSW (after Gundagai 1867). REFER TO THE HO State listings for more information.* *Date significance updated: 30 Apr 07*
Denman Bridge over Hunter River	Road	S.170	*The Denman Bridge, a steel truss bridge spanning the Hunter River has historic significance due to its role over almost 50 years as a crossing of a major waterway on a route linking Denman, a major service centre, to surrounding dairy farms, vineyards, cattle and horse studs and other larger towns such as Singleton and Muswellbrook. The bridge's construction is associated with the recurrent flooding that has been a feature of the area's history, particularly the disastrous floods of 1955, which occurred while the bridge was being built and influenced aspects of its design. For that reason, it is likely that the bridge's construction is remembered by locals, perhaps more vividly than would otherwise be the case, giving it some social significance. The location and design of the bridge reflects to some extent the influence of the natural environment. It has the capacity to represent the characteristic design features of truss bridges of its era and reflects aspects of bridge design in the post-World War II period to accommodate increasing weight, speed and volumes of traffic.* *Date significance updated: 18 Aug 05*
Dunbible Creek Railway Bridge	Rail	LEP	*This bridge was one of the first railway bridges built using the American Pratt truss design which replaced the heavier British design previously favoured by government engineers. It is a seminal example in the region.* *The Dunbible rail bridge is an excellent example of the work of Henry Deane, who was responsible for many of the design features of the North Coast Railway* *Date significance updated: 04 Apr 04*
East Maitland, William Street Footbridge	Footbridge	S.170	*The William Street footbridge represents a combination of a standard Warren design truss span supported by angle iron trestles with stairways of channel iron stringers. The bridge is one of 24 rivetted steel Warren design truss footbridges built for the NSW railways in the 1900 to 1950 period, being of lightweight design and extended span length, with many similar footbridges still extant in the Sydney area. The William Street footbridge is one of four surviving footbridges built during quadruplication of the railway line between Waratah and Maitland in the 1913-1915 period.* *Date significance updated: 14 Jan 10*
Eltham, Wilsons Creek Underbridge	Rail	S.170	*The Wilsons Creek Underbridge is one of a series of five similar trusses built on the Murwillumbah Line in the mid 1890s and as such it has historic significance as an item of railway infrastructure dating from the earliest development of the original North Coast railway in the late nineteenth century and as an example of the early application of American bridge technology by the NSW Government Railways. The bridge is an example of technology that was technically sophisticated and advanced at the time of construction. (CRN S170) Good representative example of a characteristic class of railway bridges, a number of which are found in the study area. Local significance. (LEP)* *Date significance updated: 08 Jul 10*
Emu Plains (Nepean River)	Rail	S.170	*The 1907 Nepean River Underbridge is of state significance as one of the largest steel truss bridges in NSW, and remains the oldest truss bridge still in use in the metropolitan area, with a continuous railway use for over 100 years. The bridge is an imposing landmark structure*

Name	Type (rail/ road)	Register	Statement of Significance
Underbridge			*over a major waterway and is an excellent example of a railway Pratt truss underbridge. Its significance is enhanced by its location adjacent to the 1867 Whitton era railway bridge which together demonstrate the evolution of railway bridge design from British railway technology from the mid 19th century through to the change to American technology of the early 20th century. The bridge is also significant as its fabrication by the local firm of R Tulloch & Co. which proved the capacity of local steelworks to handle projects of such magnitude, with the bridge becoming a benchmark for railway bridge construction throughout NSW.*
Glebe/Ultimo (Wentworth Park Rd) Underbridge	Rail	S.170	*The Wentworth Park Road Underbridge is of local significance as a good representative of the comparatively rare half-through Pratt truss within the rail network of NSW, and as part of the original infrastructure for the Metropolitan Goods Line, one of the most significant and effective railway projects in New South Wales during the 20th century. The truss forms a highly visible landmark structure over Wentworth Park Road.*
Gostwyck Bridge over the Paterson River, The	Road	S.170	*The Gostwyck Bridge, completed in 1928, is of Local significance and is a representative example of a steel Pratt truss. It is a high-level structure over an inland river and has technical and aesthetically merit. It has contributed significantly to the social and commercial development of Dungog.* *Date significance updated: 03 Apr 01*
Gravesend, Gwydir River Underbridge	Rail	S.170	*The bridge is significant because: (a) it was the largest item of infrastructure on the historic branch line to Inverell; (b) it is an imposing, high level structure, a prominent landmark on the open plains in north west NSW; (c) it is one of the oldest and among the largest of the initial group of American trusses built in New South Wales prior to World War 1; and (d) it is one of the first steel through Pratt truss bridges on a branch/pioneer line in NSW.* *Date significance updated: 17 Jul 07*
Hawkesbury River Rail Bridge and Long Island Group	Rail	S.170	*The Long Island Group and in particular the current and former Hawkesbury River Rail Bridges, have State heritage significance. The group as a whole forms a railway precinct of exceptional significance, with elements in an outstanding setting that represent key events in the history of railway development in NSW and demonstrate high levels of engineering achievement and the changes in railway technology in NSW in the period between the 1880s and 1970s.* *The completion of the 1886 Hawkesbury River Railway Bridge saw the linkage not only of the significant Sydney to Newcastle Railway link but also in effect, the railway systems of South Australia, Victoria, New South Wales and Queensland were joined by continuous rail with the opening of the bridge. The Bridge was used by Sir Henry Parkes as a powerful symbol of Federation and he gave the address at the opening of the bridge, which has been claimed by some as his first Federation speech. The abutments and piers of the bridge as well as the 1886 Long Island tunnel are tangible reminders of these significant events and the symbolic power they had for people at the time not only in NSW but throughout Australia. Both the 1889 and 1946 bridges and associated infrastructure on Long Island also demonstrate the significant investment in the railway system of NSW in the late nineteenth and early twentieth centuries. The workmanship of both bridges demonstrates the significant pride and confidence in the railways at the time.* *The surviving sandstone elements of the former Hawkesbury River Bridge and the current Bridge have exceptional aesthetic value in their setting on the Hawkesbury River. The contrast of the man-made bridges and tunnels with the rugged and beautiful natural landscape of Hawkesbury River allows passengers and visitors to appreciate the engineering achievements of the railway line's construction. The vantage point of the approach to Long Island and the bridge also allows passengers to appreciate views of the natural landscape. Both*

Name	Type (rail/ road)	Register	Statement of Significance
			of these factors have made the railway journey a destination in itself for generations of rail passengers. *The 1889 Hawkesbury River Bridge, Long Island Tunnel, Woy Woy Tunnel and the heavy earthworks and tunnels of the Cowan bank were the key engineering works on the Sydney to Newcastle rail link (The Short North). Together they demonstrate a high degree of engineering achievement in building a railway line in difficult and dangerous terrain. The 1889 Hawkesbury River Bridge in particular was a major technical achievement at the time: it was the fourth largest bridge constructed in the world, one of its caissons reached 49m, had the deepest bridge footing in the world and it was the longest bridge in Australia, pushing bridge design and construction techniques to the limit. The bridge was also the first of the American designed truss bridges that were introduced to Australia in the late 1880s and 1890s and thus the first to utilise the American principles of lightweight bracing, pin joints and eye bar tension members. It was the only steel trussed bridge of its type in Australia when it was built and the first major use of steel for bridges with previous examples being built in wrought iron. Its remains are tangible evidence of the change in engineering technology from British to American at this time and the decline of John Whitton's British based design influence on the NSW railway system. There is enough extant fabric in the remaining abutments, piers and the Long Island tunnel to demonstrate the engineering achievements of the original Hawkesbury River crossing.* *The 1946 railway bridge was also a major technical achievement at the time of its construction, its large riveted steel trusses and its footings were still among the deepest in the world. It remains the longest purpose built rail bridge in the NSW network. The bridge itself as well as the remnant construction docks, platform and power station demonstrate the technical achievements in the construction of the bridge. The docks in particular provide direct evidence for the method of construction and the challenges associated with construction in this estuarine environment.* *Date significance updated: 04 Jun 09*
Hexham Bridge over Hunter River	Road	S.170	*The Hexham Bridge exhibits a high degree of historical, aesthetic and technical significance as one of the largest of several important bridges constructed on the Pacific Highway in the post-World War II period as part of the Department of Main Roads' program of maintaining and improving the State's main roads and eliminating ferry crossings. The vertical lift span structure accommodated river traffic, particularly colliers, and played an important part in the industrial, commercial and agricultural development of the local area as well as the North Coast region generally. It stands as a testimony to the once thriving coal industry, and to its subsequent decline and is thus associated with a significant phase in the area and the State's history. Its height makes it a landmark in the surrounding area and it acts as a gateway to the suburbs of Hexham and Tomago. It has rarity value as the largest of few surviving lift span bridges in New South Wales, still in working order.*
Iron Cove Bridge	Road	S.170	*The Iron Cove Bridge is an outstanding steel truss bridge which forms a local landmark that has a "gateway" quality for the suburbs of Balmain and Drummoyne due to its impressive size. The Bridge is comprised of aesthetically distinctive piers and abutments which reflect the Inter-War Art Deco style which was prevalent when it was first designed in 1942. Furthermore it was the last steel truss bridge to be constructed in NSW in which rivets were used for field connections prior to the introduction of high strength bolts. The Iron Cove Bridge has been assessed as being of State significance.* *Date significance updated: 21 Jul 03*
Joppa Junction, Run O'	Rail	S.170	*The Run O' Waters Creek Underbridge at Joppa Junction is a good representative example of a pair of deck Pratt trusses, being one of the first two locations to use American type trusses under running lines in*

Name	Type (rail/ road)	Register	Statement of Significance
Waters Creek Underbridge			*NSW. It is an example of the introduction of American bridge technology by the Existing Lines Branch (led by George Cowdery, Engineer-in-Chief for Existing Lines) in the 1880s.* *Date significance updated: 30 Jul 10*
Kyogle, Fawcetts Creek Underbridge	Rail	S.170	*The Kyogle, Fawcetts Creek Underbridge is a 120-foot steel through Pratt truss built in the late 1920s as part of the North Coast Railway linking Sydney to Brisbane.* *Date significance updated: 14 Jul 10*
Lismore, Leycester Creek Underbridge	Rail	S.170	*The Leycester Creek Underbridge at Lismore is a good, intact and representative example of a steel Pratt truss underbridge, one of five built at the inception of the Lismore to Murwillumbah railway line in 1894, and an early example of the introduction of American bridge technology by the NSW Government Railways. (SHI database number 4280247, SHR listing number 1044)* *Date significance updated: 02 Aug 10*
Luskintyre Bridge over Hunter River	Rail	S.170	*The Luskintyre Bridge across the Hunter River has significance because:* • *it has been an important item of infrastructure in the history of the Hunter District for over 95 years,* • *it is an impressive structure sited high above a wide waterway,* • *it was the first American style through truss, a riveted Pratt truss, to be built in New South Wales for road use,* • *it has contributed significantly to the social and commercial development of farming lands on the north side of the river throughout its service life,* • *it was a pioneer bridge of its type and set the standard for later steel truss bridges starting around 1930.* *This bridge has been assessed as being of State significance.* *Date significance updated: 15 Aug 05*
Manilla River Bridge	Road	S.170	*Manilla River Bridge has historical technical and representative significance at a State level. As the first and only all-welded steel truss road bridge to be constructed in New South Wales, it has the rare capacity to demonstrate a significant advancement in the development of steel truss bridges and the use of field welding and as such also has research potential at the State level. Its location on an early access route into the area provides a strong association with the national historic themes of developing local, regional and national economies. The Manilla River Bridge at Barraba is associated with the NSW historic themes of transport, communications, and commerce. It is a component of the State Highways improvement programme aimed at bringing the State's roads up to a standard suited to motor vehicle traffic, a programme which as a whole was a significant activity in the State's cultural history.* *Date significance updated: 18 Jun 08*
Manilla, Namoi River Underbridge and timber floodplain viaducts	Rail	S.170	*The steel truss bridge at Manilla has some significance because: (a) it has an association with the historic township of Manilla and the historic railway to Barraba; (b) the bridge, with its long timber approach viaduct, is an imposing structure on the approach to the town; (c) as an essential, major item of infrastructure on the Barraba railway it contributed significantly to the social and commercial value of the line; and (d) it is one of a small group of pre-World War I, large steel truss bridges that were the vanguard of the standardisation to American bridge technology in the New South Wales railway system. At the same time, the timber girder deck floodplain vaiducts on the east side of the river are an example of the use of timber as an economical material for bridges on developmental (Pioneer) lines in NSW in the early 20th century. The bridge is a good example of lightweight Pratt truss construction and retains its original fabric.* *Date significance updated: 07 Nov 16*

Name	Type (rail/ road)	Register	Statement of Significance
Moree, Mehi River Bridge	Rail	S.170	*The bridge has some significance because: (a) it is a major component of infrastructure on the branch railway line to Mungindi; (b) it has an imposing appearance in its rural setting; (c) it has contributed to the social and commercial benefits of railway development to the north west region of New South Wales; and (d) it was designed and built at a time when the changeover from British to American bridge technology had become consolidated.* *The bridge is a good example of a steel Pratt truss bridge which retains its original fabric.* *Date significance updated: 19 Jul 07*
Mororo Bridge	Road	S.170	*Mororo Bridge has local historic and social significance. It is associated with the national historic themes of developing local, regional and national economies and with the NSW historic themes of transport, communications, and commerce. The bridge was built in the context of the broader state highways improvement program carried out by the DMR from the 1930s, which aimed to bring the State's road up to a standard suited to motor vehicle traffic and thus has the potential to demonstrate the theme of transport. In particular, by providing a lift span it reflects a period in which recognition was still given to the importance of river traffic. The construction of the bridge also illustrates the impact of local community action in the building of important public infrastructure.* *Date significance updated: 18 Jun 08*
Moss Vale Rail Underbridge (Argyle St)	Rail	S.170	*The Argyle Street Underbridge is state significant as a prominent landmark in Moss Vale, an excellent representative example of a steel through Pratt truss and an important item of infrastructure associated with the duplication of the Main Southern Line in the early 20th Century.* *Date significance updated: 04 Aug 10*
Murrumburrah Footbridge	Footbridge	S.170	*One of seven surviving trussed stair stringers.* *Some have contemporary timber step construction, others have Hardie Board topping and at least two are now concrete steps.* *Timber deck.* *Good example of timber stair construction including newel posts.*
Muswellbrook Hunter River Underbridge	Rail	S.170	*The two trusses have some significance because: (a) they were important items of infrastructure on the historic Muswellbrook to Merriwa branch railway, and continued in use when the line was upgraded for the Ulan coal traffic; (b) they are imposing structures in their settings; and (c) they have contributed to the commercial significance of the Ulan coal traffic.* *Both bridges retain their original fabric.*
Nambucca River Bridge	Road	S.170	*The Bridge over the Nambucca River is an important steel truss bridge which forms a local 'gateway' landmark for the town of Macksville due to its impressive size. Furthermore it was the first steel truss bridge to be constructed in NSW in which caissons consisting of timber cylinders were utilised. The Macksville Bridge has been assessed as being of local significance.* *Date significance updated: 10 Jun 09*
Narromine Footbridge	Footbridge	S.170	*The footbridge at Narromine is a good example of a steel Warren truss railway footbridge built in 1901 but later relocated to its present site. It is one of the two oldest Warren truss railway footbridges made from steel angle iron (the footbridge at Springwood was also built in 1901). It is one of approximately seven surviving railway footbridges with truss stair stringers, one of approximately twenty four extant riveted steel Warren truss footbridges in NSW, and one of probably only seven surviving footbridges built next to a level crossing in NSW. It is also one of approximately seven surviving footbridges in NSW with a longitudinal timber plank deck. The footbridge features timber newel posts at the bottom of the stairs, one of less than 20 extant railway*

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			footbridges in NSW featuring newel posts (an architectural feature used on some footbridges, mainly in the late 19th century and early 20th century). *Date significance updated: 24 Feb 10*
Oakhampton, Hunter River Underbridge	Rail	S.170	*The Oakhampton, Hunter River Underbridge is a good representative example of a 3-span Pratt truss. The bridge is a prominent structure and an early example of the widespread use of American bridge technology in NSW in the 20th Century, particularly along the North Coast Line. It was the first truss bridge designed by the notable engineer J.W. Roberts and introduced on the North Coast Line as part of the first phase of steel truss construction on that line.* *Date significance updated: 17 Aug 10*
Pollacks Bridge over the Nymboida River	Road	S.170	*Pollacks Bridge, completed in 1931, is of Local significance. It is representative of steel truss bridges and was an important economic and communication link with other local communities during the depression of the 1930s. It reflects change in design philosophy of bridge engineers and public works administrators during the first half of the twentieth century. The Bridge is in sound condition, although it has been subject to alterations and changes to its original fabric.* *Date significance updated: 08 Dec 00*
Wilson River Railway Bridge	Rail	LEP	*The Wilson River Railway Bridge is representative of the light engineering practice and technology of the North Coast Railways. It makes a contribution to the understanding of the development of communiciations within the Northern Rivers Region.* *Part of Telegraph Point Railway Station Group.* *Date significance updated: 23 Feb 11*
Ralfes Creek Bridge	Road	LEP	*The Ralfes Creek Bridge is representative of small bridge construction on main highways throughout the State.* *It provides physical evidence for the study of bridge and road engineering* *Date significance updated: 23 Feb 11*
Ryde Bridge	Road	Regional Environment Plan	*The bridge is significant: 1. because of its engineering heritage value as the first of its type in Australia, and an excellent and intact example of this type of construction; 2 as an example of innovative moves to overcome the barrier of the Parramatta River separating the newly-formed suburbs at Concord and Ryde and the areas further north and south. The bridge has been an important road transport link for over fifty years; and 3. for its handsome contribution to the Parramatta riverscape.* *Date significance updated: 09 Oct 13*
Ryde Bridge (Former Lift Bridge)	Road	LEP	*The Ryde Lift Bridge is of historical significance as the largest work of its kind undertaken by any municipal body in NSW up till 1935, for its importance as a depression-era construction utilising unemployment relief labour, and as a transport link which revived the Ryde district, influencing later development including road development and the expansion of the area both north and south of the Parramatta River. The high clearance of the lift is evidence of the importance of the river traffic on the Parramatta River in the 1930s. The Ryde Lift Bridge has historical association with Ryde Council which funded and supervised its construction. The bridge has landmark qualities in Church Street and along the Parramatta River. The bridge is also of technical/research significance for its local design and use of Australian manufactured steel.* *Date significance updated: 10 Jan 12*
Ryde Bridge over Parramatta River	Road	S.170	*Ryde Bridge has rarity value at a State level and historical significance locally. Ryde Bridge spans the Parramatta River between Church Street in Ryde (Uhrs Point) and Concord Road in Rhodes, replacing an earlier ferry service between these two points established in the late nineteenth century. It is rare at a state level because it is the only lift span bridge on Sydney Harbour and its tributaries (although the*

Name	Type (rail/ road)	Register	Statement of Significance
			mechanism to operate the vertical lift span has been removed). Ryde Bridge, constructed in 1935, is also a relatively rare example of a steel truss bridge with a lift span in NSW. It is similar to Hexham Bridge on the Hunter River in that both are moveable span bridges, although Ryde Bridge was designed and constructed around a decade earlier. By the early 1950s, the bascule span was the preferred option for bridges with opening spans, meaning that vertical lift span bridges such as Ryde Bridge were no longer being designed and built. Ryde Bridge has local historical significance because it is located at an important crossing over the Parramatta River, between Ryde and Rhodes, which was one of the narrowest points on the river. Ryde Council initiated the construction of the bridge in order to open up the municipality for suburban development. Thereafter, Ryde Bridge has provided an important transportation route for outer suburbs in the municipalities of Ryde and Hornsby to access Sydney by car.
Sandgate, Ironbark Creek Underbridges	Rail	S.170	*The 1898 truss is an early example of the introduction of American bridge technology in NSW in the late 19th century. The 1898 and 1912 steel Pratt trusses, when viewed together, are significant as a relatively intact pair of American Pratt trusses built 14 years apart, providing a contrast in bridge design (for the same type of bridge) and revealing variations in bridge construction and improvements in truss design in a short period from the late 1890s to the 1910s.* *Date significance updated: 04 Aug 10*
Stokers Siding, Dunbible Creek No 2 Railway Underbridge	Rail	S.170	*The five steel railway trusses on the Lismore to Murwillumbah Railway are highly significant in two of the heritage criteria (a) they are part of the historic 1894 Lismore to the Tweed (Murwillumbah) Railway, the first section of a North Coast Railway, albeit bypassed in 1932 and (b) they confirmed the change over to American bridge technology for railways (and for later major road bridges) in New South Wales. They retain their original fabric and are a landmark group of bridges. Nearly all the bridges on this branch line are originals so they represent an excellent example of late-colonial bridge engineering which set the pattern/standard for the next 30 years. (CRN S170) This bridge was one of the first railway bridges built using the American Pratt truss design which replaced the heavier British design previously favoured by government engineers. It is a seminal example in the region.* *The Dunbible rail bridge is an excellent example of the work of Henry Deane, who was responsible for many of the design features of the North Coast Railway (LEP)* *Date significance updated: 28 Dec 05*
Sydenham (Illawarra Line) Underbridge)	Rail	S.170	*The Illawarra Line Flyover is of local significance as the largest item of original infrastructure on the Botany Line. The bridge is a good representative example of a riveted steel Pratt truss rail bridge.* *Date significance updated: 20 Oct 09*
Taemas Bridge over Murrumbidgee River	Road	LEP	*The Taemas Bridge has historical, social, technical, aesthetic and representative significance within the Yass-Tumut-Yarrowlumla-Gundagai area. It has provided a crossing of a major waterway, the Murrumbidgee River, for over seventy years and its long term reliability has facilitated the agricultural activities and economies of the surrounding areas. The history of transport in the region has been shaped by the Murrumbidgee and the difficulty of providing crossings of this large and flood prone waterway. The bridge represents a significant technical achievement, its robust design and its positioning, with the site of the former crossing downstream and documentary sources, demonstrate the intelligence, effort and investment required to construct a lasting and reliable crossing of this major and dynamic waterway. The bridge is of aesthetic significance, being an impressive structure of considerable length crossing a major waterway and having landmark qualities on the Yass-Tumut road. The monumental style of the abutments reflects the importance ascribed to the crossing by the Public Works Department and the community. The bridge has local social significance. The loss of the previous bridge in record flood was a major blow to the local community using this important transport and*

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			communication route. The community was involved in the debate surrounding the siting of the existing bridge, and continued to express dismay at the lengthy delay in its construction. The bridge is a landmark to which local travellers are likely to attach a sense of place and self. The bridge is a good, intact example of large scale truss design in the early to mid twentieth century. *Date significance updated: 16 Nov 11*
Taemas Bridge over Murrumbidgee River	Road	S.170	*The Taemas Bridge has historical, social, technical, aesthetic and representative significance within the Yass-Tumut-Yarrowlumla-Gundagai area. It has provided a crossing of a major waterway, the Murrumbidgee River, for over seventy years and its long term reliability has facilitated the agricultural activities and economies of the surrounding areas. The history of transport in the region has been shaped by the Murrumbidgee and the difficulty of providing crossings of this large and flood prone waterway. The bridge represents a significant technical achievement, its robust design and its positioning, with the site of the former crossing downstream and documentary sources, demonstrate the intelligence, effort and investment required to construct a lasting and reliable crossing of this major and dynamic waterway. The bridge is of aesthetic significance, being an impressive structure of considerable length crossing a major waterway and having landmark qualities on the Yass-Tumut road. The monumental style of the abutments reflects the importance ascribed to the crossing by the Public Works Department and the community. The bridge has local social significance. The loss of the previous bridge in record flood was a major blow to the local community using this important transport and communication route. The community was involved in the debate surrounding the siting of the existing bridge, and continued to express dismay at the lengthy delay in its construction. The bridge is a landmark to which local travellers are likely to attach a sense of place and self. The bridge is a good, intact example of large scale truss design in the early to mid twentieth century.* *Date significance updated: 18 Aug 05*
Tamworth Railway Footbridge	Footbridge	S.170	*The footbridge at Tamworth is one of five surviving old rail truss footbridges built in the 1890s (along with Goulburn station, Junee, Nyngan and Goulburn yard). It is a good example of truss and trestle construction using old rails. It is a good example of economical railway practices and ingenuity, namely the reuse of old but serviceable materials in the 1890s and early 1900s to reduce the cost of new railway infrastructure.* *Date significance updated: 15 Mar 10*
Thone River Bridge	Road	LEP	*Representative of recent bridge construction on main highways throughout the State.* *Provides physical evidence for the study of bridge and road engineering.* *Date significance updated: 23 Feb 11*
Thone River Bridge	Road	S.170	*Thone River Bridge has Local historical and aesthetic significance as a simple functional structure and a component of the Oxley Highway's infrastructure developed from the 1930s by the DMR as part of the State Highways improvement programme aimed at bringing the State's roads up to a standard suited to motor vehicle traffic, a program which as a whole was a significant activity in the State's cultural history. It is linked to the NSW historical themes of transport, communication, and pastoralism and the national theme of developing local, regional and national economies. The bridge is neatly constructed and a representative example of its class, in rare near original condition. For these reasons it has been assessed as being of Local significance.*
Tom Uglys Bridge over the Georges River (1929)	Road	S.170	*Tom Uglys Bridge has significance because:* ** it has been a significant item of infrastructure in the History of Sydney for over 70 years and is unique as a major public work financed by a Local Government Agency, Sutherland Shire Council,* ** it has an impressive profile across the Georges River at Sylvania,*

Name	Type (rail/ road)	Register	Statement of Significance
			** it consolidated the use of steel through trusses for major road bridges, was the last major bridge work by the esteemed Percy Allan and gains technical heritage values by its juxtaposition with the new technology of the steel box girder bridge,* ** it has made a significant contribution to the social and commercial development of the whole region immediately south of the River, and further south into the Illawarra district and on to the South Coast,* ** it is a fine representative example of a major truss bridge of the period between the two World Wars.* *The bridge has been assessed as being of State significance.* *Date significance updated: 16 Mar 01*
Toongabbie Railway Station Group, Underbridge & Archaeological Remains	Rail	S.170	*Toongabbie Railway Station is of local significance as evidence of the railway station redevelopment that took place during the quadruplication of the Main Western Line between Lidcombe and St Mary's in 1946. The station buildings are of aesthetic significance as good examples of mid-20th Century railway construction in an urban context displaying distinctive elements of the Inter War Stripped Functionalist style. They are competently executed and display many typical stylistic elements of similar station buildings throughout New South Wales and in the western suburbs generally, and are of the same construction as those of the neighbouring stations Pendle Hill, Wentworthville and Westmead (demolished). This group of buildings shows effects of war time financial constraints.* *The archaeological remains under the Greystanes Creek Underbridge have local significance for their ability to demonstrate the expansion of the railways and the historical stages of railway development in Toongabbie. The archaeological site is of research significance as it provides evidence of previous types of railway bridges used for creek crossings between 1860 and 1946.* *Date significance updated: 10 Sep 08*
Vehicular Bridge Over Rail	Road	LEP	*Victorian era 1888-89 very long single spanning bridge that crosses the railway line at Rocket Street providing important access between Bathurst and Perthville. Described by different sources as being either a Schweidler truss or an (American) Pratt Truss design* *Date significance updated: 29 Apr 06*
Waratah, Styx River Underbridge	Rail	S.170	*A good example of an American Pratt Truss in deck form with the tension diagonals made from parallel steel flats.* *Date significance updated: 20 Jul 10*
Wauchope Railway Station Group	Rail	LEP	*Wauchope Railway Station group, including railway bridge, timber platform face, dwelling house, double-sided railway goods shed and Canary Island palms.* *The Hastings River Railway Bridge is representative of the light engineering practice and technology of the North Coast Railway. It makes a contribution to the understanding of the development of communications within the Northern Rivers Region.* *In conjunction with other items associated with the railway it reflects a theme which was important to the emergence of Wauchope as an important service centre.* *Date significance updated: 31 Jul 17*
Wauchope, Hastings River Underbridge	Rail	S.170	*The Hastings River Underbridge at Wauchope is an intact, representative and prominent example of a steel through Pratt truss, one of seven Pratt truss bridges built during the third phase of steel truss bridge construction on the North Coast Railway between 1917 and 1923, and one of more than twenty steel trusses on the North Coast Line. The bridge is a large (three span) and accessible example of a Pratt truss, and is associated with the notable early 20th Century engineer James Waller Roberts.* *Date significance updated: 06 Aug 10*

Name	Type (rail/ road)	Register	Statement of Significance
Weemelah, Boomi River Railway Bridge	Rail	S.170	*The bridge is a good representative and intact example of a steel Pratt truss bridge built in the early 20th century on a Pioneer line in New South Wales. It is a prominent structure and a good example of American bridge technology built during a period in which the NSW Railways consolidated its adoption of American technology over British technology.* *Date significance updated: 21 Jul 10*
Woodlawn, Coopers Creek Underbridge	Rail	S.170	*This is one of five steel railway trusses on the Casino to Murwillumbah railway that are highly significant in two of the heritage criteria, (a) they are part of the historic 1894 Lismore to the Tweed (Murwillumbah) Railway, the first section of a North Coast Railway, albeit by passed in 1932, and (b) they confirmed the change over to American bridge technology for railways, and later for major road bridges, in New South Wales Nearly all the bridges on this branch line are originals so they represent an excellent example of late-colonial bridge engineering which the pattern/standard for the next 30 years. The five sets of trusses built on this line were the first major application of American bridge technology to NSW railways.* *Date significance updated: 28 Dec 05*
Yass River Underbridge	Rail	S.170	*The Yass River Underbridge is significant as the first steel through Pratt Truss introduced by the NSW Government Railways in 1892, the beginning of a trend towards the use of American bridge technology and in particular the use of Pratt trusses that would dominate bridge construction. The Yass Town railway truss is highly significant because it was the major component of infrastructure on the historic (infamous) Yass Tramway, it is a highly visible and imposing structure and it set the course for the adoption of American bridge technology in lieu of the previous dominance of British bridges so favoured by John Whitton. Despite being abandoned, it still retains its original fabric. It is a landmark structure in the history of railway bridges in New South Wales.* *Date significance updated: 04 Aug 10*
Yass Town Tramway Bridge over Yass River	Rail	LEP	*The bridge is of significance for the introduction of new technology and the first use of its type in the State system. It is also of interest because of its use on a tramway rather than on standard railway construction. The first steel-through Pratt Truss in New South Wales, that confirmed the introduction of American bridge technology and the economical Pratt Truss, that dominated long-span bridges for the next 60 years.* *The bridge was essential in providing a link between Yass Junction Railway Station and Yass Town Tramway Station.* *Date significance updated: 31 Dec 10*