



This document is uncontrolled
when printed.



LEVEL CROSSING TREATMENT REPORT – BRABINS ROAD (LX604)

A2I | Albury to Illabo

CONTRACT NUMBER: 0052

PROJECT DOCUMENT NUMBER:

5-0052-210-CXR-J7-RP-0002

Document Control

DOCUMENT TITLE:	Level Crossing Treatment Report – Brabins Road (LX604)		
DOCUMENT OWNER:	Design Manager		
PREPARED BY:	Nichole Darke	TITLE:	Martinus Design Manager
REVIEWED BY:	Zoe Cruice	TITLE:	Martinus Engineering Manager

Approved by

NAME	TITLE	SIGNATURE	DATE
Nichole Darke	Design Manager		09/03/2026

Revision History

REVISION	REVISION DATE	AMENDMENT	DATE TO CLIENT
A	12/01/2026	Issued for Review	12/01/2026
B	20/02/2026	Issued for Review – Appendix A updated	20/02/2026
C	02/03/2026	Issued for Review – TfNSW Comments addressed	02/03/2026
0	09/03/2026	Issued for Use - For DPHI Approval	09/03/2026

Disclaimer: This document has been prepared by Martinus. Use of this document shall be subject to the terms of the relevant contract with Martinus. The electronic file of this current revision is the controlled copy. This file is stored on Martinus' server located at Head Office, Unit 1, 23-27 Waratah St, Kirrawee, NSW.

This document is the property of and contains proprietary information owned by Martinus. No permission is granted to publish, reproduce, transmit or disclose to another party, any information contained in this document, in whole or in part, without prior written permission from the issuing authority.

For the purpose of this document, Martinus refers to the Martinus Group of companies.

This document is uncontrolled when printed.

TABLE OF CONTENTS

GLOSSARY	5
1 INTRODUCTION.....	7
1.1 Inland Rail.....	7
1.2 Albury to Illabo (A2I).....	9
1.3 Planning Approvals.....	11
2 CONSULTATION.....	13
2.1 Overview	13
3 PUBLIC LEVEL CROSSING ASSESSMENT	14
3.1 Identification of all public level crossings within the project area	14
4 PUBLIC LEVEL CROSSING ASSESSMENT	15
4.1 Assessment of public level crossings for closure.....	15
4.2 Criteria for automatic grade separation	15
4.3 Level crossing risk tool	15
4.4 Cost benefit analysis (CBA).....	16
4.5 The use of ALCAM assessments in the determination of level crossing treatments.....	17
4.6 Preliminary design	17
4.7 Interface agreements.....	17
5 LEVEL CROSSING CLOSURE SUMMARY	18
6 ASSESSMENT OF THE ROAD RISKS.....	19
APPENDICES	20
APPENDIX A	21
Consultation with Key Stakeholders	21
APPENDIX B	27
Level Crossing Treatment Summary	27
APPENDIX C	31
Short Stacking Review.....	31
APPENDIX D	33
Risk Assessment Evidence.....	33
APPENDIX E.....	35
Risk Assessment Summary	35
APPENDIX F	36
Road Manager Endorsement of LX Design	36
APPENDIX G	37
TfNSW Consultation	37

LIST OF TABLES

Table 1: Definitions	5
Table 2: LX604 Summary Table	9
Table 3: Conditions of Approval Compliance Matrix	11
Table 4: Level Crossing Closure Summary Table For LX604	18
Table 5: Consultation With Key Stakeholders.....	23
Table 6: Level Crossing Scope and Location.....	29
Table 7: Level Crossing Treatment Summary.....	30
Table 8: Short Stacking Review	32

LIST OF FIGURES

Figure 1: Inland Rail Alignment Map 8

Figure 2: Location of LX604 Brabins 10

GLOSSARY

Specific terms and acronyms used throughout this plan are listed and described in Table 1 below.

TABLE 1: DEFINITIONS

TERM	DEFINITION
A2I	Albury to Illabo
AADT	Annual Average Daily Traffic
ADC	Assumptions, Dependencies and Constraints
ALCAM	Australian Level Crossing Assessment Model
ARTC	Australian Railway Track Corporation
CBA	Cost Benefit Analysis
CSSI	Critical State Significant Infrastructure
D&C	Design and Construct
DDR	Detailed Design Review (100% Design)
EIS	Environmental Impact Statement
FDR	Feasibility Design Review
IFC	Issued for Construction
GHSC	Greater Hume Shire Council
HV	Heavy Vehicle
IR	Inland Rail
JSC	Junee Shire Council
Km	Kilometres
LCTR	Level Crossing Treatment Report
LGA	Local Government Area
LSC	Lockhart Shire Council
LX	Level Crossing
O&M	Operations and Maintenance
ONRSR	Office of the National Rail Safety Regulator
MIRDA	Master Inland Rail Development Agreement
PDR	Preliminary Design Review (70% design)

TERM	DEFINITION
PHL	Project Hazard Log
RMS	Former Roads and Maritime Services. Now TfNSW
RRIA	Road Rail Interface Agreement
SDR	Systems Definition Review
SFAIRP	So Far as Is Reasonably Practical
TfNSW	Transport for New South Wales
WSP	WSP Australia
WWCC	Wagga Wagga City Council

1 INTRODUCTION

This Public Level Crossing Treatment Report (LCTR) has been prepared in consultation with Transport for NSW and the relevant council. In accordance with E152 and in order to minimise risks to the construction program, individual reports will be submitted for each individual crossing. As the project progresses opportunities to streamline the number of LCTR's will be reviewed. An indicative schedule of planned submission dates for the remaining LCTR's will be provided to DPHI in response to DPHI RFI PA 151 - LX Treatment Report Plunkett and Sladen Street.

This Public Level Crossing Treatment Report relates to Brabins Road (LX604), Illabo, within Junee Shire Council (JSC). JSC is the Road Manager and there is no design interface with TfNSW other than the requirement to consult in accordance with E144 and E146. The railway intersects Brabins Road, approximately 50m south of the Olympic Highway. JSC will manage the Roads Act approval component of the signage on the Olympic Highway as part of the Roads Act approval for the works on the Local Road at LX604. TfNSW will need to give concurrence to JSC before they approve that application in accordance with S 138(2).

Upgrade works at LX604 are scheduled to commence April 9th 2026 in preparation for the May 2026 possession.

1.1 Inland Rail

The Inland Rail Project is a priority for the Commonwealth. Inland Rail is transforming Australia's freight future by delivering an efficient and reliable rail connection that is supporting economic growth and enhancing supply chain resilience. Inland Rail consists of approximately 1,000 kilometres of upgrades to existing rail infrastructure and 600 kilometres of new track construction. It is improving national freight rail efficiency and creating opportunities for regional communities and industries across Victoria, New South Wales and Queensland.

As a subsidiary of ARTC, IRPL is responsible for the planning and delivery of the project, ensuring that we fulfil IRPL's role as outlined in the Australian Government's Statement of Expectations (SoE)

Once completed, Inland Rail will support a double stacked service offering between the intermodal terminal at Beveridge in Victoria and the proposed terminal at Ebenezer in Queensland, with a single stacked service offering to Kagaru.

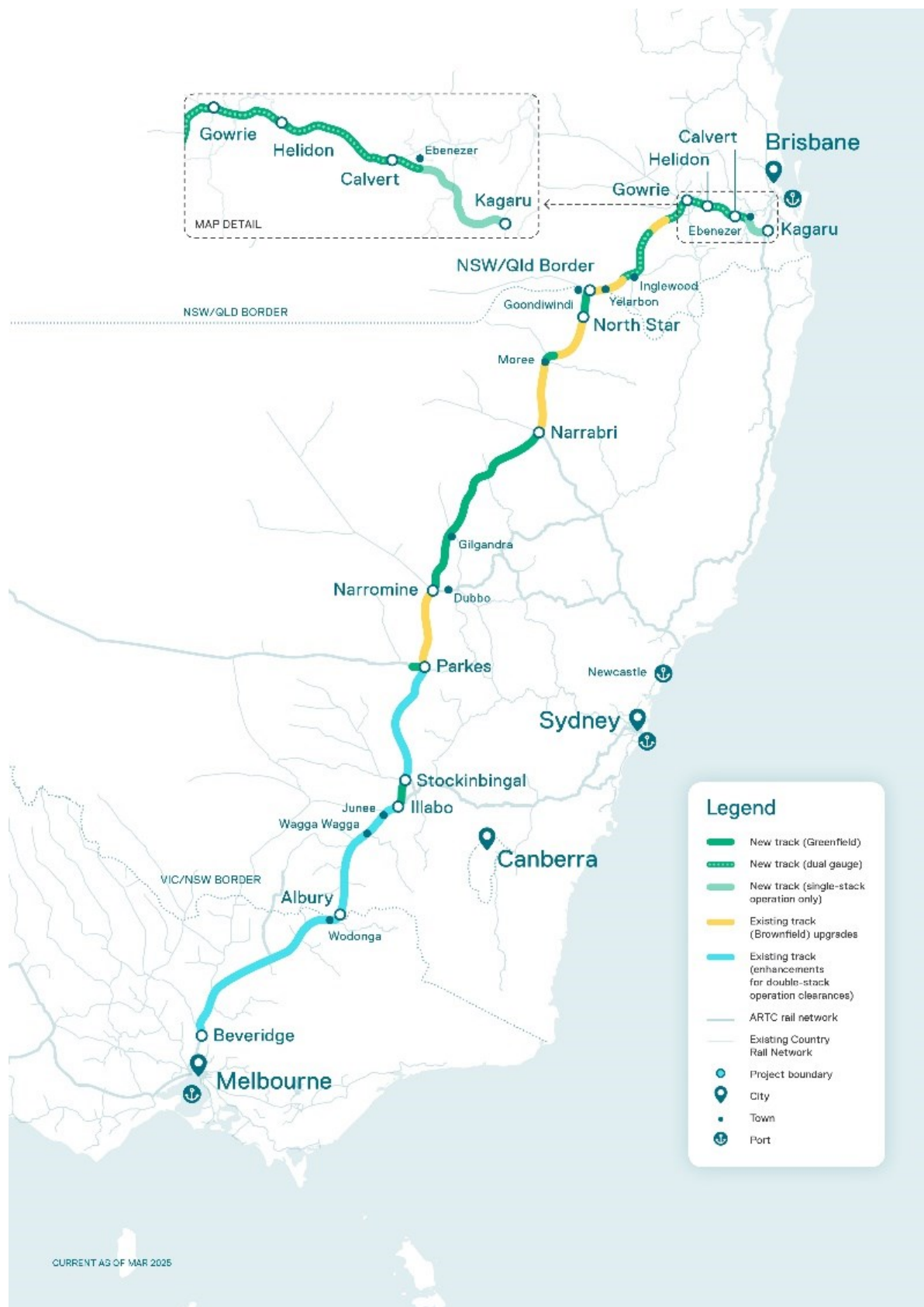


FIGURE 1: INLAND RAIL ALIGNMENT MAP

1.2 Albury to Illabo (A2I)

The Albury to Illabo (A2I) Project is an Enhancement Project within the Inland Rail Program. The scope includes enhancement works to structures and sections of track along 185 km of the existing operational standard-gauge railway.

Enhancements or modification works are required at discrete sites along the A2I alignment to provide the increased vertical and horizontal clearances required for double-stacked freight trains.

The Critical State Significant Infrastructure (CSSI) for the A2I project as described in Schedule 1 of the planning approval document includes ancillary works/adjustments to nine level crossings. Seven of these are public level crossings which were in operation before the Inland Rail Project, one is a public level crossing at Dampier Street in Bomen which was closed to road traffic prior to the Inland Rail Project and there is one private level crossing which will be detailed in the Private Level Crossing Treatment Report as per Condition E150 and 151.

A2I enhancement works include:

- Track realignment/track slews
- Lowering and/or modification within the existing rail corridor
- Modification, removal or replacement bridge structures (rail, road and/or pedestrian bridges)
- Raising or replacing of signal gantries
- Level crossing modifications
- And other associated works.

LX604 is required to be modified to accommodate double-stacked freight trains. At LX604 there are minor track slews of up to approximately 155mm proposed through the level crossing.

The existing and proposed primary level crossing control at LX604 is primary flashing lights and boom barriers. As part of the modification of the crossing to facilitate double stacked trains, the following upgrades are proposed at LX604.

- Existing asphalt infill crossing to be removed and replaced with rubber panel crossing system.
- Remove and reinstate the RX-5 assemblies (to provide a compliant 3.5 m clearance to the new track alignment)
- Widen the sealed road area to provide 3.0m wide lane widths and 1.5m wide sealed shoulders
- Shift the stop bars on either side of the crossing to provide a 3.0m offset to the new RX-5 assembly locations
- Add RX-9 level crossing width marker assemblies
- Signage and line marking will be upgraded.

TABLE 2: LX604 SUMMARY TABLE

No #	Crossing Name and location	Design Package	Road Manager	Km	Primary Level Crossing Treatment (Existing and Proposed)	Works Summary
LX604	Brabins Road, Illabo	Junee to Illabo (J2I)	JSC	468.900	Active controls (Flashing lights and Boom Barriers)	Modify crossing for slew works. LX panels, signage and line marking to be upgraded.

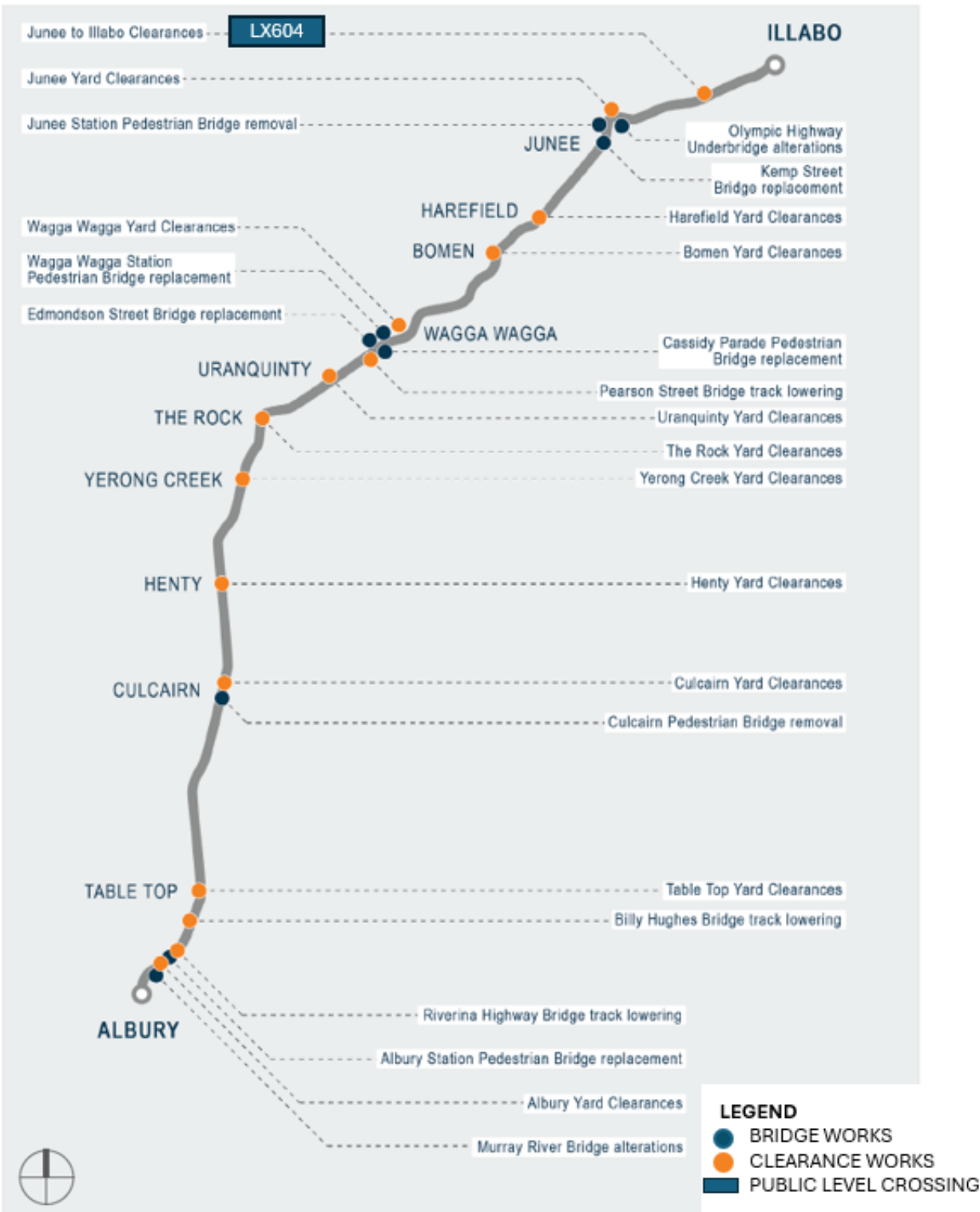


Figure 2: Location of LX604 Brabins

1.3 Planning Approvals

The Albury to Illabo section of the Inland Rail Program (the proposal) is a Critical State Significant Infrastructure project being assessed under the Environmental Planning and Assessment Act 1979 (NSW).

An Environmental Impact Statement (EIS) for the proposal was placed on public exhibition in 2022 and submissions were invited from the community and key stakeholders. ARTC responded to the issues raised in these submissions in the EIS Response to Submissions Report in November 2023. Alongside this, ARTC also prepared a Preferred Infrastructure Report (PIR) in response to a request from DPHI for further assessment of traffic and transport, noise and vibration, and air quality impacts from the proposal. Additionally, the PIR also considered changes to the proposal since the EIS that had arisen as a consequence of the further assessments and related submissions. The PIR was placed on public exhibition from 15 November 2023 to 6 December 2023 and during this time, the community and key stakeholders were invited to make a submission. ARTC subsequently prepared a PIR Response to Submissions (PIR-RtS) report in February 2024 that responds to the issues raised in these submissions.

Following submission of the PIR-RtS, DPHI completed their assessment of the proposal in accordance with Government legislation, policies and guidelines. The DPHI provided their assessment report and recommended conditions of approval in September 2024 to the NSW Planning Minister to consider when deciding on the project approval.

Approval from the NSW Minister for Planning was granted on 8th October 2024.

TABLE 3: CONDITIONS OF APPROVAL COMPLIANCE MATRIX

Note where a COA relates to the CSSI, the information will be crossing specific as allowed under COA E152.

No.	Condition	Section Reference
E144	Any new overbridges, new or modified roads, and new or modified level crossings must be designed and constructed to meet relevant design, engineering and safety guidelines, including the Austroads Guide to Traffic Management, and relevant Transport for NSW Austroads Supplements. The roads authority, asset owner, and TfNSW must be consulted throughout the design process of all new or modified bridges, roads and/or levels crossings. Evidence of consultation with the asset owner and TfNSW, and endorsement of the roads authority, must be made available to the Planning Secretary on request in accordance with Condition A8. <i>Note: This condition does not affect any obligations to obtain approvals under the Roads Act 1993.</i>	Refer Appendix A
E146	In order to maintain safe and efficient operation of the road network, the Proponent must prepare a Public Level Crossing Treatment Report in consultation with TfNSW and relevant councils. The report must:	This LCTR has been developed in consultation with TfNSW and Junee Shire Council. Refer Appendix A.
	(a) illustrate the location of all public level crossings which traverse the CSSI;	Figure 2
	(b) list, and identify on a figure, any public level crossings that will be closed or upgraded, including the type of treatment proposed where a level crossing is to be upgraded;	Appendix B and Table 2
	(c) where no works are proposed at a public crossing, provide reason for the decision;	Appendix B <i>N/A Works are proposed at LX604</i>
	(d) include measures to avoid potential short-stacking at level crossings; and	Appendix C
	(e) provide justification for any proposed closures.	Section 5

No.	Condition	Section Reference
E147	The assessment of level crossings must utilise the Australian Level Crossing Assessment Model (ALCAM). The process for determining the type of level crossing treatment must be consistent with the process outlined in the documents listed in Condition A1 and the Traffic Impact Assessment Appendix M of the EIS.	Appendix B Table 7
E148	The Public Level Crossing Treatment Report must also include an assessment of the road risks, consistent with the guideline Railway Crossing Safety Series 2011, Plan: Establishing a Railway Crossing Safety Management Plan (NSW Roads and Traffic Authority, 2011). The report is also to include an assessment of the crossing's compliance with AS /RISSB 7658-2020. Railway Infrastructure – Railway Level Crossing and AS1742.7 2016 Manual of uniform traffic control devices and Section 10 Rail Crossings of AGRD Part 4.	Appendix D
E149	The design of any level crossing on a public road must be endorsed by TfNSW or the relevant roads authority (where not TfNSW), prior to commencing construction of that crossing.	JSC design endorsement will be appended to the LCTR once received, and prior to construction.
E152	The Public Level Crossing Treatment Report and Private Level Crossing Treatment Report must be submitted to the Planning Secretary for approval at least one (1) month prior to the closure or upgrade of a public or private level crossing, as relevant. Individual reports may be submitted for each crossing or address a group of crossings or the entire CSSI.	This Report is an individual report for LX604. This report is being submitted to the Planning Secretary at least (1) month prior to commencement of the works.

2 CONSULTATION

2.1 Overview

Inland Rail's values commit the organisation to active engagement with stakeholders and the community; therefore, a comprehensive consultation program has been undertaken throughout the planning and design phases of the A2I Inland Rail project.

Effective communication and stakeholder engagement are fundamental to reducing risk and minimising social and environmental impacts. Inland Rail believes that identifying, engaging, and effectively communicating with stakeholders is critical to the successful delivery of Inland Rail.

Inland Rail has conducted extensive consultation with the key level crossing stakeholders including TfNSW and Junee Shire Council during the planning and detailed design of LX604. All consultation, prior to the Contractors engagement, has been done in line with the Inland Rail A2I Communication Strategy Engagement Implementation Plan (EIP). Consultation by the Contractor has been in line with the Community Communication Strategy and Communication and Stakeholder Engagement Plan.

There are signed agreements in place between ARTC and all of the Councils across A2I. These are referred to as Master Inland Rail Development Agreements and were signed between 2021 and 2023. These are important in ensuring there is alignment on the key matters before any works are commenced. The council development agreement includes a list of council assets impacted by the project including level crossings, the scope of works at each location as well as the required design standards.

Information sharing agreements have been established to enable the prompt transfer of information between Council's and the project team. This information included inputs into the design process including road traffic counts, proposed changes in road usage and feedback on any future development plans.

Inland Rail and Martinus have adopted the following methods of engagement to discuss and seek feedback from key stakeholders on the level crossing designs:

- Monthly Monitoring Meetings
- Stage Gate Design Reviews where the stakeholder can provide feedback in a Comments Register on the following stages of design:
 - » SDR (30%)
 - » PDR (70% design)
 - » DDR (100% design)
- Stage Gate Briefing Workshops where Martinus presents the design package and provides attendees with the opportunity to ask questions.
- 70% Safety in Design Workshop
- Technical Working Groups

Inland Rail and Martinus will continue to consult and work closely with these key stakeholders during the construction and handover phase of the project.

Consultation activities specific to the LX604 can be found in Appendix A.

3 PUBLIC LEVEL CROSSING ASSESSMENT

Level crossings have been assessed in accordance with the public level crossing treatment methodology detailed in Appendix A of the A2I EIS Technical Paper 1: Traffic and Transport “Public Level Crossing Treatment Methodology”.

The key principles that guided the decision-making process for determining treatments at public level crossings are noted below:

- Utilising a risk-based decision-making process focused on minimising risk so far as is reasonably practicable (SFAIRP);
- Consistency in determining public level crossing treatments across the projects of the Inland Rail Programme;
- Consistent methodology used to determine whether the cost of potential treatment is grossly disproportionate to the level of risk to safety and the projected benefits; and
- Ensuring the feasibility of the Inland Rail Programme by proposing cost-effective solutions.

An overview of the process in assessing public level crossings and developing treatments is outlined in the following sections.

In summary all public level crossings within the A2I scope either:

- Have active controls (Flashing lights and Boom Barriers) which is the highest form of level crossing control under the Australian Standard
- Will be closed as part of the project

3.1 Identification of all public level crossings within the project area

An important objective of public level crossing investigations was the clear and accurate identification of all level crossings within the project area and getting agreement on who the road manager is. The development of an initial level crossing list encompassed a review of existing level crossing datasets including the Australian Level Crossing Assessment Model (ALCAM) database, ARTC’s asset management database and any relevant property records.

The list of level crossings was then provided to the relevant road manager for review to ensure that all level crossings and associated Road Managers were correctly identified, and the data was updated to reflect any agreed changes. The road managers for all public crossings are documented in Table 2. This is also documented in the Council Development Agreements.

4 PUBLIC LEVEL CROSSING ASSESSMENT

4.1 Assessment of public level crossings for closure

In New South Wales, formal closure of a level crossing needs to be undertaken in accordance with the requirements of the Transport Administration Act 1998 and requires Ministerial approval. Closure of legal level crossings within A2I project will only be actioned following confirmation from the road manager (for public level crossings) of no objection to closure.

Initial consideration was given to the elimination of level crossing risks by assessing all level crossings for closure. This is in line with the Transport for New South Wales (TfNSW) Level Crossing Closures Policy, which notes that:

“in order to manage the risks to safety associated with road and rail interfaces, the closure of public and private level crossings in NSW is to be pursued, where it is practical and cost effective to do so”

Each was reviewed considering traffic volumes and alternative routes, along with land use, property ownership and any special user groups which may use the level crossing.

Crossings that could potentially be closed were identified where:

- Traffic volumes are (relatively) low;
- Alternative legal access is available or reasonably achievable; and
- The imposition on road users is not considered unreasonable, considering Rail Industry Safety and Standards Board (RISSB) level crossing consolidation guideline.

The assessment is summarised in Section 5.

4.2 Criteria for automatic grade separation

ARTC's policy as per Appendix L of the Submission Report is that rail-road interfaces will be automatically grade separated in the following instances:

- Rail-road crossings with four rail tracks (current)
- Rail-road crossings of freeways and highways of four or more lanes (current and committed plans).
- Where grade separation is the logical option for engineering or topographical reasons.

LX604 did not meet the above criteria.

All public level crossings which do not meet the automatic grade separation criteria are to be assessed using the Level Crossing Risk Tool, in order to determine the appropriate crossing treatment, which may still be that the crossing be grade separated. Further detail on the risk tool is included below.

4.3 Level crossing risk tool

Where closure is not feasible, a methodology was developed to identify risk treatments to be implemented at each individual level crossing. This methodology was formalised in the level crossing risk tool which identified risk treatments and assisted Inland Rail to demonstrate that risks to safety would be managed So Far As Is Reasonably Practicable (SFAIRP) for both brownfield and greenfield interfaces.

In accordance with the Office of the National Rail Safety Regulator's (ONRSR's) recommendation on the use of quantitative risk assessment techniques, a decision was made to develop a tool which moved away from a “warrant” approach (e.g. decisions around control types based on basic metrics such as road type or traffic volumes) to a cost benefit analysis (CBA) approach for safety risk management. The approach utilises ALCAM as one of the main inputs into the decision process for the recommended level of control at Inland Rail level crossings.

The Australian Transport Council in May 2003 agreed to adopt ALCAM as the only comprehensive level crossing assessment model in Australia. ALCAM is an assessment tool used to identify key potential risks at level crossings and assess the overall effects of proposed treatments.

Consideration of factors other than ALCAM that may influence the recommended level of control were also considered, where relevant on a case-by-case basis, including:

- Collision and near-collision history;

- Engineering experience (both rail and road);
- Traffic and transport impacts; and
- Local knowledge of driver and pedestrian behaviour.

Level crossing treatment (control) options which may be considered as part of the process included:

- Upgrade of RX-2 passive (stop sign) level crossings to RX-5 active (flashing lights and boom barrier) control;
- Upgrade of existing RX-5 flashing light-controlled level crossings to include boom barriers;
- Retain existing RX-2 passive controls and renew the level crossing infrastructure, including signage and road markings, to ensure that the crossing complies with the Australian Standard;
- Grade separation; and
- Other treatments identified based on-site specific risks.

Transport for New South Wales (TfNSW) Level Crossing policies have been considered in the development of the proposed treatments, including:

- the Level Crossing Closures Policy; and
- the Construction of New Level Crossings Policy.
- Speed Limit on Approach to Active Level crossings Policy.

In order to be consistent with the TfNSW Level Crossing Improvement Program (LCIP), Inland Rail have also adopted the position that all upgrades to active controls (RX-5) will include boom gate barriers in addition to the flashing lights and bells.

4.4 Cost benefit analysis (CBA)

Part of the test as to whether risks have been managed SFAIRP was to determine whether the cost of the additional control was grossly disproportionate to the benefit gained via a CBA. From a financial perspective, to do the CBA, three key inputs were required:

- The avoided cost if an additional risk control is implemented – ALCAM provided a quantitative measure of risk reduction generated by changing the controls at the level crossing. Risk reduction (benefits) could be calculated by comparing two risk scores for two scenarios – for example one proposal with stop signs and one with flashing lights and boom barriers. ALCAM is focused on safety risks and encompasses the costs of fatalities and injuries resulting from a road rail collision.
- The cost of implementing the additional risk control – This was a combination of the capital cost of the additional control and the annual maintenance and repair cost over the life of the additional control
- What would be considered grossly disproportionate – From a legal perspective the ONRSR Meaning of Duty to Ensure Safety So Far As Is Reasonably Practicable Guideline provided guidance on what would be considered grossly disproportionate through considering a Grossly Disproportionate Factor (GDF). The guideline suggested that the GDF may be dependent on the likelihood and consequence with low risks having a factor of 2 and high risk having a factor of 10.

All public level crossings within the A2I scope where closure is not being progressed will have active controls (with flashing lights and boom barriers). This is the highest form of level crossing control under the Australian Standard.

4.5 The use of ALCAM assessments in the determination of level crossing treatments

ALCAM assessments have been undertaken for public road level crossings in their existing configuration, thus providing a baseline risk score. The “proposal” functionality in the ALCAM system was used to model the ALCAM risk score assuming the project proceeds. This incorporates forecast changes to train speeds, volumes and train lengths. For the A2I project, this assessment assumed the maximum operational train speed and the forecasted road and train volumes. This aligns with the EIS timeframes.

Updated road traffic counts, including a breakdown between light and heavy vehicles, have also been collected for all public roads and included in this analysis. In parallel, Inland Rail reviewed the ONRSR incident data to determine road rail collisions at the respective level crossings.

The next level of control was applied at level crossings assessed as being non-compliant for the existing control. For example, where sufficient sighting distance for a stop sign crossing could not be achieved as a result of increased train speeds, as per Australian Standard 1742.7-2016 (Manual of uniform traffic control devices Part 7: Railway crossings) the minimum control would be flashing lights and boom barriers. Even for level crossings compliant for the current control, the next level of control was modelled in ALCAM and a cost-benefit/grossly disproportionate analysis undertaken. Additional levels of control were modelled and a cost-benefit/gross disproportionate analysis carried out for each until the risk factor was reduced and a cost-effective level of crossing protection established.

ALCAM assessments were undertaken on detailed designs. The assessment included an evaluation of compliance with AS1742.7 requirements for signage and sighting distance and risks highlighted in AS /RISSB 7658-2020. Railway Infrastructure – Railway Level ALCAM assessments include consideration of the specific risks considered in Section 10 Rail Crossings of AGRD Part 4.

4.6 Preliminary design

Preliminary design was first undertaken to confirm that a level crossing with the proposed control, compliant with the relevant standards, could be constructed onsite. This design incorporated the appropriate road design standards as directed by the relevant road infrastructure manager.

The design has been completed such that all level crossings remaining as part of the final works will be upgraded/constructed to comply with AS/RISSB 7658:2012 “Railway Infrastructure – Railway Level Crossings”, AS1742.7 (2016) “Manual of Uniform Traffic Control Devices Railway Crossings” and other road authority standards, and to address SFAIRP any safety deficiencies identified through the design and risk assessment process.

Site specific level crossing treatments were then reviewed with the respective road infrastructure managers as the project progressed through detailed design.

4.7 Interface agreements

In accordance with National and State Rail Safety Law requirements, all current and proposed public road crossings will be subject to an Interface Agreement.

The Rail Road Interface Agreement within Junee Shire Council has been signed by all parties. ARTC have advised that as project works are nearing completion, ARTC as the RIM will review the Interface Agreement and update the document where required in consultation with the relevant road manager(s).

5 LEVEL CROSSING CLOSURE SUMMARY

TABLE 4: LEVEL CROSSING CLOSURE SUMMARY TABLE FOR LX604

LX	Crossing name and location	Road Manager	Proposed closure	Reasoning	Discussed with Road Manager	Conclusion
LX604	Brabins Road, Illabo	Junee Shire Council	N0	Closure is not feasible. This crossing is the only connection between the eastern and western side of Illabo with annual traffic volumes of more than 100 vehicles per day. There is no reasonably practical alternative access.	N/A	Closure not proposed

6 ASSESSMENT OF THE ROAD RISKS

An assessment of the road risks, consistent with the guidelines Railway Crossing Safety Series 2011 (NSW Roads and Traffic Authority, 2011) was undertaken. The assessment is included in Appendix D

The process follows the following steps:

- Identify the safety risks, hazards and hazardous events at each level crossing.
- Evaluate the mechanisms of crash causation at a level crossing, applying the railway crossing cause/consequence bow tie model. Select safety management measures that are appropriate for the risk and that will minimise that risk, so far as is reasonably practicable; and
- Assess the risk at each level crossing, applying risk tolerance and risk assessment processes.

The risk assessment was undertaken on the proposed configuration for each level crossing at the completion of the detailed design. The assessment shows that all risks are rated at no greater than low level, SFAIRP.



APPENDICES



APPENDIX A

Consultation with Key Stakeholders

TABLE 5: CONSULTATION WITH KEY STAKEHOLDERS

Date	Forum	Stakeholder	Location	LX	Design Stage	Design Discussion	Design Response	Status
13-Apr-21	SDR Design Review	JSC	J2I	LX604	Feasibility	Junee Shire Council noted that at the Council meeting held 16 March 2021, Councillors passed a resolution advocating that all public rail crossings in the Junee Shire be activated. Letter was received from Council 13 April 2021 for advocating all public level	All public level crossings which are within the approved scope of the A21 project will either be closed or have active controls.	CLOSED
13-Dec-23	SDR Design Review	TFNSW	J2I	LX604	SDR	TFNSW were consulted on the SDR design and provided comments. Refer 5-0052-210-PEN-J7-CS-0001-TW.	SDR design comments have been addressed by the Project and SDR comments have been closed by TfNSW. Refer Refer 5-0052-210-PEN-J7-CS-0001-TW_K	CLOSED
8-Jul-24	PDR Design Review	TFNSW	J2I	LX604	PDR	Comments were not received by TFNSW	Note	CLOSED
22-Nov-24	DDR Design Review	TFNSW	J2I	LX604	DDR	TFNSW were consulted on the DDR design and provided comments. Refer 5-0052-210-PEN-J7-CS-0001-TW.	DDR design comments have been responded to by the Project within the J2I Comment sheet. Refer 5-0052-210-PEN-J7-CS-0001-TW_K. There are 2 open comments regarding minor formatting updates required in the Design Report. This will be addressed in the next submission of the design report.	PENDING
7-Feb-25	IFC Design Submission	TFNSW	J2I	LX604	IFC	TFNSW were consulted on the IFC design and provided comments. Refer 5-0052-210-PEN-J7-CS-0001-TW.	IFC comments have been responded to within the J2I Comment sheet. Refer 5-0052-210-PEN-J7-CS-0001-TW_K. There remain 5 open comments that will be addressed in the next submission of the drawings and design report. The Project will work with TfNSW to close all	PENDING

Date	Forum	Stakeholder	Location	LX	Design Stage	Design Discussion	Design Response	Status
							remaining comments on the J21 comment sheet, separate to LCTR.	
13-Dec-23	SDR Design Review	JSC	J21	LX604	SDR	The existing asphalt infill crossing is to be removed and replaced with rubber crossing panels concrete embedded track concrete crossing. JSC supports any concept that improves ride quality, however, the capacity and maintenance of this infrastructure needs to be clearly defined, as per other pavements. Details should be included which indicate whether the rubber infill for the Brabbins Road Level Crossing will be equivalent to support equivalent vehicle loads to the existing concrete crossing. Design life and maintenance requirements and programs for the rubber crossing panels should be detailed more clearly to ensure the product performs adequately and no ongoing maintenance concerns arise due to the move. All other pavements undergo this same assessment in accordance with Austroads Guide to Pavement Technology - Pavement Structural Design. A copy of this design should be provided to Junee Shire Council.	Detailed provided in PDR/DDR/IFC submission. The STRAIL rubber panels are a Type-Approved product by ARTC. This means that the product has been put forward, sponsored, tested and assessed by ARTC as meeting the requirements for the environment. The Type Approval documentation, and the supplier documentation can be provided, and indicates that the product is approved for use up to 110kph provided it's installed as per the manufacturer's instructions.	CLOSED
13-Dec-23	SDR Design Review	JSC	J21	LX604	SDR	Mill and Resheet is to be required on both approaches to Level Crossing. Mill and Resheet to consist of 40mm AC10 and 120mm AC40. Backfill with DGB20 or capping is to be provided underneath AC40 up to subsoil drainage (if required).	The design will be updated to provide 50mm AC14 and 125 AC20 for pavement PT13 which satisfy JSC requirements.	CLOSED

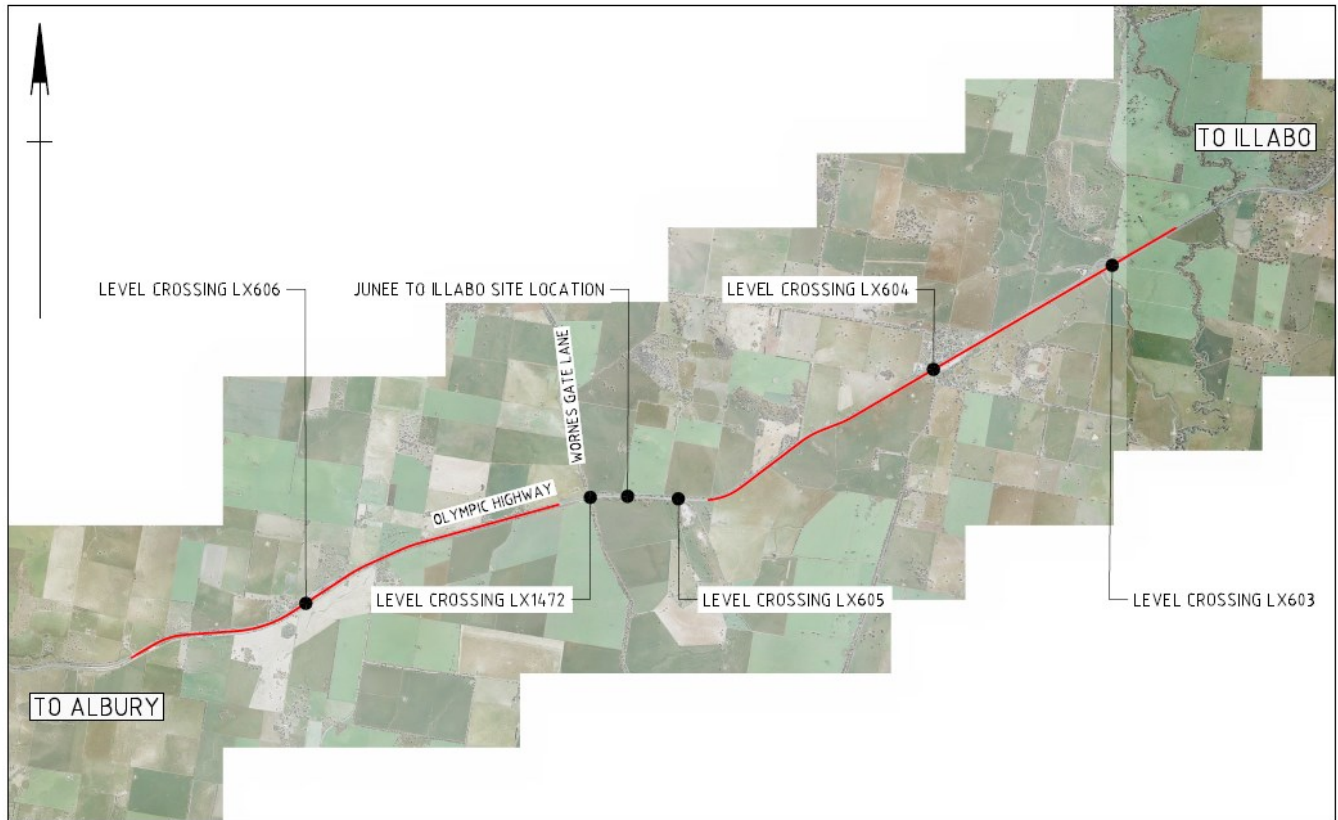
Date	Forum	Stakeholder	Location	LX	Design Stage	Design Discussion	Design Response	Status
13-Dec-23	SDR Design Review	ARTC	J2I	LX604	SDR	Comments received. Refer Comment sheet 5-0052-210-PEN-J7-CS-0001	Comments closed	CLOSED
8-Jul-24	PDR Design Review	ARTC	J2I	LX604	PDR	Comments received. Refer Comment sheet 5-0052-210-PEN-J7-CS-0001	Comments closed	CLOSED
22-Nov-24	DDR Design Review	ARTC	J2I	LX604	PDR	Comments received. Refer Comment sheet 5-0052-210-PEN-J7-CS-0001	Comments closed	CLOSED
20-Jan-25	RSA	ARTC/JSC	J2I	LX604	Rev A	Issued for review.	Refer comment sheet 5-0052-210-PEN-J7-CS-0003.	CLOSED
28-Aug-25	RSA	ARTC/JSC	J2I	LX604	Rev 0.2	Issued for review and endorsement	LX604 design has been endorsed by IRPL and the road manager	CLOSED
20-May-25	JSC Council meeting minutes	JSC	J2I	LX604	JSC Confirmation of Minutes Ordinary Meeting	Traffic Committee met to discuss LX604 design	Resolved - The Brabins Road Level Crossing Design is endorsed as it currently is presented, provided PBS Level 2, 25/26m B-double access is maintained and Councils pavement considerations are met.	CLOSED
9-Jan-26	LCTR	TFNSW	J2I	LX604	PDR	LCTR Rev A issued for review	TFNSW comments have been closed. Refer Appendix G for TfNSW consultation letter	CLOSED
9-Jan-26	LCTR	JSC	J2I	LX604	PDR	LCTR Rev A issued for review	Comment sheet has not been received. 20 day review period has lapsed and therefore LCTR is deemed accepted.	CLOSED
9-Jan-26	JSC Council meeting	JSC	J2I	LX604	IFC	JSC design endorsement was obtained on the basis the drawings were updated to include: 1. PT13 pavement type to 50mm AC14 and 125 AC20	LX604 drawings have been endorsed	CLOSED

Date	Forum	Stakeholder	Location	LX	Design Stage	Design Discussion	Design Response	Status
						2. Additional advanced warning sign on the Council side of the level crossing to be added		



APPENDIX B

Level Crossing Treatment Summary



LOCATION PLAN
NTS

TABLE 6: LEVEL CROSSING SCOPE AND LOCATION

Crossing Number	Crossing Name	Existing Control	Proposed Control	Road Manager	Scope	Crossing Location	Existing Chainage	GIS Latitude	GIS Longitude
LX604	Brabins Road	Active – Flashing lights and Boom Barriers	Active – Flashing lights and boom Barriers	Junee Shire Council	Minor Main slewing of the Up track by approximately 80 mm and the Down track by approximately 155 mm through the level crossing to accommodate double stacked trains. Existing asphalt infill crossing to be removed and replaced with rubber panel crossing system. Remove and reinstate the RX-5 assemblies (2) to provide a compliant 3.5 m clearance to the new track alignment (addressing PHL_106, 108*). Widen the sealed road area to provide 3.0m wide lane widths and 1.5m wide sealed shoulders (addressing PHL_107*) Shift the stop bars on either side of the crossing to provide a 3.0m offset to the new RX-5 assembly locations (addressing PHL_106, 107*). Add RX-9 level crossing width marker assemblies (addressing PHL_106, 108*). Signage and line marking will be upgraded (addressing PHL_106, 107*).	Illabo	468.902	34.816203	147.738767

* PHL is the Project Hazard Log ID. Refer Appendix E for a description of the hazard and controls.

TABLE 7: LEVEL CROSSING TREATMENT SUMMARY

Crossing Number	Road Name	Assessed for Closure	AADT (Baseline)	%HV	Assumed Growth Rate %	AADT (2040)	ALCAM Assessments Undertaken	Non ALCAM factors considered	Incident Data (ONRSR) 01/07/2014 to 11/09/2024	LX is compliant - existing control	CBA undertaken	Proposed control complies with AS1742.7	Required S3 greater than 750m
LX 604	Brabins Road	Y	110	29.8	1	138	Y	Y	0 reported near misses or collisions between and train and a road vehicle	Y - Active Controls	Y	Y	NA (Active controls)



APPENDIX C

Short Stacking Review

TABLE 8: SHORT STACKING REVIEW

LX	Crossing name and location	Road Manager	Design Vehicle	Short stacking issue	Mitigation Measures
LX604	Brabins Road, Illabo	Junee Shire Council	B-Double 26m	Nil	N/A



APPENDIX D

Risk Assessment Evidence

Introduction

An assessment of the road risks, consistent with the guidelines Railway Crossing Safety Series 2011 (NSW Roads and Traffic Authority, 2011) was undertaken. Key documents evidencing the risk assessment process are listed below and have been provided to JSC and ARTC. These are the road and rail managers for the level crossings which are the subject of this report.

Design Packages

- 2100-J7-0052-DES-001 – Junee to Illabo (J2I) Clearances (includes LX604)

Design Review - ARTC

- J2I SDR, PDR, DDR designs issued. Refer 5-0052-210-PEN-J7-CS-0001 for comment sheet.
- J2I IFC Design Report 5-0052-210-PEN-J7-RP-0001 – Appendix H1, includes ARTC comments

Design Review - Council

- J2I SDR, PDR, DDR designs issued. Refer 5-0052-210-PEN-J7-CS-0001-JC for comment sheet.

Design Review - TfNSW

- SRD, PDR, DDR and IFC designs issued. Refer 5-0052-210-PEN-J7-CS-0001-TW_J for comment sheet.

Safety in Design

- ARTC 30% SiD for level crossings (incl. LX604) completed 11/12/2023 – refer meeting minutes 5-0052-214-PAS-00-MM-0002
- ARTC Post 70% SiD for track works (incl. LX604) completed 03/09/24 - refer meeting minutes 5-0052-214-PAS-00-MM-0006
- JSC Post 70% SiD for LX604 and LX606 completed 25th and 26th Feb 2025 – refer meeting minutes 5-0052-210-PAS-W0-MM-0001
- Refer J2I Design Report 5-0052-210-PEN-J7-RP-0001 for:
 - Appendix B1 and B2 for Technical and Safety VCRM in Appendix B1 and B2
 - Appendix C1, C2 and C3 for design hazard log, hazard mapping and master hazard log
 - Section 2.9 and Appendix Q for human factors considerations

Construction and O&M risk transfer

- Refer Appendix M of the J2I IFC Design Report 5-0052-210-PEN-W9-RP-0001 for ADC Transfer Forms.
- Email sent 19th Nov to 2025 to JSC transferring residual risks. MR awaiting reply.

Road Safety Audit (RSA)

- Refer Road Safety Audit – J2I 5-0052-210-PEN-J7-RP-0002



APPENDIX E

Risk Assessment Summary

A2P Hazard ID	HAZARD	Causes	Consequence	EXISTING CONTROLS	Risk Assessment Identified Controls	Post Risk Assessment LIKELIHOOD	Post Risk Assessment CONSEQUENCE	Post Risk Assessment RISK
PHL_097	Maintenance worker slips, trips and falls	CA1. Existing failed patches, shape losses, and potholes in the asphalt pavement at A2P level crossings CA2. Different surfaces (rubber / asphalt) cause uneven surface at interfaces	CO1. Lost Time Injury (LTI) Results OR Medical Treatment Required - Minor	EC1/O. RIW worker to follow ARTC Safeworking procedures for works within ARTC corridor EC2/M. Slips trips and falls SWMS EC3/M. Regular inspection of formation shoulder and ballast by following ARTC (TMP) Technical Maintenance plans, Track services schedules, Track Engineering manuals	D1. Design to replace poor quality level crossing asphalt surface with rubber or concrete pads in accordance with STD-T0001 C1. At handback, Construction contractor shall provide a Technical Maintenance Plan (TMP) for the supplied product at level crossing rubber/asphalt interface M1. ARTC to carry out inspection and maintenance of the level crossing rubber/asphalt interface in accordance with the TMP supplied by the contractor	Unlikely	Minor	LOW: 4 (2D)
PHL_106	Road vehicle failing to stop in time and colliding with a passing train at a level crossing	CA1. Sun glare reduces LX visibility CA2. Insufficient lighting during night time CA3. Existing non-compliant/insufficient separation between warning signages and the train tracks at LX CA4. Faulty boom gates or signal lights	CO1. Multiple fatalities - Extreme	EC1/D. Existing signage and signal lights on both approaches of level crossing EC2/D. Existing boom gates on both approaches of level crossing EC3/D. Design and Pre-commissioning ALCAM EC4/D. Signal Sighting to be carried out EC5/M. Regular inspection and maintenance of LX infrastructure including line marking, signage, signal and boom gate	D1 - Design to provide backing boards to reduce glare D2 - Design to provide flashing lights to warn road users of the upcoming level crossing D3 - Design to replace existing signage in accordance with AS1742 AS1657. D4 - Design to move level crossing infrastructure to provide compliant offsets from track (line markings, boom gate, signages) D5 - Design to complete a level crossing sightline check in accordance with AGRD and AS 1742.7 for the designed vehicle D6 - Road design in accordance with AGRD and AS 1742.7 to allow safe turning and stopping of the design vehicle at level crossing D7 - ALCAM assessment to be carried out for the detailed design	Rare	Extreme	MEDIUM: 16 (5E)
PHL_107	Errant vehicle drives off level crossing carriageway and crash into nearby signalling assets	CA1. Existing signalling huts located near level crossing on Olympic Highway	CO1. Serious injuries - Moderate	None identified. Refer to Risk Assessment Identified controls	D1. Design to provide guideposts to delineate carriageway edge in accordance with AS 1742	Unlikely	Moderate	MEDIUM: 11 (3D)
PHL_108	Road vehicle collides with the boom gate at level crossing	CA1. Existing non-compliant/insufficient separation between boom gate and stop line	CO1. Lost Time Injury (LTI) Results OR Medical Treatment Required - Minor	EC1/D. Existing signage and signal lights on both level crossing approaches EC2/D. Design and Pre-commissioning ALCAM Assessment EC3/M. Regular inspection and maintenance of LX infrastructure including line marking, signage, signal and boom gate	D1. Design to space the stop line away from boom gate in accordance with AS 1742	Unlikely	Minor	LOW: 4 (2D)
PHL_127	Trespasser accesses the rail corridor through level crossing and subsequently hit by the train	CA1.Insufficient rail corridor fencing at level crossing	C01.Single fatality- Extreme	EC1/O. RIW worker to follow ARTC Safeworking procedures for works within ARTC corridor	D1 -Design to provide warning signs around LX in accordance with ARTC Standard ESM-03-04	Rare	Extreme	MEDIUM: 16 (5E)
PHL_210	Temporary road closures for level crossing works (in possessions) impact local road	CA1. Locals not advised of temporary closures CA2. Sat nav systems still direct people over level crossings	CO1. Road Vehicle / Worker collision - Major Injury CO2. Delays to emergency services in local area	None identified. Refer to Risk Assessment Identified controls	C1.Consultation to be undertaken as part of construction planning for each site and temporary works\ C2.Vehicle diversion routes to be provided during construction works	Unlikely	Major	MEDIUM: 15 (4D)



APPENDIX F

Road Manager Endorsement of LX Design

(to be included for DPHI submission)

4 February 2026

IRPL REF# 5-0000-210-PEN-J7-LT-0001_1

Stephen Targett
Director of Engineering Services
Junee Shire Council
29 Belmore Street | PO Box 93 | JUNEE NSW 2663

Email: Stephen.targett@junee.nsw.gov.au

Dear Stephen,

Inland Rail Albury to Illabo (A2I) – Level Crossing IFC Design Acceptance

Brabins Road– LX604 Design Report

It is acknowledged by IRPL that Junee Shire Council are invited to provide feedback regarding the DDR design as part of the consultation and approval process. During Interface meetings with Council both Inland Rail and the contractor have presented designs for the A2P Enhancement Project including Brabins Road LX 604 design report.

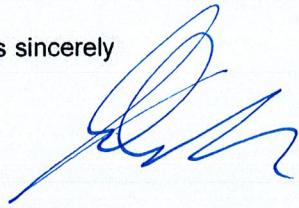
IRPL seeks acceptance to the below referenced design documents which relate to LX604 on Brabins Road, a JSC managed local road. The report was provided via ACONEX IR2140-TRANSMIT-004598.

Level Crossing	Crossing Name	Drawing References
LX 604	Brabins Road	5-0052-210-PEN-J7-RP-0002 (Design Report)

Please sign this letter and return it to us at your earliest convenience such that the designers can proceed with the submission of IFC (Issued for Construction) documentation.

We look forward to working further with Junee Shire City Council and should you have any queries please do not hesitate to contact the undersigned.

Yours sincerely

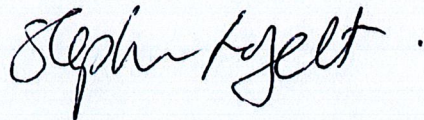
 4/2/26

Gary Newbold

Engineering Manager - Inland Rail P/L

Design Acceptance Confirmation

Signature:



Print Name & JSC Role: Stephen Targett – Director of Engineering Services – Junee Shire City Council

Date:

4 FEB 2026

Inland Rail

Inland Rail Pty Ltd

ACN 094 819 520

ABN 73 094 819 520

Inland Rail is a subsidiary of
Australian Rail Track
Corporation

Add your site address from the drop
down list

Add your site mail address from the
drop down list

1800 732 761

inlandrailenquiries@inlandrail.com.au

inlandrail.com.au



APPENDIX G

TfNSW Consultation

25 February 2026

WST24/00003/148 | SF2024/002449

Ms Cassandra Hodges
Senior Project Manager – Interfaces
Inland Rail Pty Ltd
290 Clarinda Street
PARKES NSW 2870

Dear Ms Hodges,

SSI-10055; Albury to Illabo Inland Rail Project; Level Crossing Treatment Report for Brabins Road LX604 Rev A

Transport for NSW (TfNSW) received Rev A of the Level Crossing Treatment Report for Brabins Road LX604 ('the Report') from Inland Rail Pty Ltd (IRPL) via Aconex (IR2140-TRANSMIT-004597) on 13 January 2026 for review.

Level crossing LX604 is included within the Junee to Illabo Clearances IFC design package. TfNSW provided design review comments on the design package on 19 January 2026 (Ref: WST24/00003/141 | SF2024/002449). Some items relevant to LX604 remain open in the Junee to Illabo Clearances IFC design review.

TfNSW notes that Junee Shire Council is the roads authority and road manager for Brabins Road at LX604. As TfNSW is not the relevant roads authority for Brabins Road, TfNSW has no role in endorsing the road designs and treatment proposed at these level crossings, however, is responsible for setting the speed zone on the local road. TfNSW is providing comment in accordance with the consultation requirements of CoA E146.

TfNSW understands warning signage on the Olympic Highway is to be upgraded. In an email dated 18 September 2024, TfNSW advised IRPL that proposed signage works on the Olympic Highway could be included as part of a Junee Shire Council S138 *Roads Act 1993* approval, with TfNSW concurrence under S138(2) provided to Council after referral of the application to TfNSW by Council for final review.

TfNSW also notes the Rail Infrastructure Manager (RIM) for this rail line is Australian Rail Track Corporation (ARTC) who is responsible for the safe, efficient and effective operation of the national rail network. IRPL must comply with Rail National Safety Law and any modifications to the ARTC managed rail line and level crossing treatment must be authorised by the RIM, ARTC.

Attachment 1 contains comments on Rev A of the Report provided. Please provide the updated Report addressing the outstanding comments for further review.

OFFICIAL

Should you require further information in relation to this matter, please contact the undersigned via: development.inlandrail@transport.nsw.gov.au or on 0417 125 741.

Yours sincerely,

A handwritten signature in black ink, appearing to read "H. Orr".

Howard Orr
Manager Development Services – Inland Rail
Planning, Integration and Passenger
Transport for NSW



Document Control Information			
		Transmittal / Package Transmittal No.:	IR2140-TRANSMIT-004597
Project:	2100-A2I	Transmittal / Package Transmittal Title:	2100-A2I Level Crossing Treatment Report – Brabins Road (LX604)
Comment Sheet Number_Revision:	5-0052-210-CXR-J7-CS-0002-TW	Date Submission Received:	13/01/2026
Revision Date:	25/02/2026	Documents related in Aconex (by IR DC)	Yes

TNSW Review						Response (Document Owner)			
#	Section # /Page #	Date	Comment	Comment Type	Compliance Reference Document	Name	Company	Date	Response
1	Appendix A, Table 5	25/02/2026	TNSW notes that Table 5 (Consultation with Key Stakeholders) Design Response to the J2I Clearances DDR TNSW design review comment regarding design speed states: <i>The proposed design and sight distance checks have adopted design speed 50km/hr. The design speed documented in table on 5-0052-210-CXR-J7-DR-0215 has been updated to 50km.</i> However, Drawing no. 5-0052-210-CXR-J7-DR-0215 (Rev 0, dated 6/02/2025, Issued for Construction, recieved on 3/07/2025) states: <i>Design Speed: 30km/h</i> . Please update relevant documents/drawings to accurately reflect design speed of 50km/h for accuracy/consistency.	Consistency					
2	Appendix A, Table 5	25/02/2026	TNSW notes errors in Table 5, where TNSW comments have been indicated as "CLOSED" when they are not. Noting that LX604 is contained within the J2I Clearances package which is still under review, the comments status in the LCTR would more accurately be described as "Pending". Please correct.	Comment					
3	Appendix C, Table 8	25/02/2026	TNSW notes that the design vehicle used in the short stacking review is a 19m semi trailer rather than 25/26m B-double for which Brabins Road is approved. The design vehicle should therefore be the 26m B-Double.	Non-compliance					