

I2S - Mitigation Measures (April 2024)

The EIS identified the proposed approach to environmental management and the mitigation measures that would be implemented to avoid or minimise the potential impacts of the project. These measures were described in chapter 27 of the EIS. After consideration of the issues raised in the EIS submissions, additional work undertaken since exhibition of the EIS, the mitigation measures were updated to:

- ▶ make additional commitments to respond to issues raised in the submissions
- ▶ modify the wording in some instances so that the intent of the measure is clearer
- ▶ some new measures were added, and the wording of some measures has been revised.

The full set of updated mitigation measures is provided in Table B-1 to Table B.3. These tables supersede the mitigation measures previously issued. Each table shows how the mitigation measures have changed compared to the earlier versions.

Mitigation measures, additions and revisions are shown as follows:

- ▶ original versions in the EIS (August 2022) in black text
- ▶ in the Response to Submissions (November 2023) are shown in **red bold text**
- ▶ in the updated BDAR (February 2024) in **blue bold text**
- ▶ in the Biodiversity RFI Response and BDAR revision (April 2024) in **green bold text**.

Where a measure or text has been deleted, it appears as strikethrough text (regardless of when the change was made).

Mitigation measures ABD, AT, AHF, ASE, AW and AHR were originally included in Appendix I (Workforce Accommodation Camp Assessment) of the EIS.

Mitigation measure BD-19 has been relocated from Construction into Design and Preconstruction.

B.1 Updated mitigation measures for detailed design/pre-construction

TABLE B-1 UPDATED MITIGATION MEASURES FOR DETAILED DESIGN/PRE-CONSTRUCTION

Ref	Issue	Mitigation measure
Biodiversity		
BD-1	Impacts on fish passage	Watercourse crossing structures, both temporary and permanent in nature, would meet Inland Rail design standards and be designed in accordance with <i>Why do fish need to cross the road? Fish passage requirements for waterway crossings</i> (Fairfull, S. and Witheridge, G., 2003) and <i>Policy and Guidelines for fish habitat conservation and management</i> (DPI, 2013a) and Guidelines for controlled activities on waterfront land: riparian corridors (Department of Industry, 2018) as far as practicable.
BD-2	Fauna connectivity	<p>The fauna connectivity strategy (Appendix L of the revised BDAR) will be incorporated in the detailed design and implementation of the project. This includes:</p> <ul style="list-style-type: none"> • use of fauna friendly fence in areas of native vegetation and fauna habitats, and prioritised in locations of fragmented habitat with higher connectivity potential • location and design requirements for crossing structures (outlined in Table L-2 of the connectivity strategy) • inclusion of fauna furniture • monitoring and adaptive management requirements as per timing outlined in BDAR Appendix L • revegetation around connectivity structures to surrounding vegetation using locally appropriate planting mixes (BD-8) <p>A final fauna connectivity strategy will be prepared, based on this strategy, which would include associated management plans for targeted threatened species, as required.</p> <p>A final fauna connectivity strategy would be prepared to guide detailed design, based on the draft fauna connectivity strategy provided in Appendix L of the revised BDAR. It would include investigation and design of:</p> <ul style="list-style-type: none"> • locations for fauna crossing structures, particularly for squirrel glider, including consideration of height of remaining trees, height of doublestacked trains (up to 6.5 m), gap between trees and the gliding angle of squirrel gliders • the provision of localised fencing to direct fauna to crossing structures in accordance with relevant guidelines • fauna furniture to be included in the design of bridges and culverts, where appropriate, to encourage crossings by native fauna. <p>▶ The connectivity strategy would include monitoring and reporting requirements in relation to the operational performance of the final measures.</p>
BD-3	Managing the potential for biodiversity impacts during construction	<p>Pre-clearing surveys would be undertaken prior to construction, by a suitably qualified ecologist, in accordance with the biodiversity management plan. Specific surveys would include:</p> <ul style="list-style-type: none"> ▶ areas not surveyed due to access restrictions ▶ surveys for roosting microbats and birds in structures, including telegraph poles and buildings that are proposed to be removed ▶ searches for nest trees ▶ identification of hollow-bearing trees and logs requiring fauna management during removal ▶ aquatic fauna salvage in watercourses or residual pools within 50 m of the construction footprint subject land, and in areas that would be enclosed by silt curtains (e.g. piling locations).
BD-4	Managing the potential for biodiversity impacts during construction	Clearing extents/site boundary/limit of works would be consistent with project proposal extents defined in a condition of approval.
BD-5	Managing the potential for biodiversity impacts during construction	The clearing extents/site boundary/limit of works would be clearly defined with flagging or marking tape, signage or other suitable means to delineate no-go areas. This delineation and marking process would align with the project proposal flagging/marking tape process and specifications.

Ref	Issue	Mitigation measure
BD-6	Managing the potential for biodiversity (aquatic and riparian) impacts during construction	Direct impacts on in-stream vegetation and native vegetation on the banks of watercourses would be avoided as far as practicable by establishing appropriate setback distances.
BD-15	Superb Parrot breeding habitat	Prior to construction commencing Superb Parrot nest trees will be identified in pre-clearing surveys (BD-3). Work will not commence within a 100m radius of confirmed nest trees from September to November (while in use for breeding).
BD-16	Impacts to fauna	<p>A fauna monitoring plan will be prepared by a qualified ecologist. The plan will be consistent with the connectivity strategy and aim to monitor and assess the effectiveness of the fauna mitigation measures including connectivity measures to facilitate movement of target species. This will include:</p> <ul style="list-style-type: none"> ▶ monitoring use of crossing structures ▶ monitoring connectivity structure integrity ▶ SMART principles: Specific, Measurable, Achievable, Realistic, and Timely <p>Note: Monitoring programs required in relation to the Box Gum Woodland Rehabilitation and Management (BD-19) will be separate to the fauna monitoring plan.</p>
BD-17	Biodiversity values in land not surveyed	<p>Ecology surveys will be undertaken in land not surveyed prior to construction and will include:</p> <ul style="list-style-type: none"> ▶ PCT verification ▶ targeted surveys in survey months described in the Threatened Biodiversity Data Collection (TBDC) for species currently assumed to be present, where feasible, undertaken in accordance with the BAM by a suitably qualified and experienced person(s). <p>Where the BDAR has utilised assumed presence calculations to inform the approved credit requirements and the survey report indicates that the credit requirements do not accurately reflect the extent of impacts on these species, revised credit requirements may be sought prior to construction.</p>
BD-19	Box Gum Woodland Rehabilitation and Management SAH additional and appropriate measures	<p>Prior to construction commencing, a program will be established to enable the secure implementation of additional and appropriate measures to negate serious and irreversible impact risks to Box Gum Woodland. This will comprise an approximate 100 hectare area for the long-term strategic revegetation, land management and rehabilitation activities will aim to increase connectivity of Box Gum Woodland Critically Endangered Ecological Community, spatially linked ecological communities and associated habitats, preferentially on land managed by ARTC adjacent to or in the vicinity of the corridor, to provide additional and appropriate measures as agreed between ARTC and the DPHI. The management outcomes will maintain, enhance and reestablish local landscape connectivity of the targeted vegetation communities.</p> <p>Management approaches will include pest and weed control, exclusion of livestock, planting with local provenance seed to establish a species mixture appropriate to the relevant communities, and on-going management responsibilities.</p>
ABD-1	Vegetation clearance management	<p>The proposed access tracks in the northeast and southeast of the accommodation camp site would be located within existing disturbed areas/exotic grassland areas where possible. Surveys would be conducted within PCT 76 (Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions) during detailed design to ensure the siting of the access tracks avoids impacts on PCT 76 as far as possible.</p> <p>If impact on PCT 76 is unavoidable, tree clearing would be minimised by locating access tracks in vegetation gaps visible within aerial imagery, and the existing mapping and refined upon site inspection, targeting areas of previous disturbance/exotic grassland to minimise potential impacts to derived native grassland.</p>

Ref	Issue	Mitigation measure
Traffic, transport and access		
T-1	Road user safety at changes to the road network	Road safety audits and risk assessment of the final design would be undertaken by independent advisors where changes to the road network are required, in accordance with relevant Austroads guidelines and supplements , to ensure the safety of all road users is considered in the design process. Audit findings would be actioned before construction of the relevant infrastructure.
T-2	Road user safety at level crossings	Public level crossings would be designed in accordance with relevant guidelines and standards, including <i>AS 1742.7:2016: Manual of uniform traffic control devices</i> (Standards Australia, 2016) and in consultation with Transport for NSW.
T-3	Closure of level crossings	Consultation with Transport for NSW would be undertaken regarding the proposed closure of level crossings.
T-4	Pre-construction route at Troy Street and Hibernia Street	Input would be sought from affected residents and the local councils, prior to the alternative route being established on Troy Street, in accordance with the Inland Rail Communications and Engagement Strategy. Consultation with relevant stakeholders would be undertaken regarding the need to temporarily relocate the Stockinbingal bus stop during the temporary closure of Hibernia Street. Stakeholders would include Transport for NSW and Cootamundra Gundagai Regional Council.
T-4	Consultation during design development	Input would be sought from relevant stakeholders (including local councils, NHVR and TfNSW) prior to finalising the detailed design of those aspects of the proposal that affect the operation of road and other transport infrastructure under the management of these stakeholders. This would include confirming ongoing operation and maintenance arrangements for those assets under the control of other stakeholders.
Hydrology and flooding		
HF-1	Flooding impacts	<p>The design would continue to be refined where practicable to not worsen existing flooding characteristics at sensitive receptors, up to and including the one per cent Annual Exceedance Probability (1% AEP) event.</p> <p>Detailed flood modelling would consider potential changes to:</p> <ul style="list-style-type: none"> ▶ building and property inundation (including floor level surveys and consideration of existing inundation levels) ▶ contour banks and dams (including survey of these features to ensure continuous operation of these features) ▶ existing rail line, at rail connections ▶ level crossings and road flood levels and extent of flooding along roads ▶ overland flow paths and storage effects of construction and operational infrastructure. <p>Flood modelling, and any mitigation identified as an outcome of modelling, would consider floodplain risk management plans, and would be undertaken in consultation with the relevant local council and local emergency management committees; the NSW Department of Planning and Environment, the NSW State Emergency Service and potentially impacted landholders landowners.</p> <p>Following refinement of the cross drainage design, where velocity-QDL exceedances occur in land adjacent to the corridor that cannot be resolved through infrastructure measures within the corridor, justification of these residual exceedances will be documented and negotiate mitigation measures negotiated with the affected landowners for the affected land areas. Negotiation with landowners will occur through a structured Flood Consultation Protocol including the opportunity for mediation.</p>
HF-2	Construction water supply	<p>Construction water supply options would continue to be explored during detailed design and would include:</p> <ul style="list-style-type: none"> ▶ ongoing consultation with Goldenfields Water (or an equivalent commercial water supply operator) to access the local reticulated network ▶ investigation of options to utilise recycled water from sewage treatment plants ▶ access to groundwater bores where it can be bought on-market ▶ investigation into the use of farm dams for water harvesting and storage.

Ref	Issue	Mitigation measure
HF-3	Retaining water flows	Detailed design would consider channelling of water around Ironbong Road level crossing and Burley Griffin Way realignment, and the potential formation of detention basins as a means of retaining flows in a similar manner to existing farm dams and flood levees.
HF-4	Rail formation failure	Geotechnical investigation and design of new and existing structures will be completed to minimise the risk of rail formation failure. This will occur during the detailed design phase.
Water quality		
WQ-1	Water quality	<p>The construction impact zone defined for the proposal would allow sufficient room for provision of temporary and permanent erosion and sediment control measures/pollution control measures where required based on consideration of overland flow paths and flood risk.</p> <p>Water quality control measures would be designed to capture and treat the 80th percentile five-day rainfall event and any other requirements as outlined in the Blue Book.</p>
WQ-2	Surface water monitoring	<p>A surface water monitoring framework would be developed and implemented as part of the soil and water management plan in the Construction Environmental Management Plan (CEMP). It would identify:</p> <ul style="list-style-type: none"> ▶ monitoring locations at discharge points and selected watercourses where works are being undertaken ▶ monitoring parameters ▶ frequency and duration of monitoring. <p>The monitoring framework would include relevant water quality objectives (WQOs), parameters and criteria. It would be developed in consultation with the NSW Department of Planning and Environment and the NSW Environment Protection Authority.</p>
Groundwater		
GW-1	Management of groundwater bores	Any bores that are decommissioned will be undertaken in accordance with the <i>Minimum Construction Requirements for Water Bores in Australia—Edition 4</i> (NUDLC, 2020).
GW-2	Management of groundwater bores	Any existing groundwater bores that are destroyed during construction would be replaced subject to discussion with the registered owner.
GW-3	Avoid or minimise groundwater seepage	Appropriate drainage measures would be installed at the base of cuts and along high-walls to manage groundwater seepage, in the unlikely event that they be encountered.
Cultural heritage		
Aboriginal heritage		
AH-1	Avoiding and minimising impacts on Aboriginal heritage	Detailed design and construction planning would avoid direct impacts on identified items/sites of Aboriginal heritage significance as far as reasonably practicable. The location of construction compounds and associated access routes would be reviewed to ensure, as far as practicable, they are not located in areas of medium or high archaeological potential.
AH-2	Management of salvaged items	<p>A detailed salvage methodology would be prepared by a suitably qualified archaeologist in consultation with relevant registered Aboriginal parties. The methodology would be included in the Aboriginal cultural heritage management plan (mitigation measure AH-9) to ensure any artefacts salvaged are managed in accordance with the requirements of the <i>National Parks and Wildlife Act 1974</i>. This includes artefacts within the areas of Zone 1 and Zone 2.</p> <p>The methodology would include the process for consultation with Heritage NSW and registered Aboriginal parties in accordance with the <i>Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW</i> (DECCW, 2010a) the <i>Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010</i> (DECCW, 2010b), and the <i>Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW</i> (OEH, 2011a). It would also include requirements in relation to the management of, and care and control plans for, salvaged objects.</p> <p>Registered Aboriginal parties would be engaged to assist in the salvage, which would be managed by an appropriately qualified archaeologist engaged to support the process.</p> <p>Detailed analysis and reporting of cultural material collected would be provided to the NSW Department of Planning and Environment.</p>

Ref	Issue	Mitigation measure
AH-3	Management of salvaged items	Archaeological survey and test excavation (if required) would be performed prior to the commencement of impact works at Zones 5, 6, 9 and 10 , to confirm the precise nature and extent of the archaeological resource and to inform the selection of the applicable mitigation measures.
AH-4	Management of salvaged items	Additional mitigation and management measures would be developed, in consultation with the registered Aboriginal parties, for areas or items of Aboriginal cultural heritage significance identified during the archaeological survey (mitigation measure AH-3). The additional measures would be included in the Aboriginal cultural heritage management plan (mitigation measure AH-9).
AH-5	Avoiding and minimising impacts on Aboriginal heritage	<p>A pre-construction survey would be undertaken to update the Aboriginal Heritage Information Management System (AHIMS) record and/or confirm the locations of the previously listed AHIMS sites that could not be located during the site survey:</p> <ul style="list-style-type: none"> ▶ Artefact Sites ARTC12 and 16 (AHIMS 50-5-0268, 50-5-0272) ▶ Artefact Sites ARTC10 and 11 (AHIMS 50-2-0054, 50-2-0055). <p>Surveys would be undertaken with registered Aboriginal parties in accordance with the <i>Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales</i> (DECCW, 2010a).</p> <p>If the sites are located, impacts would be avoided, as far as practicable, and protection measures put in place in accordance with the Aboriginal cultural heritage management plan (mitigation measure AH-9).</p> <p>Any sites with the potential to be impacted would be managed in accordance with the salvage methodology (mitigation measure AH-2).</p>
AH-6	Impacts on artefact scatters	Surface collection (salvage) of artefacts that were identified in Zones 1, 2, 4, 7 and 11 would occur prior to construction in accordance with the approved salvage methodology.
AH-7	Avoiding and minimising impacts on Aboriginal heritage	<p>For registered AHIMS sites and Aboriginal sites identified during archaeological surveys located in close proximity to, but outside of, the proposal site, the extent of these sites would be demarcated with high-visibility fencing as far as practicable to avoid accidental impact during construction impacts. This particularly applies to scarred trees ARTC6, ARTC18, ARTC19, ARTC21. The sites would also be clearly marked on all mapping and plans used by contractors working on the project.</p> <p>Scarred tree ARTC20 which is located within the proposal site, should be marked on all mapping and plans used by contractors working on the project and should be fenced with high visibility fencing to avoid accidental impact during construction works. Potential excavation near the tree should include consideration of a tree protection zone, defined in consultation with an arborist.</p>
AH-8	Avoiding and minimising impacts on Aboriginal heritage	Clearing extents/site boundary/limit of works would be consistent with project extents defined in a condition of approval and would be clearly defined with flagging or marking tape, signage or other suitable means to delineate no-go areas.
Non-Aboriginal heritage		
NAH-1	Avoiding and minimising impacts on Aboriginal heritage	<p>Detailed design and construction planning would avoid direct impacts on identified items/sites of non-Aboriginal heritage significance as far as reasonably practicable. This would include the following listed items within the construction footprint:</p> <ul style="list-style-type: none"> ▶ Stockinbingal Railway Station ▶ Stockinbingal Heritage Conservation Area.
NAH-2	Engagement with relevant non-aboriginal heritage stakeholders	During the detailed design and construction planning phase, ARTC will continue engagement with Heritage NSW and relevant local councils to ensure impacts on non-Aboriginal heritage assets are minimised and mitigated.
Noise and vibration		
NV-1	Managing the potential for construction noise and vibration impacts	Location and activity-specific construction noise and vibration impact statements would be prepared based on a more detailed understanding of the construction methods, including the size and type of construction equipment, duration and timing of works, construction traffic associated with the proposal, and detailed reviews of local receivers as required.

Ref	Issue	Mitigation measure
NV-2	Minimising the potential for construction vibration (structural) impacts	Where vibration levels are predicted to exceed the screening criteria, a more detailed assessment of the structure and vibration monitoring would be carried out in accordance with the Inland Rail NSW Construction Noise and Vibration Management Framework, to ensure vibration levels remain below appropriate limits for that structure.
NV-3	Blasting management	<p>A blast management strategy would be prepared in accordance with relevant guidelines, and in consultation with the NSW Environment Protection Authority, and would include:</p> <ul style="list-style-type: none"> ▶ sequencing and review of trial blasting to inform blasting ▶ regularity of blasting ▶ intensity of blasting ▶ periods of relief ▶ blasting program. <p>Traffic management during drilling and blasting which impact on TfNSW roads shall be carried out in accordance with AS 1742: Manual of Uniform Traffic Control Devices</p> <p>Monitoring of airblast and ground vibration caused by blasting would be conducted in line with AS 2187.2:2006: <i>Storage and use Part 2: Explosives</i> (Standards Australia, 2006). Monitoring would be conducted at the nearest sensitive receiver and non-sensitive receiver (if closer to the blasting zone than the closest sensitive receiver) and assessed in accordance with the criteria outlined in this document.</p>
NV-4	Noise and vibration impacts during operation	<p>Feasible and reasonable mitigation measures would be identified where exceedances of operational noise and vibration criteria are confirmed. Measures would be identified in accordance with the outcome of the operational noise and vibration review and the Inland Rail Noise and Vibration Strategy.</p> <p>Where at-property noise treatments are identified as the preferred mitigation option, these would be developed in consultation with individual property owners.</p>
NV-5	Structural vibration impacts	<p>If the operational noise and vibration review indicates that vibration levels are predicted to exceed the screening criteria at sensitive receivers, a more detailed assessment of the structure would be carried out.</p> <p>For any heritage items with the potential to be affected, the detailed assessment would determine any specific sensitivities, in consultation with a heritage specialist, to ensure risks are adequately managed. If a heritage structure is found to be structurally unsound following inspection, a more conservative cosmetic damage objective (e.g. 2.5 mm/s peak component particle velocity for long-term vibration) would be considered.</p>
Social and economic		
SE-1	Avoiding and minimising social and economic impacts	ARTC and the construction contractor would collaborate on the implementation of the Social Impact Management Plan (SIMP) for the proposal during the detailed design/pre-construction phase. The SIMP would be developed using the recommendations provided in the Social Impact Assessment (SIA) for the proposal and address, but not be limited to, workforce management; industry participation; housing and accommodation; community health and wellbeing; and appropriate community and stakeholder engagement.
SE-2	Social impacts, communication and engagement	<p>ARTC would continue to manage and deliver program-wide community and stakeholder engagement, including Aboriginal communities, RAPs and LALCs as relevant, for Inland Rail in accordance with the Inland Rail Communications and Engagement Strategy.</p> <p>A proposal-specific communication management plan would be developed, in accordance with the Inland Rail Communications and Engagement Strategy, and implemented prior to and during construction, to ensure that:</p> <ul style="list-style-type: none"> – the key stakeholders, including directly impacted landowners are provided opportunities for input to the design and construction, planning, where appropriate enquiries and complaints are managed, and a timely response is provided for concerns raised there is a procedure and mechanism in place to resolve and mediate disputes in relation to construction and impact to property infrastructure <p>The communication management plan would define the requirements for the complaints management system to be implemented during construction.</p>

Ref	Issue	Mitigation measure
Land use and property		
LP-1	Land use and property impacts, including severance and other impacts on operations	The design and construction planning would continue to be refined to minimise potential impacts on land uses and properties as far as reasonably practicable. This would include measures to manage severance impacts where practicable, including appropriate access solutions.
LP-2	Acquisition and property impacts	All property acquisitions/adjustments would be undertaken in consultation with landowners and, where relevant, in accordance with the requirements of the <i>Land Acquisition (Just Terms Compensation) Act 1991</i> (NSW) (Land Acquisition Act). In line with the Land Acquisition Act, ARTC's preference is for acquisition by agreement where practicable.
LP-3	Acquisition and property impacts	Individual property agreements plans would be developed in consultation with landowners/occupants, with respect to the management of construction on or immediately adjacent to private properties, where appropriate. These would detail any required adjustments to fencing, access, farm infrastructure, and relocation of any impacted structures as required.
LP-4	Impacts of construction on private properties	Property owners and occupants would be consulted in accordance with the project-specific communication management plan to ensure that owners/occupants are informed about: <ul style="list-style-type: none"> ▶ the timing and scope of activities in their area ▶ any potential property impacts/changes, particularly in relation to potential impacts on access, services, or farm operational arrangements ▶ activities that have the potential to impact on livestock.
LP-5	Impacts of construction on private properties	Feasible and reasonable property-specific measures would be identified during detailed design in consultation with landholders landowners . These would be implemented during construction where construction is located on or immediately adjacent to private properties and has the potential to affect farm operational arrangements. The measures would include, as appropriate: <ul style="list-style-type: none"> ▶ arrangements in terms of works timing and practices ▶ any required adjustments to fencing ▶ access, and farm infrastructure ▶ relocation of any impacted structures.
LP-6	Maintaining permanent access to properties	Where any legal access to a property is permanently affected and a property has no other legal means of access, alternative access to and from a public road would be provided to an equivalent standard, where feasible and practicable. Where an alternative access is not feasible or practicable, and a property is left with no access to a public road, negotiations would be undertaken with the relevant landowner for acquisition of the property.
LP-7	Internal access arrangements	ARTC would consult with adjoining landowners regarding temporary construction impacts on viability and productivity. This may would include consideration of temporary farm infrastructure to maintain farm management practices, and/or modification of construction activities and footprint.
LP-8	Impacts on livestock	Stock fencing must be in accordance with the Inland Rail fencing standards and be constructed prior to the removal of existing fencing or any works being carried out on the subject land, unless otherwise agreed with the landowner. Where fencing is required, the relevant landowner will select the type of fencing in a like-for-like fashion from ARTC's standard fence and gate types, to suit the farm operations. Internal fencing matters will be considered, as appropriate, during the land acquisition process.
LP-9	Minimising impacts on routes used for stock movement	Local Land Services (LLS) would be consulted during detailed design to understand how impacts on routes used for stock movement can be minimised and managed during construction and operation. Alternative access arrangements would be made, as required, subject to maintaining rail safety.
Landscape and visual		
LV-1	Minimising the potential for visual and landscape impacts	Detailed design and construction planning would seek to minimise the construction and operation footprints and avoid impacts on mature native vegetation as far as reasonably practicable.

Ref	Issue	Mitigation measure
LV-2	Minimising the potential for visual and landscape impacts	<p>An urban design and landscape plan would be prepared to provide a consistent approach to design and landscaping. The urban design and landscape plan would include:</p> <ul style="list-style-type: none"> ▶ vegetation screening in strategic locations to visually mitigate impacts from new structures and rail operations, including around bridges and locations where the proposal would be visible from sensitive receivers, where the presence of screening does not impact safe rail operations ▶ appropriate species that respond to the existing landscape character setting and environmental conditions ▶ design guidelines to minimise the visual impacts of bridges, with consideration of the existing landscape and visual context and with regard to <i>Bridge aesthetics: design guidelines to improve the appearance of bridges in NSW</i> (RMS, 2012). <p>Detailed design would be undertaken in accordance with the urban design objectives developed for the design, and the urban design and landscape framework and plan.</p>
LV-3	Batter slopes in contrast with the existing landform	<p>Batter slopes would be integrated into the surrounding landscape as far as practicable.</p> <p>Appropriate slope stabilisation would be integrated into batter design to ensure successful rehabilitation and stabilisation.</p>
Soils and contamination		
SC-1	Structural integrity	Detailed design would include engineering measures to minimise operational risks from dispersive, saline and/or low strength soils, particularly through foundation and batter design.
SC-2	Contamination	Hazardous materials surveys would be undertaken during detailed design for all proposed demolition activities.
SC-3	Contamination (waste)	Any hazardous or dangerous waste (e.g. asbestos, chemicals, oils) would be correctly stored and managed onsite, and if necessary, disposed of by a licensed contractor or facility and in accordance with the relevant state occupation health and safety legislative, and regulatory obligations. This includes wastes generated as a result of demolition.
SC-4	Contamination (investigations)	<p>Site investigations would be undertaken by a suitably qualified and experience consultant as defined in Schedule B9 of the <i>National Environment Protection (Assessment of Site Contamination) Measure 1999</i> (NEPC, 2013) to assess exposure risks to site workers and other receptors as a result of disturbances to the following areas considered to be at a medium-to-low risk of being contaminated:</p> <ul style="list-style-type: none"> ▶ AEC 2—disused broken machinery and parts, potential asbestos containing material ▶ AEC 3—four grain silos and machinery associated with these silos including tractors and multi-feeders within a private property. ▶ AEC 5—a locked chemical storage shed and drums containing pesticides ▶ AEC 6—fox baits ▶ AEC 7—stockpile of waste including wood and rubble ▶ AEC 8— the Main South Line (railway line) ▶ AEC 9— crossing the Main South Line (railway line) ▶ AEC 10—The Forbes Line (railway line north of Stockinbingal). <p>The results of the site investigations would be assessed against the criteria contained within the <i>National Environment Protection (Assessment of Site Contamination) Measure 1999</i> to determine the need for any remediation.</p>
SC-5	Erosion and sedimentation control	Where practical, vegetation clearing and ground-disturbing works should be staged sequentially/across the project to minimise areas exposed to erosion and sediment risk.
Waste		
WM-1	Waste management	Detailed design would include measures to minimise spoil generation. This would include a focus on optimising the design to minimise spoil volumes and the reuse of material onsite.
Climate change risk		
CC-1	Climate change risk management	The climate adaptation measures identified for the proposal would be reviewed, and the final measures would be incorporated in design and implemented during construction and operation, as far as practicable.

Ref	Issue	Mitigation measure
Sustainability		
SU-1	Sustainable procurement	Procurement would be undertaken in accordance with the <i>Inland Rail Sustainable Procurement Policy</i> (ARTC, 2018c), the <i>Sustainable Procurement Guide</i> (Commonwealth of Australia, 2021) and the <i>NSW Government Resource Efficiency Policy</i> (OEH, 2014b).
SU-2	Climate change risk management	Sustainability initiatives, particularly in relation to energy consumption and savings throughout the project lifecycle, must be incorporated into detailed design.
Air quality		
N/A		
Health and safety		
HS-1	Public safety	A hazard analysis would be undertaken during detailed design to identify risks to public safety from the proposal and how these can be further mitigated through safety in design.
HS-2	Utilities	Utility and service providers would continue to be consulted during detailed design to identify possible interactions and to develop procedures to minimise the potential for service interruptions and impacts on existing land uses. Any relocations or requirements for access, diversion, protection and/or support would be in place prior to construction.
HS-3	Bushfire	Detailed design and construction planning would maintain appropriate access during construction and operation, ensuring local roads allow emergency access, first-response firefighting, access to water supply for firefighting purposes and safe evacuation routes.
HS-4	Flood and emergency response	A flood and emergency response plan would be prepared and implemented as part of the CEMP. The plan would include measures, processes and responsibilities to minimise the potential impacts of construction activities on flood behaviour and bushfire risk as far as practicable. It would also outline measures to manage emergency responses during construction.
Cumulative impacts		
CR-1	Cumulative impacts	<p>Coordination and consultation would occur with the proponents of any current development proposals, with potential for cumulative impacts at the appropriate project stages.</p> <p>If consultation with these proponents during detailed design confirms the likelihood of a cumulative impact, ongoing consultation and coordination would include:</p> <ul style="list-style-type: none"> ▶ provision of regular updates on construction planning for the proposal ▶ identification of key potential conflict points with other construction projects ▶ developing mitigation strategies in order to manage conflicts. <p>Depending on the nature of the conflict, this could involve coordination of traffic management arrangements between projects, where reasonable and feasible.</p>

B.2 Updated mitigation measures for construction

TABLE B-2 UPDATED MITIGATION MEASURES FOR CONSTRUCTION

Ref	Issue	Mitigation measure
Biodiversity		
BD-7	Managing the potential for biodiversity impacts during construction	<p>A biodiversity management plan would be prepared prior to construction and implemented as part of the Construction Environmental Management Plan (CEMP). The plan would include measures to manage biodiversity, including threatened species, and minimise the potential for impacts during construction. The plan would be prepared in accordance with relevant legislation, guidelines and standards. The plan would include, but not be limited to:</p> <ul style="list-style-type: none"> ▶ locations and requirements for pre-clearing surveys, including terrestrial and aquatic habitats ▶ establishing protocols for the staged clearing of vegetation and safe tree felling and log removal to reduce the risk of fauna mortality ▶ measures to avoid and minimise clearing of hollow-bearing trees and paddock trees where practicable ▶ measures relating to the provision and management of nest boxes, including reuse of hollows and monitoring protocols ▶ animal handling protocols, including relocation and emergency care ▶ an unexpected finds protocol including recommencement arrangements ▶ measures to manage biosecurity risks (including livestock pests/diseases such as Japanese encephalitis and foot & mouth disease) in accordance with the <i>Biosecurity Act 2015 (Cth)</i> (NSW) ▶ measures to manage high-threat weeds ▶ measures to reduce the risk of terrestrial and aquatic fauna mortality/injury, including consideration of vehicle strike ▶ measures relating to the stripping, stockpiling and management of topsoil where it contains seedbank or weed material.
BD-8	Vegetation loss and connectivity Rehabilitation of vegetation and habitats subject to temporary disturbance	<p>Preparation and implementation of a revegetation and rehabilitation plan. This would include planning, implementation, monitoring and maintenance of revegetation and rehabilitation areas once construction is complete.</p> <p>The strategy would provide:</p> <ul style="list-style-type: none"> ▶ clear objectives ▶ locations for revegetation and rehabilitation including temporary disturbances areas, in riparian areas and connectivity corridors, ▶ site preparation methods ▶ appropriate local species for threatened fauna, including seed collection ▶ plant densities at site establishment ▶ targets with triggers for replacement plantings based on the SMART principles <p>Revegetation requirements and locations for revegetation are further detailed in Table L.4 of Appendix L to the BDAR.</p> <p>A rehabilitation strategy would be prepared to guide rehabilitation planning, implementation, monitoring and maintenance of disturbed areas once construction is complete.</p> <p>The strategy would include clear objectives for seed collection and rehabilitation of native vegetation in temporary disturbances areas and in riparian areas.</p>
BD-9	Managing the potential for biodiversity (aquatic) impacts during construction	Scheduling of construction activities to minimise time of works in or adjacent to drainage lines and waterfront land (watercourse bed and land within 40 m of the highest bank of the watercourse (DPI, 2012a), particularly during periods of flow.
BD-10	Managing the potential for biodiversity (aquatic) impacts during construction	Where it is not practicable to work in the dry, a sediment or silt curtain attached to the same sides of the bank and around the works area would be installed for erosion and sediment control, and to maintain fish passage.
BD-14	Little Eagle nest and breeding habitat	<p>Prior to construction commencing in the vicinity of CH 740 schedule construction activities to commence between January to July (outside the breeding season of the Little Eagle).</p> <p>Where this is not possible investigate potential options for relocation of an unoccupied nest to a suitable location determined by an appropriately qualified ecologist, with relocation to be complete before July.</p>

Ref	Issue	Mitigation measure
ABD-2	Pre-construction surveys	Pre-construction surveys within PCT 76 (Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions) in the east of the accommodation camp site would be undertaken by an ecologist to check for the presence of nesting threatened species. In particular, to check for Superb Parrot (<i>Polytelis swainsonii</i>) breeding as this species has been previously recorded within the site. If nesting/breeding activities are recorded, construction would aim to avoid commencement of work during breeding season (September to January) to limit potential disturbance and abandonment of nests. If an active nest is identified, a buffer distance of 100 m radius around the tree would be used to limit construction impacts during the breeding season.
ABD-3	Exclusion fencing	Exclusion fencing would be put in place around the vegetation along the eastern edge of the accommodation camp site and around the paddock tree in the centre of the site to prevent disturbance and access to retained areas of vegetation during construction and operation of the accommodation camp.
ABD-24	Light disturbance	Lighting of the accommodation camp would be designed in accordance with best practice design to limit impacts on wildlife and minimise light spill to woodland area. including AS/NZS 4282:2019 (Outdoor Lighting Obtrusive Effects) . This would include the following measures: <ul style="list-style-type: none"> – orient lighting away from native vegetation patches where possible and focus light on intended area (avoid light spill into vegetated areas) – where light impacts to vegetation cannot be avoided, use lowest intensity lighting appropriate for the task or consider modifying spectral composition (i.e. .,reduced or filtered light of blue, violet or ultraviolet wavelengths) to reduce impact.
Traffic, transport and access		
T-5	General impacts of construction activities on traffic, transport, access, pedestrians and cyclists	A traffic, transport and access management plan would be prepared and implemented as part of the CEMP. The plan would include measures, processes and responsibilities to minimise the potential for impacts on the community and the operation of the surrounding road and transport environment during construction. The plan would be developed in consultation with local councils, TfNSW, emergency services and public transport/bus operators. It would include, as appropriate, additional reasonable and feasible measures identified as an outcome of consultation undertaken under the Inland Rail Communications and Engagement Strategy.
T-6	General impacts of construction activities on traffic flow	Traffic control would be engaged to maintain vehicle flow and safe access where required on construction and diversion routes and at construction accesses. This would include at the Hibernia Street and Dudauman Street intersection, to prevent queuing across the existing rail line
T-7	Emergency vehicle access	Emergency vehicle access routes that may be impacted by the proposal would be identified and appropriate control measures would be implemented, in consultation with the relevant emergency services providers.
T-8	Heavy vehicles damaging local roads	A dilapidation survey would be undertaken of the made public roads within the proposed haulage routes and diversion roads at the commencement of construction and provided to the relevant road authority. Upgrades to pavements on construction routes would be undertaken prior to construction, as deemed to be required. Pavement monitoring would be carried out during works. Rectification measures would be implemented as needed during and/or following completion of construction to address any damage caused by construction.
T-9	Impact on livestock highways	Local Land Services would be notified of increased heavy vehicle movements along livestock highways during the construction phase as well as periods of changed traffic operations. Construction staff would be informed of the location of the livestock highways.
AT-1	Road safety	As part of the traffic, transport and access management plan, the arrival and departure of the workforce to the accommodation camp would be managed to minimise peaks in congestion and reduce impacts on the road network, particularly at nearby intersections.

Ref	Issue	Mitigation measure
AT-2	Road safety	The 80 km/hr speed limit associated with the level crossing on Grogan Road would be temporarily extended south to incorporate both access points to the accommodation camp, during both establishment and operation. The speed limit would be clearly signposted at the accommodation camp access points and on Grogan Road.
AT-3	Site access	The design of the two-way access points to the accommodation camp would be undertaken with regard to relevant standards and guidelines, and in consultation with the Cootamundra-Gundagai Regional Council.
AT-4	Transport of construction workers	During operation of the accommodation camp , workers would be transported between the construction work sites and the accommodation camp via shuttle buses to help minimise potential traffic impacts on the local roads.
AT-5	Road safety	Swept path analysis would be undertaken for access from Grogan Road with consideration of bus and service vehicle movements during detailed design.
AT-6	Road safety	Route analysis, including an assessment of clearance heights, bridge weight limits and swept path analysis would be undertaken for Oversize Overmass (OSOM) load-carrying vehicles used in the establishment of the accommodation camp.

Ref	Issue	Mitigation measure
Hydrology and flooding		
HF-5	Flooding impacts	<p>Construction planning and the layout of construction work sites and compounds would be undertaken with consideration of overland flow paths and flood risk, avoiding flood prone land and flood events where practicable.</p> <p>Prior to construction, a flood warning system will be established in for the Dudauman Creek catchment, upstream of construction areas for use during construction, with reference to Bureau of Meteorology forecasts.</p> <p>Following development of the construction methodology, critical stages of the works would should be identified and tested in the flood model to identify potential construction phase flooding impacts. The tests should simulate the following in the model for a number of construction phase scenarios as required:</p> <ul style="list-style-type: none"> ▶ key stages of temporary embankment opening during demolition/reconstruction that could pass additional flow downstream ▶ location and level of long term construction facilities (such as compounds, access tracks and stockpiles) that could obstruct and divert flows ▶ location and level of temporary works in waterways and overland flow paths during bridge and culvert construction that could obstruct and divert flows. <p>The construction phase flood modelling should be iterated through sufficient scenarios to inform planning of the works such that construction phase flood impacts are identified and managed accordingly.</p> <p>The outcomes of the modelling should be used to inform the construction phase flood emergency response plan (mitigation measure HS-4).</p> <p>The flood warning system outputs should be used to set trigger levels and associated actions in the flood emergency response plan.</p>
HF-56	Sedimentation and erosion management	A soil and water management plan would be prepared and implemented as part of the CEMP. The plan would include measures, processes and responsibilities to minimise the potential for soil and water impacts (including impacts to groundwater and geomorphology) during construction.
HF-67	Dewatering of farm dams that require relocation and/or decommissioning	<p>A dam dewatering protocol would be developed as part of the soil and water management plan. It would consider:</p> <ul style="list-style-type: none"> ▶ options for reuse of water in the dam ▶ licensing and approval requirements, where relevant ▶ the quality and quantity of the water to be released, where relevant ▶ strategies to minimise impacts on native, threatened or protected species ▶ strategies to minimise spread of nuisance flora and fauna species.
AHF-1	Hardstand areas	Minimising hard stand areas in the vicinity of camp buildings to minimise increases in runoff.
AHF-2	Site drainage	Site drainage of the accommodation camp would be installed in accordance with the recommendations in Managing Urban Stormwater: Soils and construction - Volume 1 (Landcom, 2004)
AHF-3	Stormwater management	Stormwater drainage infrastructure would be included under proposed access tracks and roads to maintain existing local overland flows to the farm dam to the north of the accommodation camp site
AHF-4	Flood management	A stormwater detention basin would be constructed at the accommodation camp (indicative location would be in the northern portion of the lot) to capture stormwater runoff from the car park during the 10% AEP flood event and will be designed in accordance with the Soil and Water Management Plan (refer to WQ-3).
AHF-5	Wastewater management	Accommodation camp wastewater would be collected and removed off-site for treatment and disposal at a licenced wastewater treatment facility.
AHF-6	Reuse of rainwater	Capture of all rainwater from the roofs of camp buildings across the accommodation camp site for suitable reuse within the site.
Water quality		
WQ-3	Sedimentation and erosion management	A soil and water management plan would be prepared and implemented as part of the CEMP. The plan would include measures, processes and responsibilities to minimise the potential for soil and water impacts (including impacts to groundwater and geomorphology) during construction.

Ref	Issue	Mitigation measure
WQ-4	Dewatering of farm dams that require relocation and/or decommissioning	<p>A dam dewatering protocol would be developed as part of the soil and water management plan. It would consider:</p> <ul style="list-style-type: none"> ▶ options for reuse of water in the dam ▶ licensing and approval requirements, where relevant ▶ the quality and quantity of the water to be released, where relevant ▶ strategies to minimise impacts on native, threatened or protected species ▶ strategies to minimise spread of nuisance flora and fauna species.
WQ-5	Disposal of wastewater (concrete batching plants)	<p>All wastewater from concrete batching plants would be captured and would either be disposed of to an appropriately licensed facility or treated prior to discharge to surface water bodies. All discharge water would comply with the WQOs and the relevant EPL requirements:</p> <ul style="list-style-type: none"> ▶ measures to prevent or minimise mud and dirt being tracked onto public roadways by trucks and any equipment leaving the site ▶ requirements for training, inspections, corrective actions, notification and classification of environmental incidents, record keeping, monitoring and performance objectives for handover on completion of construction ▶ any other requirements necessary to comply with conditions of approval subsequent approvals or regulatory requirements ▶ erosion and sediment control plans and Soil and Water Management Plan (SWMP) will be signed off by a Suitably Qualified Person (e.g. Certified Professional in Erosion and Sediment Control (CPESC) in accordance with regulatory requirements. .
Groundwater		
GW-4	Groundwater management	<p>A groundwater mitigation and management plan (GWMMP) would be prepared as part of the CEMP. The GWMMP would comply with the proposal conditions of approval and be implemented to monitor the effectiveness of mitigation and management measures applied during the construction phase of the proposal. The GWMMP would at a minimum:</p> <ul style="list-style-type: none"> ▶ provide details of the groundwater monitoring network, frequency of monitoring, and test parameters ▶ be based on baseline studies developed for the proposal and establish baseline monitoring reports ▶ contain procedures for the documentation and reporting of results ▶ include requirements for training, inspections, corrective actions, notification and classification of environmental incidents, record keeping, monitoring and performance objectives for handover on completion of construction.
GW-5	Monitoring groundwater drawdown and quality	<p>A groundwater monitoring program would be developed and implemented as part of the GWMMP to monitor potential groundwater impacts. The program would define the following:</p> <ul style="list-style-type: none"> ▶ monitoring parameters ▶ monitoring locations ▶ frequency and duration of monitoring. <p>The monitoring program would include baseline monitoring to determine the water quality of groundwater from the proposed bore field bores.</p>
GW-6	Unforeseen water table penetration by earthworks	<p>If excavations intersect the water table, potential impacts would be assessed by a hydrogeologist and adaptive management measures implemented as required.</p>

Ref	Issue	Mitigation measure
Cultural heritage		
Aboriginal heritage		
AH-9	Protecting Aboriginal heritage and minimising impacts during construction	<p>An Aboriginal cultural heritage management plan would be prepared prior to construction and implemented as part of the CEMP. The plan would include measures to minimise the potential for impacts and manage Aboriginal heritage, including:</p> <ul style="list-style-type: none"> ▶ a salvage methodology (mitigation measure AH-2) ▶ an unexpected finds procedure (mitigation measure AH-11) ▶ plans and installation procedures for fencing and protective coverings ▶ induction package for construction workers and supervisors ▶ erosion and sediment controls in accordance with <i>Managing Urban Stormwater: Soils and construction – Volume 1</i> (Landcom, 2004) to minimise the potential for erosion impacts to Aboriginal sites located close to watercourses/drainage lines ▶ investigation of the anthropogenic nature of scarred trees within the project area by a specialist in Aboriginal cultural heritage ▶ measures to manage the potential for impacts to potential Aboriginal heritage items (including burial sites) located in sensitive landscapes (such as alluvium landscapes) ▶ measures to protect sites close to the proposal site from inadvertent impacts ▶ outcomes of further investigations (mitigation measures AH-3 and AH-5) ▶ a repatriation process for collected artefacts <p>The plan would be prepared in consultation with registered Aboriginal parties and the NSW Department of Planning and Environment.</p>
AH-10	Protecting Aboriginal heritage and minimising impacts during construction	A requirement for cultural heritage awareness training would be included in the Aboriginal cultural heritage management plan. Cultural heritage awareness training would be provided by an Aboriginal representative at the commencement of substantial works for the project.
AH-11	Unexpected finds	An unexpected finds procedure would be developed and included in the Aboriginal cultural heritage management plan to provide a consistent method for managing any unexpected Aboriginal heritage items discovered during construction, including potential heritage items or objects and a flow chart of the procedure on the findings of skeletal remains.
AH-12	Update AHIMS records	<p>AHIMS records would be updated for AHIMS Register locations no longer considered to be sites:</p> <ul style="list-style-type: none"> ▶ Scarred Tree 50-5-0117 (AHIMS 50-5-0117) ▶ Scarred Tree 50-5-0120 (AHIMS 50-5-0120) ▶ Scarred Tree 50-5-0121 (AHIMS 50-5-0121) ▶ Zone 1—low density scatter (AHIMS 50-5-0280) (part) ▶ PAD Zone 7 North (AHIMS 50-5-0281) ▶ PAD Zone 7 South (AHIMS 50-5-0288) ▶ PAD Zone 8 (AHIMS 50-5-0282) ▶ PAD Zone 11 (AHIMS 50-2-0056) ▶ PAD Zone 11 East (AHIMS 50-2-0057).
AH-13	Aboriginal cultural values plan	<p>An Aboriginal cultural values plan would be prepared in consultation with Aboriginal parties prior to construction and implemented as part of the CEMP. The plan would consider the Aboriginal Cultural Heritage Management Plan and identify:</p> <ul style="list-style-type: none"> – tThe traditional Aboriginal use of the landscape in the area surrounding the proposal – the archaeological and contemporaneous expression of that use – the intangible cultural values of the landscape – aboriginal cultural heritage artefacts and scarred trees identified in the project area surrounding the proposal and their cultural value – stories for interpretation drawn from the key thematic areas, identify audiences, locations and options to provide this interpretation. <p>▶ identify how the findings will be represented by the project, for example in design finishes, art, landscaping and cultural food sources.</p>

Ref	Issue	Mitigation measure
Non-Aboriginal heritage		
NAH-32	Avoiding impacts during construction	The CEMP would define a requirement for non-Aboriginal historical heritage awareness training for site workers prior to commencement of construction works. The awareness training would promote an understanding of heritage items that may be impacted during the works, and the requirements of the unexpected finds procedure.
NAH-43	Unexpected finds including human skeletal remains	An unexpected finds procedure would be developed as part of the CEMP to provide a consistent method for managing any unexpected heritage or archaeological items and unexpected human skeletal remains. Non-Aboriginal awareness training (mitigation measure NAH-32) is to include a flow chart of the procedure on the findings of skeletal remains.
NAH-5	Avoiding impacts during construction	The existing fencing and signage around Stockinbingal Railway Station would be maintained to avoid impacts during construction. The Billabong Creek rail underbridge would be fenced and marked on site plans within the CEMP as an area to be avoided during construction.
Noise and vibration		
NV-6	Managing the potential for noise and vibration impacts during construction	A construction noise and vibration management plan would be prepared and implemented in accordance with the Inland Rail NSW Construction Noise and Vibration Management Framework. The plan would include measures, processes and responsibilities to manage and monitor noise and vibration, and minimise the potential for impacts during construction.
NV-7	Impacts of out-of-hours work	An out-of-hours work (OOHW) protocol would be developed to define the process for considering, approving and managing OOHW, including implementation of feasible and reasonable measures and communication requirements to separately address the following situations: <ul style="list-style-type: none"> ▶ works that routinely occur within the construction hours generally proposed for the proposal but outside Interim Construction Noise Guideline standard hours ▶ works (such as evening and night works during rail possessions) that would occur outside the construction hours proposed for the proposal Measures would be aimed at pro-active communication and engagement with potentially affected receivers, provision of respite periods and/or alternative accommodation for defined exceedance levels. All work outside the proposal construction hours would be undertaken in accordance with the Inland Rail NSW Construction Noise and Vibration Management Framework and in accordance with the OOHW protocol. The protocol would provide guidance for the preparation of OOHW plans for each construction work location and for key works, and guidance around mitigating impacts to receivers at Stockinbingal. OOHW plans would be prepared in consultation with key stakeholders (including the NSW Environment Protection Authority) and the community and incorporated into the construction noise and vibration management plan (mitigation measure NV-6).
NV-8	Minimising the potential for construction vibration (structural) impacts	If vibration-generating activities are conducted within minimum working distances of a sensitive receiver, attended vibration measurements would be undertaken at the commencement of vibration-generating activities to confirm that structural vibration limits are within the acceptable range. Where vibration levels are found to be unacceptable, alternative work methods would be implemented so the vibration impacts are reduced to acceptable levels.
NV-9	Minimising the potential for construction vibration (structural) impacts	Dilapidation surveys: Property condition surveys would be completed prior to any vibration-intensive work being carried out at or within the minimum distances that may cause cosmetic damage. Where a receiver is determined to be structurally unsound, a reassessment of the minimum working distances would be required. Minimum working distances would be confirmed prior to carrying out any vibration intensive work onsite.

Ref	Issue	Mitigation measure
NV-10	Impacts on heritage items as a result of construction vibration	<p>Prior to the commencement of vibration-intensive works within the minimum working distances for cosmetic damage for heritage items, the potential for damage to the item would be assessed. Where there is potential for damage, alternative methods that generate less vibration would be investigated and substituted where practicable.</p> <p>Where residual cosmetic damage risks remain, condition surveys would be carried out and vibration monitoring with real-time notification of exceedance would occur during the activity.</p> <p>Site activities would be modified, where practicable, to avoid exceeding the cosmetic damage criteria. Any identified vibration-related damage to the items would be rectified.</p>
NV-11	Minimising potential for impacts of blasting	<p>Blasting would be undertaken during the recommended standard hours for blasting.</p> <p>Management measures defined by the blasting management strategy would be implemented.</p>
Social and economic		
SE-32	Management of social and economic impacts	<p>ARTC and the construction contractor would collaborate on the implementation of the SIMP for the proposal during the construction phase. The SIMP would be developed using the recommendations provided in the SIA for the proposal and address, but not be limited to, workforce management; industry participation; housing and accommodation; community health and wellbeing; safety; and appropriate community and stakeholder engagement.</p> <p>The plan would be developed in consultation with local councils and service providers, including local and regional health and emergency services providers.</p>
ASE-1	Workforce anti-social behaviour within local towns	<p>Anti-social behaviour within the accommodation camp would be mitigated through a temporary workforce accommodation management plan which includes a code of conduct for workers, and the adequate provision of:</p> <ul style="list-style-type: none"> – noise curfew and security requirements – enforcement of drug and alcohol policies – installation of CCTVs – workforce training and education (regarding community etiquette and anti-social behaviour).
ASE-2	Increased demand on local social and health services, and potential impacts on capacity	Local physical and mental health care service providers would be consulted prior to construction of the accommodation camp.
ASE-3	Increased demand on local social and health services, and potential impacts on capacity	<p>The construction contractor would develop appropriate processes and measures to manage potential increased demand on health and emergency services, including:</p> <ul style="list-style-type: none"> – the camp would be designed to incorporate recreation facilities within the accommodation camp – workforce training and education would be provided to construction workers regarding mental health, wellbeing, and potential risks associated with fly-in-fly-out and drive-in-drive-out work.
ASE-4	Increased demand on local social and health services, and potential impacts on capacity	Construction workers would be encouraged to access Cootamundra-based services when possible.
Land use and property		
LP-10	Biosecurity	<p>The biodiversity management plan included in the CEMP (mitigation measure BD-7) would include measures to minimise the potential for biosecurity risks during construction, in accordance with the <i>Biosecurity Act 2015</i> (NSW).</p> <p>The biosecurity management plan would be developed with reference to the <i>Riverina Regional Strategic Weed Management Plan 2017-2022</i> (LLS, 2017) and in consultation with LLS and DPI.</p>

Ref	Issue	Mitigation measure
LP-11	Access to properties	<p>Access to individual residences, services and businesses, and for livestock across the rail corridor, would be maintained during construction where reasonably practicable. The traffic, transport and access management plan included in the CEMP (mitigation measure T-54) would include measures in relation to property access during construction.</p> <p>Where alternative access arrangements need to be made, these would be developed in consultation with affected property owners/occupants and LLS for travelling stock reserves.</p>
LP-12	Water supplies for farm operations	<p>Where potential adverse impacts, resulting from the proposal to water supply for farm operations are identified, ARTC will consult with the affected landowner on the management measures that will be implemented to mitigate the impacts. Measures could include</p> <ul style="list-style-type: none"> – Replacement or reinstated farm water pipelines, dams and drainage channels, would be replaced or reinstated to ensure continuity of stock and domestic water supplies, prior to removal of existing impacted infrastructure.
LP-13	Bushfire risk	The flood and emergency response plan (mitigation measure HS-4) would include measures to minimise the potential for bushfire risks.
Landscape and visual		
LV-4	Visual impacts of construction compounds	Construction compounds would be located, as far as practicable, within cleared areas and away from sensitive receivers. Construction compounds would be designed and orientated to minimise visual impacts. This would include locating areas of low visual amenity away from sensitive receivers, and erecting boundary screening around construction compounds, where appropriate.
LV-5	Landscape character and visual impacts	Rehabilitation of disturbed areas would be undertaken progressively in accordance with the rehabilitation strategy (mitigation measure BD-8 and the appendix of the landscape character and visual impact assessment for the proposal) to be undertaken during detailed design and individual property agreements plans (where relevant).
LV-6	Minimising light spill	Lighting of work areas, construction compounds and work sites would be oriented to minimise glare and light spill impact on adjacent receivers.
LV-7	Visual impacts of construction	<p>Mitigation measures for visual impacts would be included in the CEMP, including (where relevant):</p> <ul style="list-style-type: none"> ▶ selecting laydown areas and other ancillary sites to reduce visual impacts ▶ locating construction compounds as far from sensitive receivers as possible ▶ use of hoarding and other visual screening methods ▶ keeping stockpile height to a minimum in the vicinity of sensitive receivers. <p>Any existing ground surface or vegetation that has been disturbed in order to replace any existing track would be reinstated to match the adjoining landscape surface in order to maintain the current visual scene.</p>

Ref	Issue	Mitigation measure
Soils and contamination		
SC-6	General soil and erosion management	<p>A soil and water management plan (SWMP) would be prepared as part of the CEMP. The SWMP would comply with the conditions of approval and be in accordance with best practice, reflected in <i>Managing Urban Stormwater: Soils and construction - Volume 1</i> (Landcom, 2004), <i>Volume 2C Unsealed roads</i> (DECC, 2008) and <i>Volume 2D, Main Road Construction</i> (DECC, 2008) (collectively known as the Blue Book).</p> <ul style="list-style-type: none"> – The SWMP would include: <ul style="list-style-type: none"> ▶ water quality and soil/land conservation objectives for the proposal ▶ a progressive erosion and sediment control plan that allows for staging and site-specific erosion and sediment controls at all work sites in accordance with the Blue Book. Physical controls may include sediment fences and basins; containment bunds; silt traps; turbidity barriers and diversions; dust suppression; and earth compaction around stockpiles and earthworks areas. <p>The controls would aim to:</p> <ul style="list-style-type: none"> ▶ divert water from upslope areas around the site ▶ reduce erosion from within the site ▶ intercept runoff and capture sediment from site ▶ protect watercourses, drainage lines and drain inlets down-gradient from the site. <p>The plan would identify:</p> <ul style="list-style-type: none"> ▶ monitoring locations at discharge points and selected watercourses where works are being undertaken, monitoring parameters, and frequency and duration of monitoring.
SC-7	Contamination management	<p>A contaminated land and hazardous materials management plan would be prepared and implemented as part of the CEMP. The plan would include but not be limited to:</p> <ul style="list-style-type: none"> ▶ further investigations during detailed design would be required to characterise contamination at registered or otherwise identified contaminated sites. Results would be used to further inform CEMP requirements. ▶ a methodology to manage excavation and spoil management with known contaminated sites ▶ capture and management of any surface runoff contaminated by exposure to the contaminated land ▶ measures to ensure the safety of site personnel, environment and local communities during construction ▶ procedures for incident management and managing unexpected contamination finds (an unexpected finds protocol).
SC-8	Rehabilitation (local roads)	<p>Where decommissioning or realignment of local roads is required, the CEMP would include decommissioning and rehabilitation requirements, as per relevant conditions of approval and road authority requirements. This would include measures to manage:</p> <ul style="list-style-type: none"> ▶ milling and removal of bitumen pavement ▶ removal of any decommissioned culverts ▶ tying and ripping of base and sub-base material ▶ application of soil ameliorants ▶ topsoiling and/or compost blanket ▶ stabilisation and rehabilitation (for example planting and or seeding).

Ref	Issue	Mitigation measure
Waste		
WM-2	Waste management	<p>A waste management plan would be prepared for the proposal, including:</p> <ul style="list-style-type: none"> ▶ waste targets for the proposal ▶ estimated waste generation (volumes and types of waste arisings) ▶ waste mitigation and management measures for the waste types and quantities, and contingencies for any unexpected waste volumes ▶ general protocols and performance objectives for keeping the worksite clean and tidy ▶ processes for monitoring, documenting and reporting waste types, volumes and how these arisings compare to waste targets (e.g. description of waste streams and estimated volumes, temporary waste storage areas and disposal locations on and offsite (including stockpiles and landfilling) as well as waste disposal and National Environmental Protection Measures (NEPM) criteria for disposal sites ▶ requirements for waste segregation (e.g. inert—including virgin excavated material, vegetation, building and demolition waste, concrete and asphalt; solid—such as food waste and litter; industrial/regulated—such as asbestos; hazardous—such as flammable liquids; liquid—such as sewage) ▶ requirements for secure temporary storage, collection frequency and disposal/recycling requirements ▶ effluent management for construction staff amenities ▶ procedures and reporting/documentation requirements for ensuring waste transporters and receivers are appropriately licenced according to the type of waste ▶ requirements for training, inspections, audits, corrective actions, notification and classification of environmental incidents, record keeping, monitoring and performance objectives for handover on completion of construction ▶ any other requirements necessary to comply with conditions of approval, subsequent approvals or regulatory requirements.
WM-3	Waste management	All waste generated would be classified in accordance with the <i>Waste Classification Guidelines</i> (EPA, 2014a) and disposed of in accordance with the relevant requirements of the Protection of the Environment Operations (Waste) Regulation 2014.
AW-1	Waste management	Waste collection and recycling systems of the accommodation camp would be developed to ensure safe handling of waste on site before being transported off site and disposed of at an approved or licenced materials recycling or waste disposal facility.
Climate change risk		
CC-2	Climate change risk management	Sensitivity testing would be undertaken in line with climate change scenario planning for Representative Concentration Pathway (RCP) 8.5 by reviewing implications for increases in rainfall (in accordance with the Inland Rail Climate Change Risk Assessment Framework).
CC-3	Climate change risk management	<p>The design would consider climate change (RCP 8.5) in modelling used to inform design of drainage and waterways, including:</p> <ul style="list-style-type: none"> ▶ application of the latest <i>Inland Rail Climate Change Risk Assessment Framework</i> (ARTC, 2021c) ▶ application of the latest climate change guidance in <i>Australian Rainfall and Runoff</i> (Engineers Australia, 2014) (Ball et al, 2019) ▶ assessment of impacts associated with the 1% AEP, to determine the sensitivity of the design to potential changes in the rainfall intensity ▶ where enhancement or upgrading to existing track is to be undertaken, no worsening of the existing track flood immunity would occur.
Sustainability		
N/A		

Ref	Issue	Mitigation measure
Air quality		
AQ-1	General air quality management	An air quality management plan would be prepared and implemented as part of the CEMP. It would include measures to minimise the potential for air quality impacts on the local community and environment, and would address all aspects of construction, including: <ul style="list-style-type: none"> ▶ spoil handling ▶ machinery operating procedures ▶ soil treatments ▶ stockpile management ▶ haulage dust suppression ▶ monitoring.
AQ-2	Construction activities and earthworks that may cause dust impacts	Where sensitive receptors are located within the study area (350 m from construction footprint and 50 m of the route(s) used by construction vehicles on public roads, up to 500 m from the site access points) determined for each key activity, or visible dust is generated from vehicles using unsealed access roads, road watering and/or other stabilising approaches would be implemented.
AQ-3	Blasting management	Blasting will not be undertaken if the prevailing wind conditions are likely to transport dust emissions towards the nearest sensitive receptors.
AQ-4	Impacts on sensitive receivers (communications)	Where sensitive receivers are located in close proximity to construction sites, especially sites 4 and 6: <ul style="list-style-type: none"> ▶ implement the Inland Rail Communications and Engagement Strategy, which would include community engagement before work commences onsite ▶ display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary ▶ display the head or regional office contact information.
Health and safety		
HS-5	Physical hazards	Temporary hoardings, barriers, traffic management and signage would be removed when no longer required.
HS-6	Bushfire	The construction contractor would develop procedures to manage hot work/high fire-risk activities, including observation of local fire authorities and emergency services directives, checking extent of worksite vegetation prior to hot work, and ensuring appropriate firefighting equipment and trained personnel are available. The construction contractor procedures would comply with the ARTC Safety Management System.
HS-7	Bushfire	The <i>ARTC Engineering (Track and Civil) Code of Practice—Section 17 Right of Way: Vegetation Management</i> (ARTC, 2013) would be implemented to minimise fire risk within the rail corridor, which includes specifications for vegetation management/fire hazard reduction within the corridor. Local fire authorities (including the Rural Fire Service) and local emergency services would be consulted to ensure appropriate operational actions are taken, such as providing feedback on the firefighting vehicles accessibility, fire prevention plans and cooperation on burning-off activities.
Cumulative Impacts		
N/A		
Hazard and risk		
AHR-1	Fire risk management	The construction contractor would ensure that appropriate firefighting equipment, including fire extinguishers, water carts and hoses, are available at the accommodation camp.
AHR-2	Health and emergency services	The construction contractor would ensure that trained first aid personnel are available to treat minor injuries or other minor health issues.

B.3 Updated mitigation measures for operation

TABLE B-3 UPDATED MITIGATION MEASURES FOR OPERATION

Ref	Issue	Mitigation measure
Biodiversity		
BD-11	Weed management	<p>Weed management protocols for the operational rail corridor and other ARTC facilities would be in accordance with the requirements of the <i>Biosecurity Act 2015</i> (NSW) (Cth) and incorporated into the operational environmental management framework. These protocols would include:</p> <ul style="list-style-type: none"> ▶ site hygiene and waste-management procedures to deter pest animals ▶ weed surveillance and treatment including high threat weeds during operation and maintenance activities ▶ requirements in relation to pesticide and herbicide use, including any limitations on use. Restrictions may apply in proximity to watercourses, known areas of Matters of National Environmental Significance (MNES), or <i>Biodiversity Conservation Act 2016</i> (NSW) listed receptors, habitat or land uses sensitive to spray-drift from the application of pesticides and herbicides ▶ erosion and sediment control risks associated with broad-scale weed removal or treatment.
BD-12	Fauna connectivity	<p>The operational performance of fauna connectivity measures (including impacts on fauna as a result of train operations) would be monitored in accordance with the fauna connectivity strategy (Appendix L of the revised BDAR). This would be implemented through a Before/After, Control/Impact (BACI) design, where possible. The final fauna connectivity strategy will detail the chosen methods for monitoring, use of crossing structures by target species (including the Squirrel Glider) and feral predators. These methods may include: occupancy or population monitoring in areas adjacent to the railway, monitoring of crossing structures through cameras, and monitoring of train strike impacts. Monitoring of the structural integrity of fauna crossing structures is also recommended. Further details of monitoring methods are provided in Appendix of the BDAR.</p> <p>include recording of wildlife collisions with trains, and monitoring of use of crossing structures by target species (including the Squirrel Glider) and feral predators.</p> <p>Indicators for success and thresholds for monitoring of connectivity measures would also be refined and incorporated into the Final Fauna Connectivity Strategy for the project. Examples of potential indicators are provided in Table A.1 of Appendix L of the BDAR including thresholds for adaptive management and recommended corrective actions.</p> <p>Fencing and structures potentially influencing fauna connectivity will be in accordance with the fauna connectivity strategy (Appendix L) and having regard to the ARTC fencing strategy. This includes fauna friendly fence design, as noted in BD-2 which excludes use of barbed wire which can be potentially hazardous to species such as woodland birds, bats and arboreal mammals.</p> <p>The need for additional measures or modifications to existing measures would be identified to respond to any issues identified.</p> <p>Note: Monitoring programs required in relation to the Box Gum Woodland Rehabilitation and Management (BD-19) will be separate to the fauna monitoring plan.</p>
BD-13	Aquatic ecology	<p>Culverts that provide for the flow of watercourses would be inspected and maintained in accordance with ARTC's standard operating procedures to address any issues that may contribute to the blockage of fish passage.</p>
BD-18	Superb Parrot mortality as a result of train -strike	<p>Minimise chance of rail vehicle strike by minimising the spillage of grain during transport which attracts foraging animals. Measures to manage this risk will include:</p> <ul style="list-style-type: none"> ▶ eEnsuring that grain is secured and covered during transport. ▶ pPrompt reporting, clean up and post clean up inspection.
Traffic, transport and access		
N/A		
Hydrology and flooding		

Ref	Issue	Mitigation measure
HF-78	Management of flood emergency risks beyond the rail corridor	To mitigate flood risks to life or property beyond the rail corridor along Old Sydney Road, flood risk information would be provided in sufficient detail, e.g. through appropriate signage, so that relevant emergency services personnel and affected third parties are made aware of the potential for flooding west of the proposed raised level crossing.
Water quality		
WQ-6	Flooding impacts	The proposal would be managed in accordance with the water quality management requirements specified in the environment protection licence.
Groundwater		
GW-7	Management of groundwater seepage	Drainage measures would be maintained where required to manage ongoing groundwater seepage during operation.
Cultural heritage		
N/A		

Ref	Issue	Mitigation measure
Noise and vibration		
NV-12	Operational noise and vibration	The proposal would be operated with the aim of achieving the operational noise and vibration criteria identified by the operational noise and vibration review, the requirements of the conditions of approval, and the environment protection licence for Inland Rail.
NV-13	Operational noise and vibration monitoring	Operational noise and vibration compliance monitoring would be undertaken, once Inland Rail has commenced operation, at representative locations to compare actual noise performance against that predicted by the operational noise and vibration review. Compliance monitoring requirements would be defined by the operational noise and vibration review. The results of monitoring would be included in an operational noise and vibration compliance report, prepared in accordance with the conditions of approval. The need for any additional feasible and reasonable mitigation measures would be identified as an outcome of the monitoring.
Social and economic		
SE-43	Ongoing management of social and economic impacts	ARTC and the construction contractor would collaborate on the implementation of the SIMP for the proposal during the operation phase. The SIMP would be developed using the recommendations provided in the SIA for the proposal and address but not be limited to workforce management, industry participation, housing and accommodation, community health and wellbeing, and appropriate community and stakeholder engagement.
Land use and property		
LP-14	Safe movement	Interface agreements would be required for all private crossings on Inland Rail and would be put in place to assist in the safe movement of stock and non-standard machinery across the rail corridor.
LP-15	Safe scheduling	ARTC will develop a 'Call Train Control' process to enable landowners to use level crossings as stock crossings. Details of the 'Call Train Control' process will be provided to agricultural landowners prior to the commencement of operations.
Landscape and visual impacts		
LV-8	Landscape character and visual impacts	Vegetation provided in accordance with the rehabilitation strategy (mitigation measure BD -8) and the urban design and landscape plan (mitigation measure LV-2) would be subject to ongoing monitoring and maintenance in accordance with ARTCs standard operating procedures.
Soils and contamination		
SC-9	Soil erosion and sedimentation	During any maintenance work where soils are exposed, sediment and erosion control devices would be installed in accordance with <i>Managing Urban Stormwater: Soils and Construction, Volume 1</i> (Landcom, 2004).
SC-10	Contamination	ARTC's existing spill response procedures would be reviewed to determine applicability and suitability during operation. The adopted procedure would include measures to minimise the potential for impacts on the local community and the environment as a result of any leaks and spills.
Waste		
WM-4	Waste management	Operational waste, including general litter clean up, would be managed in accordance with ARTC's existing operational maintenance requirements and the waste hierarchy principles in the <i>Waste Avoidance and Resource Recovery Act 2001</i> (NSW).
Climate change risk		
CC-4	Climate change risk management	Operational management and maintenance procedures would address potential climate change risks and adaptation measures.
Sustainability		
SU-3	Sustainability	Prior to operation commencing, a sustainability handover plan would be prepared, and relevant initiatives would be maintained and implemented through operational management and maintenance procedures.

Ref	Issue	Mitigation measure
Air quality		
AQ-5	Locomotive emissions	Locomotive emissions would be managed in accordance with the air quality management requirements specified in the rollingstock operators environment protection licence.
AQ-56	Impacts during track maintenance	Maintenance service vehicles and equipment would be maintained and operated in accordance with the manufacturer's specifications.
Health and safety		
HS-7	Bushfire	<p>The <i>ARTC Engineering (Track and Civil) Code of Practice—Section 17 Right of Way: Vegetation Management</i> (ARTC, 2013a) would be implemented to minimise fire risk within the rail corridor, which includes specifications for vegetation management/fire hazard reduction within the corridor.</p> <p>Local fire authorities and local emergency services would be consulted to ensure appropriate operational actions are taken, such as providing feedback on the firefighting vehicles accessibility, fire prevention plans and cooperation on burning-off activities.</p>
Cumulative impacts		
N/A		