CHAPTER 28

Justification of the proposal

ILLABO TO STOCKINBINGAL ENVIRONMENTAL IMPACT STATEMENT

ARTC | INLAND RAIL
An Australian Government Initiative

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28. Justification of the proposal

This chapter summarises the Illabo to Stockinbingal (I2S) section of the Inland Rail program (the proposal) for which approval is sought, and provides the justification for it, taking into account biophysical, economic and social considerations. This chapter, together with Chapter 27: Approach to environmental management and mitigation, provides a synthesis of the EIS for the proposal.

28.1 Summary of the proposal for approval

28.1.1 Overview of the proposal

The proposal involves the construction of a 42.5 kilometre (km) predominantly greenfield section of rail between the towns of Illabo and Stockinbingal to provide a single-track standard-gauge railway to accommodate trains of up to 1,800 metres (m) long and 6.5 m high.

28.1.2 Location

The proposal is a new rail corridor that would connect Illabo to Stockinbingal in New South Wales. The alignment branches out from the existing rail line north-east of Illabo and travels north to join the Stockinbingal–Parkes Line west of Stockinbingal. The proposal passes through agricultural and rural properties in the Riverina region of NSW and generally follows the existing cadastral boundaries and roads between the towns of Illabo and Stockinbingal.

28.1.3 Key design features

The key features of the proposal (which would be confirmed during detailed design), include:

- a total extent of about 42.5 km, including about 39 km of new, single-track standard-gauge railway between Illabo and Stockinbingal, including:
  - a combination of track vertical alignments on existing ground level, on embankments and in cuttings
  - eight new bridges at watercourses, two road overbridges and one grade separated (road-over-rail) at Burley Griffin Way
  - one crossing loop and associated maintenance siding
  - construction of new level crossings and alterations of existing level crossings (at public roads and private accesses)
  - stock crossings to allow for the movement of livestock and vehicles across the rail line
  - one major drainage diversion to collect and transport stormwater away from the rail line
  - installation and upgrade of about 88 new and existing cross drainage culverts below the rail formation and 27 longitudinal drainage culverts below level crossings
- upgrades to about 3 km of existing track for the tie-in works to the existing Main South Line at Illabo, and the Stockinbingal to Parkes Line at Stockinbingal
- construction of about 1.7 km of new track to maintain the existing connection of the Lake Cargelligo rail line either side of the proposal
- realignment of a 1.4 km section of the Burley Griffin Way to provide a road-over-rail bridge at Stockinbingal.

28.1.4 Construction features

Construction of the proposal would require:

- construction compounds (including laydown areas) and other areas needed to facilitate construction works
- temporary changes to the road network, including roads closures to undertake works on road bridges and level crossings
- one workforce accommodation camp
- other ancillary works.

28.1.5 Operation

The proposal would form part of the rail network managed and maintained by ARTC. Train services would be provided by a variety of operators. The I2S section is proposed to carry an average of up to 6 trains per day (in both directions) from the commencement of operations in late 2026, increasing to 11 trains per day (in both directions) in 2040.

Inland Rail would operate on a 24/7 basis and would initially accommodate double-stacked trains up to 6.5 m high and up to 1,800 m long. The Inland Rail trains would be a mix of grain, bulk freight and other general transport trains. Train speeds would range from 80 to 115 km/hr.

While maintenance activities are part of the operational activity, they would be undertaken as controlled by the State Environmental Planning Policy (Transport and Infrastructure) 2021 and the operational Environmental Protection Licence. Maintenance would include standard activities such as minor maintenance works, including bridge and culvert inspections, rail grinding and track tamping, through to major maintenance, such as reconditioning of track and topping up of ballast as required.

28.1.6 Timing

Subject to approval, further design and procurement, construction of the proposal is planned to start in mid-2024 and is expected to be completed in mid-2026. Inland Rail as a whole would be operational once all 13 sections are complete, which is estimated to be in 2027.

28.1.7 Statutory requirements

This environmental impact statement (EIS) considers the potential impacts of construction and operation of the Illabo to Stockinbingal (I2S) section of Inland Rail. It has been prepared to support ARTC's application for approval of the proposal in accordance with the requirements of Division 5.2 of the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act).

It addresses the requirements of Part 8 Division 5 of the Environmental Planning and Assessment Regulation 2021 and the environmental assessment requirements of the Secretary of the (then) NSW Department of Planning, Industry and Environment (DPIE) (the SEARs) (now the Department of Planning and Environment (DPE)) (refer to Appendix A: SEARs and summary of agency requirements). The EIS considers the State Significant Infrastructure Guidelines and the Registered Environmental Assessment Practitioner Guidelines where possible while satisfying the environmental assessment requirements of the SEARs (issued April 2021).

The proposal was declared to be Critical State Significant Infrastructure (CSSI) in 2021. The proposal is listed in Schedule 5, Clause 7 (1C) of the *State Environmental Planning Policy (Planning Systems) 2021* and is subject to approval by the NSW Minister for Planning.

As a result of the potential for impacts on protected matters, the proposal was referred to the (then) Australian Minister for the Environment in June 2018 (EPBC Referral No 2018/8233). On 6 August 2018, the (then) Australian Government Department of the Environment and Energy notified that the proposal is a controlled action, with the controlling provisions being 'listed threatened species and communities' (under section 18 & 18A of the EPBC Act).

The approvals required for the proposal include:

- approval from the NSW Minister for Planning under Division 5.2 of the EP&A Act
- an Environmental Protection Licence (EPL) under the *Protection of Protection of the Environment Operations Act 1997* (NSW) as required for the construction and operation of the proposal
- approval under section 138 of the *Roads Act 1993* (NSW) where works are required on or over public roads
- approval to close level crossings under Section 99B of the *Transport Administration Act 1988* (where applicable)
- a water access licence (WAL) under the *Water Management Act 2000* (NSW) for any groundwater take during excavation that is greater than 3 megalitres (ML) per year or other water take that needs a WAL, subject to confirmation during detailed design.

28.2 Summary of impacts

28.2.1 Outline of strategies to avoid or minimise impacts

Potential impacts on the environment were identified early on in the proposal development, and approaches to avoid or reduce impacts were identified during the options assessment and reference design. Engagement with

stakeholders and the community has contributed to the project team's understanding of the potential impacts and has enabled the design to respond to and minimise potential impacts, where practicable.

Options development has been an integral part of the overall design process for the proposal. An iterative process of option selection, design development and evaluation has been undertaken to define the proposal. The preferred corridor option selected to take in to reference design was favoured due to the reduced extent of greenfield development and, associated environmental and property impacts compared to the other corridor options.

A key objective of the proposal has been to minimise the potential for environmental and agricultural impacts through a comprehensive alternative route assessment, design refinement and ongoing stakeholder engagement, and has involved refinements at each stage. Examples of how the proposal has incorporated community feedback include (but are not limited to):

- refinement to a road over rail bridge at Burley Griffin Way, to reduce visual amenity impacts to the town of Stockinbingal and remove an existing level crossing
- refining the public level crossing at the Ironbong Road road–rail interface to significantly reduce the rail embankment on either side of the road, and subsequent visual impact on the natural landscape
- shifting the alignment to preserve and protect a scar tree, which is of Aboriginal heritage significance
- redesigning the alignment adjacent to the Olympic Highway at Illabo to use the existing rail corridor, significantly reducing earthworks and land severance and removing the need for an additional level crossing but upgrading an existing level crossing.

Development of the construction methodology involved reducing the earthworks needed for the proposal resulting in shorter construction duration, fewer environmental impacts, improved visual amenity and a smaller footprint. Staging of construction was also refined to minimise impacts to traffic and property access.

28.2.2 Impacts that have not been avoided

A proposal of this scale would inevitably have some impacts on the local environment and community, particularly during construction and as a result of undertaking greenfield construction works with a northern and southern connection into an existing railway. Chapters 10 to 26 of this EIS provide an assessment of the potential impacts of the proposal and identifies the associated mitigation measures proposed. The key potential impacts requiring mitigation and management are summarised in Table 28.1.

The environmental performance of the proposal would be managed through implementing the proposed mitigation measures, the Construction Environmental Management Plan (CEMP) and operational procedures. Implementation of the environmental management plans during construction and operation would also ensure compliance with relevant legislation and any conditions of approval.

The overall approach to managing impacts, in order of importance, is to:

- avoid impacts through the planning and design process
- minimise impacts through the planning and design process
- mitigate impacts using a range of mitigation measures
- offset any residual impact that could not be avoided or mitigated as required by relevant legislation.

TABLE 28.1 SUMMARY OF KEY POTENTIAL IMPACTS

Issue	Key potential impacts
Biodiversity	The key issues identified by the biodiversity assessment are: ▸ removal of about 73 hectares (ha) of native vegetation, including hollow-bearing trees and scattered trees ▸ substantial direct impacts on *Biodiversity Act 2016* (BC Act) listed fauna species and fauna habitat (about 60 ha of habitat for the Superb Parrot and Squirrel Glider, about 31 ha for the Key's Matchstick Grasshopper and about 8 ha for the Southern Myotis) ▸ substantial direct impacts on *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and BC Act-listed threatened ecological communities (TECs), including 23.5 ha of Inland Grey Box Woodland TEC and about 20 ha of White Box Yellow Box Blakely's Red Gum TEC ▸ impacts on fish habitat with the removal of about 5 ha of riparian corridor ▸ impacts on fauna connectivity and train strike during operation. During construction, the potential for impacts would be managed in accordance with a proposal-specific biodiversity management plan, which would be implemented as part of the CEMP. As

Issue	Key potential impacts
	part of the biodiversity management plan, protocols would be included for the removal of habitat features and rescue and relocation of fauna from areas of disturbance. Vegetation clearing would be consistent with the extents defined in the planning approval, and works areas would be clearly defined with flagging or marking tape to delineate no-go areas. Pre-clearing surveys targeting threatened species are recommended to determine additional site-specific management measures required during construction. The proposal includes structures that would promote fauna connectivity measures. These tend to be drainage structures that would also be used by fauna, such as bridges and culverts. There is a commitment to enhance connectivity through appropriate location and design of other structures (such as dedicated culverts, glider poles and barrier poles), which would be identified during detailed design. During operation, measures to enhance connectivity would also assist in minimising the potential for train-strike impacts. Monitoring of fauna connectivity structures and relevant threatened species would assist in confirming the value of the proposed structures in terms of minimising the potential impacts of habitat fragmentation. Impacts on fish passage would be minimised through design with watercourse crossings designed and constructed in accordance with relevant policies and guidelines.
Traffic, transport and access	The proposal has the potential to affect private and public access during construction, and private access arrangements during operation. The proposal would introduce changes to the local road network through the introduction of new level crossings at numerous local roads, changes to public roads (including road realignments) and changes to private property access along the rail alignment. During construction, a proposal-specific traffic, transport and access management plan would be implemented as part of the CEMP. The plan would detail processes, relevant requirements and responsibilities to minimise potential traffic, transport and access impacts during construction. Consultation with the responsible road authority, landowners/landholders would be ongoing during detailed design and construction to identify appropriate measures to minimise the potential for access impacts during construction and operation, as far as reasonably practicable.
Hydrology and flooding	During construction there is potential for impacts to hydrology and flooding from general construction activities, and these would be considered typical for linear infrastructure projects. This includes the potential for construction activities, plant or equipment to obstruct or block the flow of water or surface water flow paths if not managed appropriately. Further review of the staging of the construction works in the Dudauman Creek floodplain will be completed during detailed design of the proposal. About 797 ML of water would be required during construction. Consultation with a local commercial water supplier (Goldenfields Water) has indicated there would be an adequate supply of water for the proposal. Once operational, the proposal has been designed to mimic the existing drainage and surface water flow conditions, including directing flows to topographic low points and existing watercourses. Overall, the proposal is predicted to have only localised impacts to hydrology, flooding and geomorphic conditions. These impacts have been minimised and mitigated through the design of the proposal, and flood modelling would be further refined during detailed design. Where exceedances of the adopted criteria, or quantitative design limits (QDL), are predicted to occur, they have been considered in relation to the context of their impact on surrounding land uses and receivers, compared to existing conditions. The proposal is predominantly surrounded by agricultural land and impacts from QDL exceedances, including flood height (afflux), hazard, duration velocity, are minor and do not impact the use of this land, as impacts from flooding generally already occur in these locations. Notwithstanding, further design and modelling would be undertaken during detailed design and further consideration would be given to mitigation of flooding impacts, including in consultation with affected landowners. Should additional scour protection be required beyond the rail corridor from exceedances for velocity, then it is anticipated that this would be negotiated with the landowner and a suitable range of mitigation measures agreed. The proposal does not worsen impacts from flooding to buildings, roads or existing rail lines, beyond impacts that occur in existing conditions, and predominantly results in an improvement in flooding immunity.
Water quality	The assessment identified that if construction is not adequately managed, including managing the potential for erosion and sedimentation, it would have the potential to impact water quality in receiving watercourses. The main risks to water quality are associated with erosion and sedimentation and works within watercourses. A surface water quality monitoring program would be implemented for 12 months prior to construction and during construction of the proposal. During construction, impacts and mitigation measures would be documented in a soil and water management plan as part of the CEMP. It is considered that implementation of the mitigation measures would ensure that construction of the proposal would not further degrade the water quality environment within and downstream of the proposal site regarding the NSW Water Quality Objectives. Given the short-

Issue	Key potential impacts
	term nature of construction work and the application of appropriate construction mitigation measures, there would be a low residual risk of minor impact to watercourses and sensitive receiving environments. There is a low risk of minor impacts on water quality during operation of the proposal. All exposed areas would be revegetated to reduce soil erosion as well as all culverts and bridges would be located to maintain existing drainage characteristics, where possible, to minimise scour and erosion impacts. Culvert and bridge design have sought to allow for passage of the 1% annual exceedance probability (AEP) peak flood flows to maintain existing flood levels. Potential increase in pollutants from bridges and roads would be mitigated through provision of water quality treatment devices, such as gross pollutant traps or swales, as part of the drainage infrastructure design. These would be further developed during the detailed design of bridges and culverts at watercourse crossings.
Groundwater	During construction, the proposal would be unlikely to impact groundwater resources due to the depth of excavations. There is a low risk associated with the proposal unexpectedly intersecting the shallow Lachlan fractured rock ground water system. 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. During operation, impacts to groundwater would be expected to be negligible, with groundwater conditions expected to return to the existing conditions soon after construction is completed.
Cultural heritage	The proposal would avoid impacts to Aboriginal and non-Aboriginal heritage, where practicable. The proposal's development has been, and would continue to be, informed by Aboriginal consultation undertaken for the proposal. During construction, where avoidance of impact to Aboriginal heritage is not feasible, the approach to mitigation would be guided by the type and significance of the site, in consultation with Aboriginal stakeholders. Isolated artefacts identified on the surface would be collected prior to construction and relocated in consultation with Aboriginal stakeholders. For significant archaeological sites located outside the proposal site, the extent of the site would be clearly communicated to all site workers and clearly marked to avoid accidental impact during construction. There will be no direct impacts on non-Aboriginal heritage during construction. During operation, the proposal could have indirect impacts (visual amenity, landscape and vistas) on surrounding heritage items (including the Stockinbingal Railway Station and Stockinbingal Heritage Conservation Area), as a result of a permanent change in their setting, from the presence of new infrastructure and the movement of trains. However, the permanent proposal works within the vicinity of the listed heritage items are limited to the upgrade of the level crossing at Dudauman Street, and no significant impacts to views from these to and from heritage-listed items are anticipated, due to existing railway infrastructure.
Noise and vibration	Predicted noise impacts during construction are expected to fluctuate over the duration of works, due to the construction works progressing along the alignment rather than operating at the closest point to the receiver for the duration of the works; however, the construction work would result in exceedances of relevant criteria at numerous receivers around the proposal site, highly noise-affected receivers and, in some cases, sleep disturbance. An alteration to working hours beyond the ICNG recommended standard hours is proposed to reduce the construction duration as far as practicable. The intent of the longer working hours is to minimise the overall time of associated disruptions to the community from construction activity, construction traffic and road diversions. ARTC's community consultation has included discussion with landowner and community members regarding construction noise impacts and the proposed extension of working hours beyond the ICNG standard hours. The proposed construction hours are sought to balance feedback of impacts on amenity with a reduced construction duration and community-specific management measures. The noise management measures applied through the limitations on hours provides an effective control to impacts. During operation, the key potential issue would be noise levels, with noise-level predictions for the 2026 and 2040 assessment scenarios indicating that compliance with the criterion would be achieved for most, except for seven residential receivers and two non-residential receivers. There would be no vibration impacts on sensitive receivers during operation. 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.
Social and economic	Design development has avoided or minimised potential social and economic impacts where practicable by undertaking extensive consultation with all relevant stakeholders and designing the alignment to minimise the potential for amenity and other social impacts. During construction, the key positive (benefits) and negative impacts are as follows: ▸ Local social benefits would include employment (an estimated peak workforce of 425 people), training opportunities, and flow-on local and regional economic benefits.

Issue	Key potential impacts
	▸ Local economic benefits would result from indirect employment, including stimulation of business along the supply chain during planning and construction, for consulting services and procurement of construction materials. ▸ The proposal may negatively impact the amenity of the local community, and the inflow of the construction workforce would cause an increased demand in services, including for accommodation (one workforce accommodation camp would be required during construction). ▸ The proposal involves acquisition of private properties, which may cause adverse mental health impacts. There would also be amenity impacts, from increased levels of noise and visual impacts; and impacts to existing agricultural activities. During operation, the key positive (benefits) and negative impacts are as follows: ▸ Local benefits and benefits from the Inland Rail Program as a whole, including: ▸ an expected boost to Australia's GDP by $18 billion over the next 50 years ▸ improved national freight availability, freight time savings, operating cost savings, and improved reliability ▸ improved state benefits in NSW including economic benefits engaging 587 contracts committed at a value more than $400 million ▸ an increased workforce in NSW, employing up to 980 full-time jobs ▸ an increased gross regional product in NSW by up to $5.5 billion in the first 50 years of the rail line's operation ▸ improved regional supply chain efficiencies in the Southern NSW region through reduced transport costs, greater access to suppliers and increased reliability ▸ enhanced investment opportunities and supporting formation of industry hubs, including freight, logistics, operations and businesses in the Southern NSW region. ▸ a small number of local maintenance employment positions ▸ improved local road safety from the realignment of Burley Griffin Way and removal of a level crossing ▸ a legacy of upskilled local workers from the construction phase who would be able to transfer their skills to other projects and contribute to economic development in the region. ▸ Negative impacts during the operation of the proposal would include changes to traffic movements and access, permanent change to the rural sense of place, changes to the existing visual amenity, and changes to existing levels of noise and vibration due to train activity. The proposed implementation of a comprehensive approach to consultation, communication and environmental management during construction and operation, together with a rigorous monitoring program, would assist in minimising the potential for social and economic impacts.
Land use and property	During construction and associated land requirements (permanent and temporary) there would be a range of potential impacts on agricultural resources, depending on the different stages of construction, including temporary and permanent loss of agricultural land. The key potential issues identified for land use and property include: ▸ temporary and permanent land requirements ▸ potential reduction in sustainability, productivity and profitability of individual paddocks or farms as a result of severance ▸ changes to internal access arrangements within properties, including internal farm access tracks/roads ▸ biosecurity risks. During operation, direct impacts on land use during operation would result from the permanent land requirements and the presence of operational rail and road infrastructure within the operational footprint. The design would continue to be refined to minimise the proposal's land requirements and associated property impacts as far as reasonably practicable. Consultation with landowners would be ongoing to identify opportunities to minimise impacts on property operations and farm infrastructure, where reasonably practicable.
Landscape and visual	The greatest visual impacts generally occur where the proposal includes major new infrastructure including the road realignment and associated bridge at Burley Griffin Way. The realigned Burley Griffin Way will be the most noticeable change from a public viewpoint, both looking towards the new alignment as well as travelling on it. During construction, there would be some level of visual impacts compared to operations due to views of construction equipment, site compounds and storage areas along with the following additional temporary visual impacts: ▸ clearing of vegetation ▸ setting up site compounds ▸ stockpiling ▸ earthworks ▸ site fencing ▸ increased site traffic, including heavy vehicles.

Issue	Key potential impacts
	During operation, vegetation provided in accordance with the rehabilitation strategy would be subject to ongoing monitoring and maintenance, and would reduce the visual impacts of the new railway over time as vegetation matures.
Soils and contamination	No significant risks from soils or widespread contamination were identified for the proposal. Construction would temporarily expose the natural ground surface and sub surface through the removal of vegetation, overlying structures (such as existing roads) and excavation with potential for erosion impacts. The key approach to managing soils during construction would involve preparing a soil and water management sub-plan as part of the CEMP. While the potential for contamination impacts associated with the proposal would also be managed by preparing and implementing a contaminated land and hazardous materials management plan as part of the CEMP. Operation is not likely to result in any significant impacts on soils, topography or geology.
Waste	During construction, waste would be generated at each enhancement site including spoil, vegetation, demolition waste and ballast. Operational waste would remain generally in line with existing operations.
Climate change risk	A preliminary climate change assessment was undertaken to consider climate change risks, opportunities and adaptations, to inform the design process. During both construction and operation, risks to rail infrastructure from the increased frequency and intensity of extreme weather events, increased rainfall, bushfires and rising temperatures are considered likely.
Sustainability	Sustainability is an important consideration for the proposal, especially regarding maximising resource efficiency, enhancing local economic activity, and mitigating potential environmental and social impacts. During the feasibility design phase of the proposal, a broad range of sustainability initiatives were identified and implemented. These have been used to assess the anticipated sustainability performance of the proposal, which is expected to achieve the equivalent of an 'Excellent' level of performance against version 1.2 of the IS rating scheme.
Air quality	The key potential impact identified during construction would be the potential for dust impacts if works are not effectively managed. An air quality management plan would be implemented as part of the CEMP. The plan would define the processes, responsibilities, and management measures to ensure that dust and emissions are managed in an environmentally sound manner, and in accordance with statutory requirements. The operation of the proposal would be managed in accordance with: ▸ the air quality management requirements specified in the rollingstock operator EPLs ▸ through diesel fuel standards, locomotive maintenance and emissions standards. The most effective approach to addressing air emissions from diesel locomotives is through NSW- and Commonwealth-based policies such as progressive tightening of emission standards, in-service inspections and the integration of transport and land-use planning.
Health and safety	Potential hazards during construction would be temporary and associated with the use of low volumes of dangerous goods and hazardous substances, impacts to utilities, risk of structural damage and bushfire risks. The hazards associated with the proposal site would generally remain the same during continued operation of the rail corridor. For construction, a flood and emergency response plan (including bushfire) would be developed in consultation with relevant state and regional emergency service providers.
Cumulative and residual	The potential for cumulative impacts resulting from the interaction of the proposal with other projects, either existing or proposed, in the surrounding area would not result in significant cumulative impacts. Coordination and consultation would occur with the proponents of any current development proposals with potential for cumulative impacts at the appropriate project stages.

28.2.3 Proposal uncertainties

The EIS is based on the feasibility design for the proposal. Given the current level of design development, there remain some uncertainties relating to technical requirements, how the proposal would be constructed, and how it would operate as part of Inland Rail overall. These details would be resolved as the design of the proposal, and Inland Rail as a whole, progresses following project approval.

A summary of the main uncertainties around the design, construction and operation methodologies of the proposal, and how these would be resolved, is presented in Table 28.2.

TABLE 28.2: PROPOSAL UNCERTAINTIES

Category	Uncertainty	How uncertainties would be resolved
Design	Property acquisition—exact	All property acquisitions/adjustments would be undertaken in consultation with landowners and, where relevant, in accordance with the requirements of the *Land Acquisition (Just Terms Compensation) Act 1991* (NSW) (Land

Category	Uncertainty	How uncertainties would be resolved
	areas that need to be acquired	Acquisition Act). In line with the Land Acquisition Act, ARTC's preference is for acquisition by agreement where practicable. Refining the number and location of property acquisitions would involve a detailed survey of the proposal site and surrounding properties, and confirmation of the final detailed design. Individual property agreements 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.
	Flooding—exact nature of potential impacts and design responses	Further flood modelling would be undertaken, incorporating the detailed design and construction planning information. This would provide further guidance on potential flood risks and confirm the required mitigation requirements.
	Drainage—erosion protection	Further hydrology modelling would be undertaken during detailed design to confirm the drainage design, including the number and locations that require erosion protection, and the extent and type of protection required.
	Utilities—impacts on utilities to be defined in detail	Site utilities investigations would be completed during detailed design to validate the assessments undertaken to date and confirm relocation/protection requirements. The location, nature and extent of utility changes would be confirmed during detailed design in consultation with utility providers. Further consultation would be undertaken with utility providers to refine and confirm changes and manage the proposed staging of work.
	Noise barriers	The approach to noise attenuation would be subject to further reasonable and feasible considerations during detailed design, including construction limitations. Further noise modelling would be required to confirm the requirements for noise attenuation.
	Biodiversity	Pre-clearing surveys would be undertaken prior to construction.
	Fauna connectivity	A fauna connectivity strategy would be developed and would include investigation and design of potential fauna connectivity structures that could be installed, and where along the rail corridor.
	Aboriginal heritage	Further surveys would be undertaken in targeted areas.
Construction	Haul routes—exact routes and haulage methods	A detailed haulage program would be developed based on the detailed design.
	Construction compounds and workforce accommodation camp—location, layout and facilities	The final selection of identified compound and workforce accommodation camp location/s and final layout of compound and workforce accommodation camp sites would be confirmed based on the detailed design and final construction methodology.
	Management of spoil	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 on site.
	Temporary land requirements— exact areas that need to be leased	The boundaries of the additional areas to be temporarily leased during construction only would be confirmed based on the final design and detailed surveys.
	Construction water supply	Construction water supply options would continue to be explored during detailed design and would include: ▸ 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.
Operation	Performance of future rolling stock—noise and air quality emissions Long-term frequency of rail movements	Ongoing monitoring in accordance with the operational Environmental Management Plan (EMP).

28.3 Justification of the proposal

The SEARs and clause 192(1)(f) of the EP&A Regulation require an EIS to provide *'the reasons justifying the carrying out of the development, activity or infrastructure, considering biophysical, economic and social factors, including the principles of ecologically sustainable development set out in section 193'.*

The proposal meets the objects of the EP&A Act as outlined in Chapter 3: Statutory context.

28.3.1 Strategic need

Demand for freight transport between Melbourne to Brisbane via inland NSW is expected to grow substantially over the coming decades, from approximately 4.9 million tonnes (t) in 2016 to around 13 million t, or 1.1 million containers by 2050 (Infrastructure Australia, 2018).

About 70 per cent of the freight between Melbourne and Brisbane is carried by road, principally the Newell Highway in NSW, and connecting highways in Victoria and Queensland (Transport for NSW (TfNSW), 2015). The current road connection between Melbourne and Brisbane via inland NSW offers faster transit times than rail via Sydney (Infrastructure Australia, 2018).

There is no direct continuous inland rail link between Melbourne and Brisbane, with interstate rail freight travelling between Melbourne and Sydney via Albury, and then between Sydney and Brisbane, generally along the coast. Rail is generally the most productive and efficient mode for freight travelling from regional areas to export ports and urban destinations; however, the current rail connection between Melbourne and Brisbane, via Sydney, cannot offer the transit times and reliability required by industry. Without the increased use of rail, the growth in freight demand is likely to result in increasing pressure on the road network and associated issues, increased freight costs, and a loss of economic opportunity.

Inland Rail is needed to improve the efficiency of freight moving between Melbourne and Brisbane. Inland Rail would bypass the Sydney metropolitan area, it would substantially cut the overall journey time to less than 24 hours and increase the reliability of services between Melbourne and Brisbane (Infrastructure Australia, 2016). Inland Rail would be interoperable with train operations to Perth, Adelaide and other locations on the standard-gauge rail network to serve future rail freight demand and stimulate growth for inter-capital and regional and bulk rail freight. This is expected to increase the competitiveness of rail transport relative to road transport and improve road safety, ease congestion, and reduce environmental impacts by moving freight from road to rail (ARTC, 2015a).

Inland Rail will deliver on key national priorities for infrastructure and economic policy. Inland Rail will provide a comprehensive and accessible rail transport system that links communities and strengthens industry. Better infrastructure and an effective national freight operation are key to delivering efficient supply chains, improving Australia's global competitiveness and lifting our nation's wealth and prosperity. Key benefits of Inland Rail are provided in Figure 28-1.

The proposal is required to enable the implementation of Inland Rail through the provision of a new rail corridor to support the safe running of double-stacked freight trains between Illabo and Stockinbingal. By utilising the existing rail line from Junee to Illabo, the greenfield route from Illabo to Stockinbingal provides a reduction to the potential environmental and property impacts during construction and operation.

The proposal, and Inland Rail more broadly, is supported and influenced by several strategic plans for transport infrastructure and regional development that have been prepared at the national, state, and regional levels. The vision, objectives, and development of Inland Rail and the proposal have been developed to be consistent with the key national and state strategies, policies and plans (described in Chapter 5: Strategic context).

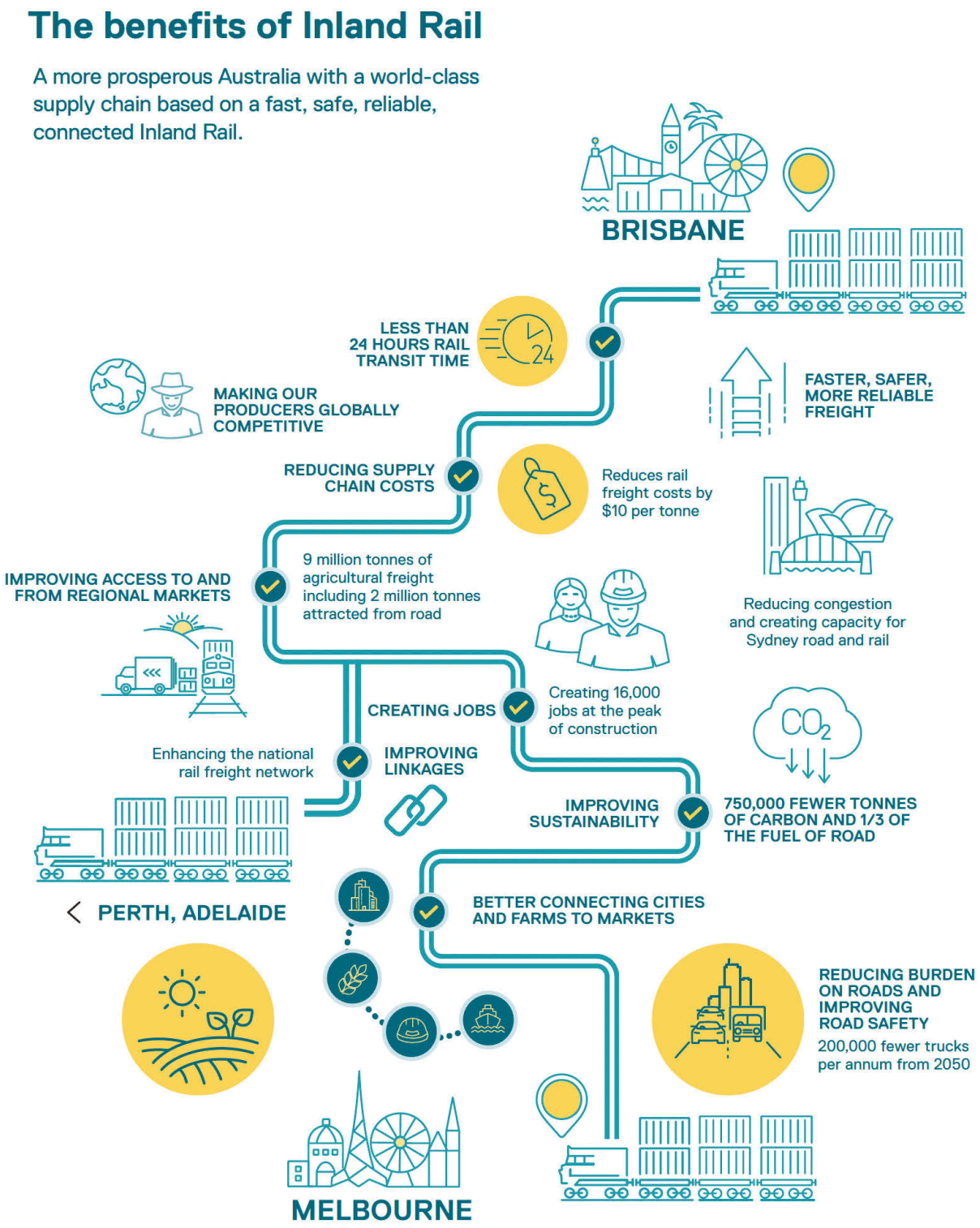

FIGURE 28-1: KEY BENEFITS OF INLAND RAIL

28.3.2 Biophysical, economic and social considerations

A proposal of this scale would inevitably have some impacts on the environment, local community and economy, particularly during construction. Potential impacts of the proposal, based on the design and construction methodology, as described in Chapters 7 and 8, are summarised in section 28.2.2.

The key biophysical potential impacts to the biophysical environment are identified to occur generally during construction. The proposal would remove 72.93 ha of native vegetation, and biodiversity offsets would be finalised and implemented to address the residual impacts of the proposal on biodiversity values. Temporary impacts to

surface water, groundwater and air quality would occur during construction. Mitigation measures to address these impacts have been identified, including rehabilitation of disturbed areas, dust suppression, and erosion and sediment controls. While the proposed increase in the number of trains would increase the emissions to air, the concentrations would be low and below the relevant criteria (as discussed in Chapter 24: Air quality).

The proposal site has been subject to significant disturbance as this area has been impacted by historical and current agricultural practices, which are likely to have resulted in the removal/relocation of archaeological evidence that may have been present. Local heritage items within the proposal site include Stockinbingal Railway Station, Kurrajong trees and falls within the Stockinbingal Heritage Conservation Area. Additional opportunities to minimise heritage impacts through design or construction planning would be explored during detailed design, and heritage interpretation and management plans would be prepared. Where the avoidance of heritage items and archaeological sites is not possible, detailed recording and/or salvage excavation would be undertaken prior to construction.

The amenity impacts to the community during construction, including noise, dust, traffic and visual impacts, would be temporary and mitigation measures have been identified to reduce these impacts. Operational amenity impacts are generally associated with minor visual impacts, with the exception of permanent acquisition of 458 ha of land. Operational rail noise is predicted to generally comply with noise criteria; with mitigation proposed for seven residential receivers and two non-residential receivers identified to experience exceedances.

Mitigation and management measures to minimise any outstanding impacts of the proposal are identified in this document. These measures, and the proposed approach to environmental management during construction and operation, are summarised in Chapter 27: Approach to environmental management and mitigation.

The following benefits to the community and local economies from the proposal have been identified:

- construction of the proposal would employ up to 425 workers during the 24-month construction period
- construction of the proposal would create opportunities for the supply of materials and services in the regional study area
- improved road safety with the realignment of Burley Griffin Way and new road overpass
- new section of rail to support operation of intermodals and freight-related industries.

Inland Rail will address the growing freight task by helping to move freight off the congested road network and moving interstate freight off the congested Sydney suburban rail network. It provides a reliable road-competitive solution to the freight task and enables the commercial and social benefits of rail to be leveraged to meet Australia's long-term freight challenge.

Inland Rail is fundamental to the continued growth of rail freight. It is estimated that Inland Rail would shift the share of freight moved by rail between Melbourne and Brisbane from 26 to 62 per cent, so that by 2050 about 7.9 million tonnes of inter-capital freight would be moved by rail between the two cities (ARTC, 2015a). Inter-capital freight includes products such as hardware, steel, groceries and other consumer goods. It travels between major ports and capital cities before being distributed to retailers.

28.3.2.1 Ecologically sustainable development

The EP&A Act adopts the definition of ecologically sustainable development contained in the *Protection of the Environment Administration Act 1991* (NSW). The following sections provides justification for the proposal, having regard to the principles of ecologically sustainable development defined by clause 193 of the EP&A Regulation.

Precautionary principle

The precautionary principle is defined as *'…if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation'*.

A range of environmental investigations have been undertaken during the development of the proposal and the environmental assessment process, to ensure that potential impacts are understood with a high degree of certainty. The assessment of the potential impacts of the proposal is considered to be consistent with the precautionary principle. The assessments undertaken are consistent with accepted scientific and assessment methodologies and have considered relevant statutory and agency requirements. The assessments have applied a conservative approach with regard to construction and operational arrangements, and the modelling used.

Lack of full scientific certainty has not been used as a reason to postpone or avoid identification and adoption of design or management measures to avoid or minimise environmental degradation. For example:

- where potential suitable habitat for species credit species is present, the species are assumed present and appropriate offsets have been calculated.
- where building conditions of sensitive receivers are unknown or final construction methodology is to be determined, the most conservative assumptions have been used in the noise modelling to predict noise levels during construction and operation
- monitoring and further investigation have been proposed to verify assessment findings, including groundwater and noise.

The proposal has been selected to minimise the potential environmental impacts, particularly the extent of land use impacts. The proposal has been designed to avoid impacts, where possible, and to reflect the findings of the assessments undertaken. Mitigation and management measures have been proposed to minimise potential impacts, and these management measures would be implemented during construction and operation. No threat of serious or irreversible damage to the environment arising from the proposal has been identified.

Principle of inter-generational equity

The principle of inter-generational equity is defined as *'…the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations*.'

As outlined in Chapter 5: Strategic context and need, the delivery of Inland Rail would deliver social and economic benefits due to improved freight transport. The proposal would, as part of Inland Rail, benefit future generations by providing a safer, more efficient means of freight transport.

Construction of a long, linear infrastructure project within a predominantly greenfield area, such as the proposal, has the potential for some degree of environmental and social disturbance. These disturbances include the clearing of vegetation, amenity issues related to air and noise, some disturbance to private properties during construction, potential disturbance of heritage sites, and changes to flooding and hydrology; however, the potential for environmental and social disturbance as a result of construction has to be balanced against the long-term benefits of the Inland Rail overall.

Conservation of biological diversity and ecological integrity

The principle of conservation of biological diversity and ecological integrity is defined as *'…conservation of biological diversity and ecological integrity should be a fundamental consideration'.*

Ecological studies have been undertaken to identify potential adverse impacts on biodiversity. Approaches to avoid and minimise impacts to terrestrial and aquatic biodiversity have been incorporated into the proposal during the options assessment and reference design development. The proposal has been developed to avoid or minimise impacts on areas of high ecological value. Detailed assessments have been carried out to identify flora and fauna impacts and a range of mitigation measures identified for implementation. For example, there is a commitment to the design and installation of fauna connectivity measures to enhance habitat connection between patches of remnant vegetation for Squirrel Gliders.

Biodiversity offsets would be implemented to address the impacts that cannot be avoided.

Improved valuation and pricing of environmental resources

The principle of improved valuation and pricing of environmental resources is defined as *'…that environmental factors should be included in the valuation of assets and services'.*

The value placed on the environment has been considered throughout the development of the proposal (refer to Chapter 5: Strategic context and need and Chapter 6: Alternatives and proposal options). In addition, the costs associated with the planning and design of measures to avoid or minimise adverse environmental impacts and the costs to implement them have been built into the overall costs of the proposal.

The assessment has identified the environmental and other consequences of the proposal, and identified mitigation measures, where appropriate, to manage potential impacts. If approved, the construction and operation of the proposal would be in accordance with relevant legislation, the conditions of approval, and the construction and operation environmental management plans. These requirements would result in an economic cost to the proponent. The implementation of mitigation measures would increase both the capital and operating costs of the proposal. This signifies that environmental resources have been given appropriate valuation.

The value of environmental resources is also inherently considered in the development of a design that avoids and minimises impacts.

The concept design for the proposal has been developed with an objective of minimising potential impacts on the surrounding environment. The extra cost of alignments, designs, proposal elements, management measures and impact offset or mitigation packages are selected to avoid and minimise environmental and social impacts and are included in the total estimated proposal cost. Examples include the provision of numerous bridges to minimise potential impacts on the flood plains and the proposed biodiversity offset package.

28.4 Concluding statement

The proposal is needed to support the development of Inland Rail. The proposal, as part of Inland Rail, is needed to respond to the growth in demand for freight transport and address existing freight capacity and infrastructure issues. The proposal is a critical component of Inland Rail and is required to enable Inland Rail to operate.

The proposal is justified in terms of its strategic need and its anticipated benefits, taking into account the matters of ecologically sustainable development. The proposal is considered to best meet the objectives when compared to all other alternatives considered.

This EIS has been prepared in accordance with the provisions of Part 5.2 of the EP&A Act and addresses the SEARs. It also considers the issues raised by the community and stakeholders during the development of the proposal.

A proposal of this scale would inevitably have some impacts on the local environment and community, particularly during construction and as a result of undertaking enhancement works along an existing rail corridor. As described in Chapter 6: Alternatives and proposal options, Chapter 7: Proposal description—operation, Chapter 8: Proposal description—construction and Chapter 27: Approach to environmental management and mitigation, the proposal would incorporate environmental management and design features to ensure that potential impacts are managed and mitigated as far as practicable.

The majority of the potential construction-related impacts would be effectively mitigated by the implementation of best-practice construction management, including the implementation of the environmental management approaches and the mitigation measures compiled in Chapter 27: Approach to environmental management and mitigation. The potential remains for residual impacts, particularly as a result of construction noise at the Stockinbingal end of the proposal. Approaches to further reduce these impacts would be explored with key stakeholders during detailed design, and subject to further communication and engagement with potentially affected receivers during construction.

The biodiversity offsets would be finalised and implemented to address the residual impacts of the proposal on biodiversity values, according to the requirements for Division 5.2 projects under the EP&A Act.

The detailed design for the proposal would be developed with the objective of minimising potential impacts on the local and regional environment, and the local community. The design and construction methodology would continue to be developed with this overriding objective in mind, taking into account the input of stakeholders.

The residual impacts of the proposal are outweighed by the long-term benefits, including:

- enabling Inland Rail to operate by making it possible for double-stacked trains to operate between Illabo and Stockinbingal
- improved road safety with the realignment of Burley Griffin Way and new road overpass
- job creation during construction and flow-on benefits to the local economies around the enhancement sites.

The potential residual construction and operational impacts of the proposal are considered manageable with the implementation of the proposed mitigation and management measures.