CHAPTER 21

Sustainability

ARTC | INLAND RAIL
An Australian Government Initiative

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21. Sustainability

21.1 Summary

The proposal is pursuing an Infrastructure Sustainability Council rating of 'excellent'. Sustainability initiatives have been embedded into the development of the proposal and additional initiatives would be considered during the detailed design, construction or operational phases of the proposal. This would be guided by a Sustainability Management Plan.

21.2 Approach

This chapter outlines the sustainability performance of the Albury to Illabo (A2I) section of the Inland Rail program (the proposal) and recommends a target Infrastructure Sustainability (IS) rating for proposal, using the Infrastructure Sustainability Council's (ISC) IS Rating Tool.

21.2.1 Secretary's Environmental Assessment Requirements

The Secretary's Environmental Assessment Requirements (SEARs) related to sustainability, and where in the environmental impact statement (EIS) these have been addressed, are detailed in Appendix A: Secretary's Environmental Assessment Requirements.

The Infrastructure Sustainability Council of Australia (ISCA) referred to within the SEARs has since been renamed the Infrastructure Sustainability Council and is referred to as ISC in this EIS.

21.2.2 Relevant legislation, policies and guidelines

The pursuit of sustainable development has gained momentum since the release of *Our Common Future*, commonly referred to as the *Brundtland Report* (World Commission on Environment and Development, 1987). In the Australian context, the definition of sustainable development is based on the *Brundtland Report*, as well as the *National Strategy for Ecologically Sustainable Development* (Council of Australian Governments, 1992). The definition of sustainable development is:

'using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased'.

This definition is included in section 516A of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act), which requires Commonwealth organisations to report on how they '*accord with and advance the principles of ecologically sustainable development*'.

The principles of ecologically sustainable development are set out in clause 193 of the Environmental Planning and Assessment Regulation 2021 (NSW) as follows:

(4) The principles of ecologically sustainable development are as follows—

*(a) the **precautionary principle**, namely, that 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. In the application of the precautionary principle, public and private decisions should be guided by—*

(i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and

(ii) an assessment of the risk-weighted consequences of various options,

*(b) **inter-generational equity**, namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,*

*(c) **conservation of biological diversity and ecological integrity**, namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,*

*(d) **improved valuation, pricing and incentive mechanisms**, namely, that environmental factors should be included in the valuation of assets and services, such as—*

(i) polluter pays, that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,

(ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,

(iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to

maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.

The IS rating scheme was established in 2012. It provides a clear framework for embedding sustainability into the planning, design, construction and operation phases of infrastructure projects. In addition to the IS rating scheme, the legislation, policies and guidelines outlined in Table 21-1 have been used to guide the implementation of sustainability initiatives during the proposal's reference design phase. Table 21-1 should be read in conjunction with the regulatory context of technical disciplines such as ecology, hydrology, visual impact assessment and cultural heritage.

TABLE 21-1 LEGISLATIVE, POLICY AND GUIDELINE CONTEXT

Legislation, policy or guideline	Relevance to the proposal
Inland Rail Environment and Sustainability Policy (ARTC, 2018)	Sets the priorities and direction for implementing sustainability initiatives during the planning, design and operation phases of Inland Rail.
Inland Rail Sustainable Procurement Policy (ARTC, 2020a)	Sets the priorities and direction for sustainable procurement in the context of Inland Rail.
Inland Rail Sustainability Strategy (ARTC, 2020b)	Sets out the delivery model for sustainability in the context of Inland Rail. It includes targets that are aligned with the Inland Rail Environment and Sustainability Policy.
NSW Sustainable Design Guidelines Version 4.0 (Transport for NSW (TfNSW), 2017b)	Framework for integrating sustainability into transport projects in NSW.
Infrastructure Sustainability Technical Manual (Version 1.2) (ISCA, 2018)	The IS rating scheme provides industry with a means to assess performance, and to be recognised for good performance. This assessment is facilitated using the IS rating scheme, which consists of this technical manual and the scorecard.
Infrastructure Sustainability Scorecard Version 1.2, April 2018 update (ISCA, 2018)	The proposal is pursuing an 'Excellent' rating against version 1.2 of the IS rating scheme.
Infrastructure Sustainability Planning Guidelines (ISCA, 2016)	Details how the IS rating scheme may be applied to the planning phase of infrastructure projects, which occurs prior to the detailed design phase.
Environmental Planning and Assessment Act 1979 (NSW) (EP&A Act)	Part vii of the Act encourages ecologically sustainable development.
NSW Infrastructure Skills Legacy Program's training and employment targets (NSW Department of Industry (DoI), no date)	Sets targets for contributing to local economic and social advancement.
NSW Climate Change Policy Framework (NSW Office of Environment and Heritage (OEH), 2016a)	Framework for minimising carbon emissions through design.
National Greenhouse and Energy Reporting Act 2007 (Cth)	Outlines the approach for monitoring and reporting greenhouse gas (GHG) emissions and energy use, including a standard set of factors used to determine GHG footprints for energy use, liquid fuels and electricity.
NSW Waste Avoidance and Resource Recovery Strategy 2014-21 (NSW Environment Protection Authority (EPA), 2014a)	Sets out the NSW Government's position in relation to waste avoidance, diversion from landfill, reuse and recycling.
NSW Government Resource Efficiency Policy (OEH, 2019b)	Provides guidance on how to maximise resource efficiency during the project lifecycle.
United Nations Framework Convention on Climate Change including Paris Agreement on climate change	Outlines the Australian Government's commitments to international action on climate change.
Australian Standard *AS5334:2013 Climate change adaptation for settlements and infrastructure: A risk-based approach* (Standards Australia, 2013)	Guides how climate change risks should be assessed, as well as the development of effective adaptation measures.

Legislation, policy or guideline	Relevance to the proposal
Australian Rainfall and Runoff (ARR, 2019 prepared by Ball et al., 2019)	A national guideline for the estimation of design flood characteristics in Australia. Where applicable, a climate change scenario was simulated in the hydrological models based on the ARR2019 recommendation to adopt the CSIRO Representative Concentration Pathway (RCP) of 8.5 and an expected design life of 100 years. This was applied in place of *Practical consideration of climate change—flood risk management guidelines* (Department of Environment and Climate Change (DECC), 2007), which was referenced in the SEARs for this proposal.
Sustainable Procurement Guide (Commonwealth of Australia, 2020)	Sets the priorities and direction for sustainable procurement for Australian Government agencies and organisations.

21.2.3 Approach to sustainability on Inland Rail

Inland Rail will provide a long-haul freight solution that is time- and cost-competitive compared to road freight (refer Chapter 2: Strategic content and need. It is anticipated that Inland Rail would replace some of the long-haul road freight task, resulting in reduced road congestion. Fewer vehicular emissions are also expected with Inland Rail compared to transportation of the same volume of freight via the road route.

The opportunities that freight rail provides to reduce the environmental and social impacts associated with promoting economic advancement, by connecting the producers of agricultural and industrial goods to their markets, is at the heart of the Inland Rail Program. In recognising this role, Inland Rail, in demonstrating sustainability leadership, developed an Environment and Sustainability Policy.

The *Environment and Sustainability Policy* (ARTC, 2018) outlines sustainability commitments for the proposal. Table 21-2 demonstrates how these sustainability commitments relate to specific credits in the IS rating scheme.

The Inland Rail Program is committed to achieving a program-wide IS Rating of 'Excellent'. This commitment has been made under Version 1.2 of the IS Rating tool. While ISC continue to release updated rating tools, this proposal would seek compliance in alignment with the program-wide approach and use version 1.2 of the IS Rating tool.

TABLE 21-2 RELATIONSHIP BETWEEN SUSTAINABILITY COMMITMENTS AND INFRASTRUCTURE SUSTAINABILITY CREDITS

Sustainability commitments	Relationship with Infrastructure Sustainability credits
No harm: ▸ our goal is that no-one is harmed at work or on our network.	Community Health and Wellbeing (Hea-1)—considering potential safety impacts; implementing safety in design measures. Crime Prevention through Environmental Design (Hea-2)—incorporating crime prevention measures in the design will reduce potential impacts on local communities.
Engage early and meaningfully with stakeholders, including Indigenous organisations, communities, industry and government: ▸ build effective working relationships and a shared understanding of the Inland Rail Program.	Stakeholder and community engagement credits (Sta-1 through Sta-4)—encouraging, planning, implementing and monitoring stakeholder and community engagement with Inland Rail. Heritage credits (Her-1 and Her-2)—recognising the role that the Indigenous and non-Indigenous community has in identifying heritage items and values.
Promote long-term economic benefits in regional communities: ▸ create opportunities for development of skilled local and Indigenous workers ▸ support local and Indigenous businesses; ensure they are provided with opportunities to participate ▸ Inland Rail is a catalyst for complementary private-sector investment.	Procurement credits (Pro-1 and Pro-2). Stakeholder and community engagement credits (Sta-1 through Sta-4)—encouraging, planning, implementing and monitoring stakeholder and community engagement with Inland Rail. Heritage credits (Her-1and in construction Her-2)—recognising the role that the Indigenous and non-Indigenous community has in identifying heritage items and values. Community Health and Wellbeing (Hea-1)—identifying opportunities to supporting local communities.

Sustainability commitments	Relationship with Infrastructure Sustainability credits
Protect the environment by mitigating potential impacts: ▸ apply the principles of avoid, minimise, offset to manage potential impacts to receiving environments and ecological values ▸ minimise GHG emissions, waste generation and water consumption ▸ continually investigate opportunities to improve environmental values and prevent pollution ▸ obtain and comply with all relevant environmental approvals and compliance obligations.	Ecology (Eco-1 and Eco-2)—Discharges to land, air and water (Dis-1, Dis-2, Dis-3, Dis-4 and Dis-5); and waste (Was-1 and Was-2)—identifying opportunities to reduce the environmental footprint of the proposal. Energy and Carbon (Ene-1)—identifying opportunities to reduce the carbon footprint of the proposal. Waste (Was-2)—Diversion from landfill targets will be adopted. Water (Wat-1)—minimising water consumption, particularly as the proposal is in a drought-prone area. Materials (Mat-1)—identifying opportunities to reduce the material impact of the proposal; dematerialisation of the design; improving the service life of selected materials.
Future-proof Inland Rail so it is efficient and effective in the long term: ▸ design for climate change resilience ▸ incorporate the future demand requirements and corridor uses in the current design ▸ incorporate the future demand requirements and corridor uses in the current design.	Climate change (Cli-1 and Cli-2)—identifying potential climate change impacts and implementing adaptation and resilience measures. Adaptability (Was-3)—considering future demand requirements and corridor uses in the current design.
Base decisions on a balanced consideration of technical, economic, environmental and social issues: ▸ adopt a consistent approach across the proposal.	Decision making (Man-7)—using a multi-criteria approach when making critical decisions.
Regularly review and audit processes and performance: ▸ challenge the way we have always done things ▸ ensure we are doing what we said we would do.	Management and governance credits (Man-1, Man-4, Man-5, Man-6)—recognising the importance of sustainability commitments; regularly reviewing progress against sustainability commitments; encouraging culture of continuous improvement through stakeholder and community engagement. Innovation (Inn-1)—identifying new and improved methods of achieving sustainability commitments.
Drive a culture of continuous improvement: ▸ seek to improve, collaborate and value add throughout delivery ▸ continually improve our Environmental Management System to enhance environmental performance.	Management and governance (Man-1, Man-4, Man-5, Man-6)—monitoring and evaluating performance; implementing lessons learned from within and outside the proposal. Innovation (Inn-1)—identifying new and improved methods of achieving sustainability commitments.

21.2.4 Methodology

The proposal has assessed the consideration and implementation of sustainability using the IS rating scheme framework. The IS rating scheme, which considers whole-of-life impacts and benefits, has historically been used for the assessment of sustainability performance at the end of design and again prior to the commencement of operation of the asset. By adopting the Infrastructure Sustainability rating framework during the planning phase, it has enabled the assessment of anticipated performance against defined benchmarks, considering governance, environmental social and local economic aspects. This will assist with the monitoring and reviewing of performance during delivery and to stimulate the culture of continuous improvement.

This application of Infrastructure Sustainability during the proposal lifecycle is illustrated in Figure 21-1.

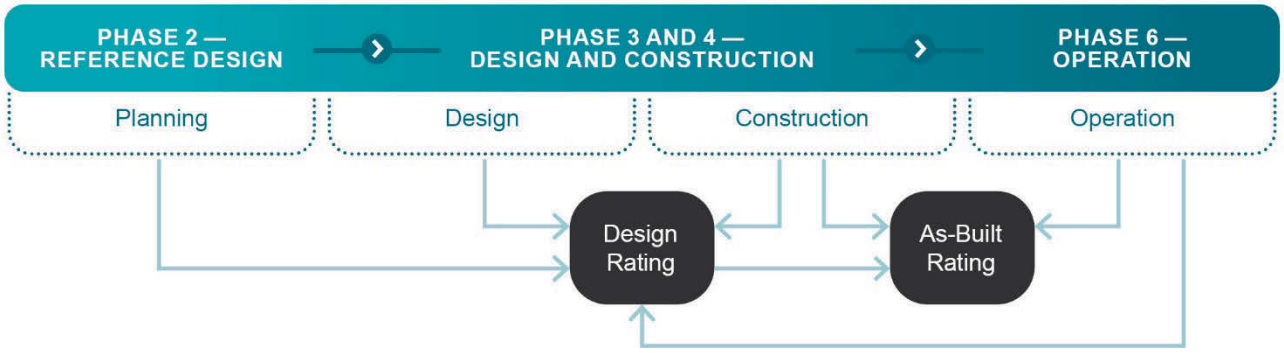

FIGURE 21-1 APPLICABILITY OF INFRASTRUCTURE SUSTAINABILITY VERSION 1.2 RATINGS TO DIFFERENT PROPOSAL PHASES

Infrastructure Sustainability Council of Australia rating framework

The IS rating scheme is made up of 44 credits grouped into the following six themes:

- management and governance
- using resources
- emissions to air, land and water
- ecology
- people and place
- innovation.

Table 21-3 outlines the themes, categories and credits that make up the IS Rating Scheme.

TABLE 21-3 IS RATING SCHEME FRAMEWORK

Theme	Categories	Credit abbreviation	Credit name
Management & governance	Management systems	Man-1	Sustainability leadership and commitment
		Man-2	Risk and opportunity management
		Man-3	Organisational structure, and roles and responsibilities
		Man-4	Inspection and auditing
		Man-5	Reporting and review
		Man-6	Knowledge sharing
		Man-7	Decision making
	Procurement and purchasing	Pro-1	Commitment to sustainable procurement
		Pro-2	Identification of suppliers
		Pro-3	Supplier evaluation and contract award*
		Pro-4	Managing supplier performance*
	Climate change adaptation	Cli-1	Climate change risk assessment
		Cli-2	Adaptation measures
Using resources	Energy & carbon	Ene-1	Energy and carbon monitoring and reduction
		Ene-2	Use of renewable energy
	Water	Wat-1	Water use monitoring and reduction
		Wat-2	Replace potable water
	Materials	Mat-1	Materials lifecycle impact measurement and reduction
		Mat-2	Environmentally labelled products and supply chains*
Emissions, pollution & waste	Discharges to air, land & water	Dis-1	Receiving water quality
		Dis-2	Noise
		Dis-3	Vibration
		Dis-4	Air quality
		Dis-5	Light pollution
	Land	Lan-1	Previous land use
		Lan-2	Conservation of onsite resources
		Lan-3	Contamination and remediation
		Lan-4	Flooding design
	Waste	Was-1	Waste management
		Was-2	Diversion from landfill*
		Was-3	Deconstruction/disassembly/adaptability
Ecology	Ecology	Eco-1	Ecological value
		Eco-2	Habitat connectivity
People & place		Hea-1	Community health and wellbeing

Theme	Categories	Credit abbreviation	Credit name
	Community health, wellbeing and safety	Hea-2	Crime prevention
	Heritage	Her-1	Heritage assessment and management
		Her-2	Monitoring of heritage*
	Stakeholder participation	Sta-1	Stakeholder engagement strategy
		Sta-2	Level of engagement
		Sta-3	Effective communication
		Sta-4	Addressing community concerns
	Urban & landscape design	Urb-1	Urban design
		Urb-2	Implementation*
Innovation	Innovation	Inn-1	Innovation strategies and technologies

* denotes that the credit is an As-built credit and is not applicable for the Design rating.

The proposal's rating depends on how well it performs against defined benchmarks set for each credit. The proposal is pursuing a rating of 'Excellent', corresponding to a score of 50 to 74, as shown in Table 21-4. An Excellent rating indicates that the proposal is achieving Australian best practice in terms of sustainability.

TABLE 21-4 INFRASTRUCTURE SUSTAINABILITY RATING LEVELS

Score	Rating level
< 25	Not eligible for a certified rating
25 to 49	Commended
50 to 74	Excellent
75 to 110	Leading

Adoption of The Infrastructure Sustainability Rating Scheme during the planning phase

The proposal is currently in the planning phase (i.e. EIS and reference design phase) as defined by ISC. Formal verification against version 1.2 of the IS rating scheme is expected to occur during the design and construction phase both for the 'Design Rating' and the 'As Built Rating'. The method of applying the IS rating scheme during the future phase is represented schematically in Figure 21-2.

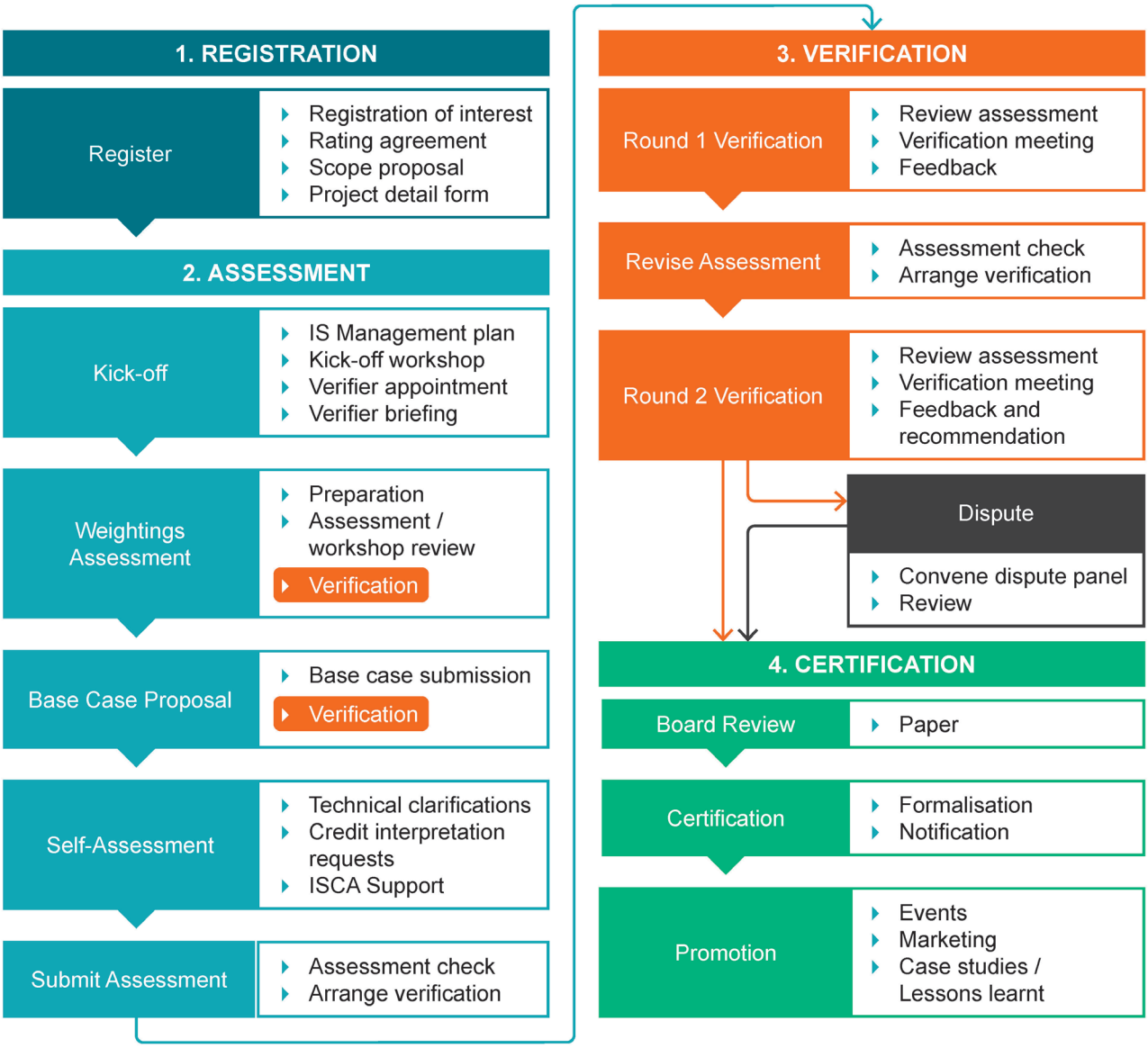

FIGURE 21-2 ADOPTION OF THE INFRASTRUCTURE SUSTAINABILITY COUNCIL OF AUSTRALIA RATING SCHEME DURING THE FUTURE PHASE

Preliminary weightings assessment

Version 1.2 of the Infrastructure Sustainability rating scheme allows projects to adjust the materiality (i.e. weighting) of certain credits depending on the local/regional context. The process of adjusting the materiality of certain credits is known as a weightings assessment. A preliminary weightings assessment has been completed for the proposal. The intent is that the weightings assessment would be verified by ISC once the detailed design and construction phase commences.

The preliminary weightings assessment found the following categories to hold the highest materiality:

- discharges to air, land and water
- heritage
- urban and landscape design.

Preliminary performance assessment

A preliminary performance assessment has been prepared for the proposal. The preliminary performance assessment uses version 1.2 of the IS rating scheme to assess the anticipated sustainability performance of the proposal. It draws on evidence and opportunities from the proposal's reference design phase, considering the likelihood that outcomes from the reference design phase would be carried forward to the detailed design phase, when a formal IS rating would be pursued.

The intent of the preliminary performance assessment is to:

- document evidence to show how sustainability initiatives have been embedded into the reference design phase of the proposal, ensuring that initiatives to be carried forward to the detailed design, construction and/or operation phases are also captured
- document opportunities to minimise energy, water and material consumptions and reduce GHG emissions during construction and operation of the proposal
- identify cost-effective opportunities for innovation and leading practice during the construction and operation phases
- document how the design of the proposal has changed to mitigate potential environmental, social and economic impacts, and to improve future resilience
- inform the IS verification process, which is expected to occur at the end of the detailed design and construction phases.

The preliminary performance assessment draws on evidence from the:

- *ARTC Environment and Sustainability Policy*
- *Inland Rail Sustainability Strategy*
- *Inland Rail Program Environmental Management Plan*
- ARTC and Inland Rail guidance documents, including the *Basis of Design*
- mitigation measures proposed as part of this EIS
- the current processes, practices and methodologies associated with the delivery of critical State significant infrastructure (SSI) in NSW.

21.3 Impact assessment

21.3.1 Sustainability in design

Sustainability initiatives throughout the progression of the reference design have been identified and captured in an opportunities register, which forms part of the design documentation for the proposal. A summary of these measures, which have been implemented as part of the proposal, are provided in Table 21-5. The initiatives have been mapped to a specific IS credit. This would support formal verification against version 1.2 of the IS rating scheme, which would occur during the design and construction phase.

This table does not include all management measures that form part of discipline-based measures presented elsewhere in this EIS.

Additional opportunities that are still under consideration as part of the reference design, design and construction or operation phase are discussed in section 21.3.2.

TABLE 21-5 SUSTAINABILITY IN DESIGN MEASURES IMPLEMENTED DURING THE REFERENCE DESIGN PHASE

Theme	Topic	Sustainability in design measures	Applicable IS Credits
Governance	Making informed decisions	Use of a multi-criteria assessment (MCA) that considers environmental, social and local economic impacts to evaluate preferred major decision making where multiple options exist.	Man-7
		The proposed enhancement project has been designed to minimise environmental and social impacts. Predominantly using previously disturbed land within the rail corridor reduces the chance of impacting on environmentally sensitive sites and remnant vegetation as well as construction impacts on the surrounding local community.	Eco-1, Eco-2, Dis-2, Dis-3, Lan-1, Her-1, Hea-1
	Climate response	Design considers climate and weather events to avoid an increase in flood risk to neighbouring properties and the environment for extreme rainfall and weather events, both now and in the future, including extreme rainfall events.	Lan-4
		Consideration of climate change in modelling used to inform design of drainage and waterways, including: - application of the latest *Australian Rainfall and Runoff Interim Climate Change Guidelines* (Engineers Australia: Water Engineering, 2014)	Cli-1, Cli-2, Lan-4

Theme	Topic	Sustainability in design measures	Applicable IS Credits
		▸ assessment of impacts associated with the 1% Annual Exceedance Probability (AEP) to determine the sensitivity of the design to potential changes in the rainfall intensity ▸ no worsening of the existing track flood immunity will occur.	
		Considers and implements adaptation options associated with the direct and indirect impacts of climate change and natural disaster events to reduce the potential for service disruption.	Cli-1, Cli-2
Advancing local, regional and national economies	Supporting local and Indigenous businesses	Consideration and preparation of local material sourcing strategies, including identifying opportunities for the use of local material sources, quarries and concrete suppliers.	Ene-1, Mat-1, Dis-1, Dis-2, Lan-2, Was-3, Pro-2
Environmental protection	Biodiversity conservation	Alignment considers the reuse of previously disturbed land, thereby avoiding agricultural and native vegetation. Where possible, the alignment has been situated within the existing rail corridor to avoid impacting greenfield sites.	Lan-1
		Consideration of landscaping and habitat rehabilitation measures.	Eco-1, Eco-2, Lan-2, Urb-1
		Fauna crossings to maintain/enhance fauna connectivity for terrestrial species such as environmental culverts.	Eco-2
	Efficient use of resources Minimising carbon footprint	Enhancement project significantly reduces the proposal carbon footprint compared with a greenfield project through the construction phase and in terms of embodied carbon.	Ene-1, Mat-1
		Large-scale material reuse is proposed for the proposal, minimising virgin material use.	Mat-1
	Efficient use of resources	Consideration of decommissioning and deconstructability.	Was-3
		Optimisation of formation designs to consider environment, use of local materials, reduced maintenance and ease of construction, including reduction of volume of material.	Lan-2, Dis-1, Dis- 2, Mat-1
		Consideration of topsoil stripping and preservation for re-use within proposal and or local area.	Lan-2
		Waste reduction has been considered in the following ways during the feasibility design phase: ▸ enhancement project significantly reduces waste compared with a greenfield project ▸ reduce the volume of offsite materials required for construction. This will reduce impacts on local road networks as fewer trucks will be required to transport materials. This will also result in fuel savings and GHG emission reductions. ▸ set contractor diversion from landfill targets for construction phase delivery.	Was-1, Was-2, Was-3, Mat-1, Ene-1
		bridges and waterway crossings are designed to minimise impacts to bed, banks and environmental flows.	Lan-4
	Surface water and groundwater	Minimise adverse impacts to receiving water quality during construction, as nominated in section 18.5. Minimise adverse impacts to receiving water quality during operation through embedding design initiatives, such as scour protection, within the design and adopting ARTC standard operating procedures to manage other potential pollutants.	Dis-1
		The enhancement project design has minimised impacts to waterways, riparian vegetation and in-stream flora and habitats.	Eco-1, Eco-2, Dis-1
Respect for people, communities and valued places	Respecting heritage and culture values	Consideration of heritage (Aboriginal and non-Aboriginal) matters in response to impacts identified during environmental impact statement.	Her-1, Her-2
	Building relationships	Consideration of regional and council plans associated with community health and wellbeing, as defined by the IS rating scheme, including local economic development and business activities, cultural and community values, opportunities for skill development.	Hea-1

Theme	Topic	Sustainability in design measures	Applicable IS Credits
	Community safety, health and wellbeing	Design mitigation measures, as nominated in section 18.5, are applied to manage runoff and flooding with a view to minimising flood risk.	Lan-4
		Consideration of impacts on sensitive receptors and identification of management and mitigation measures to minimise impacts.	Dis-2, Dis-3
		Consideration of air quality design matters in response to impacts identified during environmental impact assessment.	Dis-4
		Consideration of the level of existing lighting within the area and the orientation, design and timing of proposed lighting around curfews, to reduce impacts on the sensitive receivers.	Dis-5
		Assessment of potential to disturb contaminated sites assessed and impacts on the availability of locally sourced materials considered.	Lan-3
		Consideration of light pollution and urban design aspects of the IS rating scheme in the landscape and visual amenity assessment.	Urb-1, Hea-2, Dis-5
		Engagement with stakeholders and provision of materials through the proposal's website.	Sta-1, Sta-2, Sta-3, Sta-4, Hea-1

21.3.2 Future sustainability opportunities

A summary of future sustainability opportunities for the proposal are summarised in Table 21-6. These opportunities require further investigation during the detailed design, construction and/or operation phases of the proposal.

TABLE 21-6 SUSTAINABILITY OPPORTUNITIES THAT MAY BE IMPLEMENTED DURING FUTURE PHASES OF THE PROPOSAL

Theme	Topic	Sustainability in design measures	Applicable IS Credits
Governance	Making informed decisions	Possible re-use of works sites and haul roads, and/or water bores associated with projects being pursued within the region or neighbouring regions.	Lan-1, Mat-1
Environmental protection	Efficient use of resources minimising carbon footprint	Use of recycled materials for temporary and permanent access and pathways.	Mat-1
		Material volume reductions, such as higher strength materials, higher supplementary cementing material (SCM) and waffle pods for reduced concrete volumes.	Mat-1
		Use of lower carbon and recycled materials (such as geopolymer concrete).	Mat-1
		Explore opportunities for haulage and delivery via the rail network.	Ene-1, Mat-1
		Explore opportunities for waste avoidance and reduction.	Was-1, Was-2, Was-3
		Investigate design specifications and treatment methodologies to optimise the re-use of onsite or nearby material.	Mat-1
	Efficient use of resources	Possible re-use of water bores that are no longer required by bore owners.	Mat-1
		Possible re-use of recycled water plant and surplus water supply from landowners.	Wat-1, Mat-1
		Use of stand-alone solar power system for provision of power at the site offices.	Ene-2
		Use of stand-alone power system for provision of power associated with signalling works.	Ene-2
		Water minimisation and reuse—reducing the need to use potable water through the design and construction phase.	Wat-1, Wat-2

Theme	Topic	Sustainability in design measures	Applicable IS Credits
Respect for people, communities and valued places	Respecting heritage and culture values	Integration of local Indigenous art and culture into new structures on the proposal—designing public interfacing elements of the project with Country.	Inn
	Building relationships	Provide work experience opportunities for local schools and other education institutions through construction and ongoing operational phase.	Hea-1

21.3.3 Program-wide sustainability opportunities

Several sustainability opportunities that are applicable to the proposal as part of the wider Inland Rail Program have been identified, including:

- establishment of a program-wide sustainability network to enable the sharing of lessons learnt between projects and with the broader industry
- establishment of a program-wide sustainability supply chain program, building on existing sustainability supply chain initiatives
- balancing of materials across project boundaries, including the exchanging of surplus fill, aggregates, pipe work and common use materials between projects
- use of already constructed sections of the Inland Rail network to assist with the transportation of materials, including rails and sleepers
- consideration of skills development and training partnerships with Registered Training Organisations and schools that enable apprentices, and vocational education and training students, to continue skills development beyond the life of the project in which they were originally engaged has ceased
- partnering with key material provides (e.g. providers of rails and sleepers) to pursue innovation opportunities, including encouraging the uptake of environmental labelling schemes
- identify program-wide mitigation and adaptation strategies, including those associated with the operation phase.

21.3.4 Skills and legacy

As part of the Inland Rail Environment and Sustainability Policy and the Social Performance Plan, ARTC has targeted the promotion of economic benefits in regional communities. In line with the NSW Government's Infrastructure Skills Legacy Program targets, ARTC has targeted:

- providing up-skilling opportunities to apprentices/trainees (subject to regulatory and other restrictions)
- developing a workforce management plan including an Indigenous Participation Plan
- engaging with local businesses and residents to investigate options for flexible working arrangements
- working with local businesses to secure supply contracts and encourage local economic activity; furthermore, ARTC should work with the Commonwealth, state and local governments to develop strategies to appropriately manage the likely draw of labour during the construction phase of the proposal.

21.4 Mitigation and management

21.4.1 Approach to sustainability management

A Sustainability Management Plan would be developed to guide the design, construction and operation of the proposal and would include:

- demonstrate leadership and commitments to sustainability
- set targets for safety, local employment, materials, waste, procurement, ecological connectivity, GHG emissions and climate resilience in line with the Inland Rail program level objectives and targets
- establish the roles, responsibilities and resourcing requirements for the embedding of sustainability throughout the design, procurement and construction of the proposal
- document the process for the identification, assessment and implementation of sustainability initiatives and opportunities, particularly those associated with the efficient use of energy, water and transport

- document the process to be used to manage the assessment, monitoring and review of sustainability against achieving the requirements of an 'Excellent' level of performance as measured against the requirements of version 1.2 of the IS rating scheme
- outline the documentation and reporting requirements necessary to demonstrate how sustainability has been incorporated into the proposal during design, construction and operation.

Prior to the commencement of operations, the design and construction phase Sustainability Management Plan would be reviewed and updated to focus on operations and maintenance aspects.

21.4.2 List of mitigation measures

Measures that would be implemented to integrate sustainability considerations with the proposal and achieve the target rating are provided in Table 21-7.

TABLE 21-7 SUSTAINABILITY MITIGATION MEASURES

Stage	Ref	Impact/Issue	Mitigation measure
Detailed design/ construction	SU1	Achieving the target sustainability rating	Sustainability initiatives would be incorporated into the detailed design and construction to support the achievement of the Inland Rail program sustainability objectives and targets, and the targeted achievement of an 'Excellent' design and as built rating, according to ISC's IS rating scheme v1.2. These initiatives will be detailed in the Sustainability Management Plan.
Detailed design	SU2	Procurement	Procurement would be undertaken in accordance with the *Inland Rail Sustainable Procurement Policy* (ARTC, 2020a).
Detailed design	SU3	Reporting	Monthly sustainability reporting (and corrective action where required) would be undertaken during detailed design, in accordance with the sustainability management plan.
Construction	SU4	Reporting	Monthly sustainability reporting (and corrective action where required) would be undertaken during construction, in accordance with the sustainability management plan.
Operation	SU5	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.

Effectiveness of mitigation measures

The proposed measures have been developed to provide a pathway to achieving the target sustainability rating. These are consistent with those implemented on similar infrastructure projects and are effective.

21.4.3 Interaction between mitigation measures

The sustainability management plan would be considered during development of the proposal's Construction Environmental Management Plan (CEMP) and operational environmental management plan described in Chapter 27: Approach to mitigation and management, to ensure consistency with regards to the approach to sustainability and climate change. Climate change risk adaptation measures would be incorporated into the sustainability management plan.

Climate change risk adaptation measures described in Chapter 25: Climate change risk adaptation and greenhouse gas would be incorporated into the Sustainability Management Plan.