

CHAPTER

01



Introduction

HELIDON TO CALVERT ENVIRONMENTAL IMPACT STATEMENT



The Australian Government is delivering
Inland Rail through the Australian
Rail Track Corporation (ARTC) in
partnership with the private sector.

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1. Introduction

1.1 Overview

The Australian Government has committed to delivering the Inland Rail Program (Inland Rail), an interstate freight rail corridor between Melbourne and Brisbane, via central-west New South Wales (NSW) and Toowoomba in Queensland. Inland Rail is a significant piece of national transport infrastructure, which will enhance Australia's existing rail network and serve the interstate freight market.

The Inland Rail route, which is approximately 1,700 kilometres (km) in length, will involve:

- ▶ Using the existing interstate rail corridor through Victoria (VIC) and southern NSW
- ▶ Upgrading approximately 400 km of existing corridor, mainly in western NSW
- ▶ Providing approximately 600 km of new corridor in northern NSW and South East Queensland (SEQ).

Inland Rail has been divided into 13 projects to deliver the rail line: one project in VIC, seven in NSW, and five in Queensland (refer Table 1.1). This Environmental Impact Statement (EIS) related to the Helidon to Calvert Project.

TABLE 1.1: THE INLAND RAIL PROGRAM

Project Name	State	Description	Length (km)
Tottenham to Albury	VIC	Enhancement works	305
Albury to Illabo	NSW	Enhancement works	185
Illabo to Stockinbingal	NSW	New railway	37
Stockinbingal to Parkes	NSW	Enhancement works	169
Parks to Narromine	NSW	Upgrade works	111
Narromine to Narrabri	NSW	New railway	307
Narrabri to North Star	NSW	Upgrade works	186
North Star to NSW/QLD Border	NSW	New railway	52
NSW/QLD Border to Gowrie	QLD	New railway	197
Gowrie to Helidon	QLD	New railway	28
Helidon to Calvert	QLD	New railway	47
Calvert to Kagaru	QLD	New railway	53
Kagaru to Acacia Ridge	QLD	Enhancement works	35
Total length			1,712

The justification, service offering, and benefits of the Inland Rail are discussed in Chapter 2: Project rationale.

1.2 Proponent

Australian Rail Track Corporation (ARTC) was created in 1997 after the Australian Government and state governments agreed to the formation of a 'one stop shop' for all operators seeking to access the national interstate rail network. ARTC is the Project Proponent and is a Government Business Enterprise as prescribed by section 5(2) of the *Public Governance Performance and Accountability Rule 2014* (Cth).

Contact details for ARTC Inland Rail are:

Inland Rail
Australian Rail Track Corporation
ABN: 75 081 455 754
Level 16, 180 Ann Street
Brisbane QLD 4000

GPO Box 2462
Brisbane QLD 4001
Telephone: 1800 732 761

Since its formation, ARTC has focused on infrastructure investment and the modernisation of the interstate rail network. This focus has extended to building new track and upgrading existing track to allow for the capacity required by the interstate freight market and Hunter Valley coal chain.

Today, ARTC plays a critical role in the transport supply chain and in the overall economic development of Australia. The ARTC network supports industries and businesses that are vital to the nation's economy by facilitating the movement of a range of commodities including general freight, coal, iron ore, other bulk minerals and agricultural products. Across the network, ARTC is responsible for:

- ▶ Selling access to train operators
- ▶ Developing new business
- ▶ Capital investment in the network
- ▶ Managing the network
- ▶ Infrastructure maintenance.

As the operator and manager of Australia's national rail freight network, ARTC has delivered more than \$5 billion in capital upgrades to the national rail freight network. Having emerged from this period of significant investment and network growth, ARTC has now been tasked with developing a program to deliver Inland Rail under the guidance of the Department of Infrastructure, Transport, Regional Development and Communications.

ARTC has incurred two penalties in NSW for minor environmental incidents being:

- ▶ NSW Environmental Protection Authority Penalty Notice to ARTC dated 29 May 2012 for discharge of sediment-laden water at Allandale (Maitland to Minimbah Third Track Project) = \$1,500
- ▶ NSW Environmental Protection Authority Penalty Notice to Transport Express Joint Venture (operating under ARTC Environment Protection Licence) dated 5 March 2012 for sediment and erosion control issues at Sawtell = \$1,500.

ARTC has not incurred any other environmental prosecutions within the last 10 years.

ARTC also previously entered a Voluntary Enforceable Undertaking with the Commonwealth Department of the Environment and Energy (now Department of Agriculture, Water and the Environment under the *Environment Protection and Biodiversity Conservation Act 1999* [the EPBC Act] (Cth) in 2011.

The ARTC Environmental Policy provides a framework for continual improvement of ARTC's Environmental Management System and sets out commitments for managing potential environmental risks. ARTC is committed to best-practice environmental

management and reducing environmental impact in all ARTC activities. ARTC also implements a 'no harm' policy regarding workplace health and safety.

Further information on ARTC and Inland Rail can be found at artc.com.au and inlandrail.com.au respectively.

The EIS study team is made up of personnel from Future Freight Joint Venture, ARTC and various technical specialist service providers. Details of the members of the team for each discipline are provided in Appendix D: Study Team.

1.3 The Project

ARTC proposes to construct and operate the Helidon to Calvert (H2C) Project (the Project) as part of Inland Rail. The Project consists of approximately 47 km of single-track, dual-gauge railway with four crossing loops to accommodate double-stack container freight trains up to 1,800 metres (m) long. With the crossing loops, total track length is expected to be approximately 56 km. The Project will also involve the construction of an approximately 850 m long tunnel through the Little Liverpool Range to facilitate the required rail gradient across the undulating topography. It will ultimately accommodate trains up to 3,600 m long, based on business needs, but will be initially constructed to accommodate 1,800 m long double-stack freight trains.

Due to the Project's length, significant infrastructure elements (including the tunnel) and earthworks required for the crossing of Little Liverpool Range, a capital expenditure in the order of \$1 billion is expected [ARTC, 2017a]—this includes both direct construction costs and indirect costs. Indirect costs include items such as: Contractor overhead and margins, contingency, and escalation.. The total investment figure also includes ARTC Program costs such as project management, train control systems, property requirements and insurances. The total investment figure makes provision for expected Project contingency and risk.

The EIS assumes an estimated capital cost profile of approximately \$565 million, based on 2019 dollars, consistent with the *Inland Rail Programme Business Case* (ARTC, 2015a). The EIS capital cost profile is an estimate of direct construction costs—including, but not limited to: delivering environmental and heritage commitments; fencing and earthworks; tunnels and tunnel services; formation and roadworks; structures; track works (loops and crossings); delivery works (incidentals and utilities); and supply of track, sleepers and turnouts.

The EIS has been developed based on the initial design for the Project. It seeks a preliminary 'in principle' approval in order to progress to the detailed design phase. Following detailed design, further applications for the relevant Project approvals will be made.

The Project design responds to key environmental, community and social features and has been developed in line with engineering constraints to produce a feasible rail design. The rail design is based on addressing potential impacts, minimising disturbance to existing infrastructure and meeting engineering and rail operations basis of design criteria.

The objectives of the Project are to:

- ▶ Provide rail infrastructure that meets the Inland Rail specifications, to enable trains using the Inland Rail corridor to travel between Helidon and Calvert, connecting with other sections of Inland Rail to the east and west
- ▶ Minimise the potential for adverse environmental and social impacts.

The objectives of Inland Rail are to:

- ▶ Provide a rail link between Melbourne and Brisbane that is interoperable with train operations to Perth, Adelaide and other locations on the standard gauge rail network. This will serve future rail freight demand and stimulate growth for inter-capital and bulk rail freight
- ▶ Deliver an increase in productivity that will benefit consumers through lower freight transport costs
- ▶ Provide a step-change improvement in rail service quality in the Melbourne to Brisbane corridor and deliver a freight rail service that is competitive with road
- ▶ Improve safety, alleviate congestion and reduce environmental impact by moving freight from road to rail
- ▶ Bypass bottlenecks within the existing metropolitan rail networks and free up train paths for other services along the coastal routes
- ▶ Act as an enabler for regional economic development along the Inland Rail corridor.

Further information on the Project is provided in Chapter 6: Project description.

1.3.1 Location

The Project is located within the Ipswich (10.7 km of alignment) and Lockyer Valley (36.8 km) local government areas (LGAs) in SEQ. The Project corridor is classed as both greenfield and brownfield because part of the alignment will use existing rail corridors.

The preferred alignment starts at Helidon, deviating from the existing Queensland Rail (QR) West Moreton System rail corridor along Airforce Road and continues south-east, crossing the Warrego Highway then continuing east between the highway and the existing rail corridor until it runs immediately parallel with the existing rail line slightly north of Placid Hills.

The alignment runs parallel with the existing rail line at the following locations:

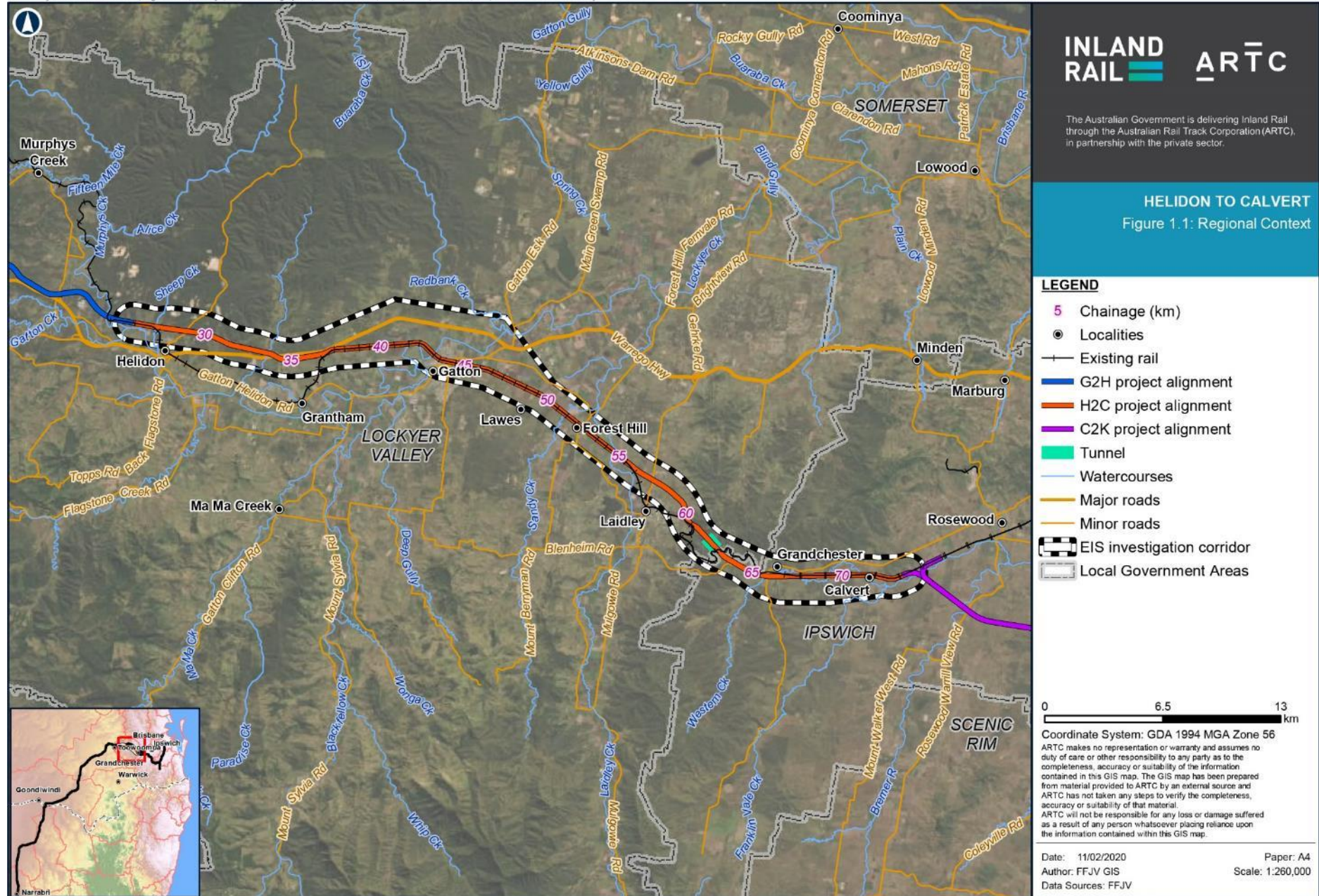
- ▶ Western end from Gowrie to Helidon (G2H) Inland Rail project connection at Airforce Road
- ▶ Central portion through Gatton and Forest Hill
- ▶ Eastern end at Grandchester to the Calvert to Kagaru (C2K) Inland Rail project connection at Calvert.

The new track continues parallel to the north of the existing rail corridor, through Gatton and the northern side of the existing Gatton rail station, through Forest Hill and then deviates from the existing rail corridor in a south-east direction just north of the Laidley township across Laidley Plainlands Road to the new 850 m tunnel section through the Little Liverpool Range.

After exiting the eastern tunnel portal at the Little Liverpool Range, the Project corridor crosses under the West Moreton System rail corridor and over Rosewood–Laidley Road, bypassing the existing Grandchester Station to the south, running parallel to the existing rail corridor, and then connecting into the West Moreton System rail corridor at the proposed C2K rail line west of Calvert.

Based on the proposed alignment and the EIS investigation corridor (incorporating all areas where both permanent and temporary works are proposed, and land within an approximately 1 km radius either side of the proposed rail corridor), study areas have been defined for each of the environmental values assessed in Chapter 8 to Chapter 21, such as, for example, surface water, flora and fauna, and air quality. These study areas are specific to the environmental value being assessed and are, therefore, defined based on the nature of the environmental value, and the scale, type and duration of Project elements that may impact on that value. Study area descriptions for each of the environmental values investigated are included in the methodology sections of Chapter 8 to Chapter 21.

The location of the Project and its regional context are shown in Figure 1.1.



1.3.2 Key features

The Project consists of the key permanent and temporary construction features listed in Table 1.2.

The disturbance footprint has been established to encompass all permanent infrastructure required for the Project. Permanent features include the new rail track, tunnel, bridges, drainage structures, level crossings, road realignments, crossing loops and turnouts, fencing and signage.

The disturbance footprint also includes land required on a temporary basis to enable construction of the Project, including for construction laydown areas, temporary erosion control structures and movement of construction traffic parallel to the rail alignment.

Further information about the location and description of the Project is detailed in Chapter 6: Project description and Figure 6.4.

TABLE 1.2: KEY FEATURES OF THE PROJECT

Aspect	Description
Permanent features	
New track	▶ Approximately 47 km of new single-track, dual-gauge railway.
Rail corridor	<ul style="list-style-type: none"> ▶ Approximately 56 km of rail corridor (including crossing loops) ▶ Approximately 24 km of the rail corridor will be co-located with existing rail corridor as brownfield development.
Tunnel	▶ Approximately 850 m long tunnel through the Little Liverpool Range.
Crossing loops and turnouts	<ul style="list-style-type: none"> ▶ Crossing loops are lengths of track connected to the main line by switches at both ends to provide a facility that permits trains to both cross and pass each other. Four crossing loops will be constructed, each a minimum of 2,200 m in length ▶ Crossing loops will be spaced at approximately 13 km intervals, located at Helidon, Gatton, Laidley and Calvert ▶ Turnouts are typically a combination of set of points, V-crossing and guard rails that permit traffic to turnout from one track to another. Turnouts will be located at the tie-ins to the West Moreton System rail corridor and at the proposed crossing loops.
Bridges	<ul style="list-style-type: none"> ▶ Bridges will accommodate topographical variation, crossings of waterways or other infrastructure such as roads ▶ A total of 31 bridges, including: <ul style="list-style-type: none"> ▶ 13 rail-over-waterway ▶ 6 rail-over-waterway-and-road ▶ 6 rail-over-road ▶ 4 road-over-rail ▶ 1 rail-over-existing-rail ▶ 1 pedestrian-over-rail.
Drainage	<ul style="list-style-type: none"> ▶ Reinforced concrete pipe (RCP) culverts and reinforced concrete box culverts (RCBC). Scour protection measures will generally be installed around culverts to avoid erosion ▶ A total of 86 culverts, including: <ul style="list-style-type: none"> ▶ 51 RCP locations (multiple cells in places) ▶ 35 RCBC locations.
Rail crossings	<ul style="list-style-type: none"> ▶ Rail crossings including level crossings, grade separations (rail, road or pedestrian overbridges), occupational/private crossings and fauna crossing structures ▶ 7 active level crossings.
Ancillary works	<ul style="list-style-type: none"> ▶ Associated rail infrastructure including maintenance sidings and signalling infrastructure to support the train control system ▶ Ancillary works including level crossings, signalling and communications, signage and fencing, drainage works, and installation or modification of services and utilities within the rail corridor.

Aspect	Description
Environmental treatments	<ul style="list-style-type: none"> ▶ Fauna fencing and opportunities for screening ▶ Environmental design matters including fauna sensitive design measures, landscaping and habitat rehabilitation requirements and concept noise barriers ▶ Environmentally relevant activities including the potential establishment of a water treatment plant and concrete batching facilities. These elements are not part of the current design and are to be investigated more fully during Project detailed design.
Construction features	
Land	<ul style="list-style-type: none"> ▶ The corridor required for the Project is expected to comprise a width of 40 m to 62.5 m and extending wider where earthworks, structures and other associated infrastructure are required. For the existing rail corridor, the existing width has been generally maintained (where possible), and locally widened to accommodate the proposed works. ▶ The rail corridor will be of sufficient width to accommodate all proposed railway infrastructure, including the crossing loops, as well as future expansion to accommodate the potential for 3,600 m long trains ▶ Temporary tracks will be used to access construction sites. Where required, these tracks may be retained to serve as rail maintenance access roads (RMAR) during operation ▶ Land requirements for construction will include temporary workspace, site offices and laydown facilities ▶ Laydown areas will be located approximately every 5 km (avoiding 1 % annual exceedance probability (AEP) floodplains where possible). Larger sites will be located approximately every 20 km ▶ Approximately 2,500 square metre (m²) laydown areas will be required to support bridge construction (smaller in core habitats) ▶ Additional laydown areas will also be required for flash-butt welding and rail assembly with a typical size of 1,000 m x 200 m.
Embankments and cuttings	<ul style="list-style-type: none"> ▶ Embankments and cuttings will be required along the length of the alignment, with a maximum height of 23 m ▶ The total length of cut for the Project will be in the range of 7.6 km with a maximum cut depth of 38.8 m.
Material sourcing	<ul style="list-style-type: none"> ▶ Identification, and lawful use of established quarries for sourcing construction materials.
Utilities	<ul style="list-style-type: none"> ▶ Clashes with utilities flagged and treatments identified for refinement during detailed design with utility relocations will be subject to separate assessments, with all necessary approvals obtained prior to any relocation being undertaken ▶ Major utility impacts and treatments have been confirmed with utility owners.

1.3.3 Timing and operation

Construction is expected to commence in 2021 following detailed design and subject to required post-EIS approvals and relevant activities, with completion targeted for 2026. The start of construction will also be subject to successful procurement of a contractor. The construction completion date will be influenced by several variables, including the impacts of ongoing community consultation, ongoing design and continued development works.

Operation will begin when construction of all sections of Inland Rail has been completed. This is expected after commissioning in 2026. It is estimated that the Project will run an average of about 33 train services per day in 2026. This number is likely to increase to up to 47 train services per day in 2040. Total tonnages of freight movement for Inland Rail are estimated to be up to 24 million tonnes per annum (Mtpa) in 2026, and up to 35.5 Mtpa in 2039–2040. Further information about the Project is provided in Chapter 6: Project description.

1.4 The Environmental Impact Statement process

The H2C Project was declared a 'coordinated project' for which an EIS is required under Section 26 (1)(a) of the *State Development Public Works Organisation Act 1971* (Qld) (SDPWO Act) on 16 March 2017. The Terms of Reference (ToR) for the Project set out the matters that the proponent must address in the EIS (refer Appendix A: Terms of Reference). The Coordinator-General evaluates the Project's environmental impacts based on the information provided in the EIS and from submissions received during the public consultation process. This declaration initiates the statutory environmental impact assessment procedure detailed in Part 4 of the SDPWO Act, which requires a proponent to prepare an EIS for the Project.

The Project was also declared a 'controlled action' under the EPBC Act on 17 March 2017 (reference number EPBC 2017/7883). The Project EIS has been progressed under the assessment bilateral agreement (December 2014) between the Australian Government and the Queensland State Government.

Key benefits of the Project being declared a coordinated project are to provide:

- ▶ The public with the opportunity to comment and provide input into the ToR for the EIS and on the draft EIS after it is developed
- ▶ An independent and transparent social, economic and environmental assessment of the Project undertaken by the Queensland Coordinator-General
- ▶ The opportunity for efficient assessment of EPBC Act matters in accordance with the EPBC Act assessment bilateral agreement.

For all relevant matters, the EIS identifies and describes the environmental values that must be protected as specified in Section 9 of the *Environmental Protection Act 1994* (Qld), the *Environmental Protection Regulation 2019* (Qld), environmental protection policies, water resource plans, *State Planning Policy*, relevant guidelines and the EPBC Act.

Chapter 3: Project approvals summarises the key Commonwealth and state legislation, local government laws, plans and policies and how they relate to approvals necessary for the planning, construction, operation and decommissioning phases of the Project. Table 3.4 shows the potential post-EIS approvals, providing the triggers for each approval, the relevant administering authority and whether codes and/or exemptions are available to the Project and to ARTC.

Additional approvals or permits may also be required depending on the final detailed design, construction methodology, and any future changes in statutory requirements before the Project's implementation.

1.5 Objectives of the Environmental Impact Statement

The objective of this EIS are to:

- ▶ Provide information to stakeholders and the public on the need for the Project, alternatives to the Project and proposed construction methods
- ▶ Document the potential impacts to the natural, social and economic environment
- ▶ Describe the expected benefits and opportunities associated with the Project
- ▶ Demonstrate how adverse impacts can be avoided, mitigated and managed, or where offsets for significant residual impacts are required
- ▶ Present a draft outline environmental management plan to demonstrate practical implementation of construction environmental management measures
- ▶ Present sufficient information to support post-EIS approvals.

1.6 Structure of the Environmental Impact Statement

This EIS addresses the environmental assessment requirements of the final Terms of Reference for an environmental impact statement: Inland Rail—Helidon to Calvert Project October 2017 (refer Appendix A: Terms of Reference). The Project was declared a 'controlled action' under the EPBC Act and also requires approval from the Australian Government Minister for the Environment.

The EIS comprises three volumes:

- ▶ Volume 1: Chapters describing the EIS process, the Project, identified environmental, social or economic aspects, environmental values, potential impacts and mitigation measures (refer Table 1.3)
- ▶ Volume 2: Appendices supporting the chapters, including the ToR, management plans and specialist technical reports on identified environmental, social and economic aspects (refer Table 1.4)
- ▶ Volume 3: Drawings, based on the current reference design (not for construction) including: general arrangement plans; rail civil plan and profiles; environmental design matters; and select Little Liverpool Tunnel sheets (typical cross section, general arrangements and support structures/systems).

TABLE 1.3: ENVIRONMENTAL IMPACT STATEMENT CHAPTER STRUCTURE

Chapter number	Title
0	Executive summary
1	Introduction
2	Project rationale
3	Project approvals
4	Assessment methodology
5	Stakeholder engagement
6	Project description
7	Sustainability
8	Land use and tenure
9	Land resources
10	Landscape and visual amenity
11	Flora and fauna
12	Air quality
13	Surface water and hydrology
14	Groundwater
15	Noise and vibration
16	Social
17	Economics
18	Cultural heritage
19	Traffic, transport and access
20	Hazard and risk
21	Waste and resource management
22	Cumulative impacts
23	Draft Outline Environmental Management Plan
24	Conclusion
25	Abbreviations and glossary
26	References

TABLE 1.4: ENVIRONMENTAL IMPACT STATEMENT APPENDIX STRUCTURE

Appendix letter	Title
A	Terms of Reference
B	Terms of Reference Compliance Table
C	Consultation Report
D	Study Team
E	Proponent Commitments
F	Corporate Policies
G	Directly Impacted Properties
H	Landscape and Visual Impact Assessment Technical Report
I	Terrestrial and Aquatic Ecology Technical Report
J	Matters of National Environmental Significance Technical Report
K	Air Quality Technical Report
L	Surface Water Quality Technical Report
M	Hydrology and Flooding Technical Report
N	Groundwater Technical Report
O	Noise and Vibration (construction, fixed infrastructure and operational road noise) Technical Report
P	Operational Railway Noise and Vibration Technical Report
Q	Social Impact Assessment Technical Report
R	Economics Technical Report
S	Non-Indigenous Cultural Heritage Technical Report
T	Spoil Management Strategy
U	Traffic Impact Assessment
V	EMR Search Certificates and Laboratory Certificates
W	Geotechnical Factual Report

1.7 Submissions on the Environmental Impact Statement

Any person, group or organisation can make a submission relating to the Project EIS to the Office of the Coordinator-General. Properly made submissions must be accepted by the Coordinator-General and considered in evaluating the EIS.

Under the SDPWO Act, a properly made submission must:

- ▶ Be made in writing
- ▶ Be received on or before the last day of the submission period
- ▶ Be signed by each person who makes the submission
- ▶ State the name and address of each person who makes the submission
- ▶ State the grounds of the submission and the facts and circumstances relied on in support of those grounds.

A person wishing to make a submission about the EIS should also:

- ▶ Clearly state the matters of concern or interest and list points to help with clarity
- ▶ Reference the relevant sections of the EIS
- ▶ Ensure the submission is legible.

The Coordinator-General may also accept submissions which are not properly made.

Any submissions regarding this EIS should be addressed to:

The Coordinator-General
C/- EIS Project Manager—
Inland Rail, Helidon to Calvert
Coordinated Project Delivery
Office of the Coordinator-General
PO Box 15517
CITY EAST QLD 4002

Submissions can be made electronically at the following email address:

inlandrailh2c@coordinatorgeneral.qld.gov.au

Electronic submissions are still required to meet the properly made requirements of the SDPWO Act.

For further enquiries, telephone: 13 QGOV (13 74 68).

Properly made submissions on the EIS (and any additional information required to address issues raised during the submission period) are part of the material that must be given consideration in the Coordinator-General's evaluation report, including recommendations and conclusions about environmental impacts and mitigation strategies.

Any submitter of a properly made submission in response to the EIS will have submitter appeal rights in relation to any subsequent 'impact assessable' development application under the *Planning Act 2016* (Qld).