ARTC | INLAND RAIL
An Australian Government Initiative

Summary of findings

Stockinbingal to Parkes – Horizontal Clearances

Review of Environmental Factors

ACKNOWLEDGEMENT OF COUNTRY

Inland Rail acknowledges the Traditional Custodians of the land on which we work and pay our respect to their Elders past, present and emerging.

Front cover and back cover: Forbes Station

IMAGE OF FORBES STATION

Stockinbingal to Parkes key elements

enhancing sites along the 170.3km of existing rail corridor

increasing vertical clearances on 2 bridges

1 new crossing loop

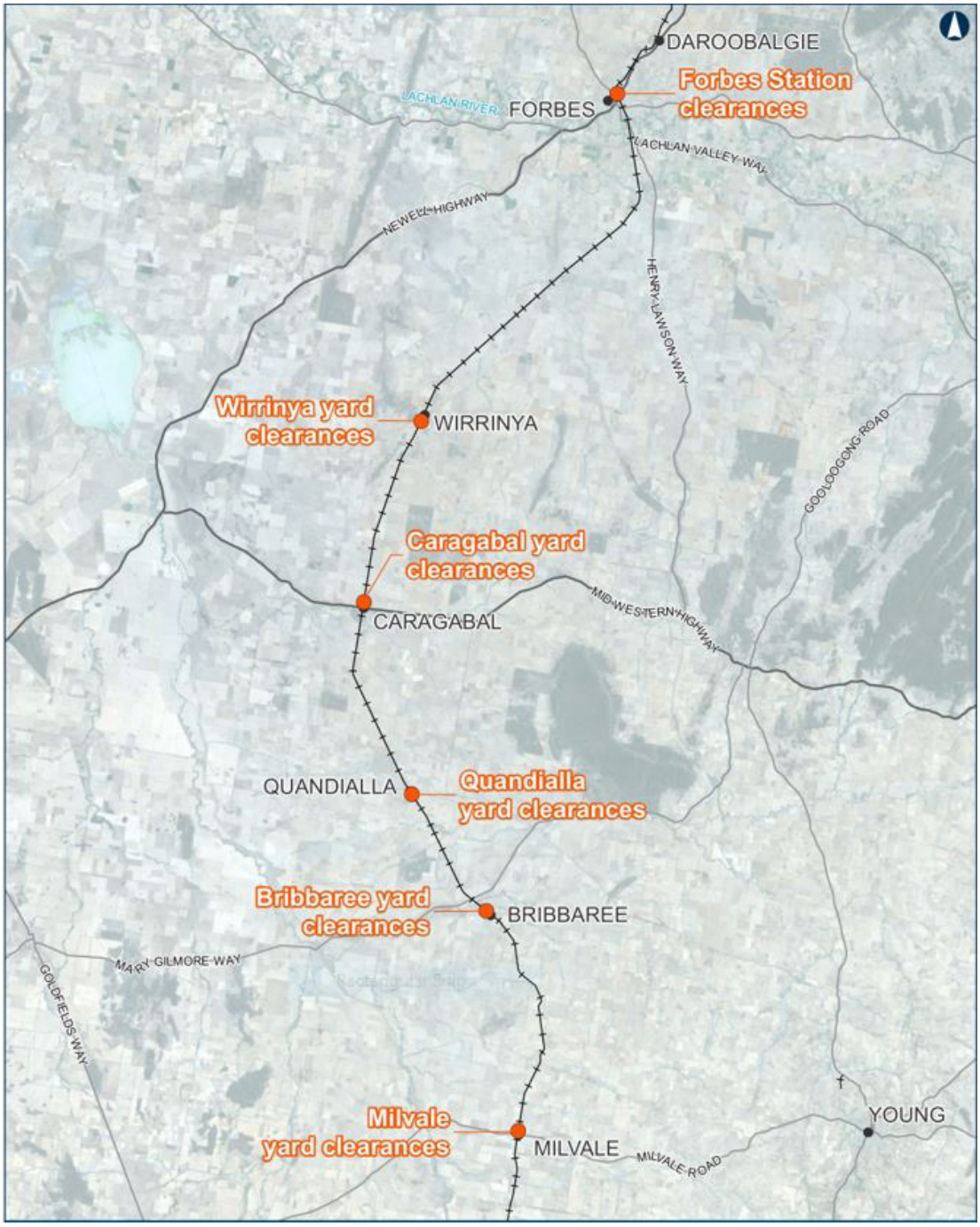
clearance and safety works at Forbes Station

clearance and safety works at Milvale and Quandialla Water Tanks

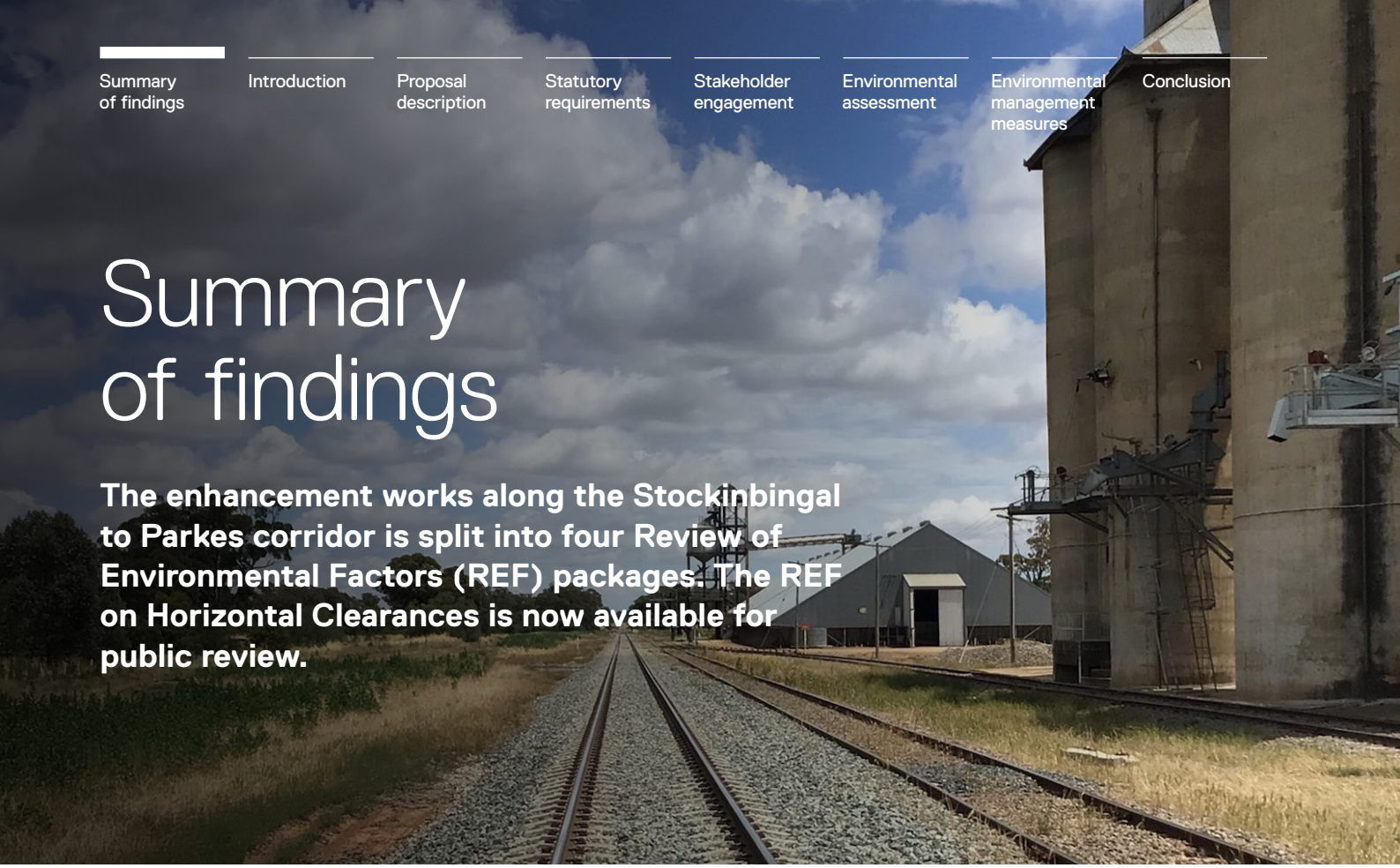
4 sites requiring track slews or structure modification along the alignment

The town of Forbes

Stockinbingal to Forbes
Horizontal Clearances sites



Proposal site



Summary of findings

The enhancement works along the Stockinbingal to Parkes corridor is split into four Review of Environmental Factors (REF) packages. The REF on Horizontal Clearances is now available for public review.

Inland Rail – Stockinbingal to Parkes Project

The Inland Rail Program is divided into 13 individual projects spanning 1,700 kilometres connecting Melbourne and Brisbane via central-west New South Wales (NSW).

The Program will deliver a resilient rail service in the Melbourne to Brisbane corridor to ensure a freight rail service that is competitive with road.

The Stockinbingal to Parkes section is an enhancement project of Inland Rail. It is 170.3 kilometres of existing rail corridor in regional NSW. Enhancement works are needed within the rail corridor between Stockinbingal and Forbes to accommodate double-stacked freight trains up to 1,800 metres long and 6.5 metres high.

These enhancement works have been split into four Review of Environmental Factors (REF) packages:

1

- horizontal clearances at Milvale (clearance work), Bribbaree (track realignment), Quandialla (clearance work), Caragabal and Wirrinya (track realignment) and Forbes Station (clearance works and track realignment)

2

- clearance works at Lachlan River Bridge

3

- track lowering at Wyndham Avenue bridge

4

- a new crossing loop at Daroobalgie

Enhancing the existing rail infrastructure as proposed will achieve the clearances required for Inland Rail and minimise environmental and community impacts by maximising the existing rail corridor.

Purpose of this 'Summary of findings'

A Review of Environmental Factors (REF) has been prepared to describe the proposed horizontal clearance works between Stockinbingal and Forbes and is now available for public comment.

A REF is undertaken to meet the requirements of Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). ARTC may self-approve and undertake the activity in accordance with the REF.

The REF includes:

- a description of the Proposal
- summarises the community and stakeholder consultation undertaken, as well as proposed future consultation
- assesses the Proposal's likely impacts on the environment
- identifies management and mitigation measures to reduce the likely impacts during construction and subsequent operation of the Proposal.

The REF is conducted in accordance with ARTC's *Code of Practice for Environmental Impact Assessment of Development Proposals in NSW* and is a thorough and comprehensive document that takes into account to the fullest extent possible all matters affecting or likely to affect the environment as a result of the Proposal.

Fountain in Victoria Park, Forbes

Have your say

ARTC has chosen to place the Review of Environmental Factors for the Stockinbingal to Parkes Horizontal Clearances on public exhibition to seek feedback on the Proposal, possible environmental effects and the intended management and mitigation measures.

The public review and comment period is from 3 to 24 February 2022. During this time you can submit a response to ARTC online or by post.

You can view the REF on the Inland Rail website **inlandrail.com.au** or request a USB copy to be posted to you.

Submissions regarding this REF should be addressed to:

S2P Public Exhibition Submission
Inland Rail, GPO Box 2462
BRISBANE QLD 4001

Submissions can also be made electronically by emailing **inlandrailnsw@artc.com.au.** Please include "S2P Public Exhibition Submission" as the subject line.

Properly made submissions must be in writing, signed by the writer(s), with the name and address of each writer clearly stated. Please note, electronic submissions are still required to meet the properly made requirements.

For further enquiries, please call ARTC Inland Rail **1800 732 761.**

ARTC help is available

If you're unable to access the REF or supporting documents, please contact ARTC Inland Rail on **1800 732 761.**

If you need help with reading, or if English is your second language, please call **13 14 50.** This free service will help you read this document and other relevant Proposal information.

Introduction

The Australian Government has committed to delivering Inland Rail, a significant piece of national transport infrastructure that will enhance Australia's existing rail network and serve the interstate freight market.

The Stockinbingal to Parkes Horizontal Clearances Proposal

The Proposal is to alter existing structures and track assets along the alignment between Stockinbingal and Forbes, NSW to provide the horizontal clearance required for double-stacked freight trains.

These horizontal clearance works are to be undertaken at six sites:

- Forbes Station Yard (clearance works and track realignment)
- Wirrinya Yard (track realignment)
- Caragabal Yard (track realignment)
- Quandialla Yard (clearance works)
- Bribbaree Yard (track realignment)
- Milvale Yard (clearance works).

The Proposal is a critical component of Inland Rail, which is needed to respond to the growth in demand for freight transport, as well as minimise environmental and community impacts by maximising use of the existing rail corridor.

Want to know more?

See:

- Chapter 1: Introduction

The Proponent

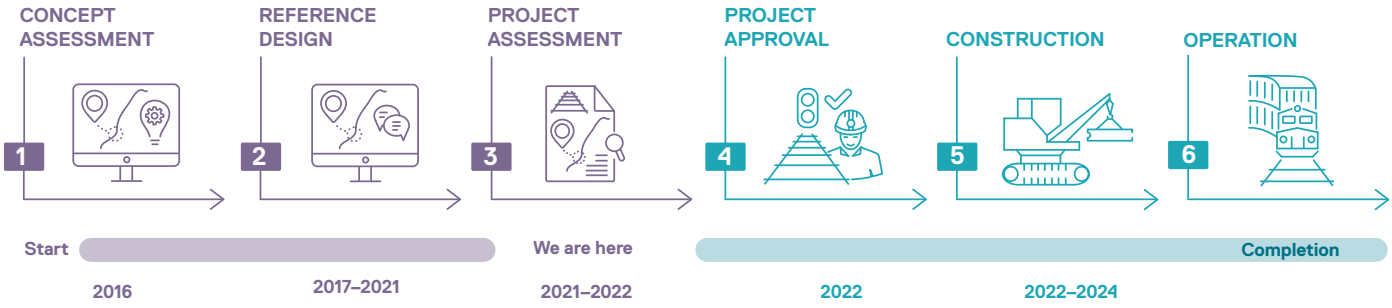
Australian Rail Track Corporation (ARTC) has a 10-year program to deliver Inland Rail by 2027.

ARTC is an Australian Government owned statutory corporation that manages more than 8,500 kilometres of rail network across five states.

As the operator and manager of Australia's national rail freight network, ARTC is responsible for selling access to the rail network, capital investment, and developing new business.

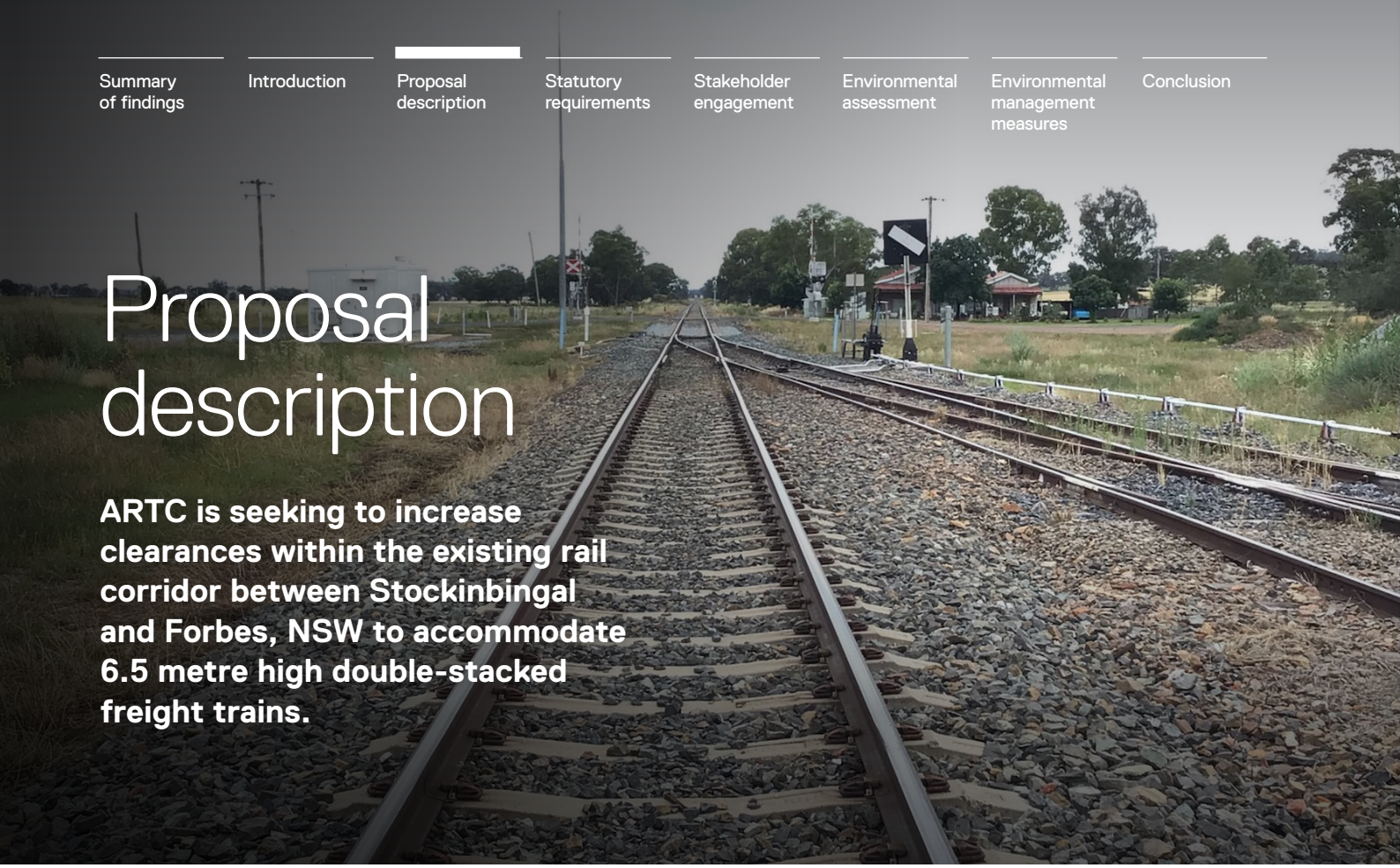
Project timeline

Pre-construction and early works on the Stockinbingal to Parkes Project are scheduled to commence in 2022. The horizontal clearance works are scheduled to start and finish in 2024.



*Timeframes are indicative and are subject to change

Overlooking Forbes alongside the Lachlan River



Proposal description

ARTC is seeking to increase clearances within the existing rail corridor between Stockinbingal and Forbes, NSW to accommodate 6.5 metre high double-stacked freight trains.

Proposed design

Enhancement works are proposed at:

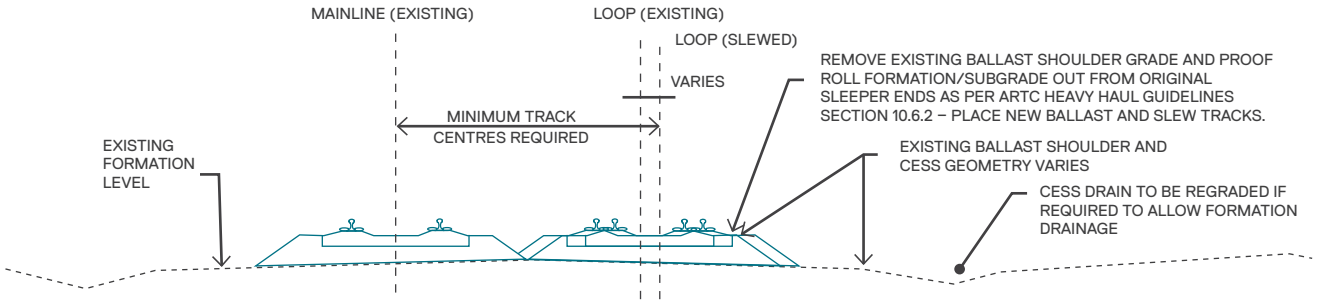
SITE	WORKS DESCRIPTION
Forbes Station and Yard	▸ Formation reconstruction and realignment of approximately 500 metres of the main line by up to 540 millimetres and associated drainage works. ▸ Realignment of approximately 140 metres of the loop track including installation of new safety features. ▸ Trimming of the Forbes Station awning by approximately 300 millimetres for the full length of the awning.
Wirrinya Yard	▸ Realignment of approximately 520 metres of track by up to 350 millimetres.
Caragabal Yard	▸ Realignment of approximately 250 metres of track by up to 30 millimetres.
Quandialla Yard	▸ Removal of redundant pipework from a water tank adjacent to the track.
Bribbaree Yard	▸ Realignment of approximately 940 metres of track by up to 300 millimetres including formation and associated drainage works.
Milvale Yard	▸ Removal of redundant wiring from a water tank adjacent to the track.

Want to know more?

See:

▸ Chapter 2: Proposal description

Track realignments, also known as track slews, are where tracks will be moved sideways to provide clearances between tracks.

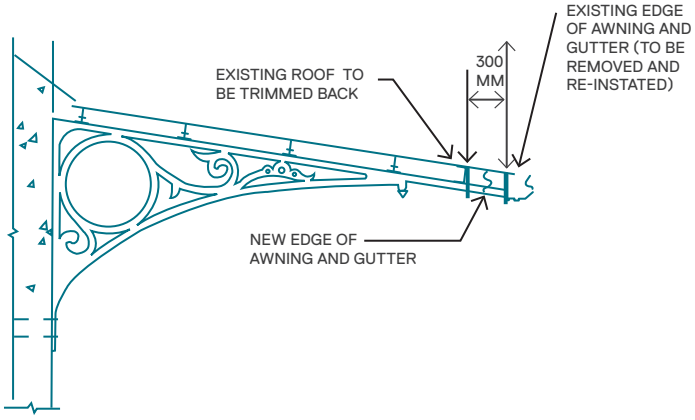


Cross section of track slew of loop line

Milvale Railway water tank

Quandialla Railway water tank

Forbes Station



Forbes Station awning and trimming technical drawing

Construction

Construction of the Proposal will include a range of activities and is expected to last for about 11 weeks, to commence in early 2024.

Works will be undertaken concurrently where possible to maximise use of rail possessions.

- Forbes Station and Yard – approximately six weeks
- Caragabal Yard – approximately six weeks
- Wirrinya Yard – approximately seven weeks
- Quandialla Yard and Milvale Yard water tanks – approximately two days each
- Bribbaree Yard – approximately 11 weeks.

Equipment

In addition to light vehicles, survey equipment and hand tools, depending on the sites and work, typical construction plant and equipment to be used include:

Track works:

- hydremas
- loaders
- excavators
- ballast box
- tamper
- regulator
- flash buttwelding unit.

Water tank works:

- grinder
- elevated work platform.

Station awning work:

- scaffolding
- power tools.

Earthworks:

- grader
- padfoot roller
- smooth drum roller
- water carts
- truck and dogs
- articulated dump trucks
- 30 tonne excavator
- 30 tonne excavator with hammer
- posi track
- backhoe.

Site establishment and access

Set up ARTC rail site protection requirements, installation of site fencing and temporary signage for restricted site access, compound sites and stockpile locations, establishing environmental controls, undertaking vegetation clearing and baseline monitoring for the site, geotechnical investigations, utility and service relocations.

Track works

Inspecting adjacent track formation, undertake track widening, top up ballast, run tamper machine, run regulator machine, restress track and commissioning.

Track work with earthworks

Disconnection, temporary removal and reinstatement of signaling infrastructure as required, earthworks to establish new cess drainage, stripping topsoil and excavation, treating foundation for new track, placing structural fill material and capping material, run tamper machine, restress track and commissioning.

Caragabal Rail track

Water tank works

Set up environmental and safety controls, cut and grind redundant wring or pipe, implement corrosion protection and remove all plant and equipment.

Forbes Station awning work

Establish heritage controls, removal of outer gutters, edge support beam and roof sheeting, remove required section of bracket extension, reinstall the joining angles and corrosion protection, reinstall guttering and roof sheeting.

Demobilisation and rehabilitation

Decommission site compounds and rehabilitate disturbed areas, decommission site access roads no longer required, remove environmental management controls.

Construction hours

The construction program will largely be based on standard hours for general construction activities:

Monday to Friday – 7.00am to 6.00pm

Saturday – 8.00am to 1.00pm

No work on Sundays or public holidays.

There may be circumstances where work is undertaken outside these standard hours, in order to maintain operation of existing rail lines and/or for the safety of construction workers.

Work outside standard hours will be undertaken in accordance with ARTC's Environmental Protection License 3142 and the local community will be consulted.

Continuous works may be carried out across a major 60-hour rail track possession. In addition, further works may occur in five to 12-hour track possessions. This will be subject to the train timetables when construction commences. A track possession is a period when trains are suspended to allow for construction or maintenance without placing workers at risk of train traffic.

Site access and compounds

Temporary site compounds and stockpiles will be required at most sites. Likely traffic numbers are similar at most locations, with about 10 heavy vehicles and eight light vehicles per hour at peak times. The site compounds will be used for safe storage of material and equipment.

SITE	COMPOUND AND STOCKPILE	ACCESS POINT
Forbes	In rail corridor	Union Street
Wirrinya	In rail corridor	Wirrinya Road
Caragabal	In rail corridor	Pullabooka Road
Bribbaree	In rail corridor and Hilltops Council land	Short Street
Quandialla	Not required	Bimbi-Quandialla Road
Milvale	Not required	Milvale Road

No land will be permanently acquired for the Proposal.

Water will be required for earthworks and dust suppression at the track work sites. About 3.6 megalitres of water would be required in total. Local water suppliers including councils and quarries will be consulted to obtain the water. Potable water deliveries will be made to site compound water tanks.

3.6ML is equal to **1.5** Olympic-sized swimming pools

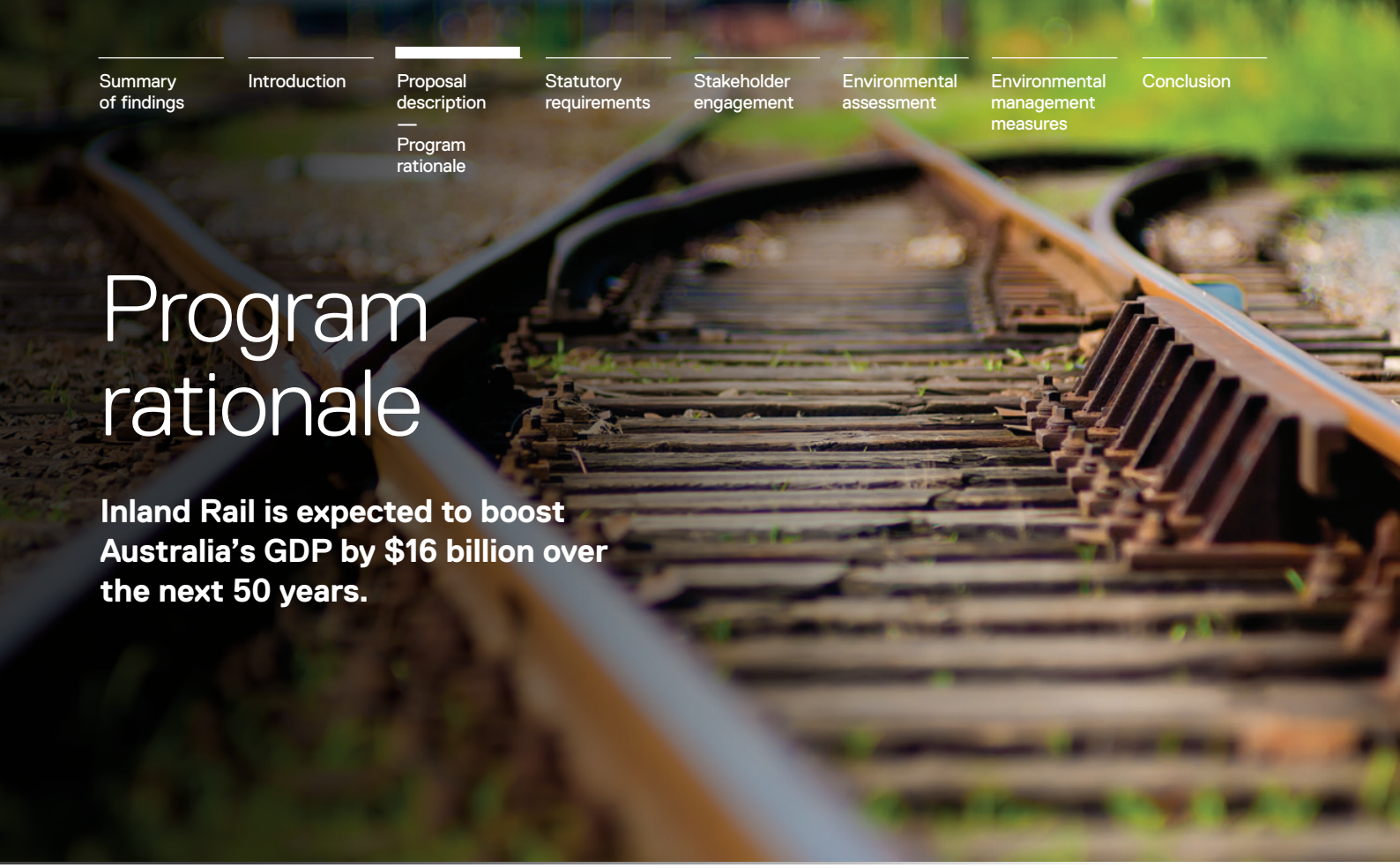
Operations

Operational activities will include:

- continued use of the railway for freight purposes with double-stacked trains
- operation and maintenance of safety systems
- signalling
- general track and infrastructure maintenance.

Once Inland Rail is operational, about 12 train services per day are estimated. This is likely to increase to an average of 18 trains per day in 2039. Annual freight tonnages will increase in parallel, from approximately 15 million tonnes per year in 2027 to 20 million tonnes per year in 2039.

Standard ARTC maintenance activities will be undertaken during operations. These activities will occur on a scheduled basis or in response to unplanned requirements (e.g. maintenance following adverse weather events).



Program rationale

Inland Rail is expected to boost Australia's GDP by $16 billion over the next 50 years.

The Inland Rail Program is 13 related projects spanning 1,700 kilometres connecting Melbourne and Brisbane via central-west New South Wales. The Program will deliver a resilient rail system to provide a freight rail service that is competitive with road transport.

Justification for Inland Rail

Demand for freight transport in the Melbourne to Brisbane corridor is expected to grow substantially from about 4.9 million tonnes in 2016 to around 13 million tonnes by 2050. Inland Rail is needed to improve the efficiency of freight moving between Melbourne and Brisbane. It will bypass the Sydney metropolitan area to deliver an overall journey time less than 24 hours.

Inland Rail is needed to:

- respond to the growth in demand for freight transport
- address existing freight capacity infrastructure issues
- meet the demand for transport of non-bulk manufactured product.

Want to know more?

See:

- Chapter 2.11: Justification and options

Consequences of not proceeding with Inland Rail

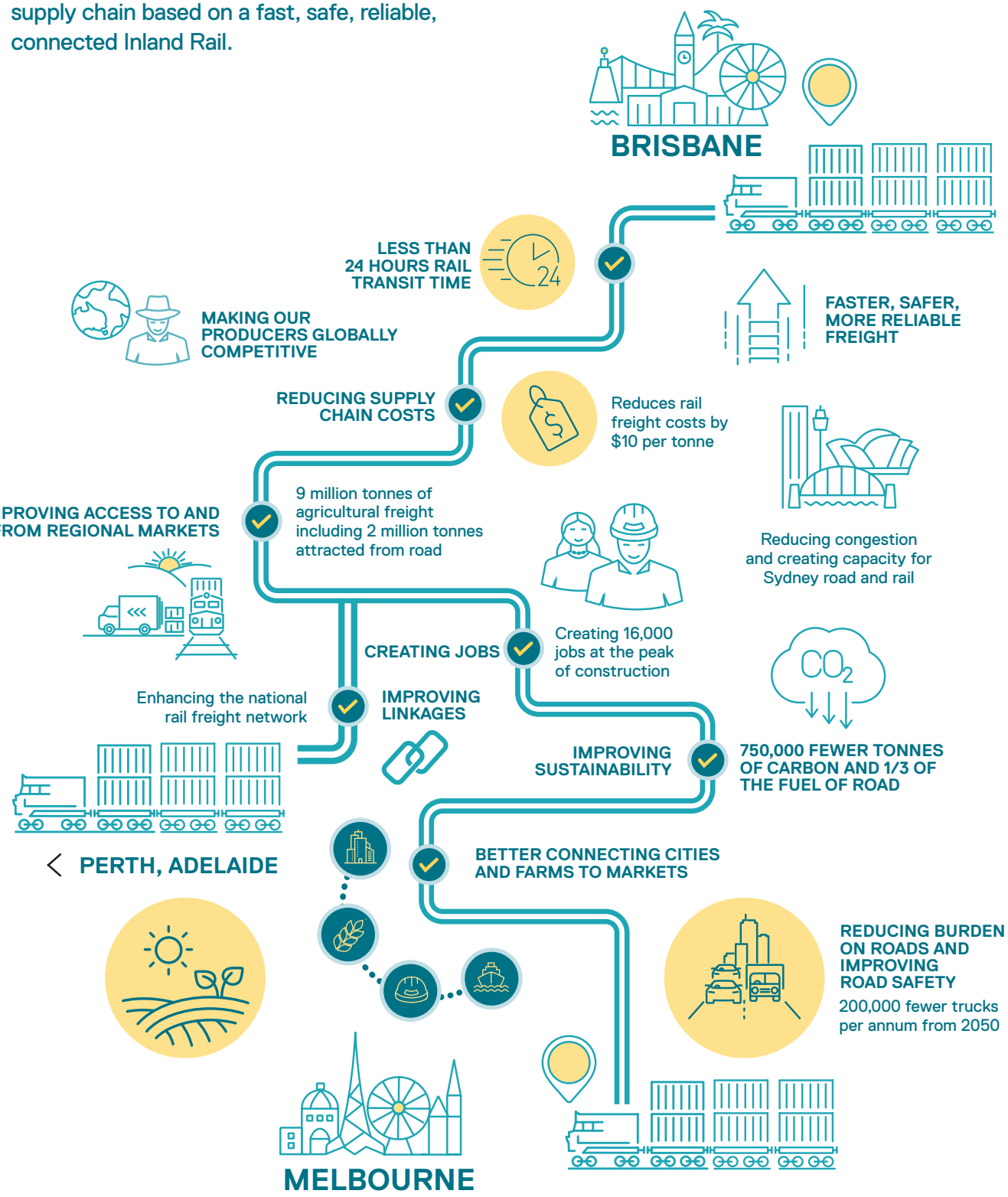
Without Inland Rail, road would increasingly become the dominant mode for freight transport between Melbourne and Brisbane, particularly along the Newell Highway. In addition, road transport is unlikely to the meet the longer-term needs of Australia's freight challenge alone.

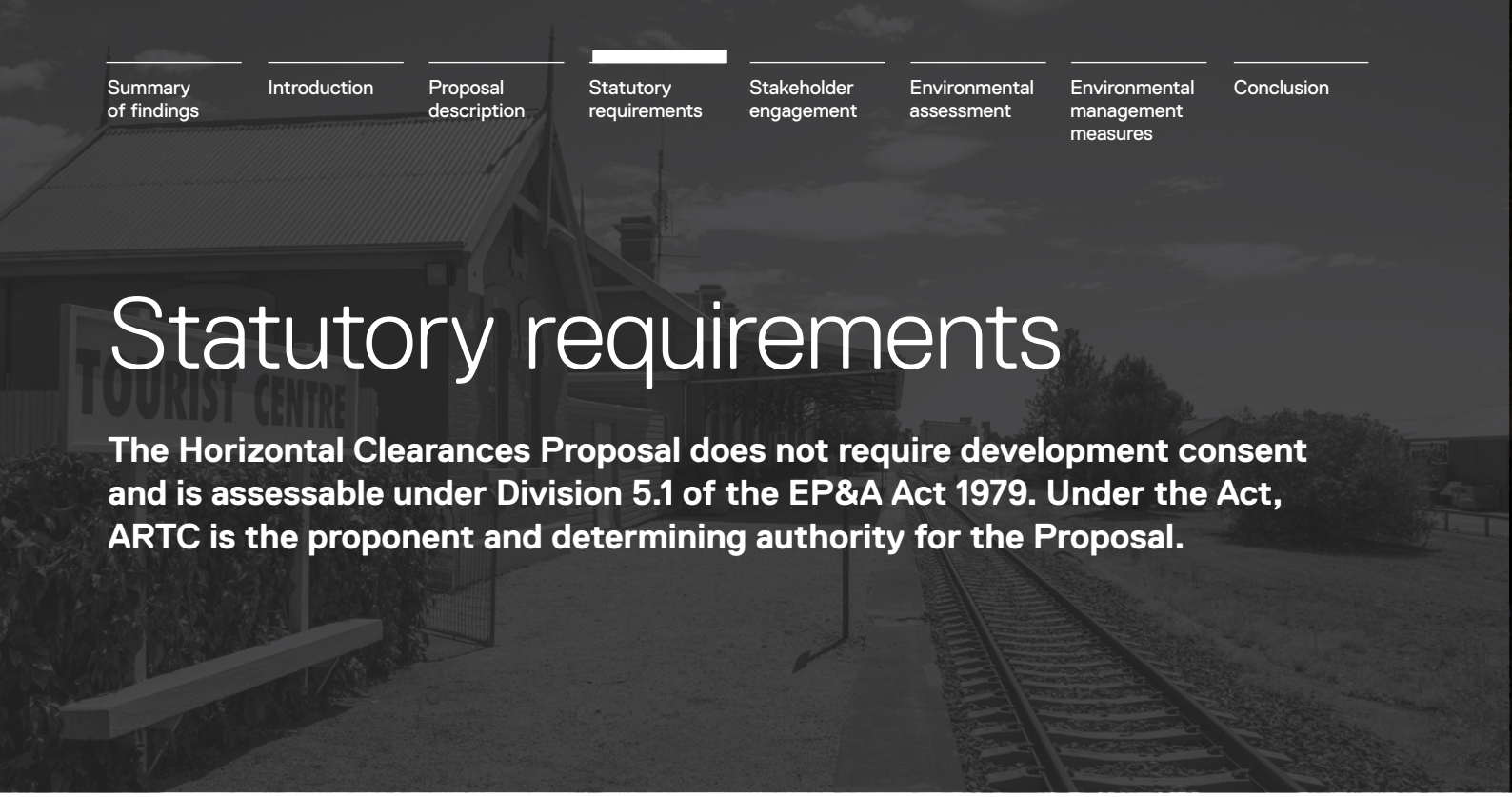
What Inland Rail will offer

ARTC's service offering is central to the delivery and competitiveness of Inland Rail and reflects the priorities of freight customers. Developed in consultation with key market participants and stakeholders, the key elements to be delivered by Inland Rail for a competitive and complementary service offering compared to other modes are:

- **reliability:** 98% defined as the percentage of goods delivered on time by rail freight, or available to be picked up at the rail terminal or port when promised
- **price:** cheaper relative to road transport as a combined cost of access to the rail network, rail haulage and pick-up and delivery
- **transit time:** 24 hours or less from Melbourne to Brisbane
- **availability:** services available with departure and arrival times that are convenient for customers.

A more prosperous Australia with a world-class supply chain based on a fast, safe, reliable, connected Inland Rail.





Statutory requirements

The Horizontal Clearances Proposal does not require development consent and is assessable under Division 5.1 of the EP&A Act 1979. Under the Act, ARTC is the proponent and determining authority for the Proposal.

Under the State *Environmental Planning Policy (Infrastructure) 2007*, ARTC is a public authority and the Proposal falls under the definition of rail infrastructure facilities, so development consent is not required.

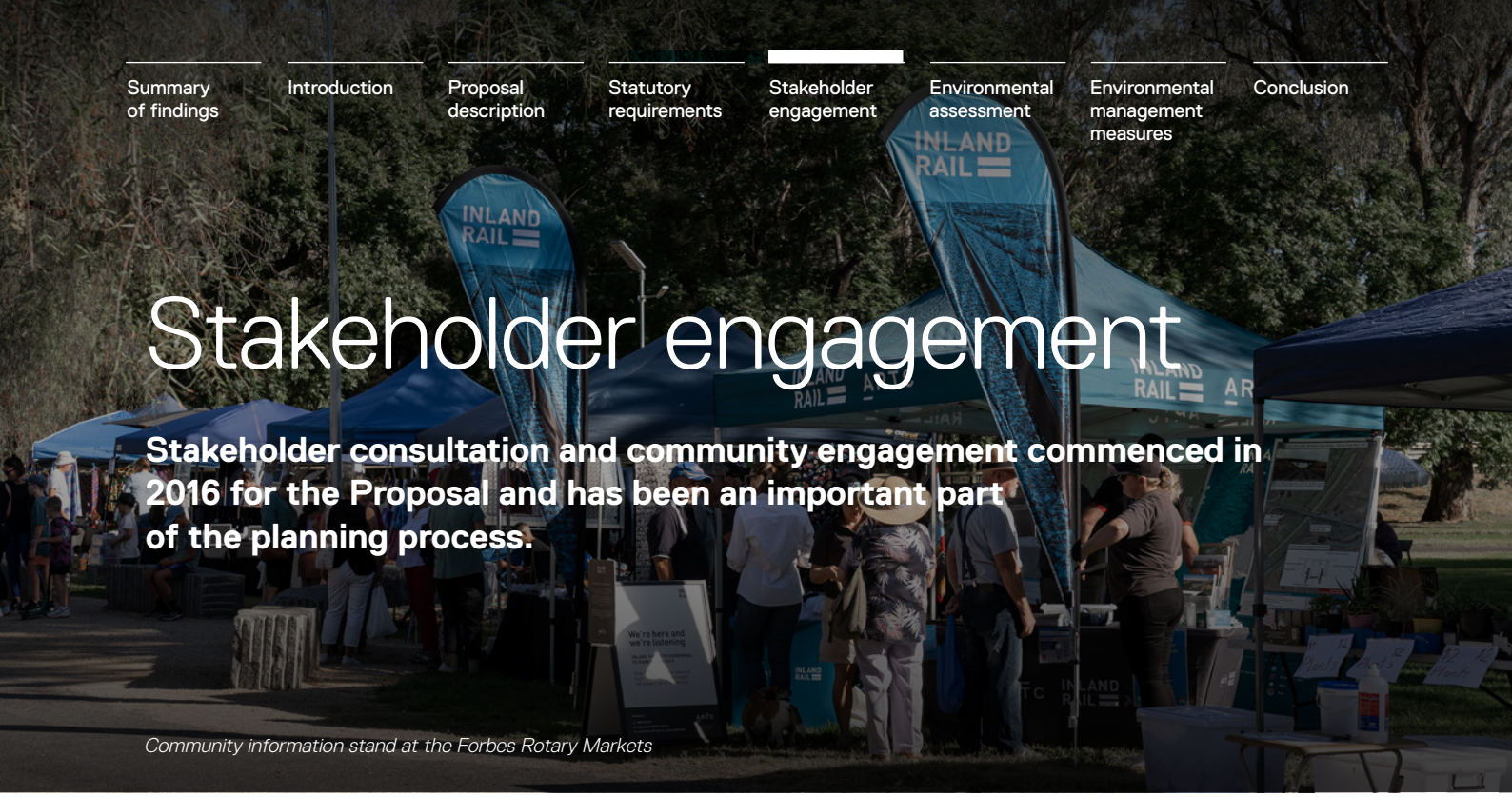
The purpose of this REF is to fulfil ARTC's obligation under the EP&A Act 1979 to examine likely environmental impacts of the Proposal and to determine whether it is likely to significantly affect the environment. It has been carried out in accordance with ARTC's Code of Practice for *Environmental Impact Assessment of Development Proposals in NSW.*

In addition, the capital value of the Proposal is below $50 million. In accordance with the *State Environmental Planning Policy (State and Regional Development) 2011*, a State Significant Infrastructure approval pathway, and therefore an EIS, would not apply.

Want to know more?

See:

- Chapter 3: Statutory Requirements



Community information stand at the Forbes Rotary Markets

Stakeholder engagement

Stakeholder consultation and community engagement commenced in 2016 for the Proposal and has been an important part of the planning process.

An Engagement Implementation Plan has been developed for the Stockinbingal to Parkes Project. This guides how and when stakeholders are informed about the Project and ensures they can provide feedback at key stages during the planning and construction phases. The REF summarises the consultation activities undertaken to date.

Stakeholders identified for the Stockinbingal to Parkes Project include:

- Australian, New South Wales and local government representatives
- local business and industry
- government agencies
- potentially affected landowners
- community and environment groups
- Traditional Owners
- utility providers
- representatives of neighbouring and related projects
- special interest heritage groups
- local heritage committees and historical societies.

Since 2016, there has been 22 community information sessions and a regional supplier briefing held in and around Forbes for the Stockinbingal to Parkes Project. Due to COVID-19 restrictions an online session was also offered.

In December 2020 there were two face-to-face community information sessions held in Forbes to seek feedback on the early reference designs of the Proposal.

Between March and June 2021 there were 11 community information sessions held in Forbes, Milvale, Bribbaree, Quandialla, Caragabal and Wirrinya to provide updates on the Proposal's design progress. An online session was also held in July 2021.

Meetings, working groups and design workshops have been held with key stakeholders from Forbes Shire Council, Weddin Shire Council, and Hilltops Council, and Transport for NSW to capture feedback and concerns.

Consultation with Heritage NSW in December 2020 and February 2021 was also held to discuss the Proposal and discuss design options for the Forbes Station Precinct and Milvale water tank.

Want to know more?

See:

- Chapter 4: Community and stakeholder consultation

Engagement activities and communication tools

- toll-free community information line
- program email
- Inland Rail website
- printed information: fact sheets, program information packs, mail outs, program maps
- electronic newsletters
- workshops
- community information sessions through staffed displays and online
- landowner face-to-face meetings
- stakeholder meetings and briefings
- submissions
- briefing papers to state and federal agencies
- local media: paid advertising and media releases
- electronic email blasts
- ARTC community/local investment.

The team's engagement with stakeholder groups has provided government agencies, stakeholders, communities and landowners with regular opportunities to engage with the design development and environmental assessments. Consultation will be ongoing in the lead up to, and during construction of the Proposal.

Key topics raised by stakeholders:

- land use and property
- heritage
- transport and traffic
- social and economic
- community engagement and involvement
- Proposal scope, design and features
- operation of the Proposal
- flooding
- air quality
- hazards and risks
- noise and vibration
- visual amenity
- waste management
- soils
- biodiversity.

Any issues outside of the scope of the Proposal are passed on to ARTC for management and consideration.

Environmental assessment

An environmental risk assessment was completed for the construction and operation phase of the Horizontal Clearances Proposal.

ARTC is committed to the principles of Ecologically Sustainable Development (ESD), which entails using, conserving and enhancing the community's environmental resources in a manner that sustains and improves ecological processes, and hence the quality of life, for present and future generations.

Wirriyna silos

Want to know more?

See

- Chapter 5: Environmental Assessment
- Chapter 6: Consideration of Environmental Factors
- Appendix A: Environmental Risk Assessment

Noise and vibration

Noise and vibration studies were conducted to understand current (called baseline) background noise levels and identify 'sensitive receivers' most likely to be impacted by heightened noise due to the Proposal. The existing noise environment at each site is generally influenced by local road noise in addition to noise from the rail corridor at the time of trains passing by. The assessment considers the effect of construction noise and train operations on sensitive receivers.

During construction, the Noise Management Levels set by the Interim Construction Noise Guideline (ICNG) are exceeded by up to 30 decibels (dB(A)) at a number of sensitive receivers, including during night-time activities. Construction noise levels are generally not expected to exceed the ICNG's "highly affected" criterion of 75 dB(A) average noise levels over a 15-minute period, except at one sensitive receiver near Forbes Station. Sleep disturbances are also predicted to occur at residential sensitive receivers around Forbes Station and Yard, Wirrinya Yard, Caragabal Yard and Bribbaree Yard.

During operations, impacts from the Proposal may affect 13 sensitive receivers by 2039. Of the 13 affected sensitive receivers, 11 may experience an exceedance of noise trigger levels by up to 3 dB(A) by 2039, with a maximum exeedance of noise trigger levels of up to 12 dB(A) for one sensitive receiver. This compares with the Rail Infrastructure Noise Guidelines (RING) which requires consideration of noise mitigation for rail enhancement projects when average noise levels exceed 60 dB(A) during night periods, 65 dB(A) during the day, and 85 dB(A) maximum. For an enhancement project, such as Stockinbingal to Parkes, an additional consideration also applies to warrant mitigation, being more than a 2 dB(A) noise increase or a maximum increase which exceeds 3 dB(A)).

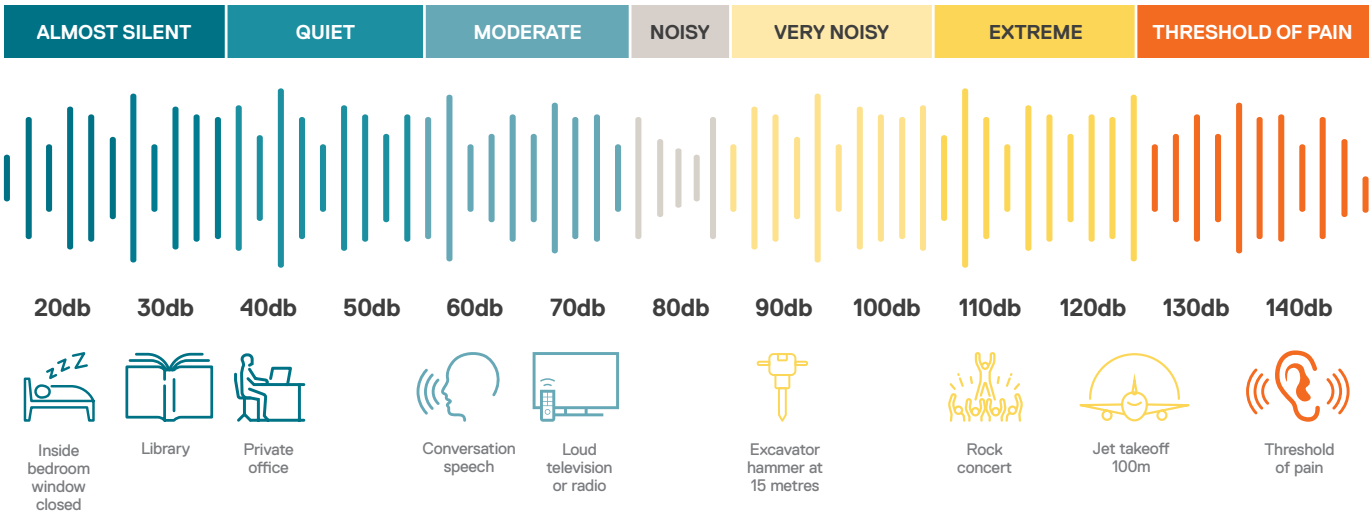
Want to know more?

See:

- Chapter 5.1: Noise and Vibration
- Appendix E: Stockinbingal to Parkes Rail upgrade, Horizontal Clearances noise and vibration impact assessment

Understanding noise

Noise intensity is measured in decibels using a method that mimics the human ear, abbreviated as dB(A). Noise is considered as an average, for example a 15-minute period, which is shown as LAeq15min. At other times, we are interested in nighttime averages for the 9-hour period of 10pm to 7am (LAeq9-hour), or maximum noise (LAmax).



At a glance

Key construction impacts

- noise during operation of equipment and machinery during site establishment, track works and earthworks
- noise from heavy vehicle movements
- noise may exceed management levels
- vibration caused by vibratory roller and hydraulic hammer
- additional traffic due to transport workers to and from the site.

Key operational impacts

- rail noise at 13 locations that are above the RING threshold criteria.

Management and mitigation measures

- **During construction phase:**
  - preparation and implementation of Construction Noise and Vibration management plan which includes:
    - limiting noisy works to standard hours where feasible
    - alternative work methods implemented to reduce vibration levels
    - communication of potential impacts
    - screening noisy stationary equipment
    - maximising the distance between noisy equipment and sensitive receivers
    - using noise controlling equipment
  - preparation and implementation of an out-of-hours work protocol which includes:
    - out-of-hours works plan for each work location
    - provision of respite periods and/or alternative accommodation.
- **During operational phase:**
  - consideration of the implementation of reasonable and relevant mitigation measures, such as at-property treatment
  - an operational noise and vibration review to identify properties requiring treatment
  - a commitment to monitoring of noise impacts over time.

Heritage

There are two non-Aboriginal heritage listed items directly impacted by the Proposal.

The Forbes Station is listed on the NSW State Heritage Register and as an item of local heritage significance under the Forbes Local Environment Plan. Safety clearance around double-stacked freight containers is obstructed by the awning.

An options assessment investigated modifying the platform awning, or alternatively moving the existing rail track away from the station platform. Modification of the platform awning up to 300mm was selected due to superior outcomes.

A separate heritage approval has been sought to authorise the works to Forbes Station as required by Heritage NSW.

The Milvale Railway Water Tank is listed as an item of local heritage significance under the Young Local Environment Plan. The proposed removal of wire and associated brackets to achieve horizontal clearance will allow the water tank to remain, preserving aesthetics and local heritage value.

Want to know more?

See:

- Chapter 5.2: Non-Aboriginal heritage
- Chapter 5.10.2: Aboriginal heritage
- Appendix F: Statement of Heritage Impact for Forbes Railway Group
- Appendix G: Milvale Railway Water Tanks Statement of Heritage Impact
- Appendix H: Aboriginal Heritage Due Diligence

No aboriginal heritage sites have been identified or recorded in the study area. However, work crews would undergo cultural heritage induction to recognise and protect unanticipated finds under the *National Parkes and Wildlife Act 1974.*

At a glance

Key construction impacts

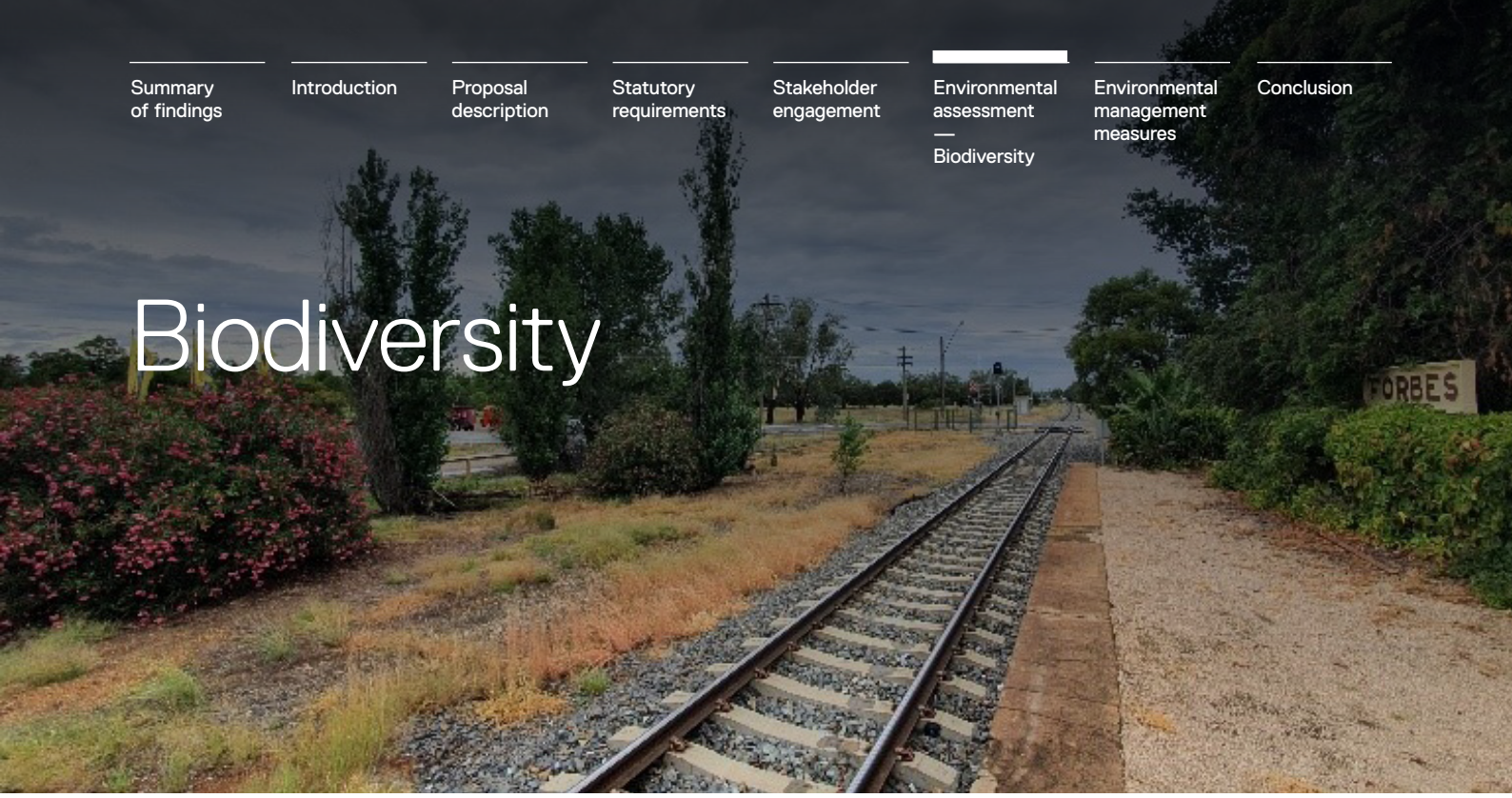
- vibration impacts may indirectly impact locally listed heritage sites in close proximity to the Forbes and Bribbaree sites.

Key operational impacts

- modification of the Forbes Station alters aesthetic and heritage values.

Management and mitigation measures

- a heritage management sub-plan will be prepared and implemented as part of the Construction Environmental Management Plan (CEMP)
- re-use of original elements during modification of the station awning
- like-for-like elements sourced to ensure aesthetics of the awning are not diminished
- sympathetic repainting to the current station colour palette
- removal of wire and brackets undertaken so as not to damage the Milvale Railway water tank
- a Heritage Interpretation Plan for Forbes Station.



Biodiversity

A desktop assessment and field survey was undertaken to understand the vegetation and associated habitat of the Proposal's study area, which is a heavily disturbed rail corridor where much of the original vegetation is already cleared.

The Proposal includes impact to approximately 3.3 hectares of native vegetation of which 3.2 hectares corresponds to threatened ecological communities which are state and nationally listed. Targeted surveys and impact assessments concluded the works would not have significant impact on biodiversity.

At a glance

Key construction impacts

The construction and operation of the Proposal has the potential to impact biodiversity through:

- removal of native vegetation
- injury and mortality to fauna.

Indirect impacts on biodiversity have also been identified:

- reduced connectivity of biodiversity corridors and functional habitat fragmentation
- weed invasion
- disturbing and spreading pests and organisms (called pathogens).

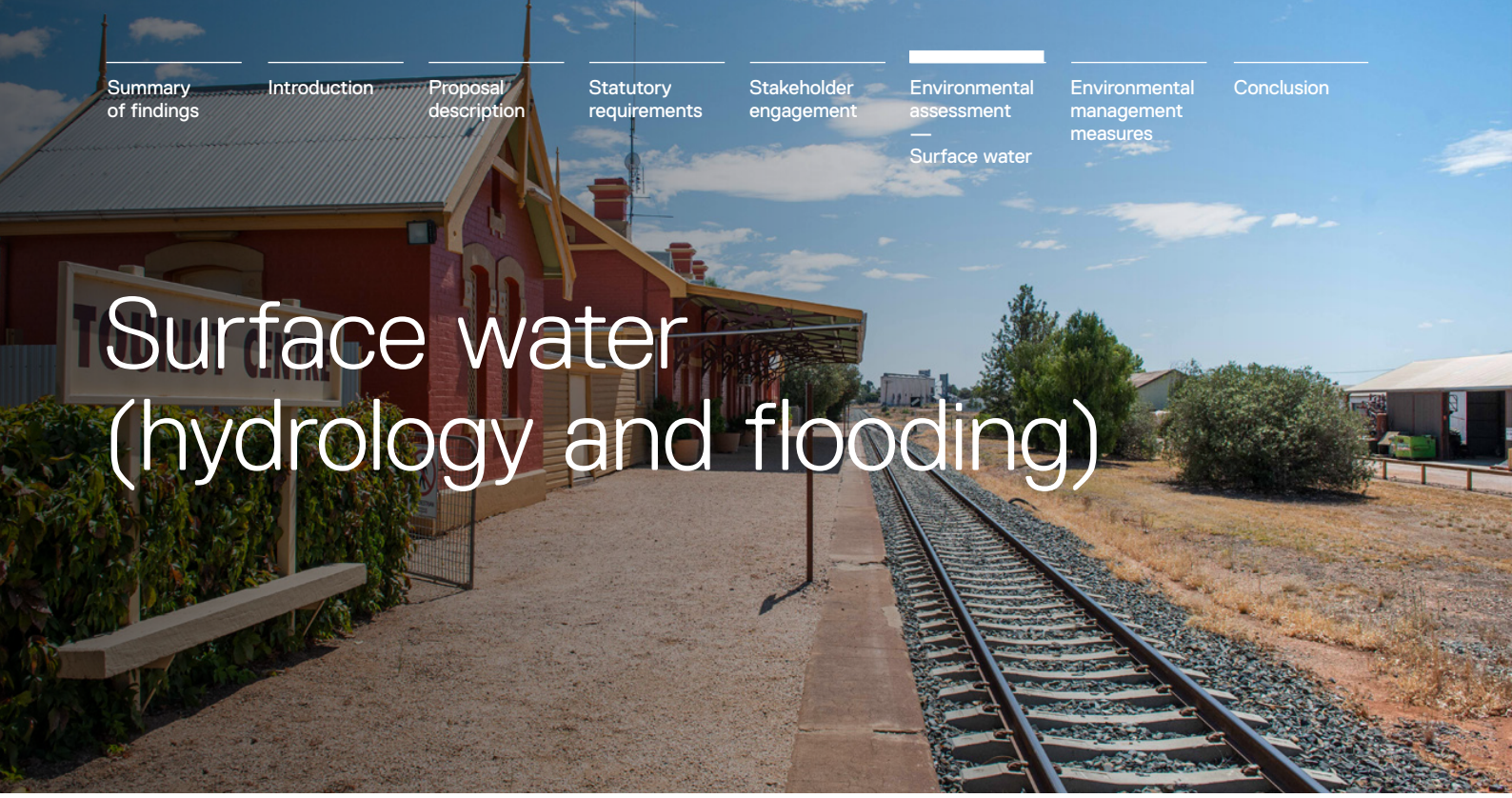
Management and mitigation measures

- minimise vegetation clearing
- implement a biodiversity management plan prior to and throughout construction, including biosecurity management arrangements
- rehabilitation of native vegetation in areas used for compounds and temporary access during construction.

Want to know more?

See:

- Chapter 5.3: Biodiversity
- Appendix D: Biodiversity Assessment Report



Surface water (hydrology and flooding)

The Proposal is located in the Lachlan River catchment of the Murray-Darling Basin. The proposed works at Forbes Station and Yard site is the only work proposed on flood prone land.

Hydraulic modelling was conducted at the Forbes Station and Yard site to compare current and design-case flood and overland flow water behaviour. During construction, the temporary compounds, stockpiles and laydown areas have the potential to impact flow paths. Design of the project includes raising the realigned track at Forbes Station by about 27 millimetres, which has a negligible effect on flood impacts and hazard.

At a glance

Key construction impacts

- a flood event during construction is a risk to construction site staff and may cause damage to construction materials and equipment
- presence of the compounds, stockpiles and laydown areas may impact flow paths.

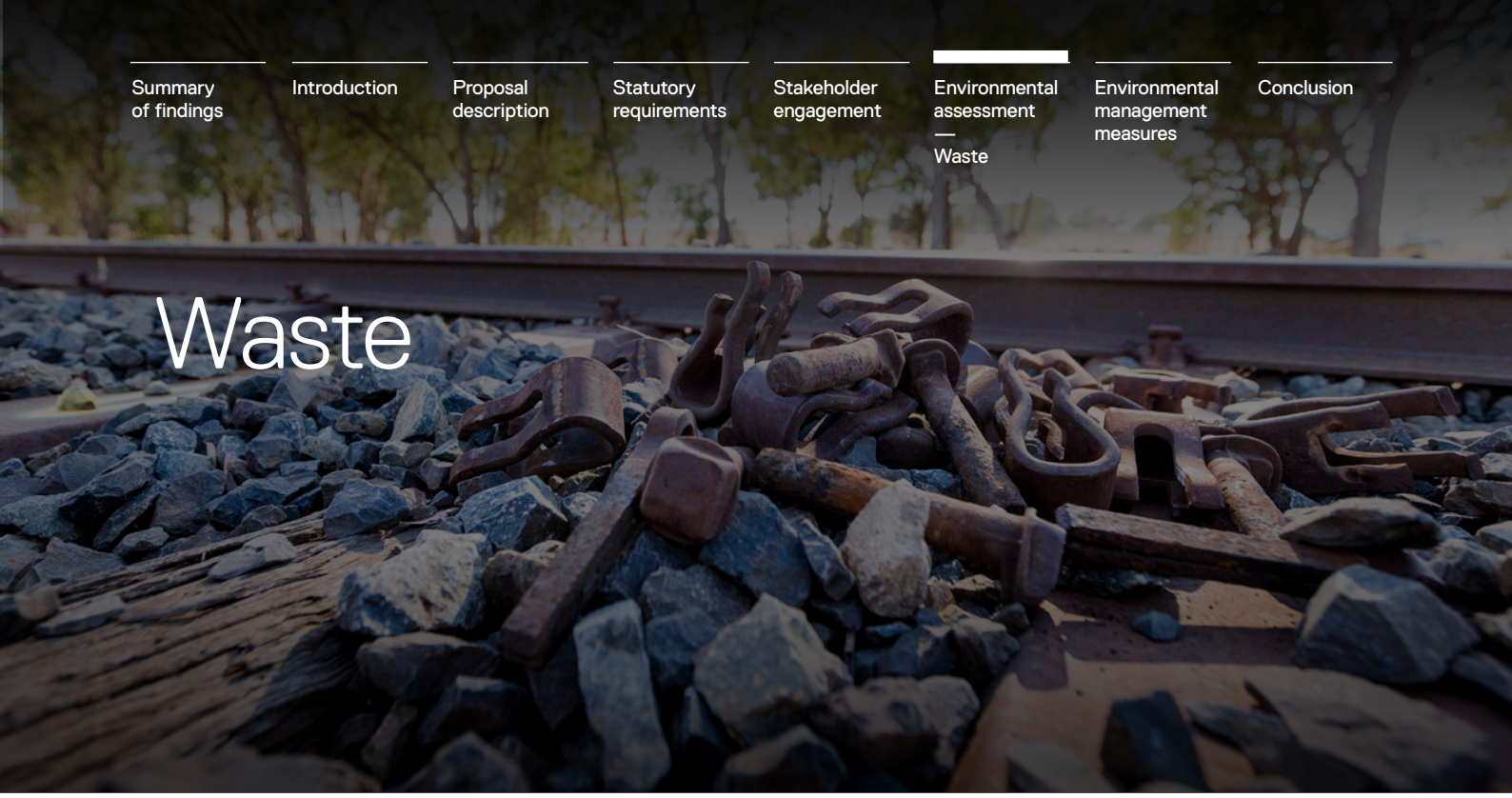
Management and mitigation measures

- planning and layout of construction work sites and compounds to minimise disruption to flow paths
- flood and emergency response plan as part of CEMP
- new drainage infrastructure to minimise change to flooding patterns.

Want to know more?

See:

- Chapter 5.4: Surface water (hydrology and flooding)
- Appendix I: Surface water assessment



Waste

During construction of the Proposal, waste will be generated by:

- vegetation clearing
- earthworks
- replacement of track formation
- demolition and/or removal of existing infrastructure
- general construction waste
- construction workers and site amenities.

Waste and construction materials will be separated and classified for re-use and recycling where feasible. If there are no viable options, waste will be disposed of at a licensed landfill in accordance with NSW Waste Classification Guidelines. Hazardous materials will be managed in accordance with the *Protection of the Environment Operations Act.*

As an existing railway corridor, no changes in waste generation are anticipated for operation of the Proposal. Small amounts of waste are generated during maintenance activities.

Management and mitigation measures

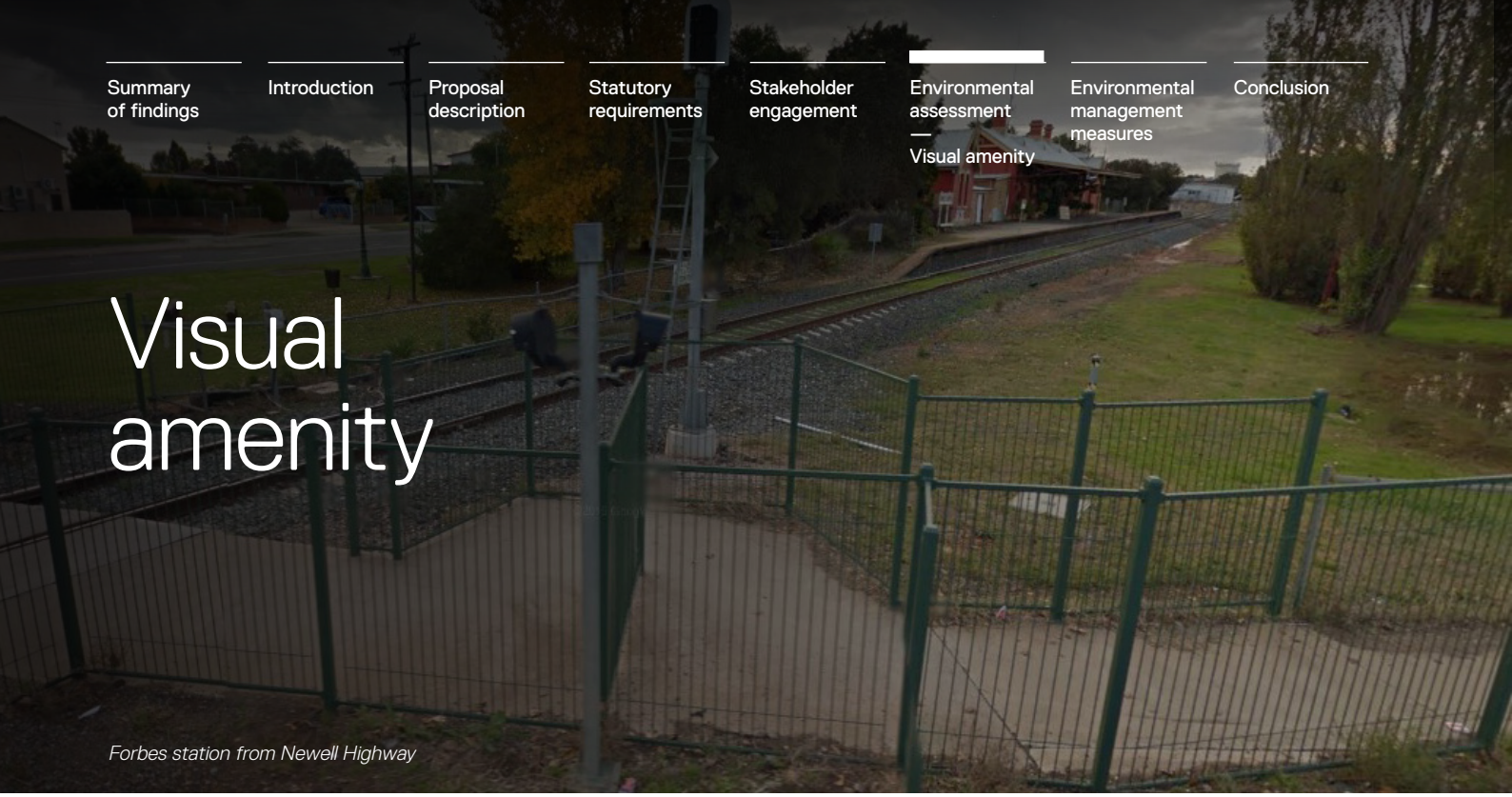
- avoid and reduce waste generation during construction and maintenance
- investigate opportunities to re-use and recycle
- generated waste classified and disposed of appropriately
- spoil management strategy considering approvals and waste exemptions
- construction waste management plan.

Want to know more?

See:

- Chapter 5.5: Waste

Visual amenity



Forbes station from Newell Highway

Except for the Forbes Station and Yard site, which is in a larger regional town, the landscape of the Proposal's sites are predominantly characterised by rural landscape with small rural villages, industry, and an existing rail line. The Newell Highway is located in the vicinity of Forbes Station.

The proposed changes to the track and existing infrastructure are compatible with the scale and character of the rail corridor. The operation of longer and more frequent trains would be visually more dominant.

Construction activities at the Forbes, Wirrinya, Caragabal and Bribbaree sites will be visible from surrounding locations.

At a glance

Key construction impacts

- visible construction site within the rail corridor, including compounds, plant, stockpiles and earthworks
- construction vehicles, heavy machinery
- removal of vegetation
- lighting for night works.

Key operation impacts

- increase in frequency, height and length of freight trains
- lights in the rail corridor.

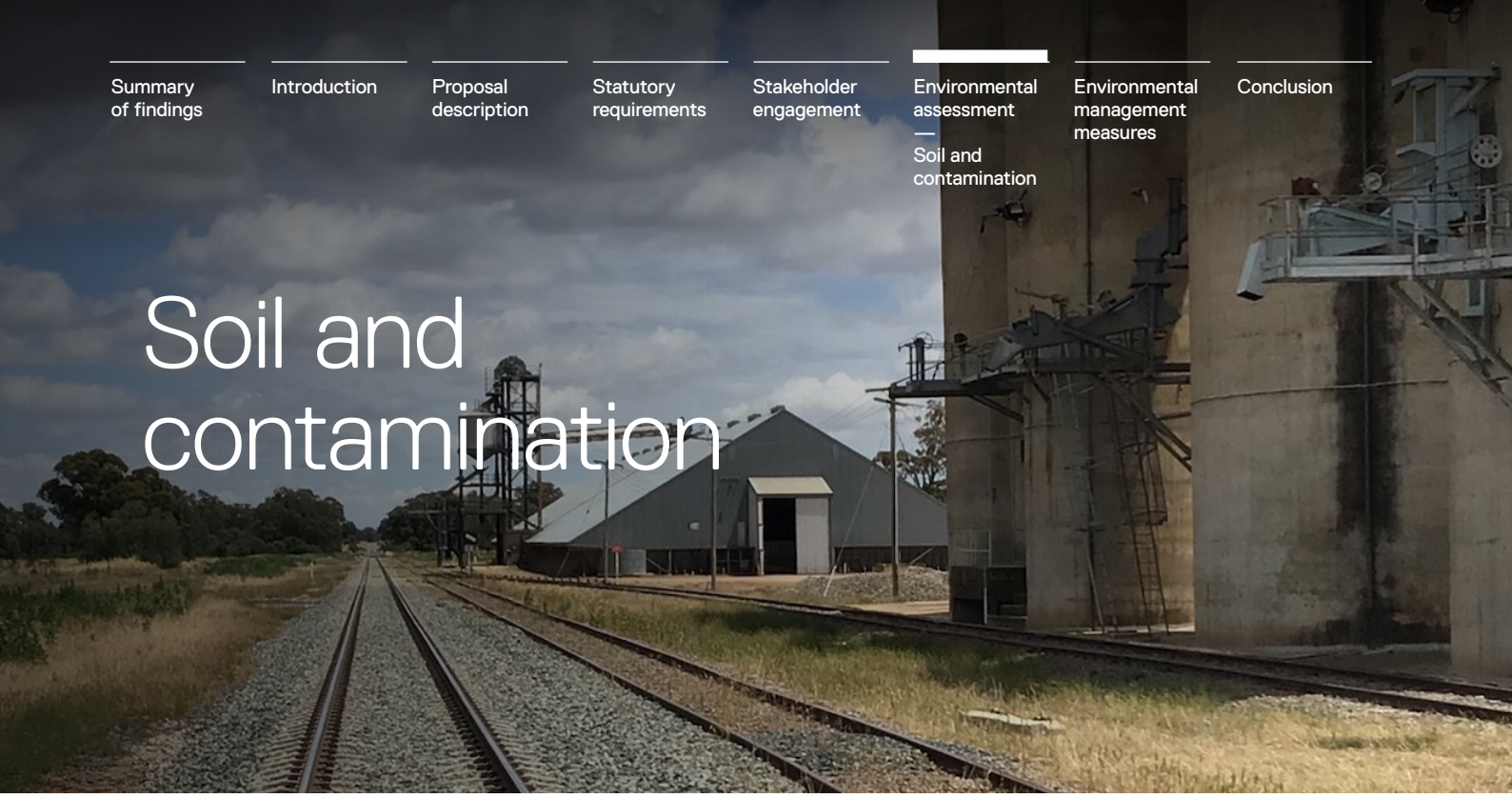
Management and mitigation measures

- minimise the construction and operation footprint
- temporary lighting with minimal light spill
- rehabilitation of vegetation in disturbed areas.

Want to know more?

See:

- Chapter 5.6: Visual amenity



Soil and contamination

The Proposal is located in an existing railway corridor and for the purposes of this REF the focus is on the Forbes and Bribbaree sites due to the need for excavation works.

There is also a focus on the Wirrinya and Carabagal sites due to the types of works to be undertaken.

Historically, activities in railway corridors have often resulted in contamination. There is elevated risk of contaminates at Forbes Station Yard due to proximity of service station infrastructure and a goods shed nearby the proposed works location.

However, any generated spoil (waste soil) will require testing to determine its suitability for re-use in the railway corridor or for removal to a suitable waste disposal site.

At a glance

Key construction impacts

- excavation and ground disturbance
- dust generation
- increased sediment in drainage and nearby waterways
- site works exposed to potential contaminates
- soil erosion
- spills and leaks from vehicles, plant and equipment.

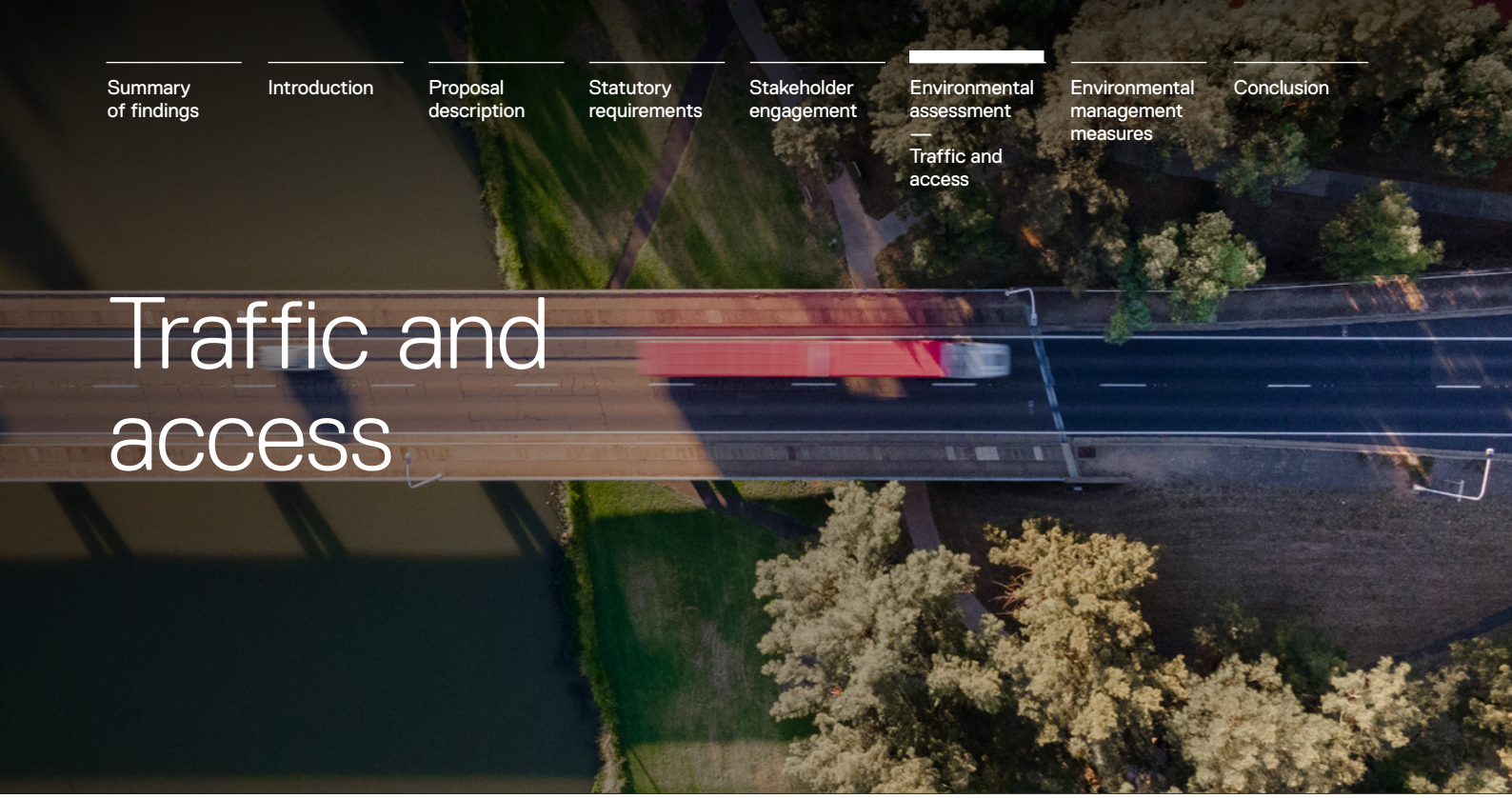
Management and mitigation measures

- a soil and water management plan for erosion and sediment controls
- contamination and hazardous materials plan will be prepared and implemented as part of the CEMP
- spill response procedures applicable for during operations
- detailed site investigation at Forbes Station Yard.

Want to know more?

See:

- Chapter 5.7: Soil and Contamination



Traffic and access

During construction, traffic will be generated by the movement of plant and materials and workers to and from the sites. Peak traffic movements are expected in the morning and afternoon to coincide with construction workers arriving and leaving the sites.

PEAK NUMBER OF VEHICLES MOVEMENTS PER HOUR	SITES	PRIMARY HAULAGE ROUTE ROADS AROUND THE SITE
10 light vehicles 8 heavy vehicles	Wirrinya Yard	Wirrinya Road, Gap Road
	Caragabal Yard	Mid-Western Highway, Caragabal Road
	Forbes Station and Yard	Union Street, Newell Highway
	Bribbaree Yard	Railway Street, Bribbaree Road, Mary Gilmore Way
3 light vehicles 1 heavy vehicle	Milvale Yard	Milvale Road
	Quandialla Yard	Bimbi-Quandialla Road
2 light vehicles 1 heavy vehicle	Forbes Station and Yard	Union Street

Want to know more?

See

Chapter 5.8: Traffic and Access

The Proposal sites are a considerable distance apart, so cumulative traffic generation is not expected, and parking would generally be confined to the Proposal site and rail corridor. No significant road closures or detours are anticipated however, traffic control will be established where needed to maintain safety.

At a glance

Key construction impacts

- vehicle access to the Forbes Information Centre likely affected
- haulage routes will overlap with bus routes between towns and on the Newell Highway
- haulage routes in Bribbaree will likely overlap with school bus routes
- construction traffic overlap with grain terminal access at Wirrinya and Caragabal.

Management and mitigation measures

- a traffic, transport and access management plan will be prepared and implemented as part of the CEMP
- adequate road signage and communications for motorists, cyclists and pedestrians
- deliveries scheduled to minimise impacts to grain terminal, Forbes Information Centre and school bus movements
- traffic control to manage deliveries at Forbes Station and Bribbaree Yard
- rectification works.

Socio-economic

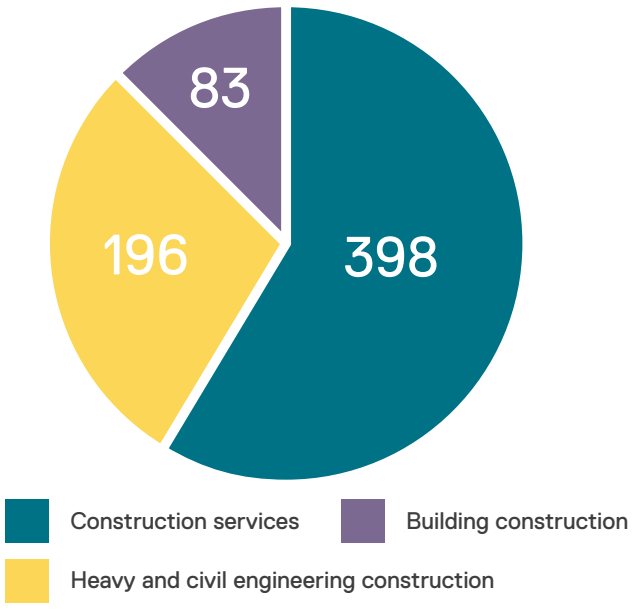
A community and socio-economic assessment study area covered the Forbes, Weddin and Young Local Government Areas (LGAs). It determined the Proposal offered the most benefits to Forbes, and had potential to offer positive social benefits through employment, training and business supply opportunities.

Social benefits include:

- employment opportunities during construction
- increase in local spending
- opportunities for local, regional and Indigenous businesses to participate in the construction supply chain
- improvements in transport infrastructure.

The Proposal would result in positive socio-economic impacts due to the economic benefits during construction and operation. Negative impacts would be generated, including amenity impacts from traffic, and noise and vibration. These impacts would be managed through the management measures identified in relevant sections of this REF.

Within the study area of the three LGAs, 5.7 per cent of the total workforce is employed in the construction industry.



ARTC has developed the Inland Rail Sustainable Procurement Policy to ensure local, regional and Indigenous businesses will have opportunities to supply to the Proposal. A variety of skills will be required during construction and it is expected labour may be sourced locally.

Want to know more?

See:

- Chapter 5.9: Socio-economic
- Chapter 6.1: Ecologically sustainable development

Other issues

A range of additional studies and risk assessments have been conducted on the following matters:

Air quality:

Dust management measures will be prepared and implemented as part of the CEMP to minimise dust impacts during construction from loading and transferring materials on trucks, vehicles using unsealed tracks along the rail corridor, earthworks at Bribbaree and Forbes sites, and general construction works.

Land use and property:

Except for the Forbes Station and Yard site in the Forbes township, the Proposal sites are located along an operational rail corridor in rural agricultural areas with small residential and commercial properties. Land use as a construction site will be temporary and council and privately owned land will be required for site compounds, stockpiles and laydown areas, as well as access to sites. Landholders will be consulted prior to construction and appropriate measures put in place regarding timings of work, and any adjustments to fencing, access or infrastructure.

Want to know more?

See

- Chapter 5.10 Other Issues
- Chapter 5.11 Cumulative Impacts

Hazard and risk:

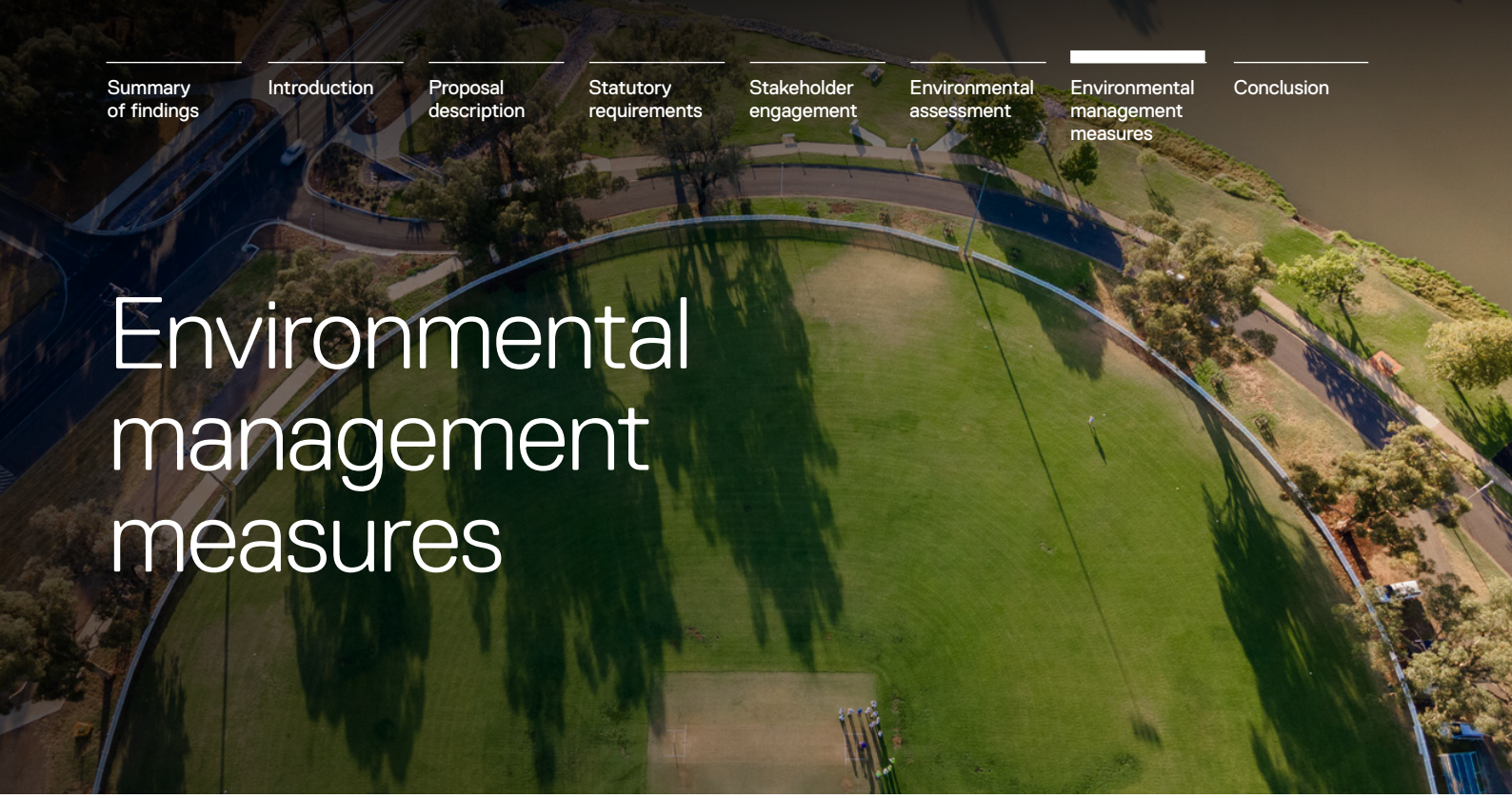
A series of measures will be implemented during construction of the Proposal to minimise risks from: handing fuels, fire due to hot works, rupture or contact with underground and overhead services during excavation, vehicle movements and intense wet weather. This includes a flood and emergency response plan for the Forbes site, appropriate dangerous goods and hazardous materials handling and storage protocols, and confirming existing services and utilities. Workplace risks are managed in compliance with the *Work Health and Safety Act 2011.*

Water quality:

The Proposal sites do not intersect with any waterways, however operational procedures and safeguards will be applied during construction to minimise the impacts of spills or litter generated. In addition, where practical vegetation clearing, and ground disturbance works will be staged to minimise areas exposed to erosion and sediment risk. An erosion and sediment control plan would be prepared as part of the CEMP.

Cumulative impacts:

There are other developments proposed within proximity to the Proposal site. The distances between the Proposal sites and the scale of these works reduces the impacts. If construction stages overlap there is the potential to increase noise, traffic and air quality impacts. The assessment identifies the risk of cumulative impacts to be low, particularly in consideration of the mitigation measures proposed.



Environmental management measures

An overarching CEMP will be developed for the construction of the Proposal, including a number of sub-plans as outlined through the management measures in this REF.

In addition, the assessment has identified control measures to be incorporated into the detailed design phase of the Proposal to be adopted during construction and operation.

Construction Environmental Management Plan

- Flood and Emergency Response Plan
- Soil and Water Management Plan
- Contamination and Hazardous Materials Plan
- Heritage Management Plan
- Noise and Vibration Management Plan
- Air Quality Management Plan
- Communication Management Plan
- Waste Management Plan
- Biodiversity Management Plan
- Workforce Management Plan
- Traffic, Transport and Access Management Plan

Other strategies and plans to be implemented during construction

Want to know more?

See

- Chapter 7: Environmental Management Measures
- Appendix B: Outline Environmental Management Plan

- **Rehabilitation Strategy**
- **Inland Rail NSW Construction Noise and Vibration Management Framework**
- **Inland Rail Communication and Engagement Strategy**
- **Out-of-hours work protocol**
- **Inland Rail Noise and Vibration Strategy**
- **Unexpected finds procedure**
- **Inland Rail Sustainable Procurement Policy**
- **Complaints Management Procedure**
- **Inland Rail Sustainability Strategy**

Conclusion

Inland Rail is needed to respond to the growth in demand for freight transport and to address existing freight capacity and infrastructure needs.

The Horizontal Clearances Proposal is a critical component of the Stockinbingal to Parkes Project and required for the operation of the Inland Rail Program. The delivery of the Proposal will contribute to providing a safe and sustainable solution to Australia's freight challenge offering positive social and economic benefits.

While developing the Proposal's reference design, assessments, investigations and studies have been conducted to examine all matters affecting or likely to affect the environment due to the proposed activities. This has included considering impacts on threatened species, populations, ecological communities, fauna and native vegetation.

The management and mitigation measures detailed in the REF have been developed to implement during detailed design, construction and operation of the Proposal. The potential impacts have been avoided or minimised during the reference design development and options assessment. As such, the REF deems the Proposal not likely to significantly affect the environment and on balance, is justified to proceed.