The Coordinator-General

North Galilee Basin Rail project:

Coordinator-General's evaluation report on the environmental impact statement

August 2014

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Queensland Government

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Synopsis

This report evaluates the potential impacts of the North Galilee Basin Rail project (the project). It has been prepared pursuant to section 35 of the *State Development and Public Works Organisation Act 1971* (Qld) (SDPWO Act).

The proponent, Adani Mining Pty Ltd, proposes to construct a 311.6 kilometre (km) standard-gauge rail line connecting the proposed Carmichael Coal Mine and Rail project (CCMR project) to the Port of Abbot Point. The project runs from the CCMR project's rail infrastructure, west of the Gregory Development Road in the vicinity of Mistake Creek west of Moranbah, to the rail loop proposed as part of the T0 project at the Port of Abbot Point near Bowen. It is situated within the Whitsunday and Isaac Regional Council local government areas and within the Galilee Basin State Development Area (GBSDA) and then within the Abbot Point State Development Area (APSDA).

The project will require an estimated A$2.2 billion of capital investment and is expected to create 2017 jobs during the construction phase and 369 jobs during the operational phase. Once the project is running at peak capacity, operational expenditure is expected to directly and indirectly contribute $208 million annually to the Mackay, Isaac and Whitsunday (MIW) region's gross regional product and $368 million annually to the Queensland economy.

At peak capacity, the project will facilitate the transportation of 100 million tonnes of thermal coal annually from the Galilee Coal Basin for export. The development of this infrastructure contributes to a key Queensland Government objective of realising the timely development of the Galilee Basin.

In undertaking my evaluation of the environmental impact statement (EIS), I have considered the EIS documentation, issues raised in submissions during the public consultation period, the additional information on the EIS (AEIS), further documents provided by the proponent, and advice I have received from state and local government agencies.

The following provides an overview of the main issues arising from my evaluation.

Flora and fauna

The project will require vegetation clearance to facilitate the construction of the project, including:

- 343.8 hectares of regional ecosystems listed as endangered or of concern under the *Vegetation Management Act 1999*
- threatened flora species and habitat for threatened fauna species listed under the *Nature Conservation Act 1992* (NC Act) and/or the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Species listed under the NC Act or the EPBC Act were identified as present in the project area through a desktop assessment. These included two threatened flora species—the black ironbox and bluegrass; and six threatened fauna species—the black-necked stork, cotton pygmy-goose, freckled duck, little-pied bat, ornamental snake, squatter pigeon (southern). An additional 2 flora and 10 fauna species, listed under the NC Act or the EPBC Act, were considered likely to occur.

The proponent has committed to minimising risks to biodiversity values through a combination of route selection and mitigation measures. Key management measures to mitigate biodiversity impacts on terrestrial and aquatic habitats include sequential clearing to allow mobile species opportunities to disperse, supervision of clearing activities by a qualified fauna spotter, selective removal of habitat features with special value, and undertaking construction works within watercourses during nil or low-flow conditions where possible. Where significant residual impacts remain, offsets will be provided.

I am satisfied these measures can minimise risks to biodiversity and that where any significant residual impacts remain, the values could be offset. I have made recommendations requiring pre-clearance surveys and the development of management measures to maximise the ongoing protection and long-term conservation of threatened species. I have also made recommendations regarding the monitoring, mitigation and reporting of impacts on biodiversity for all stages of the project.

Offsets

The proponent has provided an offsets strategy that identifies the extent of significant residual impacts and indicates that land for offsetting these impacts is available within the region. The offsets strategy will be updated once the proponent has completed pre-clearance flora and fauna surveys during the detailed design phase to confirm the presence or otherwise of threatened species.

The Coordinator-General will determine any state offset requirements that may be necessary to deal with any significant residual impacts.

I have imposed a condition that requires the proponent to finalise an offsets strategy following the Commonwealth Minister for the Environment's decision on the project, to ensure that the strategy includes any new information relevant to the state values offset determination.

Water resources and flooding

The rail alignment traverses four major catchment areas, including approximately 459 major and minor waterways and overland flow paths. The project will require the construction of 24 bridge crossings over major waterways and the construction of minor waterway crossings and drainage systems to facilitate overland flow paths using a combination of pipe and box culverts.

Construction of a railway embankment could lead to altered hydrological flows, degraded water quality, increased flooding, increased periods of inundation and altered drainage patterns. The proponent has committed to implementing a range of mitigation

measures to address these issues. In particular, following detailed rail design, the proponent is required to undertake further detailed flood modelling and analyse the potential impacts of the project on all afflux-affected properties and assets. I have imposed a condition that requires the proponent to provide the final rail design and a consultation report to the Coordinator-General for approval once these reports and flood modelling have been completed.

I have required other Galilee Basin rail proponents to adhere to consistent drainage design criteria and therefore the imposed condition sets limits for the extent of inundation, afflux, culvert exit velocities and inundation times. The condition requires the proponent to consult with land and asset owners, including government agencies, regarding the potential impacts of the railway and the mitigation measures proposed to address flooding impacts.

Property, livestock and stock routes

The project crosses 66 properties, 7 stock routes and 77 private access tracks and farm trails. Key concerns raised during consultation with landholders relate to the potential impacts on agricultural businesses and property viability resulting from property fragmentation, increased spread of weeds and impacts on stock movements, rural lifestyle and amenity. The proponent has committed to consult with landholders, identify and minimise issues associated with land fragmentation, develop weed and pest management plans and grade-separate operational and stock crossings of the rail where feasible. There must be ongoing consultation and negotiation between the proponent and property owners about valuation, compensation arrangements and other outstanding issues.

To maintain consistency with the CCMR project, I have made a recommendation for the proponent to undertake all landholder engagement in a manner consistent with the Queensland Government Land Access Code, in order to protect the interests of landholders affected by the rail line.

I have made a recommendation for the proponent to maintain the condition and connectivity of stock routes to provide safe passage across the rail for stock, personnel and the general public. The proponent has committed to negotiating final stock route crossing treatments in consultation with relevant state and local government authorities.

Noise, vibration and air quality

The project is not expected to impact air quality or generate vibration impacts for the 27 potentially affected landholders, due to the distance between the receptors and the rail alignment.

Noise from the project has the potential to impact 11 landholders. However, the proponent has committed to mitigate any significant impacts to meet relevant standards. Key control measures proposed in the Environmental Management Plan (EMP) Framework to mitigate noise include locating noise-generating ancillary infrastructure away from sensitive receptors; confining blasting, pile driving and loading/unloading activities to general building work hours; modifying blasting design;

fitting noise suppression equipment; and minimising the use of horns and warning devices on trains during operation. Should further mitigation measures be required, the proponent has proposed to construct screening, barriers or bunds and implement noise-mitigating building works, such as double glazing, at the homesteads.

I have recommended conditions that require the proponent to adhere to dust, blasting and vibration limits to ensure landholders are not adversely impacted.

Soil

The project is predicted to impact on a range of soil types, including some that may present engineering and contamination challenges. Project construction has the potential to increase soil erosion, disturb acid sulfate soils in low lying areas and increase sedimentation in surface water runoff. The proponent has committed to undertake detailed soil and geotechnical investigations along the project alignment during the detailed design phase. Investigations will inform and validate soil management strategies proposed in the EMP Framework in the AEIS.

I have recommended a condition requiring the development and implementation of erosion and sediment control measures to minimise contamination of receiving waters. I have also recommended that the proponent develop and document management measures and procedures that minimise adverse impacts on soil structure and quality. Results of the soil surveys will need to be reflected in updated management practices in the EMP Framework, Erosion and Sediment Control Plan, Soils Management Plan and Acid Sulfate Soils Management Plan.

Impacts on existing resource tenures

In developing the project alignment, the proponent has avoided impacts on current or proposed mining leases where possible, including a 77 km realignment of the project in response to consultation with potentially affected parties. The project traverses a variety of resource tenures including 14 exploration permits for coal, 14 exploration permits for minerals, 6 mining leases, 2 exploration permits for petroleum and 3 petroleum pipeline licences. The proponent has committed to ongoing consultation with affected resource tenement holders to further minimise the sterilisation of any potential resources through the detailed design phase of the project.

Rehabilitation

Measures are proposed by the proponent to rehabilitate sections of land disturbed during construction to a state generally consistent with the surrounding natural environment. I have recommended measures to return the landform to conditions suitable to support the existing land use, should the infrastructure no longer be required at the end of the project life of 90 years.

Road transport

Impacts of additional heavy and light vehicle traffic generated by the project on state and local road networks are expected to be manageable. The proponent plans to mitigate impacts on intersections, pavement and road-link capacities and develop

infrastructure agreements in consultation with state and local transport authorities. Key mitigation measures proposed include intersection upgrades, financial contributions to pavement upgrades and grade separation at the crossing of major roads such as the Bruce Highway, Bowen Developmental Road and other state-controlled roads.

I have included conditions in this report requiring the proponent to finalise the Road Impact Assessment, Road-use Management Plan and Construction Traffic Management Plan in consultation with the appropriate authorities and develop a mitigation program to address the impacts of project traffic.

Existing and planned rail infrastructure

The project will intersect two existing rail lines—the Queensland Rail North Coast Rail Line and the Abbot Point branch of the Aurizon Newlands System. The project is proposed to cross the two existing rail lines using grade-separated crossings, and the proponent has committed to develop an interface agreement with the relevant infrastructure owners prior to construction.

The proponent realigned a portion of the project during the EIS process to minimise impacts on landholders, biodiversity and resource tenements. The project realignment runs parallel with the existing Newlands System for approximately 57 km, co-located with other proposed rail projects within a common Rail Corridor Precinct defined by the GBSDA.

Where projects are proposed in close proximity within the GBSDA, I expect proponents will undertake project planning and negotiations to achieve certainty for their projects while cooperating with other entities to address technical, operational and administrative constraints.

A final alignment for the project within the Rail Corridor Precinct of the GBSDA would be determined during the material change of use application process. This would follow assessment of detailed design information, further consultation with owners of existing and proposed rail lines and due consideration of the interests of all proponents proposing to proceed to construction.

Emissions of coal dust from moving wagons could be a risk to human health and rail safety and efficiency. I have conditioned the proponent to minimise the loss of coal dust by adopting management arrangements consistent with the QR Network *Coal Dust Management Plan*, which includes the requirement to veneer wagons.

Cultural heritage

Potential impacts on items or sites of cultural heritage along the rail alignment may arise from vegetation clearing and ground disturbance undertaken to accommodate project components. Following EIS consultation, the proponent realigned the project for approximately 6 km near Mount Roundback to provide a 300 metre buffer for a registered Indigenous cultural heritage site (rock art and shelter site). The proponent has begun developing a Cultural Heritage Management Plan in accordance with the *Aboriginal Cultural Heritage Act 2003*, including requirements to undertake comprehensive cultural heritage surveys.

Social and local economic impacts

The proponent's social impact assessment identified several positive benefits of the project. These include direct and indirect local, regional and Indigenous employment and training opportunities, local and regional contracting and supply opportunities for individuals and businesses, and enhanced economic development opportunities throughout the region and the state.

Unless mitigated, potential negative impacts identified included antisocial behaviour and disturbances from non-resident workers, decreased housing affordability in the region, increased demand on social infrastructure, and increased demand on regional and local health and emergency services. I consider the management measures the proponent has proposed, including the implementation of a Workforce Management Plan, an Indigenous Participation Plan and a code of conduct, to be adequate to mitigate, manage and monitor these potential impacts.

Given the remote location of the project, the proponent expects the construction workforce to be around 80 per cent fly-in/fly-out, with approximately 50 per cent of the construction workforce sourced from the MIW region and 50 per cent from outside the MIW region. The operational workforce is expected to be mainly based in Bowen.

I have imposed a condition requiring the proponent to provide an annual report to the Coordinator-General during the construction phase and for two years following the commencement of operations. The report must describe the actions undertaken to avoid, manage or mitigate project-related social impacts on local community services, social infrastructure and community safety and wellbeing.

Health and safety management

Potential hazards from the project include train derailment or collision, spill or leak of hazardous substances, and fire. The proponent has made a number of commitments to avoid train malfunction and/or accident including routine inspections and maintenance of tracks, wagons and signalling equipment; the construction of grade separators at identified crossings; the installation of passive or active controls at level crossings; the installation of all communication systems as per Australian Standards; and the attainment of rail safety accreditation from the Department of Transport and Main Roads under the *Transport (Rail Safety) Act 2010*. The proponent has also committed to develop and implement a series of safety and risk management plans to prevent and respond to potential incidents and to extend the Bushfire Management Plan developed for the CCMR project to also apply to this project in order to protect the rail corridor, rail operations and neighbouring landholders and properties.

Conditions, environmental management plans and proponent commitments

The proponent will manage the impacts of the project in accordance with my conditions and recommendations in Appendix 1, the project's EMPs and the proponent commitments in Appendix 2. I require the proponent to fully implement the commitments detailed in the proponent commitment register.

The proponent has developed an overarching EMP Framework for the project, which will inform the EMPs for the construction and operational phases of the project which, in turn, will contain subject-specific management plans and sub-plans. The EMP Framework will be implemented in accordance with my conditions.

Appendix 1 provides further explanation of the proposed management systems, the hierarchy of subject-specific management plans within the EMP and a cross-reference of management measures and proponent commitments.

Coordinator General's conclusion

I consider that the environmental impact assessment requirements of the SDPWO Act for the North Galilee Basin Rail project have been met and that sufficient information has been provided to enable a thorough evaluation of the potential impacts of the project.

I conclude that there are significant local, regional and state benefits to be derived from the development, and that any adverse environmental impacts can be acceptably avoided, minimised, mitigated or offset through the implementation of the measures and commitments outlined in the EIS documentation. The conditions I have specified in this report have been formulated in order to further manage all impacts associated with the project.

Accordingly, I approve the project to proceed subject to the conditions and recommendations set out in the appendices of this report. In addition, I require the proponent's commitments to be fully implemented.

A copy of this report will be provided to the proponent, Whitsunday Regional Council, Isaac Regional Council and relevant state government agencies, and will also be made publicly available at **www.dsdip.qld.gov.au**

Barry Broe
Coordinator-General

12 August 2014

1. Introduction

This report has been prepared pursuant to section 35 of the *State Development and Public Works Organisation Act 1971* (Qld) (SDPWO Act) and provides an evaluation of the environmental impact statement (EIS) for the North Galilee Basin Rail project (the project). The report:

- summarises the key issues associated with the potential impacts of the project on the physical, social and economic environments at the local, regional and state levels
- presents the findings of my evaluation of the project, based on information in the EIS, submissions made on the EIS, information and advice from advisory agencies and other parties, and additional information on the EIS which is referred to as 'supplementary information' in the SDPWO Act
- states conditions under which the project may proceed.

2. About the project

The proponent for the project is Adani Mining Pty Ltd (Adani), an Australian subsidiary of Adani Enterprises Limited based in Ahmedabad, India. Adani Enterprises has interests in global trading, development and operation of ports, inland container terminals, establishment of special economic zones, oil refining, logistics, gas distribution and power generation, transmission and trading.

Adani was established in Australia in mid 2010 with the intent of exploring for, mining, and exporting coal resources. Adani Abbot Point Terminal Pty Ltd (Adani APT) has also been established in Australia by Adani Enterprises Limited to develop the Abbot Point coal terminals as part of its overall program for coal export.

The project includes the development of a 311.6 kilometre (km) standard gauge rail line and ancillary activities, connecting the proposed Carmichael Coal Mine and Rail Project (CCMR project) to the Port of Abbot Point.

The project will connect the CCMR project rail infrastructure west of the Gregory Development Road in the vicinity of Mistake Creek (west of Moranbah) to the rail loop proposed as part of the T0 project at the Port of Abbot Point (near Bowen) as shown in Figure 2.1. It traverses both the Isaac and Whitsunday Regional Council areas with the northernmost extent of the project traversing strategic port land at the Port of Abbot Point.

The project crosses 66 freehold and leasehold properties. Twenty-seven sensitive receptors have been identified within 6 km of the alignment, with only one of these receptors located within 1 km of the project alignment.

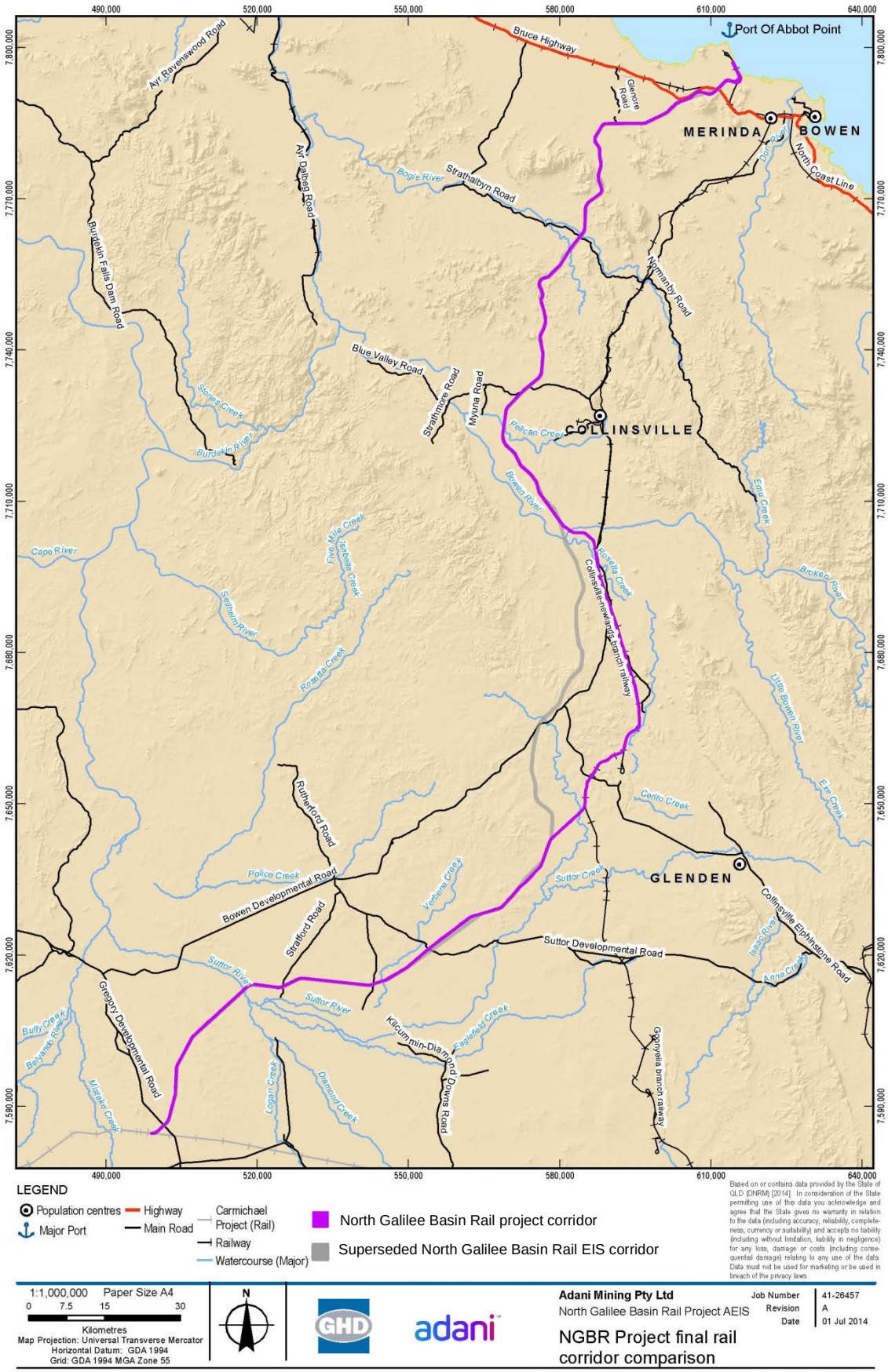

Figure 2.1 Project location

2.1 Project components

The project includes:

- 311.6 km of standard gauge rail line with eight passing loops to facilitate the transportation of up to 100 million tonnes per annum (mtpa) of coal
- temporary construction infrastructure—5 construction camps, 5 concrete batching plants, 29 bridge laydown areas and 1 construction depot
- rolling stock maintenance depot.

Further detail on the project description and components can be found in revised project description in the additional information on the EIS (AEIS).

2.2 Development stages

The project is proposed to have a 90-year lifespan to service the CCMR project. Construction of the project is anticipated to commence in early 2015, subject to relevant approvals, and be completed within two years. The project will commence operation in line with the commencement of coal output from the CCMR project, currently expected in 2017.

2.3 Project changes

Since the proponent's original presentation in its initial advice statement (IAS) and EIS, a number of changes to the project have occurred, as presented in the AEIS. Changes include the alteration of the project footprint to:

- reflect ongoing refinement of the project
- minimise impacts on property owners and resource tenure holders, including the realignment of a 77-kilometre section of the rail corridor to minimise potential sterilisation of mineral resources and the impacts of the project on coal tenements
- minimise impacts on cultural heritage and biodiversity.

The project realignment, identified in Figure 2.1, has altered the course of the rail corridor from south-west of the Suttor River crossing, to a point immediately north of the crossing of the Bowen River.

I have considered the abovementioned changes as part of my evaluation of the project.

2.4 Infrastructure requirements

The project alignment will require the construction of 24 bridges over waterways and the development of appropriate crossings where it intersects 27 public roads, 77 private access tracks and farm trails, 2 rail lines, 7 stock routes, 14 power lines and 3 132 kilovolt network cables, 3 fibre optic cable services, 1 gas and 1 water pipeline. The proponent will need to develop a detailed design for each of these intersections to mitigate impacts on existing users and the environment. Indicative crossing treatments have been discussed in sections 5.2.1, 5.2.4 and 5.4.

2.5 Dependencies and relationships with other projects

2.5.1 Coal mines

The project is dependent on the development of the CCMR project, which would create the demand for the rail line. At full capacity, the Carmichael coal mine will supply up to 60 mtpa of the total 100 mtpa capacity of the project. An evaluation of the CCMR project was prepared in accordance with section 35 of the SDPWO Act and I approved that project on 7 May 2014.

The project has the capacity to service other coal mines in the Galilee Basin. The nearest planned coal mine to the CCMR project is the China Stone project proposed by MacMines AustAsia Pty Ltd. The China Stone project was declared a coordinated project on 31 October 2012 and is currently undergoing the EIS process.

2.5.2 Rail lines

The project is proposed to connect to the east–west aligned rail infrastructure proposed as part of the CCMR project, approximately 70 km east of the CCMR project mine site. Other existing or proposed rail projects in the vicinity of the project include the:

- existing Newlands rail system, owned and operated by Aurizon, which runs between the northern end of the Bowen Basin and the Port of Abbot Point
- rail line proposed by GVK-Hancock as part of the Alpha Coal project connecting the Alpha Coal Mine south of the Carmichael Mine to the Port of Abbot Point, a coordinated project I approved on 29 May 2012
- rail line proposed by Waratah Coal as part of the Galilee Coal Project (Northern Export Facility) connecting the coal mine south of the Carmichael Mine to Abbot Point, a coordinated project I approved on 9 August 2013
- the Aurizon Holdings Limited Central Queensland Integrated Rail project, which was declared by the then Coordinator-General to be a coordinated project on 27 January 2012, and which involves upgrading the existing Newlands rail system and linkages to proposed Galilee coal mines.

2.5.3 Ports

The project is dependent on the development of coal terminal facilities at the Port of Abbot Point. It is proposed the project will connect with the Terminal 0 project's balloon loop offloading infrastructure proposed by Adani APT. Adani APT has purchased the 99-year lease of Abbot Point Coal Terminal 1 and is proposing to develop Abbot Point Coal Terminal 0 as part of their overall coal export program. The Terminal 0 Project at Abbot Point was approved by the Commonwealth Minister for the Environment on 10 December 2013 and is currently awaiting additional statutory approvals to proceed.

The northernmost section of the project traverses strategic port land, within the boundaries of the Port of Abbot Point Land Use Plan 2010.

2.5.4 State development areas

The project is located within the Abbot Point and Galilee Basin State Development Areas (SDAs)—two areas of land established by the Coordinator-General to promote economic development in Queensland.

The Abbot Point SDA (APSDA) was declared in 2008 and is located in close proximity to the Port of Abbot Point. It is targeted towards large-scale, value-adding industrial development and currently features activities such as bulk mineral resource unloading and stockpiling facilities.

The Galilee Basin SDA (GBSDA) was declared in June 2014 to facilitate the development of rail infrastructure to transport coal to the Port of Abbot Point from the southern and central areas of the Galilee Basin. It provides a planning framework for the geographic area to facilitate new rail infrastructure whilst minimising impacts on landholders and other stakeholders.

Advantages of the project being located within the SDAs include a more coordinated, timely planning and decision-making framework for the rail line and essential infrastructure and an efficient one-stop shop assessment of development applications.

2.6 Galilee Basin policies

2.6.1 Galilee Basin Development Strategy

On 7 November 2013, the Queensland Premier and Deputy Premier jointly announced the Galilee Basin Development Strategy (GBDS), which outlines initiatives to lower upfront costs for ‘first movers’ and stimulate development across the basin's southern and central coal resources. The strategy provides process certainty for such linear infrastructure corridors which would otherwise involve separate applications across multiple local governments. It also addresses the significant upfront capital costs associated with early stage investment by the private sector in a new resource region lacking essential infrastructure. A key initiative in the strategy is the declaration of the GBSDA.

2.6.2 Galilee Basin Rail Policy

The project is consistent with the preferred alignment detailed in the GBDS (confirmed by the Deputy Premier in an announcement on 21 May 2014) that specified that only two rail corridors would be supported by the government—one servicing the southern end of the Galilee Basin and one servicing the central part of the basin. The project is also consistent with the government’s preference to support the development of projects which have ‘pit-to-port’ solutions, allow shared or multi-user access and minimise impacts on landholders and the natural environment.

2.7 Project rationale

The project will provide infrastructure to facilitate the transport of 100 mtpa of coal from the Galilee Basin to the Port of Abbot Point for export, servicing the CCMR project, with capacity for use by other Galilee Basin coal mines. It will provide a more cost-effective

rail link for the transportation of coal from the Carmichael coal mine to port than the CCMR original proposal to transport coal from the mine site via an east–west rail link connecting with the Goonyella and Newlands systems. The project will provide a substantial transport system to reduce the environmental footprint, adverse impacts on landowners in the region and the need for additional independent tracks.

Overarching project-wide benefits include:

- A$2.2 billion capital investment
- direct contribution to Queensland's Gross State Product of an estimated $195 million in the peak construction year and $91 million per annum from the peak operation year until operation ceases
- the creation of an estimated 2017 construction jobs, 369 operational jobs and other indirect employment benefits
- direct and indirect local, regional and Indigenous employment opportunities beyond traditional agricultural sector roles
- local and regional contracting and supply opportunities for individuals and businesses.

The project meets Queensland Government objectives in realising the timely development of the Galilee Basin while ensuring that community benefits are maximised and impacts minimised. It aligns with a number of state and federal government policies that guide and inform the development of the Queensland coal industry including *Coal Plan 2030*, the *Queensland Infrastructure Plan*, the *Queensland Ports Strategy* and the *National Ports Strategy*. The Port of Abbot Point has been identified in the *Queensland Ports Strategy* as a Priority Port Development Area (PPDA) and the strategy seeks the comprehensive identification and protection of infrastructure corridors and assets along port supply chains to support the future development of the PPDAs.

For more information on the economic and social impacts of the project, refer to sections 5.6 and 5.7 of this report.

3. Environmental impact statement assessment process

This section details the steps in the project's EIS assessment process. In undertaking this evaluation, I have considered the following:

- the IAS
- the EIS and technical reports
- comments and submissions on the EIS from non-government organisations and members of the public
- the AEIS
- advice received from state and local government agencies.

The steps taken in the project's EIS process are documented on the project's webpage at **www.dsdip.qld.gov.au/ngbr**

3.1 Coordinated project declaration

On 14 June 2013, I declared this project to be a 'coordinated project' under section 26(1)(a) of the SDPWO Act. This declaration initiated the statutory environmental impact evaluation procedure under Part 4 of the Act, which required the proponent to prepare an EIS for the project.

3.2 Commonwealth assessment

As this project will potentially have a significant impact on matters of national environmental significance (MNES), the proponent referred the project to the former Commonwealth Minister for Sustainability, Environment, Water, Population and Communities under the provisions of the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act).

On 27 June 2013, a delegate of the minister determined that the project is a 'controlled action' under the EPBC Act (EPBC ref. 2013/6885). The relevant controlling provisions under the EPBC Act are:

- sections 12 and 15A: World Heritage properties
- sections 15B and 15C: National Heritage places
- sections 18 and 18A: Listed threatened species and communities
- sections 20 and 20A: Listed migratory species
- sections 23 and 24A: Commonwealth marine areas
- sections 24B and 24C: the Great Barrier Reef Marine Park.

The delegate also determined that the project should be assessed by way of an EIS under Part 8 of the EPBC Act in parallel with the State's assessment.

The EIS prepared by the proponent for the State's assessment also addressed potential impacts on MNES under the EPBC Act. The coordinated release of the EIS for public comment was managed cooperatively between the Queensland and Australian governments for administrative efficiency.

This EIS evaluation report addresses matters of relevance to the State and does not separately consider impacts on MNES unless relevant to the State's considerations. The Australian Government will assess impacts on MNES and will make a separate project approval decision.

3.3 Terms of reference

The draft terms of reference (TOR) for the EIS for the project were released for public and advisory agency comment from 13 July 2013 to 12 August 2013. There were 24 submissions received, comprising 17 from state advisory agencies and regional councils, 6 from non-government organisations and 1 from a member of the public.

The final TOR were prepared having regard to submissions received and was issued to the proponent on 23 August 2013.

3.4 Review of the EIS

The EIS prepared by the proponent was released for public and agency comment from 16 December 2013 to 11 February 2014.

There were 46 submissions received, comprising 22 from state advisory agencies and regional councils, 18 from non-government organisations and 6 from public submitters.

The most prominent issues raised in public submissions included:

- potential impacts of the rail on resource interests and cultural heritage matters
- impacts on pastoral landholders and property management
- road network impacts
- management plans and proponent commitments
- relevant legislation and required approvals.

3.5 Additional information on the EIS

On 12 March 2014, I requested that the proponent submit additional information on the EIS to address key issues including:

- consideration of an alternative rail corridor alignment to minimise potential impacts on cultural heritage and resource tenures, and further impact assessment of any alternative alignment
- additional material on road impact assessment and mitigation
- further consideration of potential impacts on stock routes and pastoral stock movement
- revised commitments relating to nature conservation matters and updates to the draft offsets strategy
- revised proposed management plans and proponent commitments
- an update on consultation with stakeholders post EIS development
- amendments to the legislation and approvals chapter presented in the EIS in response to advisory agency comments.

On 14 April 2014, the proponent submitted the AEIS to address the above issues.

The AEIS was reviewed by relevant agencies and key stakeholders. Comments were provided to further inform my evaluation. I have considered submissions on the EIS and advice on the AEIS in my evaluation of the project.

4. Project approvals

Following the release of this evaluation report, the proponent will need to obtain a range of statutory approvals from Australian, state and local government agencies before the project can proceed.

Approvals sought by the proponent for the project, for which this Coordinator-General's evaluation report includes conditions and recommendations, are listed in Table 4.1.

Table 4.1 Approval conditions sought from this Coordinator-General's report

Project component/activity	Relevant approvals	Legislation	Authority	Status
Rail line and ancillary infrastructure within the GBSDA and the APSDA	Material change of use (MCU)	SDPWO Act	Coordinator-General	MCU conditions and recommendations in Appendix 1 of this report

Subsequent approvals required for the project, subject to separate applications and assessment processes, are detailed by the proponent in the AEIS. The proponent acknowledges that further information will be required to support lodgement of applications for these subsequent approvals with the relevant assessment manager/s.

Further information about required Australian, state and local government approvals is provided in the subsections below.

4.1 Australian Government approvals

A decision on the controlled action will be made by the Commonwealth Minister for the Environment under section 133 of the EPBC Act.

4.2 State and local government approvals

The section of the project that traverses strategic port land within the boundaries of the Port of Abbot Point Land Use Plan 2010, and any associated infrastructure within this jurisdiction, will require development assessment against the plan.

The project is located within the APSDA and GBSDA, as discussed in section 2.5.4 of this report. The Coordinator-General will assess project components against the respective development schemes and consider development applications under the SDPWO Act for project activities within each SDA.

The project location within the SDAs exempts the proponent from applying for development approvals through the relevant local government planning schemes.

Amendments to the SDPWO Act passed by Parliament in August 2014 (State Development, Infrastructure and Planning (Red Tape Reduction) and Other Legislation Amendment Bill 2014) (SDIPOLB) will serve to increase the power and flexibility of SDA development schemes. However, until the SDIPOLB is enacted and a SDA development scheme is adopted that reflects the powers of the amended SDPWO Act, operational works and building approvals continue to be issued through the relevant local councils and/or State Assessment and Referral Agency.

Under Division 8 of Part 4 of the SDPWO Act, the Coordinator-General has the power to impose conditions for some matters, where no other relevant approvals exist. For some potential impacts of the project, no regulatory regime exists. Therefore, the Coordinator-General has the power to impose conditions under the SDPWO Act. These imposed conditions are provided in Appendix 1 of this report.

4.2.1 Planning cooperation within the GBSDA

As is the case with the Alpha Coal Project rail line, this evaluation report does not provide approval for a specific rail alignment for the project within the GBSDA. A specific alignment would be determined during the MCU application stage following assessment of detailed design information and consideration of other proponents' interests.

The proponent has conducted the EIS based on a 1 km wide investigation corridor. An indicative alignment has been selected for the purpose of assessing impacts.

Where multiple proponents propose projects in close proximity or overlapping within the Rail Corridor Precinct of the GBSDA, I expect that proponents will undertake project planning and negotiations to achieve certainty for their project while cooperating with other entities to avoid or minimise technical, operational and administrative constraints.

Applications within the GBSDA will need to accord with the strategic vision and objectives of the GBSDA as presented in the development scheme, including:

- facilitate increased opportunities for Queensland through supporting the development of the Galilee Basin
- ensure development in the GBSDA occurs in a logical sequence and is focused on both the short and long-term economic benefits to the region and state
- ensure a coordinated approach to the establishment of multi-user infrastructure corridors between the Galilee Basin and the Port of Abbot Point
- provide for and facilitate the development, construction and operation of rail infrastructure within the multi-user infrastructure corridors
- ensure the physical characteristics of land are considered in determining the suitability and location of development
- ensure development recognises and manages impacts on environmental, cultural heritage and community values.

The purpose of the SDA is to support multi-user rail infrastructure and provide the most efficient way to transport coal from the Galilee Basin to port. The SDA is wide enough to accommodate both proponents who plan a rail line in the section of the GBSDA between the Byerwen Coal project and the Bowen River. The Coordinator-General will maintain a coordination and decision-making role to get the best overall outcome for all parties, whilst minimising impacts.

5. Evaluation of environmental impacts

This section discusses the major environmental effects identified in the EIS and in the additional project information.

I consider some potential impacts of the project to have been adequately addressed in the EIS, including waste (refer to EIS Volume 1, Chapter 13), and greenhouse gas emissions and climate change (refer to EIS Volume 1, Chapter 11).

For these matters, I have determined that the proponent's mitigation measures and commitments are appropriate. For the remaining matters as evaluated below, I have included conditions or recommendations to mitigate adverse impacts.

The proponent has provided an updated commitment register which can be found at Appendix 2 of this report.

A consolidated summary of proponent commitments and impact mitigation measures within the project's environmental management plan (EMP) Framework is provided in Appendix 1 of this report.

5.1 Biodiversity

5.1.1 Regional environment

The project's proposed 311.6 km rail alignment traverses the far north of the Brigalow Belt Bioregion and the Burdekin and Don River basins. The project crosses 24 major and moderate waterways requiring bridge construction, and numerous minor waterways requiring culvert installation. Other aquatic habitats occurring in the project region include lakes and swamps, floodplains, wetlands and mangrove forests in the Burdekin River Basin, and coastal and sub-coastal floodplains, tree swamps, grass-sedge wetlands, mangroves and saltmarshes in the Don River Basin. The Caley Valley Wetland, listed as a nationally important wetland within the *Directory of Important Wetlands in Australia*, is in the vicinity of the northern extent of the project at Abbot Point.

A number of wildlife corridors within the Brigalow Belt bioregion are intersected by the project, including riparian corridors along major rivers and creeks. The project does not intersect any protected areas, the closest being 4 km from the project alignment.

Further explanation of the regional environmental context for the project can be found in the EIS and the AEIS.

5.1.2 Assessment methods

A desktop assessment was undertaken to inform field surveys for preparation of the EIS, utilising information on terrestrial and aquatic ecological values of the project study area from literature and database sources.

A 'likelihood of occurrence' assessment for flora and fauna species of conservation significance was undertaken for the EIS and for the project rail realignment in the AEIS. The likelihood of occurrence assessment then informed predictive habitat modelling for *Nature Conservation Act 1992* (NC Act) and EPBC Act listed flora and fauna species to

ascertain impacts for species identified in the project area during field surveys or considered likely to occur.

Targeted post-wet-season field surveys were undertaken during May and June 2013 for the rail alignment presented in the EIS. The survey data supplemented information collected during the desktop assessment. Following production of the EIS, a further dry-season ecological survey was undertaken for the EIS rail alignment and presented in the AEIS. Results of the dry-season survey did not identify any additional impacted species beyond those already identified in post-wet-season surveys.

On-ground surveys are yet to be undertaken for the project's realigned corridor. However, the impact assessment presented in the AEIS incorporated publicly available results of ecological surveys for a number of other projects in the vicinity of the realignment, along with results from literature and database sources.

A comprehensive survey of the ecological values of the complete final rail corridor will be undertaken as per proponent commitment 4.2. The survey will define impact areas and inform finalisation of environmental management measures, a final offset package, fauna crossing strategy and any subsequent vegetation clearing applications as per proponent commitment 4.3.

5.1.3 Impacts

Potential impacts on biodiversity associated with the construction and operation phases of the project include:

- loss of remnant vegetation and flora habitat
- loss of roosting, shelter, foraging and breeding habitat for native fauna including conservation-significant fauna
- landscape fragmentation, reduction in ecological connectivity and reduced capacity for fauna dispersal
- disruption of faunal behaviour
- fauna injury and mortality
- introduction of pest and feral species
- disturbance to water bodies and watercourses
- changes to floodplain hydrology
- alteration of fire regimes and an increased risk of fire
- degradation of terrestrial and aquatic habitat.

Vegetation communities and flora species

Mapping by the Queensland Herbarium identified 64 regional ecosystems (REs) within the total disturbance footprint of the project. Of these REs, 9 are classed as 'endangered' under the *Vegetation Management Act 1999* (VM Act), 19 are classed as 'of concern', and 36 are classed as 'least concern'.

Desktop assessment also identified three endangered threatened ecological communities (TECs) protected under the EPBC Act within the project disturbance footprint, namely:

- Brigalow (Acacia harpophylla) dominant and co-dominant (corresponds to REs 11.3.1, 11.4.8, 11.4.9, 11.9.1 and 11.12.21)
- Natural grasslands of the Queensland central highlands and the northern Fitzroy Basin (corresponds to REs 11.4.4, 11.4.11, 11.8.11, 11.9.3 and 11.9.12)
- Semi-evergreen vine thickets of the Brigalow Belt (north and south and Nandewar regions (corresponds to REs 11.2.3, 11.8.3, 11.8.13 and 11.11.18).

Predicted clearing extents of endangered and of-concern REs for the project are presented in Table 5.1, with further detail available in the AEIS.

Table 5.1 Predicted clearing extent of endangered and of concern REs

RE status	Rail corridor impact area (hectares (ha))	Ancillary infrastructure impact area (ha)	Total impact area (ha)
Endangered	157.4	13.3	170.7
Of concern	157.9	15.2	173.1

Twenty-two threatened flora species (listed under NC Act and/or EPBC Act) were identified through desktop assessment as occurring within the project investigation corridor. A likelihood of occurrence assessment was presented in the EIS for these threatened species.

A total of 333 flora species was recorded during the post-wet-season and dry-season field surveys for the EIS project alignment, including 35 introduced species of which 10 are declared weed species under the *Land Protection (Pest and Stock Route Management) Act 2002* (LP Act).

The EIS identified that one EPBC Act and NC Act listed 'vulnerable' species, black ironbox (*Eucalyptus raveretiana*), was recorded as present during field surveys along the investigation corridor. One species listed as 'near threatened' under the NC Act, *Bonamia dietrichiana*, is considered likely to occur in the EIS, with essential habitat for this species mapped within 1 km of the project, west of Collinsville.

Two additional threatened species were identified in the AEIS in the vicinity of the project realignment. Bluegrass (*Dichanthium setosum*), listed under the EPBC Act, is confirmed as present and king blue-grass (*Dichanthium queenslandicum*), listed under both the EPBC Act and the NC Act, is considered likely to occur.

Predicted impact areas for flora species of conservation significance under the NC Act and the EPBC Act are presented in Table 5.2. Further detail is available in the AEIS.

Table 5.2 Predicted impact area for flora species for final rail corridor and ancillary infrastructure

Threatened flora species	EPBC Act status	NC Act status	Total predicted impact area (ha)
Black ironbox *Eucalyptus raveretiana*	V	V	175.4
King blue-grass *Dichanthium queenslandicum*	E	V	263.3
Bluegrass *Dichanthium setosum*	V	-	354.2
Bonamia dietrichiana	-	NT	757.9

E = Endangered, V = Vulnerable, NT = Near Threatened

Vegetation clearing for the project is also predicted to impact on:

- two threshold REs covering 37.1 ha
- 88.5 ha of endangered high value regrowth vegetation (HVR, under the VM Act)
- 61.2 ha of 'of concern' HVR vegetation.

Based on Biodiversity Planning Assessment mapping of connectivity (Biodiversity Planning Assessment Criteria G: Context and Connectivity mapping), the project is predicted to impact on 2177 ha of vegetation with connectivity values. Connectivity corridors intersected by the project are discussed in the EIS and the AEIS.

Fauna

The EIS identified that during the post-wet-season field surveys in May/June 2013, 9 amphibians, 23 reptiles, 40 mammals and 180 bird species were identified from within the investigation corridor for the EIS rail alignment and the wider study area.

Six NC Act listed threatened fauna species were confirmed present through field surveys within the project footprint. The EIS and the AEIS identified that a further 10 fauna species are considered likely to occur. The direct impact on potential habitat for fauna species listed under the NC Act, quantified through potential habitat mapping, is presented in Table 5.3.

Table 5.3 Predicted impact area on threatened fauna habitat—final rail corridor and ancillary infrastructure

Threatened fauna species	EPBC Act status	NC Act status	Total predicted impact area (ha)
Confirmed present			
Black-necked stork *Ephippiorhynchus asiaticus*	–	NT	451.1
Cotton pygmy-goose *Nettapus coromandelianus*	–	NT	53.6
Freckled duck *Stictonetta naevosa*	–	NT	63.3
Little-pied bat *Chalinolobus picatus*	–	NT	2139.6
Ornamental snake *Denisonia maculata*	V	V	421.6
Squatter pigeon (southern) *Geophaps scripta scripta*	V	V	1361.8
Likely to occur			
Australian painted snipe *Rostratula australis*	V MM (China–Australia Migratory Bird Agreement (CAMBA))	SLC	45.6
Black-chinned honeyeater *Melithreptus gularis*	-	NT	1828.2
Black-throated finch (southern) *Poephila cincta cincta*	E	E	1836.2
Brigalow scaly-foot *Paradelma orientalis*	–	V	1704
Common death adder *Acanthophis antarcticus*	–	NT	2139.6
Eastern curlew *Numenius madagascariensis*	MM (Bonn Convention, Japan–Australia Migratory Bird Agreement (JAMBA), CAMBA, Republic of Korea–Australia Migratory Bird Agreement (ROKAMBA))	NT	45.6
Estuarine crocodile *Crocodylus porosus*	MM (Bonn Convention)	V	173.6
Koala *Phascolarctos cinereus*	V	SLC	2047.6
Little tern *Sternula albifrons*	MM (Bonn Convention, JAMBA, CAMBA, ROKAMBA)	E	45.6
Square-tailed kite *Lophoictinia isura*	–	NT	1955.6

E = Endangered, V = Vulnerable, NT = Near Threatened, MM = Marine, migratory, SLC = Special least concern

Aquatic ecology

Desktop searches identified 65 aquatic flora species occurring within the investigation corridor for the EIS rail alignment. Twelve were identified in desktop searches for the project realignment.

Twenty-one aquatic flora species were identified in the post-wet and dry field surveys for the EIS corridor. The EIS and the AEIS found that all of the species identified are considered likely to occur within the project realignment footprint.

The main impacts on aquatic ecology will occur where the rail line crosses watercourses. This includes the permanent loss of approximately 435 ha of watercourse vegetation in the Brigalow Belt bioregion. Additionally, 278 ha of vegetation classified as 'wetland RE' under the VM Act will be impacted. Predicted impacts on watercourse vegetation by stream order and wetland type are detailed in the AEIS.

One wetland considered to be of high ecological significance in a Great Barrier Reef catchment, referred to as a wetland protection area (WPA), is located approximately 90 metres (m) from the project near the Suttor River crossing. While the project does not directly impact this WPA, it traverses a 500 m trigger area surrounding the WPA.

Fifty-three aquatic fauna species were observed during field surveys, or were identified through desktop searches as being recorded in the project's vicinity. Threatened aquatic fauna species in this list of observed species include:

- 2 fish species listed as vulnerable under the EPBC Act, the freshwater sawfish (*Pristis microdon*) and green sawfish (*Pristis zijsron*). The freshwater sawfish is also listed as a 'priority' conservation species in the Burdekin Natural Resource Management (NRM) Region's Back on Track Actions for Biodiversity document
- 11 other fish species and one turtle species listed as 'priority' conservation species in the Burdekin NRM Region Back on Track Actions for Biodiversity document
- 6 aquatic reptile species, including five species of turtle listed as 'least concern' under the NC Act and the estuarine crocodile (*Crocodylus porosus*), listed as migratory (Cwlth) under the EPBC Act.

No fish habitat areas (declared under the *Fisheries Act 1994*) occur within 10 km of the EIS investigation corridor.

Two species of aquatic macroinvertebrates (the freshwater crab (*Austrothelphusa transversa*) and the freshwater mussel (*Alathyria sp.*)) were observed within the EIS investigation corridor and wider study area. Additionally, the orange-fingered yabby (*Cherax depressus*), freshwater shrimp (*Caridina sp.*) and Australian river prawn (*Macrobrachium australiense*) have been previously observed within the Suttor and Bowen River catchments.

Potential impacts on aquatic ecology identified in the EIS include water ponding in areas of low topography, installation of drainage and crossing structures that create barriers to movement for aquatic species, altered hydrological flow patterns and a loss of aquatic habitats.

Impacts on water quality, relevant to aquatic ecology, are most likely to be associated with increases in turbidity, the mobilisation of sediment and the introduction of contaminants from machinery and waste material. The EIS noted localised evidence of riparian habitat degradation from cattle trampling that has resulted in erosion and sedimentation throughout the study area. Where there is a change in hydrological patterns, resulting scour or deposition of sediments may alter the existing habitat structure and remove microhabitat features.

Coastal ecology

Ecosystems including mangroves, saltwater couch grassland, samphire forbland and marine plants are present at and adjacent to Abbot Point. Clearing for the project is predicted to impact on 11.8 ha of a saltmarsh RE 11.1.2, a tidal fish habitat area.

Protected areas relevant to the project, present in the vicinity of Abbot Point, include:

- Caley Valley Wetland, a Great Barrier Reef wetland protection area and listed as a nationally important wetland in the *Directory of Important Wetlands in Australia*
- Great Barrier Reef World Heritage Area (GBRWHA), also a National Heritage place
- Great Barrier Reef Marine Park (Commonwealth) (GBRMP)
- Great Barrier Reef Coast Marine Park (State) (GBRCMP).

While not proposed to enter the main part of the Caley Valley Wetland, the project crosses Saltwater Creek, a tributary that flows into the wetland. There is the potential for the project to impact on water quality entering the wetland.

The project is located wholly outside of the GBRWHA, GBRMP and GBRCMP (hereafter referred to collectively as 'GBR'); however there is the potential for the project to impact on the quality of water entering the GBR.

Erosion at waterway crossings, unless managed, chemical control of weed species in the vicinity of waterways and potential coal dust deposition into waterways may impact on water quality in waterways flowing to the coast and entering the Caley Valley Wetland and the GBR. Changes to surface water hydrology, particularly through crossings of waterways and floodplains, may impact on the frequency and extent of inundation and connectivity of floodplain habitats downstream of the project alignment, including those on the coast and neighbouring the GBR.

Modelling undertaken by the proponent and presented within the MNES assessment in the EIS and AEIS predicts that the likelihood of indirect impacts on water quality and subsequently habitats and individual species within the GBR is remote, given the geographical separation between the marine environment and the majority of watercourses crossed by the project.

Weed and pest species

Thirty-five introduced flora species were recorded during the field surveys for the EIS alignment, 29 introduced flora species have been previously recorded within 1 km of the project realignment footprint. Eight species identified by surveys, or previously recorded, are listed as Class 2 declared pests under the LP Act. In addition, two

introduced aquatic plants were identified in the investigation corridor for the EIS alignment.

A wide range of pest fauna species is considered likely to occur in the vicinity of the project, as described in the EIS. Ten introduced fauna species were recorded during the surveys including eight mammals (wild dog, dingo, feral cat, European rabbit, feral pig, wild horse, chital deer and feral cattle), one amphibian (cane toad) and one bird (rock dove).

Aquatic pest species assessed as potentially occurring in the project area include mosquitofish (*Gambusia holbrooki*), three-spot gourami (*Trichogaster trichopterus*) and tilapia (*Oreochromis mossambicus*).

Impacts associated with construction practices such as vegetation clearing and soil disturbance may facilitate the introduction and spread of weed species. Vegetation clearing through areas of continuous habitats (i.e. at watercourses) and along linear corridors can create the potential for fauna pests to penetrate further into neighbouring areas. Pest fauna confirmed present within the study area may increase in abundance if food and water become more accessible as a result of human presence in accommodation camps.

5.1.4 Impact management

In developing this project, the proponent has sought to avoid and minimise impacts on biodiversity through the use of environmental design. Selection of the project alignment considered environmental constraints including:

- areas to avoid including national parks, major floodplains and steep topography
- referable wetlands, nature refuges and conservation areas
- endangered REs and TECs
- waterway crossings
- opportunities for use of existing disturbed areas.

The project realignment included in the AEIS reduced the need for greenfield development and the project now aligns with existing rail infrastructure for 57 km between the Byerwen Coal project and the Bowen River.

Locating the project within the Rail Corridor Precinct of the GBSDA serves to minimise the potential for biodiversity impacts by co-locating proposed rail infrastructure.

As the project is further developed throughout the detailed design phase, the proponent will define the layout of temporary and permanent structures and infrastructure to minimise clearing of remnant vegetation. During construction, clearing will be minimised by locating infrastructure within previously cleared areas and avoiding remnant vegetation, as detailed in the AEIS EMP Framework.

Measures to mitigate biodiversity impacts in terrestrial and aquatic habitat cover both the construction and operational phases of the project and include:

- undertaking clearing activities in a sequential manner to allow more mobile species dispersal opportunities
- supervision of clearing activities by a qualified fauna spotter-catcher

- selective removal of habitat features with special habitat value, including hollow bearing logs or trees, for re-use during rehabilitation or placement in nearby bushland
- undertaking a baseline weed and pest survey and weed mapping prior to construction
- implementing measures to manage waste, soil, vehicle movement and monitoring activities during construction and operational phases
- rehabilitating any areas cleared for construction works as soon as practicable
- undertaking fire risk assessment and risk control for hot work (including welding)
- positioning lighting during night works to minimise light spillage beyond the construction area, including the consideration of directional lighting and shields
- developing and implementing a Fauna Crossing Strategy to mitigate the impacts of the rail line on fauna movement through key ecological corridors
- undertaking construction works within watercourses during nil or low-flow conditions where possible to reduce disturbance to surface flows and aquatic habitats
- maintaining fish passage during construction using temporary barriers in waterways, and full reinstatement of fish passage following construction with waterway bed and banks returned to original profile and stability
- fencing the final rail corridor to exclude wildlife and livestock, incorporating wildlife friendly infrastructure where required within the design of bridges and culverts.

Measures to mitigate impacts on aquatic environments are also outlined in the AEIS EMP Framework and include designing diversions and watercourse crossings to provide connectivity between aquatic habitats and to facilitate aquatic fauna passage for the life of the project.

The design criteria adopted by the proponent for culverts and bridges, reinforced by my conditions, will minimise afflux increases and backwater effects on biodiversity. Flooding impacts of the project are discussed in section 5.2.1 of this report with regard to impacts on landholders.

5.1.5 Biodiversity offsets

For coordinated projects, the Coordinator-General has the powers necessary to decide state offsets as part of the broad conditioning powers under the SDPWO Act. While I will take advice from state agencies on offsets for the project and consider the Queensland environmental offsets framework and provisions of the *Environmental Offsets Act 2014*, I will determine and approve any state offsets for significant residual impacts that are considered necessary over and above Australian Government requirements. I will not require any additional offsets for impacts on matters of state environment significance if the Australian Government requires an offset for the same values.

The proponent has identified residual impact areas of state-significant value that will potentially require an offset. The proponent's offset assessment and proposals were included in an environmental Offset Strategy in the EIS documentation, including identification of suitable offset areas within the project region.

The strategy also includes MNES-related offsets likely to be required by the Commonwealth Minister for the Environment under the EPBC Act.

Residual impacts to both EPBC Act-listed species and communities and state environmental values that are not co-located with values protected under the EPBC Act are listed in Table 5.4. The availability of potential offset areas within priority areas identified by the Department of Environment and Heritage Protection's (DEHP) Galilee Basin Offsets Strategy (GBOS) are also included.

Table 5.4 Residual impact and potential offset areas

Environmental value	Status	Residual impact (ha)	Potential offset area available within GBOS (ha)
MNES impacts likely to require an offset under the Australian Government Environmental Offsets Policy			
Threatened Ecological Communities	**EPBC Act**		
Brigalow (*Acacia harpophylla*) dominant and co-dominant	Endangered	195.2	31 261
Natural grasslands of the Queensland central highlands and the northern Fitzroy Basin	Endangered	133.2	2 824
Semi-evergreen vine thickets of the Brigalow Belt (north and south) and Nandewar regions	Endangered	55.7	520
Fauna	**EPBC Act**		
Australian painted snipe	Endangered	45.6	226 581
Black-throated finch (southern)	Endangered	1836.2	545 477
Koala	Vulnerable	2047.6	558 705
Ornamental snake	Vulnerable	421.6	63 485
Squatter pigeon (southern)	Vulnerable	1361.8	444 548
Flora	**EPBC Act**		
Black ironbox *(Eucalyptus raveretiana)*	Vulnerable	175.4	40 591
King blue-grass *(Dichanthium queenslandicum)*	Endangered	263.3	16 282
Bluegrass *(Dichanthium setosum)*	Vulnerable	354.2	61 794
State environmental value not covered by EPBC Act offset requirements			
Fauna	**NC Act**		
Black-necked stork	Near threatened [#]	451.1	157 012
Cotton pygmy-goose	Near threatened [#]	53.6	599
Freckled duck	Near threatened [#]	63.3	599
Little pied bat	Near threatened [#]	2139.6	593 094
Little tern	Endangered	45.6	226 581

Environmental value	Status	Residual impact (ha)	Potential offset area available within GBOS (ha)
Black-chinned honeyeater	Near threatened [#]	1828.2	468 657
Square tailed kite	Near threatened [#]	1955.6	465 708
Estuarine crocodile	Vulnerable	173.6	40 374
Brigalow scaly-foot	Vulnerable	1704.0	460 417
Common death adder	Near threatened [#]	2139.6	591 963
Eastern curlew	Near threatened [#]	45.6	226 581
Flora	**NC Act**		
Bonamia dietrichiana	Near threatened [#]	757.9	119 292
REs*	**VM Act**		
RE 11.12.15	Of concern	1.4	121
RE 11.12.16	Of concern	1.4	0
RE 11.12.18	Of concern	0.3	36
RE 11.11.18	Endangered	2.0	0
RE 11.11.13	Of concern	4.6	4882
Watercourse vegetation			
Stream order 1	–	196.5	40 343
Stream order 2	–	82.6	14 688
Stream order 3	–	58.4	12 746
Stream order 4	–	38.4	8711
Stream order 5	–	40.9	6126
Stream order 6	–	18.2	2057
Wetlands (under VM Act)			
Wetland protection area	–	9.5	18 545
Wetland protection area (trigger area)	–	26.0	85 678
Wetland RE	–	278.0	61 378
Connectivity			
Connectivity	–	2159.0	19 737
Marine fish habitat			
Marine fish habitat	–	11.8	4.6

[#] Species listed as 'near threatened' under the NC Act were identified in the proponents AEIS revised offset strategy, but offsets are not required for 'near threatened' species under the Environmental Offsets Act 2014, enacted 1 July 2014.
* REs for which no co-location potential with EPBC Act-listed species or TECs is identified by proponent, but may co-locate with other State matters.

Where a state environmental value is not identified in the GBOS, offset potential has been identified within 10 km from the centreline of the project alignment, as presented in Table 5.5.

Table 5.5 Potential offset areas within 10 km of the project

State environmental value	Status (VM Act)	Residual impact (ha)	Potential offset area available within 10 km of project (ha)
RE 11.12.16	Of concern	1.4	0.0
RE 11.11.18	Endangered	2.0	92.2
Marine fish habitat	–	11.8	1129.7

For the residual impact on 1.4 ha of RE 11.12.16, for which potential offset areas have not been identified in the GBOS or within 10 km of the project, the proponent has calculated that a potential offset area of up to 38.7 ha is may be available in the bioregion. The proponent argues that it may be more appropriate to offset this RE through offset payments and/or indirect offsets. The proponent would prefer not to provide an offset which would be significantly spatially separated from other offset areas.

Potential offset areas have not yet been fully surveyed to determine the actual extent and condition of the environmental values on the ground.

5.1.6 Coordinator-General's conclusions

I am satisfied that the combination of route selection and implementation of the proposed mitigation measures can minimise risks to biodiversity values and that where significant residual impacts remain, the values can be offset.

Proponent commitment 4.12 states that pre-clearance flora and fauna surveys will be undertaken to confirm the presence or absence of threatened species considered likely to occur in the area—and the results may require a revision of the project's offset requirements.

The proponent has also committed to implement the mitigation and management measures outlined in the EIS and the AEIS EMP Framework. These commitments are listed in the Proponent Commitments Register in Appendix 2.

I have imposed a condition in Appendix 1 that requires the proponent to finalise an offsets strategy (based on the AEIS Offset Strategy) following the Commonwealth Minister for the Environment's decision on the project. The strategy must include any new information relevant to the state values offset determination obtained since the version prepared for the AEIS. I will review and approve a final offsets strategy that includes my state values offset determination.

To ensure the ongoing protection of biodiversity and long-term conservation outcomes, I have made recommendations in Appendix 1 regarding the monitoring, mitigation and reporting of impacts on biodiversity for all stages of the project. This includes a recommendation to undertake surveys of impact areas prior to construction and preparation of threatened species management plans.

I consider that the assessment and proposed mitigation and management measures contained within the EIS and AEIS adequately demonstrate that the potential impacts of the project on biodiversity values are acceptable.

5.2 Impacts on landholders

The project traverses 66 properties comprising 38 leasehold lots, 27 freehold lots and 1 lot deemed to be unallocated state land. Land in the vicinity of the project is predominantly used for cattle breeding and fattening and the project will cross seven stock routes. Further information on land use can be found in section 5.3.

The construction and operation of the project has the potential to:

- impact upon surface water quality and groundwater resources
- alter surface water hydrology and the flooding regime
- generate air, noise and vibration emissions that may impact at sensitive receptor locations
- impact upon property management and livestock.

The proponent has identified 27 sensitive receptors for the project. The EIS identified 23 sensitive receptors as being within 6 km of the original project alignment with a further 4 identified as a result of the project's realignment. The closest receptor is located 721 m from the rail alignment, with all other receptors located further than 1 km from the alignment. All sensitive receptors are residential homesteads, shown in Figure 5.1.

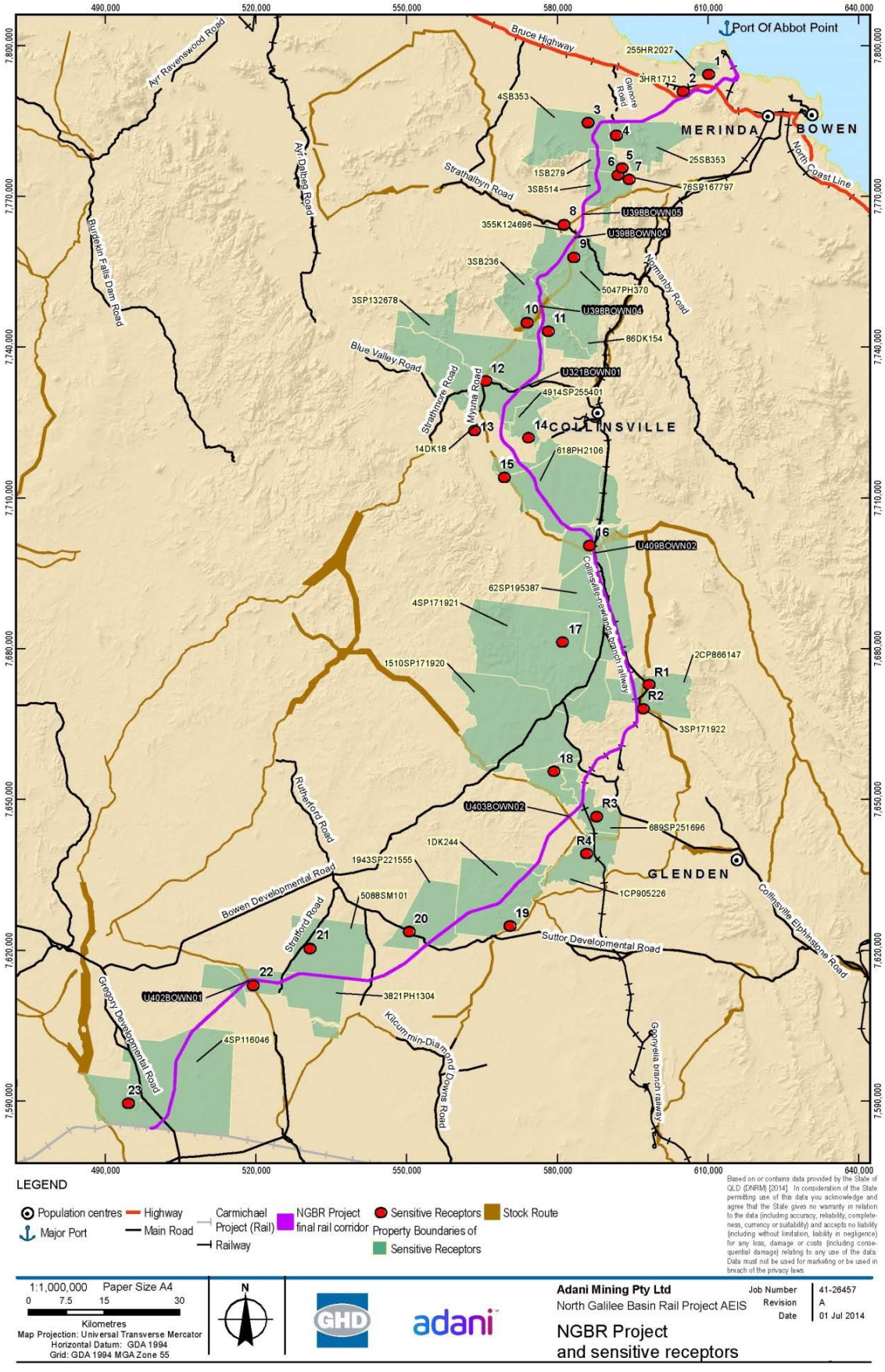

Figure 5.1 Sensitive receptors

5.2.1 Water resources and flooding

The project alignment traverses four major catchment areas, namely the:

- Suttor River catchment, within the Burdekin Basin
- Bowen River catchment, within the Burdekin Basin
- Lower Burdekin catchment, within the Burdekin Basin
- Don River Basin, including the minor coastal catchment areas of Splitters Creek, Saltwater Creek and Elliot River.

A 15 km section at the southern extent of the project transects the Belyando River catchment within the Burdekin Basin; however, no major watercourses are crossed by the project in this catchment.

The project crosses approximately 459 waterways, including numerous minor waterways and overland flow paths. The project will necessitate constructing or raising waterway barrier works, requiring a total of 24 bridge structures and multiple other drainage structures along the alignment.

The proponent assessed impacts on surface water hydrology and flooding, surface water quality, and groundwater resources in the EIS and included preliminary design for waterway crossings such as bridges and drainage culverts.

Impact assessment for surface water and groundwater resources was provided for the project realignment in the AEIS, with updated flood modelling completed separately and provided to impacted landholders and resource tenure holders.

Surface water hydrology and flooding

Impacts

Construction of the project's railway embankment without adequate drainage structures could lead to changes in flood levels (afflux) upstream and downstream of the railway, increased extent and depth of flooding and increased periods of inundation. To limit these impacts, the proponent has adopted design criteria for rail drainage infrastructure performance consistent with the criteria set by the Coordinator General for other Galilee rail proposals, as detailed in Table 5.6.

Modelled afflux and duration in the EIS met the nominated design criteria at all critical locations. Hydraulic modelling indicated that afflux levels adjacent to proposed cross drainage structures predominantly meet the one in 50 year rainfall event afflux design criteria of 0.5 m for non-critical infrastructure/housing and uninhabited areas, and afflux reduces to around 0.1 m within a distance of 100 m to 200 m from the final rail corridor. Therefore, the proponent concludes that the project poses minimal risk of impact to existing infrastructure beyond the impacts of existing flood patterns.

Table 5.6 Proponent's design criteria for rail drainage infrastructure

Infrastructure component	Design aspect	Design criteria
Afflux[1] design criteria	Critical infrastructure	0.2 m maximum
	Housing areas	0.1 m maximum
	Other areas	Limited to 0.3 m where practicable
	Non-critical infrastructure/ housing or uninhabited areas	0.5 m maximum
Flood immunity	Lowest edge of formation level	50-year ARI flood immunity plus 300 mm freeboard
	Top of rail	100-year ARI flood immunity
	Major road crossings	50-year ARI flood immunity or as specified by appropriate statutory body
	Minor road crossings	10-year ARI flood immunity or as specified by appropriate statutory body
Cross drainage structures	Major floodplain structure	Identified floodplains
	Major bridge structure	Design flow rate Q50 >250 m^3/s
	Major drainage structure	Design flow rate Q50 >50 m^3/s, <250 m^3/s
	Minor drainage structure	Design flow rate Q50 <50 m^3/s
Longitudinal drainage	ARI event	20-year ARI design flow for longitudinal drainage
		50-year ARI design flow for diversion drainage
	Maximum culvert outlet velocity	2.5 m/s for the design event with appropriate scour protection
	Scour protection	Rock protection as per Austroads waterway design (if required)
Inundation duration	Inundation during 50-year ARI event	Duration not to exceed an average of 72 hours or 20 per cent of existing (whichever is greater)

[1] Afflux is measured as the difference between the peak water levels for pre-development and post-development conditions for a 50 year Annual Recurrence Interval (ARI) rainfall event.

Impact management

The proponent considers that adherence to the adopted design criteria in the final engineering design of waterway bridging structures and culverts for the project will result in any predicted impacts being contained to acceptable levels for a 50-year ARI rainfall event. Drainage structures will be required for crossings of 126 defined watercourses and a further 302 stormwater flow paths. When constructed, the railway will include 2.97 km of bridges and approximately 8 km of culverts. To mitigate potential impacts on surface water hydrology and flooding during construction and operation of the project, the proponent has proposed management measures and made commitments in the EIS and the AEIS to:

- identify any additional minor waterways in consultation with Department of Natural Resources and Mines (DNRM) to inform the detailed design phase

- undertake hydrology and hydraulic modelling during detailed design to refine bridge design, culvert design and afflux values, and minimise hydraulic impacts within acceptable design criteria
- undertake detailed design of cross-drainage structures involving refinement of appropriate crossing types for waterways, including scour protection, taking into account design flow rates and existing geomorphic integrity
- consult with affected landholders regarding ongoing flood modelling and property-scale design mapping with compensation considered for any property impacts.

The proponent has proposed monitoring and corrective actions to protect surface water hydrology as detailed in the AEIS EMP Framework.

Coordinator-General's conclusion

Flood modelling is an iterative process that will continue throughout the detailed design phase of the project to refine predicted impacts and determine appropriate span lengths for waterway crossings. Proponent commitments 5.2 and 5.3 state that the proponent will undertake further refined flood modelling and analyse the potential impacts on floodplains, properties, assets and other infrastructure before construction commences.

In my evaluation reports for the Alpha Coal, Galilee Coal and CCMR projects, I conditioned specific limits for afflux, culvert exit velocities and extended inundation times. I require all Galilee rail proposals to adhere to consistent stringent drainage design criteria and I have imposed conditions at Appendix 1 setting the same limits for afflux, culvert exit velocities and inundation times as those for other Galilee rail proposals. To comply with this condition, the proponent must engage a suitably qualified person to document and certify that the design and construction of the project:

- meets nominated design criteria as presented in Table 5.6
- meets the design criteria stipulated in the condition
- is in accordance with design criteria in the Department of Transport and Main Road's (DTMR) Road Drainage Manual 2nd edition.

The proponent must then provide the certification of final project design and revised flood modelling to the Coordinator-General for approval.

In regards to landholder consultation, the condition I have imposed in Appendix 1 requires the proponent to consult further with land and asset owners, including government agencies, regarding the potential impacts of the railway and mitigation measures to address flooding impacts. This consultation will occur after detailed rail design work has been undertaken, when the flood modelling will be reviewed and updated. At the completion of the final project design and revised flood modelling, the proponent must provide the Coordinator-General with a report on consultation with relevant landowners likely to be impacted by changes to the existing flooding/drainage system.

Surface water quality

Impacts

The proponent predicted the following potential impacts on surface water resources during the construction and operational phases:

- degradation of water quality as a result of vegetation clearing, earthworks, disturbance of acid sulfate soils, storage of fuels and chemicals, and machinery operation
- altered overland drainage patterns, scouring and changes in geomorphology
- reduced base flows in waterways where water is extracted for use during project construction
- altered hydrological flows due to temporary structures in watercourses during construction and permanent water crossing structures
- increased risk of weed invasion in any flooded areas not previously flooded.

Impact management

To avoid and minimise potential impacts on surface water resources, the proponent proposes to:

- minimise works required within and around waterways
- construct waterway crossings during dry or low flow periods where practicable
- minimise vegetation clearing corridor width within areas of high ecological value, including riparian corridors.

To mitigate residual potential surface water quality impacts during construction and operation of the project, the proponent has proposed management measures and made commitments in the EIS and the AEIS to:

- develop and implement erosion and sediment control and water quality management plans, with measures including:
  - management of surface water runoff attributable to the operation of the project through a longitudinal drainage system and connecting cross-drainage infrastructure, which will be maintained and kept clear of debris
  - procedures for the management of stormwater collection on site including appropriate capture, treatment and disposal measures
  - capture of construction camp stormwater on site and re-use for irrigation, dust suppression or stored within sediment basins before being appropriately treated and discharged
  - use of existing disturbed areas to access waterways
  - storing fuels, chemicals, wastes and other potentially environmentally hazardous substances in contained areas away from watercourses.
- design any permanent structures that are defined as waterway barriers in accordance with the *Fisheries Act 1994* and *Sustainable Planning Act 2009*.

The proponent has proposed monitoring and corrective actions to protect surface water quality as detailed in the AEIS EMP Framework.

Coordinator-General's conclusion

I am satisfied that by implementing the project's EMP Framework, commitments in the register and compliance with the water quality conditions in Appendix 1, the water quality impacts of the project can be managed within acceptable limits.

Groundwater

Impacts

Potential impacts on groundwater resources include earthworks activities during construction, resulting in dewatering. However, groundwater levels are expected to normalise relatively quickly after construction ends and adverse impacts are likely to be negligible.

Groundwater extraction for water supply during construction may impact on groundwater elevations at construction water supply bores, as presented in a construction water supply strategy in the EIS.

Impact management

Excavations, cuttings and supporting structures for project construction will be designed to avoid and minimise potential dewatering of groundwater resources.

Management measures and commitments proposed to mitigate residual impacts on groundwater resources include:

- locating any groundwater bores for construction water supply in consideration of the expected cone of influence for groundwater drawdown
- implementing dewatering procedures to manage construction groundwater inflow on site including appropriate capture, treatment and disposal measures.

The proponent has proposed monitoring and corrective actions to protect groundwater resources as detailed in the AEIS EMP Framework.

Coordinator-General's conclusion

I accept the proponent's conclusions in the EIS that any impacts on groundwater resources during construction due to earthworks would be minor and temporary, and that potential impacts would be minimised by implementing the management measures in the project's EMP Framework. I note the proponent has identified future approvals under the *Water Act 2000* that could be required to secure the water supply required for construction of the project.

5.2.2 Air quality

Impacts

During construction, air quality may be impacted as a result of the mechanical disturbance of dust by vehicles and activities including vegetation clearing, earthworks, haulage, blasting and erosion of exposed soil surfaces under high wind speeds. Exhaust emissions from vehicles and plant equipment, odour emissions and gaseous chemical release from sewage treatment plants, the concrete batching plant and fuel storage could also contribute to air quality impacts.

Operational air quality impacts would result from the movement of loaded coal trains which, at maximum capacity (100 mtpa), will comprise 28 train movements per 24-hour period—14 loaded trains, 14 unloaded trains. Air emissions are expected to comprise exhaust emissions from diesel powered locomotive engines, fugitive coal dust emissions from coal wagons and wind erosion of spilled coal in the corridor.

The proponent has predicted levels of background air quality via a literature review of published ambient pollution information. The desktop analysis presented in the EIS showed that:

- the coastal region traversed by the project has a low background dust concentration and higher gaseous emissions than inland regions due to industrial and motor vehicle sources associated with regional population centres
- background dust concentration in the drier, inland regions is higher than in the coastal region, whereas gaseous emissions are lower.

The project is not predicted to have any significant impacts on sensitive receptors due to the distance between the receptors and the rail alignment. The EIS modelled dust dispersion from construction and operational activities and found that all forms of dust (PM_{10}, $PM_{2.5}$, total suspended particles (TSP) and deposited dust) and gas emissions generated by the construction and operation of the project were found to meet the criteria in the Environmental Protection (Air) Policy 2008 (EPP (Air)) within 500 m of the centreline of the final rail corridor during construction and within 315 m of the centreline of the final rail corridor during operation. These findings have been accepted by DEHP.

Impacts on sensitive receptors potentially impacted by combined emissions from the project and the existing Newlands rail line were assessed in the AEIS Project Realignment Report and were predicted to meet all relevant criteria within 500 m of the centreline of the final rail corridor. Further scenario modelling by the proponent, incorporating the capacity of the proposed rail component of the Alpha Coal Project, confirms that the combined air quality assessment of the three rail lines' PM_{10}, $PM_{2.5}$, TSP, deposited dust and gaseous emissions would comply with the relevant air quality objectives at all identified sensitive receptors.

I am satisfied with the proponent's prediction that the EPP (Air) air quality criteria would be met at all sensitive receptor locations, including the closest receptor to the final rail corridor.

Impact management

To ensure air quality criteria are met, the AEIS EMP Framework identified that the proponent will develop a dust management plan for the construction phase of the project and a coal dust management plan (CDMP) consistent with the aims, objectives and mitigation measures proposed in the QR Network *Coal Dust Management Plan* for the operational phase of the project. Key actions in the construction dust management plan, as detailed in the AEIS EMP Framework will include:

- watering of construction site and access roads
- avoiding movement or handling, and/or increase wetting, of soil material on days of very high winds in close proximity to downwind sensitive receptors

- covering, stabilising and/or moistening soil stockpiled for more than two weeks as required to prevent generation of dust particulates.

Mitigation measures for coal dust emissions during operation included in the QR Network *Coal Dust Management Plan* include veneering, wagon loading systems that profile coal piles to avoid wind erosion and monitoring of coal dust emissions to air. As a result of the assessment predicting no impacts on sensitive receptors, the proponent does not envisage that monitoring of coal dust at sensitive receptors will be required. However, the CDMP will include a provision to implement coal dust monitoring in the event of a complaint.

Proponent commitment 6.3 states that the proponent will consult with DEHP and DTMR during preparation of the Dust Management Plan and CDMP. The AEIS EMP Framework identified that the proponent will undertake visual inspection for excessive dust emissions and excessive emissions from combustion engines with a view to preventing these emissions where required.

Coordinator-General's conclusion

The proponent does not anticipate any air quality impacts on sensitive receptors, even those in proximity to the section of the alignment that is likely to accommodate multiple rail lines. I note that, in the event of any exceedances of air quality criteria, the proponent has identified control measures to mitigate impacts on sensitive receptors in the AEIS EMP Framework.

I have stated a condition in Appendix 1 which specifies air quality criteria that must not be exceeded at sensitive receptor locations, and standards that must be met in accordance with the EPP (Air).

I am satisfied that, through the implementation of the project's EMP Framework and compliance with the stated air quality condition, air quality impacts of the project on sensitive receptors can be managed within acceptable limits.

To ensure that the proponent minimises the release of coal dust emissions and deposition on rail infrastructure and properties, I have included a recommendation in Appendix 1 requiring the proponent to develop and implement a CDMP that will have environmental and rail maintenance benefits and produce outcomes similar to those in the QR Network *Coal Dust Management Plan*. The condition includes the adoption of veneering or an equivalent mechanism to minimise coal dust emissions from wagons.

5.2.3 Noise and vibration

Impacts

The construction and operation of the project will generate noise and vibration emissions. The proponent has assessed the potential impacts of these emissions at 27 sensitive receptor locations, identified in Figure 5.1.

Noise is expected to be generated during cut and fill earthworks, drainage construction, capping layer application, bridge construction, haul road and access road maintenance, track laying and by vehicle traffic at the primary intersections in the construction phase. Key sources of vibration during construction are blasting and vibratory piling.

Operational noise would result from the movement of loaded coal trains comprising 28 train movements per 24-hour period—14 loaded trains, 14 unloaded trains. Background noise within the vicinity of the project is typically rural in nature due to the project's remote location and distance away from any built-up areas. Background noise monitoring values can be found in the EIS, which reported that there was no perceivable ground vibration identified in all locations.

In the absence of any applicable state noise standards for railway lines, the TOR required the proponent to evaluate predicted noise and vibration impacts in consideration of the NSW Environmental Protection Agency's 2013 *Rail Infrastructure Noise Guideline* (RING). These standards provide day and night trigger levels for heavy rail noise for residential properties. The proponent also adopted the NSW Environmental Protection Agency's 2009 *Interim Construction Noise Guidelines* (ICNG), which specify noise management levels for construction noise at residential receptor locations. I consider this approach to be adequate to assess the noise impacts of the project on sensitive receptors during the construction and operation of the railway.

Through the adoption of the RING and ICNG standards, the project is expected during construction to exceed the ICNG noise management level of 40 dB $L_{Aeq(15min)}$ for work within standard working hours at seven homesteads (2, 3, 9, 11, 16, 22 and R2) during the day and four homesteads (1, 4, 8 and 10) at night. Noise due to operation of the project was predicted to exceed the RING night criteria of 55 dB $L_{Aeq,9h}$ at homesteads 2, 16, 22 and R2.

Vibration from most construction activities, apart from blasting and piling, is predicted to be imperceptible 300 m from the railway corridor, and thus will be imperceptible for all sensitive receptors. Modelling has indicated that piling is unlikely to impact the amenity of residences as the disturbance will be periodic and temporary in nature. While airblast overpressure levels have the potential to exceed the blasting criteria at homesteads 2, 11, 16, 22 and R2 due to the proximity of these receptors to the rail corridor (less than 1.6 km), this would occur only if blasting in cut-and-fill areas is required in the vicinity of these homesteads.

Scenario modelling by the proponent, completed following the AEIS, incorporated the capacity of the proposed rail component of the Alpha Coal Project and existing rail infrastructure with modelling for the project realignment. Results of this additional modelling indicated that no additional sensitive receptors would be impacted under this scenario and that predicted noise levels at affected sensitive receptors—Homesteads 16 and R2—would increase by approximately 1 dB.

Impact management

The AEIS EMP Framework identified the following management objectives and performance criteria:

- no adverse noise impacts on sensitive receptors attributable to the construction and operation of the project. Key performance criteria include:
  - no complaints received relating to excessive noise and vibration attributable to the project

- any valid noise and vibration complaint is addressed
- impacts from noise are managed to meet the rail noise criteria adopted from Queensland Rail's Code of Practice for Railway Noise Management (2007):
  - 65 dB(A)—assessed as the 24-hour average equivalent continuous A-weighted sound pressure level (L_{Aeq})
  - 87 dB(A)—assessed as a single event maximum sound pressure level (L_{Amax})
- impacts from airblast overpressure are managed to meet acoustic quality objectives and avoid disturbance to homesteads.

The AEIS EMP Framework identified the control measures that will be implemented to manage noise and vibration levels in order to meet performance criteria. Key measures proposed to be implemented during construction and operation include:

- locating noise-generating ancillary infrastructure as far from sensitive receptors as practicable
- confining blasting, pile driving and loading/unloading activities to general building work hours as defined in the EP Act
- providing advanced warning of night-time activities where required
- modifying blasting design to avoid impacts
- fitting equipment with noise suppression equipment
- minimising horns and warning devices on trains within health and safety constraints
- maintaining equipment to manufacture specifications
- minimising noise at the rolling stock maintenance yard, including training and induction for work practices to minimise noise and vibration.

The proponent has committed to monitor operational noise and employ additional mitigation measures at sensitive receptor locations where any impacts are identified to ensure noise criteria are met. Should they be required, additional mitigation and management measures considered by the proponent may include:

- constructing screening, barriers or bunds
- installing noise-mitigating building works at sensitive receptors, such as double glazing
- providing alternative accommodation
- rescheduling night-time work.

Coordinator-General's conclusion

Modelling indicated that noise impacts may occur at 11 of the 27 sensitive receptors. However, I note that the proponent has proposed monitoring and mitigation measures to reduce the impact where required.

I have included a condition in Appendix 1 which requires that the project must not cause noise nuisance at any nuisance-sensitive place. To protect landholders from vibration, another condition provides that vibration and airblast overpressure limit criteria must not be exceeded at sensitive receptor locations. I am satisfied that, by implementing the project's EMP Framework and complying with the recommended

noise and vibration conditions, the noise and vibration impacts of the project on sensitive receptors can be managed within acceptable limits.

5.2.4 Property, livestock and lifestyle impacts

Impacts, mitigation and management

The proponent's consultation with landholders for the EIS identified concerns about the impacts that the project could have on properties, economic viability of the land, livestock and lifestyle. Each of these matters is discussed in the following sub-sections.

Property severance and impacts on occupational crossings

The proponent has attempted to minimise the project's potential property impacts by selecting an alignment that would avoid homesteads and infrastructure, and the creation of non-productive parcels of land, as far as possible. However, landowners expressed concerns during the EIS consultation process about the potential for land fragmentation to affect stock movements and limit access to portions of their property.

The project intersects 77 private access tracks and farm trails. The proposed treatments for these crossings are 40 at-grade crossings and 37 grade-separated crossings (underpasses), with final treatments to be determined in consultation with landholders during the detailed design phase. Treatments may include installation of gates, fenced yards and corridor fencing to prevent stock interacting with trains. The proponent has committed to grade-separate these crossings where feasible.

The proponent has committed to consult further with landholders as part of detailed design and land acquisition processes to minimise land fragmentation impacts through a range of measures, including implementing appropriate access arrangements and determining optimal locations for stock and landholder crossings of the railway line.

Weed management

The potential for weeds to spread as a result of the movement of people, vehicles and machinery during the construction and operation of the project is of concern to landholders. To address these concerns, the proponent has committed to:

- develop a Construction Weed and Pest Management Plan, which will include measures for monitoring, management and where necessary, eradication of weeds, disposal of green waste and vehicle/plant weed wash down procedures during construction
- undertake weed mapping prior to commencement of construction which will cover the final rail corridor and ancillary infrastructure areas but will be particularly focused on high risk locations
- develop an Operation Weed and Pest Management Plan to manage pest and weed species during the project's operation.

These commitments can be found in Appendix 2.

Economic viability of land

Consultation during the EIS process identified that landholders are concerned about potential impacts associated with:

- loss of access to parts of their properties
- decreases in property values
- the viability of their agricultural businesses
- increased inconvenience, namely additional time and expense associated with the project through the requirement for additional staff, fencing or property damage repairs as a result of proponent activities.

The proponent has committed to undertake consultation with affected landholders regarding property impacts, valuation and compensation arrangements to address these potential impacts.

The proponent has advised that property valuation and compensation negotiations are underway with all landholders impacted by the project.

Impacts on livestock

Landholders raised concerns about impacts on livestock from noise, dust and crossing of the rail line. The EIS acknowledged the potential for cattle and other animals to be disturbed during project construction and operation, in particular from noise and dust emissions and coal dust deposition. However, the EIS concluded that these matters are unlikely to have a major impact on livestock on surrounding properties.

Noise from loud activities such as blasting is expected to be slight to mild, based on a literature review within Heggies 2009, *Caval Ridge Coal Mine Project Environmental Impact Assessment* prepared for BHP Billiton Mitsubishi Alliance which identified the impacts of blasting noise on livestock for the proposed Caval Ridge Coal Mine project.

The predicted level of coal dust deposition is expected to be approximately 90 mg/m^2/day at the centreline and less, moving away from the centreline (e.g. 30 mg/m^2/day, 10 m from the centreline)—well within the acceptable dust deposition rate of 500 mg/m^2/day determined within the Connell Hatch 2008, *Final Report: Environmental Evaluation of Fugitive Coal Dust Emissions from Coal Trains on the Goonyella, Blackwater and Moura Coal Rail Systems*, prepared for Queensland Rail Limited. Dust deposition from other sources is expected to be localised and impacts of dust and coal dust will be managed through the proponent's commitments to implement a Dust Management Plan and Coal Dust Management Plan.

Consultation and negotiation, as per proponent commitment 12.14, will aim to address landholder concerns about crossings of the rail line at private access tracks and farm trails, particularly the impact on cattle of increased wait times at at-grade stock crossings and the design of grade-separated crossings.

Impacts on lifestyle and amenity

Proponent consultation for the EIS identified landholder concerns that the project may reduce visual amenity, disrupt rural agricultural lifestyle, cause a potential loss of

privacy and lead to a sense of insecurity and increased stress due to ongoing land access and land acquisition processes.

The proponent identified that three homesteads will have moderate visual impacts due to proximity to the rail corridor. In the AEIS EMP Framework the proponent proposes to protect visual amenity by repositioning or redesigning lighting, if it is found to spill off site excessively, and provide vegetation screening where required.

The AEIS EMP Framework states that the proponent will continue to implement, manage and monitor the existing Land Access Protocol in consultation with landholders and engage in fair and reasonable land acquisition negotiation processes.

Bushfire risks

Concerns about the potential for increased bushfire risk and property management requirements due to project activities are addressed in section 6.1.3 of this report.

Stock routes

The project intersects seven gazetted stock routes. The proponent has proposed to:

- construct at-grade crossings for each of the intersections to facilitate the continued use of the stock route network by landholders in the movement of stock
- build gated holding yards on either side of at-grade stock crossings
- provide a telephone connection where users can inform the train control centre of planned movement of stock and ensure safe passage across the corridor between trains.

I note that DNRM has expressed a preference for grade-separated crossings where the project traverses stock routes to ensure the safety of stock, drovers and the travelling public and longevity of connectivity of the stock route network. Proponent commitment 2.1 states that the proponent will consult with key stakeholders in the development of stock route agreements, including the design of stock route crossings.

Coordinator-General's conclusion

I am satisfied with the commitments the proponent has made to minimise the impacts of the project on landholders as they relate to property severance, weed management, economic viability of the land, impacts on livestock, lifestyle and amenity and stock routes.

I acknowledge that it is the nature of linear infrastructure to fragment properties and note the proponent's intention to minimise the extent of intrusion of the final rail corridor onto the properties. While some property severance is unavoidable, I am satisfied that the impacts on landowners will be suitably addressed through the proponent's commitments to implement appropriate access arrangements and determine optimal locations for stock and landholder crossings. I expect that any property severance impacts not resolved by the proponent commitments in Appendix 2 will be suitably addressed through interface agreements with respective landholders.

I am satisfied that:

- the weed and pest management plans the proponent has committed to developing and implementing will adequately minimise the potential spread of weeds and pests resulting from project activities
- noise and dust from the project will not significantly impact livestock and other landholder concerns relating to project impacts on livestock will be addressed through consultation and negotiation on the design of stock crossings
- any potential economic loss as a result of any acquisition of land would be dealt with in land acquisition negotiations between the landholder and the proponent or government in the case of compulsory acquisition.

I note that the project may impact on the lifestyle and amenity of landholders and expect that any issues not resolved by the proponent commitments in Appendix 2 will be suitably addressed through interface agreements with respective landholders.

To ensure consistent engagement with landholders in relation to these issues, I have recommended a condition that requires land access negotiations to be conducted in accordance with the Queensland Government Land Access Code. The code sets out best practice landholder engagement strategies for resource sector proponents relating to:

- proponent workforce induction training
- preferential use of existing access points, roads and tracks
- minimising disturbance to livestock and property
- preventing the spread of declared pests
- location of camps in appropriate places
- removal of waste to authorised facilities
- restrictions on items being brought onto the property, such as firearms, domestic animals and alcohol
- closing gates and repairing any damage to grids and fences.

I acknowledge the importance of the stock route network to the grazing industry and have made a recommendation in Appendix 1 requiring the proponent to prepare and document management measures to ensure stock route crossings are designed and maintained in accordance with the proponent's proposed stock route agreement with DNRM, Isaac Regional Council (IRC), Whitsunday Regional Council (WRC) and landholders. I note the proponent's commitments to discuss realignment of stock routes (where required) with DNRM, local authorities and landholders and to develop stock route agreements with these stakeholders specifying the treatment, design and ongoing maintenance arrangements for each stock route.

As a result of the declaration of the GBSDA, the Coordinator-General will have an oversight role over negotiations between landholders and the proponent through regulatory approval of activities and the land acquisition process. While I expect most issues that impact landholders to be dealt with via agreements between the parties, outstanding issues between the proponent and landholders will be resolved by the Coordinator-General.

5.3 Land disturbance and rehabilitation

Topography along the project alignment progresses from the coastal floodplain in the vicinity of Abbot Point, through areas of high relief associated with the Clarke and Leichhardt Ranges, through the Bowen River Valley, to the Suttor River floodplain.

5.3.1 Soils and land suitability

Impacts

A preliminary desktop soil assessment was provided for the project in the EIS and the AEIS. A large range of soil types are intersected along the project alignment, with some that may present engineering challenges, including:

- sodic soils which swell excessively when wet, causing structural collapse
- areas of Gilgai microrelief associated with expansive (cracking) clay soils
- acid sulfate soils where the rail line traverses low lying areas on coastal floodplains, namely:
  - 9.3 km of the project associated with multiple minor ephemeral creeks near Abbot Point, including Saltwater Creek
  - 3.6 km of the project associated with Splitters Creek.

Other potential project impacts on soil resources include:

- increased risk of erosion and soil loss due to vegetation clearing exposing soils
- alteration of topography and landform, and change in overland surface water flow
- reduced viability of soils to support native plants and pasture
- degradation of soil structure
- localised contamination of soil.

Some landholders directly impacted by the project have an accredited Environmental Risk Management Plan (ERMP) for Great Barrier Reef protection, as required under section 88 of the *Environmental Protection Act 1994*. Without mitigation, the project has the potential to impact landholders' ability to meet the obligations of their respective ERMPs.

Impact management

The proponent will conduct detailed soil and geotechnical investigations prior to construction, in accordance with the soil survey methodology presented in the EIS. These investigations will trigger management strategies proposed in the EIS and AEIS for different land systems impacted by the project, including those with high erosion potential, and the likely deposition areas requiring erosion and sediment control measures.

Management measures to mitigate potential impacts on soils and land suitability, which are outlined in the proponent's AEIS EMP Framework, include:

- restricting vegetation clearing to the minimum area necessary for construction
- avoiding construction on steep slopes and significant landform change when refining the final rail alignment during the detailed design phase

- installing drainage, sediment control measures and sediment basins
- maximising sediment retention on site by controlling surface water and minimising sediment-laden water leaving construction sites
- stabilising disturbed areas promptly
- developing contingency plans for rainfall events or unforseen situations that may increase erosion
- sowing of appropriate vegetation during site stabilisation and rehabilitation (e.g. salt tolerant, deep-rooted vegetation)
- adding enhancement substances to disturbed soil, potentially including:
  - mulch to increase organic matter and improve soil structure
  - gypsum to reduce dispersive and erosive potential
- consulting with landholders regarding impacts on their obligations under an ERMP, and developing further mitigation measures relating to these obligations in cooperation with the landholders.

Pre-construction investigations for acid sulfate soils, consistent with relevant policies and guidelines as detailed in the AEIS will trigger appropriate management techniques, which may include:

- chemical neutralisation through the use of agricultural lime and mechanical mixing
- anoxic storage or placement below the water table and beneath clean non-acid sulfate soil fill (less preferred)
- disposal of neutralised material upon acceptance of relevant permits to licensed waste disposal facilities.

The AEIS identified that, once validated through detailed pre-construction investigations, management measures will be compiled into an Erosion and Sediment Control Plan (ESCP), a Soils Management Plan and an Acid Sulfate Soils Management Plan.

Coordinator-General's conclusions

Soil characteristics will be validated through detailed field surveys. I am satisfied that the proposed soil survey methodology, to be undertaken prior to construction, will be adequate to identify environmental hazards and minimise construction impacts through triggering a suite of impact mitigation measures. I have made a recommendation in Appendix 1 requiring the proponent to develop and document management measures and procedures that minimise adverse impacts on soil structure and quality.

Results of the soil surveys will need to be reflected in updated management practices in the project EMP, ESCP, Soils Management Plan and Acid Sulfate Soils Management Plan. I have recommended a condition requiring the development and implementation of erosion and sediment control measures for the project in Appendix 1 to minimise erosion and sediment release to receiving waters.

5.3.2 Good quality agricultural land

Impacts

Good quality agricultural land (GQAL) includes any set of agricultural land classes that are determined by a local government to have agricultural characteristics important to the local economy. The project is predicted to directly impact 1174 ha of GQAL in the WRC and IRC areas, as detailed in Table 5.7.

Table 5.7 GQAL impact areas

Local council	Project component	GQAL class	Impact area (ha)
WRC	Rail corridor	A	285
		B	503
	Ancillary infrastructure	A	96
		B	76
IRC	Rail corridor	A	-
		B	62
		C1	129
	Ancillary infrastructure	A	-
		B	5
		C1	18
	TOTAL		1174

Other potential impacts on agricultural land associated with the project include :

- reduced agricultural productivity
- reduced viability of soils to support native plants and pasture.

Impacts on landholders' operation of agricultural properties are discussed in section 0 of this report.

The proponent predicted impacts on Strategic Cropping Land in the EIS and the AEIS. However, the *Strategic Cropping Land Act 2011* was repealed by the commencement of the *Regional Planning Interests Act 2014* (RPI Act) on 13 June 2014. As the project does not constitute a regulated activity under the current Regional Planning Interests Regulation 2014, the provisions of the RPI Act are not relevant to the project.

Impact management

The EIS identified that potential impacts on GQAL have been avoided and minimised through route selection for the project, which considered GQAL constraints.

Proponent commitments 12.14 and 14.1 state that the proponent will undertake further consultation with landholders as part of detailed design to:

- minimise land fragmentation impacts
- progress valuation and compensation arrangements.

Measures discussed regarding impacts on soils and land suitability in section 5.3.1 are also of relevance to impacts on GQAL.

Coordinator-General's conclusions

I am satisfied that the impacts on GQAL will be suitably addressed by the commitments proposed by the proponent and through agreements to be developed with respective landholders.

I expect that any economic loss as a result of any acquisition of agricultural land would be dealt with in land acquisition negotiations between the landholder and the proponent (or government in the case of compulsory acquisition).

5.3.3 Resource tenures

Impacts

As described in the EIS and updated in the AEIS, the project traverses:

- 14 exploration permits for coal
- 14 exploration permits for minerals
- 6 mining leases
- 2 exploration permits for petroleum
- 3 petroleum pipeline licences.

Impact management

The project alignment was developed by the proponent using a multi-criteria analysis, including a requirement for the project to avoid or minimise impacts on current or proposed mining leases where possible.

The potential impact of the project on additional future mining lease areas was identified during the EIS. Consultation with affected resource companies regarding mining and resource tenement interests contributed to realignment of a portion of the project to minimise any potential sterilisation of coal resources and limit encroachment on existing mining tenements.

Proponent commitment 14.2 states that the proponent will continue to consult with affected resource tenement holders and DNRM through the detailed design, construction and operations phases of the project to address any consent required for access to, or for other activities on, affected resource tenements. In addition, proponent commitment 2.7 states that the proponent will undertake any construction on granted mining tenure in accordance with provisions of *the Mineral Resources Act 1989*.

Coordinator-General's conclusion

I am satisfied that the project has minimised impacts on resource interests and responded to the key concerns of affected resource tenement holders. I acknowledge the proponent's consultation with affected tenement holders to date, and its commitment to ongoing consultation.

I consider impacts on resource tenements and the proponent's ongoing consultation strategy to be acceptable.

5.3.4 Rehabilitation

Impacts

Predicted project impacts including vegetation clearing and impacts on soil resources (as discussed in sections 5.1.3 and 5.3.1 of this report) will necessitate rehabilitation of disturbed land areas.

Impact management

The proponent will develop a decommissioning and rehabilitation management plan to manage progressive and final rehabilitation of areas temporarily impacted by construction activities, as discussed in the AEIS.

Rehabilitation objectives outlined in the EIS and the AEIS EMP Framework include:

- minimising the amount of land disturbed at any one time during project construction
- rehabilitating temporarily disturbed areas as soon as practicable after cleared areas are no longer required for construction activities (noting that some haul roads and access roads will be repurposed as permanent maintenance roads, and turkey nest dams may also be retained, subject to consultation with landholders)
- rehabilitating temporarily disturbed areas to a state generally consistent with the surrounding natural environment
- auditing rehabilitated areas against rehabilitation success criteria, as provided in the AEIS EMP Framework.

The decommissioning and rehabilitation management plan for temporarily disturbed areas will include landform design and completion criteria. Specific rehabilitation measures proposed by the proponent include:

- re-use, recycling or disposal option for removed facilities, structures and materials
- removal of potentially hazardous stored substances
- remediation of any contaminated areas
- regrading of landscape to a state consistent with the natural environment
- ripping of compacted areas of soil
- topsoil application and revegetation with native species
- application of materials with special habitat value (e.g. hollow bearing logs or trees)
- creation of supplementary habitats, such as nesting boxing, where necessary
- weed control during re-establishment of vegetation
- monitoring, auditing and certification to confirm that completion criteria are met.

Further decommissioning activities will occur at the end of 90 years of project operations. The proponent will plan and refine rehabilitation throughout the operational phase and incorporate measures into the decommissioning and rehabilitation plan.

Coordinator-General's conclusion

I am satisfied the decommissioning and rehabilitation management plan proposed by the proponent will return areas temporarily disturbed by project construction to conditions suitable to support the existing land use.

I have recommended a condition at Appendix 1 to enforce the proponent's proposed rehabilitation measures, which identifies:

- reinstatement requirements for temporarily disturbed areas
- acceptance criteria to be satisfied following decommissioning of the project, including:
  - remediation and rehabilitation of contaminated land
  - revegetation requirements in association with surrounding land use
- monitoring requirements for performance indicators of rehabilitation activities.

This condition will ensure appropriate rehabilitation standards are in place following any decommissioning of the project.

I consider the proponent's management measures and my rehabilitation conditions will ensure appropriate rehabilitation of land areas disturbed during construction of the project and at the end of the project life.

5.4 Transport

The project will intersect 27 roads and 2 rail lines along the alignment. The assessment of the impacts of the project on road and rail infrastructure was included in the EIS and the AEIS. A preliminary Pavement Impact Assessment (PIA) was provided after the EIS consultation phase.

Impacts on private tracks and stock routes have been included in the evaluation of impacts on landholders in section 0.

5.4.1 Road impacts

Impacts on the capacities of intersections, road links, pavements and existing infrastructure may occur as a result of an increased volume of construction traffic. In line with DTMR's *Guidelines for the Assessment of Road Impacts of Development* (GARID), any roads with a predicted increase in traffic of more than five per cent—defined as 'significant project traffic'—must be assessed to determine if the impacts are acceptable or whether mitigation is required.

The key findings of the proponent's assessment of the capacity of existing road intersections, road links, pavements and infrastructure to accommodate project traffic are identified below.

Key road intersection capacities

Impacts

Project construction traffic has the potential to impact on the capacity of existing intersections. The EIS and the AEIS assessed the capacity of 10 key intersections in accordance with DTMR's *Road Planning and Design Manual*:

- Bruce Highway/new access road
- Glenore Road/new access road
- Strathalbyn Road/new access road
- Bowen Developmental Road/new access road (near chainage 120)
- Bowen Developmental Road/new access road (near chainage 170)
- Suttor Developmental Road/Stratford Road
- Stratford Road/new access road
- Gregory Developmental Road/new access road
- Bowen Developmental Road/Collinsville-Elphinstone Road
- Suttor Developmental Road/Collinsville-Elphinstone Road.

Impact management

Proposed treatments for each new intersection and details of upgrades required for existing intersections to mitigate potential safety risks associated with larger construction vehicles and increased turn volumes can be found in the EIS and the AEIS. The treatments range from basic intersection treatments to more complex channelized treatments, depending on traffic volume and traffic type. Where the intersection is required to accommodate large vehicles such as 35 m B-triple trucks, the proponent has proposed to construct intersections to a higher standard than required by the *Road Planning and Design Manual* (DTMR 2013).

The proponent will undertake further intersection modelling and during the detailed design phase and determine the final treatments of key intersections in consultation with DTMR. The final treatments will be presented in a detailed Road Impact Assessment (RIA).

Road link capacities

Impacts

The key impacts on road link capacities are predicted to occur during construction where road traffic volumes will increase significantly, whereas operational traffic volumes are not anticipated to be significant. The EIS and the AEIS assessed the project's impacts on road links, including the level of service (LOS) with and without the project's estimated construction traffic. The EIS, AEIS and preliminary PIA identified that 11 key road links are estimated to have at least five per cent more traffic during the limited period of the project's construction:

- Glenore Road
- Strathalbyn Road

- Bowen Developmental Road (near chainage 120 km)
- Bowen Developmental Road (near chainage 170 km)
- Suttor Developmental Road
- Stratford Road
- Gregory Developmental Road
- Bowen Developmental Road (near intersection with Collinsville-Elphinstone Road)
- Collinsville-Elphinstone Road (near chainage 189 km)
- Bruce Highway
- Suttor Developmental Road (near Collinsville-Elphinstone Road).

Despite the increased traffic volume, the proponent predicts that an acceptable LOS for all key transport routes will be maintained during the project's construction and operation.

Impact management

As the EIS and the AEIS predicted that acceptable LOS can be maintained with project traffic taken into account, mitigation is not proposed.

Pavement capacities

Impacts

The preliminary PIA assessed the estimated remaining life of the existing pavement of key road segments used by the project's construction traffic. The final PIA will confirm the estimated proportion of increased traffic on road segments from the project and the resulting impacts on pavements.

Impact management

The proponent will mitigate the project's pavement impacts by contributing to maintenance and rehabilitation works. A maintenance contribution is required for any year when the proportion of total project traffic exceeds five per cent of the background traffic; and a rehabilitation contribution is required where project traffic reduces remaining pavement life for a period greater than one year.

The preliminary PIA estimated that, due to the impacts of the project's construction traffic, 11 road links may require maintenance contributions—the 11 key road links that are estimated to increase traffic by at least five per cent during the project's construction, as detailed above. The preliminary PIA estimated that four road links may require contributions for rehabilitation works—Stratford Road, Suttor Developmental Road, Bowen Developmental Road (near project chainage 170 km) and Glenore Road.

Existing infrastructure

Impacts

The EIS identified intersections, bridges and other road infrastructure that could be impacted by increases in traffic volumes generated during the project's construction.

Impact management

Construction traffic impacts on road infrastructure will be managed through the development and implementation of a Construction Traffic Management Plan (TMP), to be developed in consultation with DTMR, WRC, IRC and the Queensland Police Service (QPS) during the detailed design of the project. The TMP will identify specific designs for intersections and road treatments. Proponent commitments 10.3 and 10.4 state that the proponent will develop a RIA and Road-use Management Plan (RMP) during the detailed design phase. These reports will determine the adequacy of existing infrastructure, such as bridges, and assess their ability to withstand the expected increase in traffic volumes and types of loads (oversized/indivisible) and include agreed mitigation measures.

Road–rail intersections

Impacts

The project will intersect 5 state-controlled roads (SCR) managed by DTMR and 22 local roads managed by the IRC and WRC.

Impact management

The proposed treatments for each of these 27 roads include:

- 12 at-grade crossings
- 6 grade-separated crossings
- 9 closures (all road reserves).

Proponent commitment 10.5 states that, prior to construction commencing, the proponent will further investigate and consult with affected infrastructure owners and regulatory agencies regarding final crossing treatment arrangements, impact management practices to be employed and the development and execution of infrastructure agreements with respective parties.

I have made a number of recommendations in Appendix 1 for the proponent to undertake specific treatments to five intersections of the project with SCRs:

- Bruce Highway crossing—rail over road
- Bowen Developmental Road—road over rail
- Collinsville-Elphinstone Road—road over rail
- Suttor Developmental Road—road over rail (interim at-grade)
- Gregory Developmental Road—road over rail.

The project's crossings of local roads are subject to further consultation with local councils, and will undergo further review during subsequent design stages.

School bus routes and public transport routes

Impacts

The EIS identified that there are two school bus services and one public transport route (a bus service) operating within the study area. The two school bus routes, operating to and from Collinsville State School, and the public bus service—Greyhound intercity

coaches, which operates along the Bruce Highway servicing Mackay, Proserpine and Bowen—are not expected to be impacted by the project.

Impact management

In the AEIS EMP Framework, the proponent has proposed to communicate with the public and operators of school buses and public transport to promote awareness of the impact and management of construction and operation activities. These issues will be further assessed and mitigation measures proposed in the RIA and will be completed in consultation with DTMR.

Emergency response

Impacts

There is potential for increased road traffic crashes due to heavy and light vehicle traffic associated with the project. Due to the isolated location of the project, there is likely to be a longer response time than normal for emergency service providers to reach an emergency incident.

Impact management

Proponent commitment 12.17 states that the proponent will engage with emergency service providers regarding the Emergency Management Plan for the project. In the draft Emergency Management Plan in the AEIS, the proponent has proposed the establishment of an emergency response team to ensure trained and equipped personnel are available in the event of an incident. The proponent will organise practical and desktop exercises with participation from emergency service providers. Feedback from such exercises will be incorporated into emergency response plans and procedures.

The Construction TMP, identifying mitigation measures to address the relative increase in traffic levels during the project's construction, will include measures to manage driver fatigue in accordance with DTMR strategies.

Coordinator-General's conclusions

I am satisfied that the proponent has provided sufficient information and assessment to conclude that there will be no substantial impacts from the project on local and SCR networks. However, further transport impact assessment will take place during the detailed design phase to determine the full extent of impacts and any mitigation measures required.

The proponent is required to undertake the following during detailed design:

- finalise the RIA in accordance with the GARID
- finalise and implement an RMP, including the requirements by QPS in relation to the safe movement of oversized/indivisible vehicles
- finalise and implement a Construction TMP, including measures to manage driver fatigue in accordance with DTMR strategies

- develop and implement an infrastructure agreement with DTMR which includes the road traffic and rail traffic volumes that would require the grade separation of the Suttor Developmental Road rail crossing
- develop and implement infrastructure agreements with the WRC and IRC.

I have recommended conditions regarding these measures in Appendix 1.

In accordance with proponent commitments 10.1, 10.3 and 10.5, the proponent will, in consultation with DTMR and/or the relevant local government authorities, develop and implement the RMP, Construction TMP and infrastructure agreements. The proponent must also undertake construction works or make contributions towards the cost of works, prior to the commencement of significant project traffic, as defined by DTMR in the GARID.

My recommendations in Appendix 1 require the proponent to reach agreement with DTMR about the design and construction of key level crossing facilities during the development of an infrastructure agreement. The Coordinator-General will arbitrate on any dispute.

I am satisfied that the current capacity of key road links in the study area is sufficient to accommodate the anticipated temporary increase in traffic and that the impacts of project traffic will be further assessed for the RIA during the detailed design phase, in consultation with DTMR.

The proponent must enter into an agreement with DTMR incorporating project-specific contributions towards the cost of maintenance and rehabilitation to mitigate road or pavement impacts on state-controlled and local road infrastructure. This agreement will be dealt with in the final RIA as I have recommended in Appendix 1.

I am satisfied that the recommended conditions will address the requirements to manage and mitigate road and rail transport impacts resulting from the project.

5.4.2 Impacts on rail transport

The EIS and the AEIS identified that the project will cross two existing railway lines, the Aurizon Newlands line and the North Coast line, and may interact with the proposed Alpha Coal project rail line.

Aurizon Newlands line

Impacts

The project crosses the existing Abbot Point Branch of the Newlands system, part of the Aurizon network, at chainage 6.8 km.

Impact management

The proponent's proposed treatment of the crossing of the existing Abbot Point Branch of the Newlands system is a grade-separated crossing.

North Coast line

Impacts

The project intersects the North Coast line at chainage 11.4 km, a passenger line which is part of the Queensland Rail network that runs from Nambour to Cairns, and runs parallel to the Bruce Highway near the Port of Abbot Point.

Impact management

The proponent proposes in the AEIS to grade-separate the North Coast line, crossing above the North Coast line, to ensure there are no impacts on the service of the rail line.

Interaction with the proposed Alpha Coal project rail line

Impacts

The project runs parallel with the proposed Alpha Coal project rail line for 64 km within the Rail Corridor Precinct of the GBSDA. The Alpha Coal project has completed its EIS assessment; however, final placement of the two rail corridors within the GBSDA will be determined by the Coordinator-General after further detailed design and progression through the approval process and MCU applications. The EIS assessment for both projects investigated a wide corridor area within which a rail line could be built.

Impact management

Proponent commitment 10.6 states that the proponent will develop infrastructure agreements with all relevant infrastructure owners prior to construction commencing.

Coordinator-General's conclusions

The proponent has provided sufficient information to determine that there will be no substantial impacts of the project on existing rail infrastructure. Prior to the commencement of construction, the proponent will further develop the transport impact assessment to refine the predicted project impacts and mitigation measures required.

Proponent commitment 10.5 states that the proponent will further investigate and consult with affected infrastructure owners and associated regulatory agencies prior to commencing construction. Matters to be addressed include final crossing treatment arrangements, impact management practices to be employed and the development and execution of infrastructure agreements with respective parties.

The Rail Corridor Precinct within the GBSDA will support development of rail infrastructure and associated activities to support resource activities and other development in the Galilee Basin. In order to ensure efficient construction, operation and maintenance of potentially multiple rail projects within the GBSDA, integrated corridor alignment planning, decision making and approval will be led by the Coordinator-General. I expect any interaction between existing and proposed rail proposals to be subject to interface agreements between the proponent and affected parties.

The GBSDA has been planned and designed to facilitate multi-user rail lines that can co-exist.

I am confident that the commitments and recommended conditions will manage and mitigate impacts resulting from the project as they relate to rail transport.

5.4.3 Coal dust impacts on rail transport

Impacts

The AEIS EMP Framework identified that a potential impact of the project is the emission of coal dust from uncovered wagons (loaded or unloaded) in transit during the operation of the project.

Coal dust settling on the track can lead to ballast fouling which requires expensive cleaning during track maintenance and can result in a loss of rail capacity due to an increased number of derailments, and reduced track availability during ballast cleaning. Veneering across the Queensland coal rail network is becoming standard practice to address maintenance and safety issues associated with ballast fouling.

Impact management

To minimise coal dust impacts, the AEIS EMP Framework states that the proponent will develop a Dust Management Plan for the construction phase of the project and a CDMP consistent with the aims, objectives and mitigation measures proposed in the QR Network *Coal Dust Management Plan* for the operational phase of the project.

Coordinator-General's conclusions

Consistent with my report for the CCMR project, I have proposed a recommendation in Appendix 1 for the proponent to develop and implement coal dust management procedures to mitigate the impacts of coal dust emissions from loaded and unloaded trains. The aims of this recommendation are to prevent dust nuisance for sensitive receptors and ecological values, and minimise damage to rail infrastructure from coal dust contamination of ballast.

5.5 Cultural heritage

5.5.1 Indigenous cultural heritage (ICH)

The *Aboriginal Cultural Heritage Act 2003* (ACH Act) protects ICH in Queensland. To comply with the duty of care provision under section 23 of the ACH Act, a proponent of a project that requires an EIS must prepare a cultural heritage management plan (CHMP), which is an agreement between the proponent and the native title claimants covering the identification and management of ICH.

In accordance with the ACH Act, the proponent has developed CHMPs, as per proponent commitment 11.1, with the following native title claimants:

- the Juru People (North Queensland Land Council Aboriginal Corporation) (QUD554/10, QC10/5)—this covers approximately the first 10 km of the rail line at the northern end

- the Juru People #2 (North Queensland Land Council) (QUD0007/12, QC12/1)—this covers approximately 30 km of the rail line
- the Birriah (sometimes referred to as 'Birri') (QUD6244/98, QC98/12)—this covers approximately 120 km of the rail line
- the Jangga People (Bulganunna Aboriginal Corporation) and the associated Jangga Operations Pty Ltd Cultural Heritage Body (QUD6230/98, QC98/10 PRC; QUD6230/98, QC98/10 DET)—this covers approximately 180 km of the rail line.

The notification provisions under section 29 of the Commonwealth *Native Title Act 1993* (NT Act) trigger the 'right to negotiate' process—a procedure between the proponent and native title claimants to negotiate over proposed future acts and management of land and waters. Under this requirement, four confidential Indigenous Land Use Agreements (ILUAs) and extinguishment assessments have been signed, or are in progression, between the proponent and the relevant parties. The Queensland Government supports the use of ILUAs as the process provides a framework for resolving native title issues through negotiation rather than potentially costly and time-consuming litigation.

For information on Indigenous employment opportunities and impacts for the local community and region, refer to section 5.6.2 of this report.

Impacts and mitigation measures

Potential ICH impacts were addressed in the EIS and the AEIS. Following public and agency comment on the EIS, the AEIS identified that the proponent realigned the project for approximately 6 km near Mount Roundback to provide a 300 m buffer for a registered cultural heritage site (rock art and shelter site).

The AEIS provided an updated search of the ICH databases for all proposed realigned components.

Potential impacts on items and sites of ICH resulting from the project may arise from vegetation clearing and ground disturbance undertaken to accommodate project components, erosion on stream banks and drainage lines.

Proponent commitment 11.3 states that the proponent will undertake comprehensive cultural heritage surveys as components of the CHMPs in accordance with the ACH Act. If an item or area of ICH is found, the proponent would implement the mitigation measures identified in the EIS including:

- avoidance (where the project proceeds without any impacts on the identified values)
- removal, recording and preservation of ICH items
- stop-work arrangements and the establishment of buffer zones
- notification to the relevant Indigenous parties
- inspections, audits and/or monitoring of project activities
- cultural heritage awareness training for contractors/employees
- establishment of a process for including Indigenous parties in assessment of ICH values and the protection and management of Indigenous cultural heritage.

Coordinator-General's conclusion

Given the measures provided in the EIS and the AEIS, the registered CHMPs, the signed and proposed ILUAs and the legislative requirements of the ACH Act and NT Act, I am satisfied that the impacts on ICH would be appropriately managed throughout the life of the project.

I consider that implementing these measures would satisfy the duty of care requirements under the ACH and NT Acts, and would ensure that the proponent and the native title claimants (as custodians of their cultural heritage) adequately identify and manage ICH places and objects.

5.5.2 Non-Indigenous cultural heritage

The project area does not contain any sites listed on the national, state or local government non-Indigenous cultural heritage (NICH) registers. A desktop search of the wider region identified 10 NICH sites that characterise the kinds of heritage places typical to the wider area, relating to an historic township and early mining/pastoral activities.

Impacts and mitigation measures

The EIS and the AEIS addressed potential impacts on NICH. No likely places of NICH were identified and the EIS determined that the potential for inadvertently discovering items of NICH is low. Proponent commitments 11.3 and 11.4 state that the proponent will undertake comprehensive cultural heritage surveys and develop a non-Indigenous CHMP to manage compliance with the *Queensland Cultural Heritage Act 1992*.

There is the potential for inadvertently disturbing items of NICH during vegetation clearing and ground disturbance activities. The proponent has addressed potential impacts on NICH in the AEIS EMP Framework with management and mitigation measures proposed, should previously un-registered and un-assessed items or places of NICH be identified.

A management measure identified in the AEIS is the development of a cultural heritage awareness program for incorporation into the contractor/staff manual and induction program for cultural heritage. Activities regarding NICH will be monitored and audited in accordance with the proponent's non-Indigenous CHMP, as per proponent commitment 11.4.

I have recommended in Appendix 1 that the proponent prepare and document measures and procedures for identifying and managing impacts on NICH for the construction and operations phases in any application for an MCU or development approval.

Coordinator-General's conclusion

Given the measures stated in the AEIS EMP Framework, proponent commitments, legislative requirements of the *Queensland Heritage Act 1992* and my recommendation in Appendix 1, I am satisfied that impacts on NICH would be appropriately managed throughout the life of the project.

5.6 Social impacts

The project traverses locations that are not heavily populated. The study area for the social impact assessment (SIA) included the WRC and IRC local government areas (LGA) and the key urban localities of Bowen, Collinsville and Moranbah. The Mackay Regional Council LGA was considered in the regional assessment due to the potential for Mackay to be a source of labour, equipment and materials. These three LGAs form the Mackay, Isaac and Whitsunday (MIW) region which had an estimated population of approximately 180 000 in June 2013.

This section of the report addresses the direct social opportunities and impacts for the local community and region arising from the project. For an assessment of economic impacts, refer to section 5.7 of this report.

The EIS identified that the project will have the following positive impacts:

- direct and indirect local, regional and Indigenous employment and training opportunities
- local and regional contracting and supply opportunities for individuals and businesses
- enhanced economic development opportunities throughout the region.

The SIA was completed in accordance with the TOR for the EIS. The EIS summarised these impacts, rated the significance of each impact, provided an overview of the strategies for enhancing, mitigating and managing the impacts, and provided a revised significance rating considering the effectiveness of these strategies. Table 5.8 describes the key potential social impacts and proposed management measures of the project.

Table 5.8 Key potential social impacts and management measures of the project

	Potential impact	Project phase	Likelihood	Consequence	Significance	Management measures
Community and stakeholder engagement	–	Construction & Operation	–	–	–	Stakeholder Engagement Plan for the project within the overall Stakeholder Engagement Strategy
Workforce management	Anti-social behaviour from non-resident, single male workforce	Construction	Rare	Moderate	Low	Workforce Management Plan in consultation with Department of Education, Training and Employment (DETE)
	Mental health issues due to isolation and separation from families and friends	Construction	Rare	Moderate	Low	Workforce Management Plan in consultation with DETE
Housing and accommodation	Contribute to shortages in housing supply and decrease housing affordability	Operation	Rare	Insignificant	Low	Monitor regional housing conditions and ensure flexibility to changing housing conditions
Local business and industry content	Opportunities for local and regional businesses to supply goods and services to the project	Construction & Operation	Likely	Moderate	High	Local Content Strategy
	Increased employment opportunities available for local and regional workforce	Construction & Operation	Likely	Moderate	High	Local employment initiatives and a recruitment and training program
	Providing employment and training opportunities for Indigenous people	Construction & Operation	Likely	Minor	Medium	Indigenous Participation Plan
	Indirect benefits from the project for regional, state and national areas	Construction & Operation	Likely	Moderate	High	Initiatives to build capacity for local and regional businesses
Health and community wellbeing	Additional demand on regional services and facilities from non-resident population	Construction	Likely	Insignificant	Medium	Workforce Integration and Cohesion Program
	Gradual increase in permanent population	Operation	Likely	Insignificant	Medium	Workforce Integration and Cohesion Program
	Potential increased demand on regional and local health and emergency services	Construction & Operation	Likely	Minor	Medium	Workforce Integration and Cohesion Program and Emergency Management Plan

5.6.1 Community and stakeholder engagement

Impacts

As part of the EIS, the proponent consulted with potentially impacted landholders, local and regional communities, traditional owners, existing private infrastructure providers, resource tenement holders, service providers and all levels of government.

This consultation informed the development of the local and regional social baseline studies in the SIA. The key potential social issues raised by stakeholders are addressed in sections 5.6.2 to 5.6.5 of this report.

Stakeholder concerns regarding potential impacts on landholders include flooding, property severance, lifestyle and amenity, air quality, and noise and vibration which are addressed in section 0 of this report. Stakeholder concerns regarding potential impacts on traffic and road crossings are addressed in section 5.4 of this report.

Management and mitigation measures

Proponent commitment 12.18 states that the proponent will develop a stakeholder engagement plan for the project within the overall stakeholder engagement strategy.

Coordinator-General's conclusions

I expect the proponent will:

- continue to engage with local and regional stakeholders, ensuring that they are well informed about the project's impacts and their concerns are considered in reaching decisions about mitigation measures
- equitably manage land access and acquisition processes
- collaborate with other proponents, local authorities, state agencies and other stakeholders as required to maximise opportunities, address impacts and promote regional outcomes and opportunities.

I acknowledge the proponent's efforts during the EIS process to engage with stakeholder groups and I consider these efforts sufficient to identify potential impacts arising from the project. The proponent has provided an outline of an ongoing stakeholder engagement strategy, including details on a grievance management and dispute resolution mechanism, in the EIS.

My expectation is that consultation with landholders and traditional owners impacted by the project will continue as the project moves into the detailed design phase. I also expect the proponent to continue to engage as required with all project stakeholders to complete their commitments, actions and supporting documents, and that the baseline data, targets and indicators that will demonstrate the effectiveness of these actions will be made publicly available.

For this reason, I have imposed a condition in Appendix 1, hereafter referred to as 'the imposed social condition', which includes a requirement for the proponent to provide an annual report to the Coordinator-General during the construction phase and for two years following the commencement of rail operations. The report must describe the actions to inform the community about project impacts and show that community

concerns about project impacts have been taken into account when reaching decisions.

5.6.2 Workforce management

Impacts

A positive predicted project impact is the increased employment and training opportunities in the MIW region. The project will be constructed over three years, employing up to 2017 construction workers. The proponent expects the construction workforce to be approximately 30 per cent fly-in/fly-out (FIFO) from the MIW region, 50 per cent FIFO from outside the MIW region, and 20 per cent drive-in/drive-out (DIDO) or bus-in/bus-out (BIBO) from the MIW region. This equates to a construction workforce of approximately 50 per cent from the MIW region and 50 per cent from outside the MIW region. The operational workforce of 369 workers is expected to be mainly based in Bowen.

Considering the current downturn of the resources sector, there is local workforce capacity in the MIW region to participate in the construction of the project, with more skilled unemployed workers located in the region than previously. While a proportion of the local unemployed will not have the skills required for constructing the project, the proponent has the capacity to train employees to address skills shortages.

A potential impact of a large FIFO construction workforce is antisocial behaviour and disturbances from non-resident workers. Another potential impact is mental health issues for the workforce due to isolation and separation from families and friends.

Management and mitigation measures

The proponent has engaged with the Department of Aboriginal and Torres Strait Islander and Multicultural Affairs (DATSIMA) to develop an appropriate Indigenous Participation Plan, including specific participation and training initiatives and performance indicators.

Proponent commitment 12.9 states that the proponent will develop, train and employ apprentices/trainees on the project, where appropriate, and support the up-skilling of its workforce.

Proponent commitments 12.12 and 12.13 state that the proponent will develop a Workforce Management Plan, incorporating a Code of Conduct, to avoid antisocial behaviour and mental health issues. The plan will include programs in relation to individual health and wellbeing, including the management of stress and isolation.

Coordinator-General's conclusions

I require the proponent to:

- maximise local employment opportunities over the life of the project, including opportunities for local Indigenous people and other disadvantaged groups
- provide training and development opportunities for people locally and regionally to enable a sustainable skilled workforce

- facilitate positive interaction between the workforce and local community on and off the project site
- implement the provisions of the Workforce Management Plan to manage the impacts on individual health and well being.

In the AEIS the proponent provided an outline of the proposed Workforce Management Plan to be developed in consultation with DETE and will include induction programs, equal opportunity employment initiatives and training opportunities. I also note that the proponent has commenced developing an Indigenous Participation Plan in consultation with DATSIMA.

The proponent should work closely with DETE and DATSIMA to develop and implement workforce management strategies, and to ensure that the outcomes of these strategies can be effectively monitored and reported.

These measures represent a satisfactory response to local and regional workforce issues. As the workforce requirements of the project will change over time, the imposed social condition requires the proponent to report on the actions to enhance local and regional employment, training and development opportunities.

5.6.3 Housing and accommodation

Impacts

The SIA identified that, historically, projects with large workforces in regional communities have contributed to shortages in housing supply and decreased housing affordability. A potential project impact is an increased demand on housing supply and a decrease in housing affordability. However, the current downturn in the resources sector has led to a number of people moving out of the region, increasing housing availability and improving housing affordability.

There are five temporary construction camps proposed in the AEIS along the rail alignment within the WRC LGA to accommodate the FIFO workforce. This should not place any additional demand on local housing. The remainder of the construction workforce (DIDO or BIBO) would be existing residents, which should also not place any additional demand on local housing.

The operational workforce will consist of workers already residing in Bowen and workers that might move into the region to gain employment. The proponent's consultation with WRC determined that current housing availability and planned future development for Bowen will enable the gradual increase of the operational workforce to be accommodated within the Bowen housing market.

Management and mitigation measures

Proponent commitment 12.5 states that the proponent will monitor regional housing conditions by consulting with key housing stakeholders in Bowen and implement an approach to accommodation management that is transparent and flexible to changing housing conditions.

Coordinator-General's conclusions

I require the proponent to meet the housing and accommodation needs of the project workforce during the construction and operation phases, while avoiding, managing or mitigating project-related impacts on housing supply and affordability in key urban localities of Bowen, Collinsville and Moranbah.

The proponent proposes to house the FIFO construction workforce in construction camps to avoid housing impacts. The proponent's commitment to monitor regional housing conditions and implement a flexible accommodation management approach should limit any direct impacts from the project on local and regional housing markets. I expect the proponent's monitoring regime to include the regional centres potentially impacted by the commuting patterns of the project's FIFO workforces, particularly if workers choose to move into the region for the term of their employment or permanently.

The imposed social condition requires the proponent to report on the actions and adaptive management strategies to avoid, manage or mitigate project-related impacts on local and regional housing markets.

5.6.4 Local business and industry content

Impacts

The project is expected to generate a significant positive economic impact in the MIW region. Regional economic impacts are described in section 5.7.1 of this report.

Management and mitigation measures

Proponent commitment 12.4 states that the proponent will develop a Local Content Strategy in accordance with Queensland Resources Council's (QRC) Queensland Resources and Energy Sector Code of Practice for Local Content 2013 (QRC Code) and associated implementation guidelines.

Proponent commitment 12.11 states that the proponent will explore skills development in other industrial sectors relevant to the regional study area in order to support the sustainability of the region's community and economy.

Coordinator-General's conclusions

I require the proponent to be a signatory to the QRC Code and ensure that Queensland suppliers, contractors and manufacturers are given full, fair and reasonable opportunity to tender for project-related business activities.

Proponents adopting the QRC Code will submit an annual Code Industry Report to QRC demonstrating how the principles and framework of the code have been applied. My expectation is that the proponent's commitments, along with any other initiatives adopted as a result of ongoing engagement with local and regional businesses, will be reflected in these reports.

5.6.5 Health and community wellbeing

Impacts

The project's FIFO construction workforce and the possible relocation of workers to Bowen during the operational phase could potentially affect the demographics of the region. The temporary increase in non-resident population and the resident operational workforce has the potential to place demand on regional social infrastructure services and facilities.

The project has the potential to impact regional and local health services, exacerbating shortfalls in medical general practice services, nursing staff and hospital emergency services. Increased demand on regional emergency services is another potential impact of the project.

Management and mitigation measures

Proponent commitment 12.16 states that the proponent will develop a workforce integration and cohesion program to ensure the integration of workers relocating to Bowen. Since the temporary construction camps will be situated away from any urban localities, the non-resident population is not likely to significantly affect any particular population centre's social infrastructure services and facilities. Potential effects on the region's social infrastructure services and facilities will be mitigated during the operational phase by gradually increasing the number of operational workers in the region.

Impacts on regional and local health services will be avoided by the proponent handling site-related medical issues on site with first aid services. It is noted, however, that injuries and health incidences requiring attention beyond first aid will rely on local medical services. The proponent has prepared a preliminary Emergency Management Plan, as a component of the AEIS EMP Framework, which addresses first aid and basic medical services, fire prevention and firefighting equipment and security for the project. Proponent commitment 12.17 states that the proponent will also engage with regional health providers and emergency service providers for input into the Emergency Management Plan.

Coordinator-General's conclusions

I require the proponent to:

- avoid, manage or mitigate project-related impacts on local community services, social infrastructure and community safety and wellbeing
- minimise the impact on emergency services in the region during the life of the project and optimise the safety of the rail system and the project's employees.

FIFO workforce arrangements and the provision of on-site accommodation, medical and recreational facilities will limit the project's impact on local and regional services and infrastructure.

The project will be subject to an Emergency Management Plan that will be developed in collaboration with the relevant emergency service providers prior to construction, and

overseen by an Emergency Services Consultative Committee with appropriate representation from those providers.

The imposed social condition requires the proponent to report on the actions to avoid, manage and/or mitigate project-related impacts on local community services, social infrastructure and community safety and wellbeing.

I acknowledge that proponent commitment 12.1 states that social impacts and management strategies will be monitored and reviewed annually during the construction phase and during the first two years of operation, consistent with the imposed social condition. I acknowledge that proponent commitment 12.1 also states that subsequent impacts and the respective management strategies will be reviewed and reported on annually through its internal reporting processes.

5.7 Economic impacts

An economic impact assessment was completed as part of the EIS and it reviewed economic data to inform an economic baseline for the MIW region.

The economic baseline for the project (presented in the EIS) showed that the mining industry contributed significantly to the Gross Regional Product (GRP) of the MIW region, even in view of the current resources market downturn. Other key industries in the MIW region include construction, manufacturing, wholesale trade and transport, postal and warehousing. Agriculture is also an important industry in the IRC and WRC LGAs and a prevalent land use in the MIW region.

5.7.1 Impacts

State-wide impacts

The project is expected to generate a significant positive economic impact in Queensland. The proponent estimated that 85 per cent of the capital expenditure for the construction of the project will be spent in Queensland. Operations expenditure will gradually increase until a peak operation year, where operations expenditure is then expected to remain constant until operations cease. The proponent estimated that 93 per cent of operational expenditure will occur in Queensland each year until operation ceases. The project will contribute directly and indirectly to Queensland's Gross State Product (GSP) throughout construction and operation. Operational expenditure is expected to directly and indirectly contribute $368 million annually to the Queensland economy. Table 5.9 lists the expected state-wide economic impacts from the construction and operation of the project as a result of expenditure and direct and indirect contributions to GSP.

A project benefit is the potential for increased employment opportunities within Queensland. The project will be constructed over three years, with approximately 2017 direct jobs generated in Queensland during the peak construction year. The proponent estimated that the project will generate between 891 and 927 direct jobs in Queensland during the other construction years. The job generation in Queensland during operations will increase over 10 years from an estimated 66 direct jobs up to 369 direct jobs.

The project will facilitate export from the CCMR project, which will contribute to an increase in state and federal revenue through taxes and royalties, provide improved infrastructure such as new rail infrastructure and road upgrades, and enhance economic development opportunities throughout the region.

Table 5.9 Predicted state-wide economic benefits

Economic impact	Construction	Operation
Total project expenditure	$2.2 billion for the entire construction phase	$730 million per annum from the peak operation year and continuing until operation ceases
Project expenditure expected to be spent in Queensland	up to $1.87 billion for the entire construction phase	up to $679 million per annum from the peak operation year and continuing until operation ceases
Direct contribution to Queensland's GSP	$195 million in the peak construction year	$91 million per annum from the peak operation year and continuing until operation ceases
Indirect contribution to Queensland's GSP	$714 million in the peak construction year	$277 million per annum from the peak operation year and continuing until operation ceases

Regional impacts

The project is expected to generate a significant positive economic impact in the MIW region. It is estimated that 75 per cent of the capital expenditure for the construction of the project will be spent in the MIW region. The proponent estimated that 70 per cent of operational expenditure will occur in the MIW region each year until operation ceases. The project will contribute directly and indirectly to the MIW region's GRP throughout construction and operation. Operational expenditure is expected to directly and indirectly contribute $208 million annually to the MIW region's GRP. Table 5.10 lists the expected regional economic impacts from the construction and operation of the project regarding expenditure and direct and indirect contributions to GRP.

The project has the potential to positively impact the construction, manufacturing, wholesale trade and transport, postal and warehousing industries of the MIW region. These potential impacts will be enhanced with the implementation of the local content strategy discussed in section 5.6.4 of this report as well as the proponent's preference to source workers from the MIW region.

The project has the potential to impact the agriculture industry by severing some properties, which may impact on agricultural land, cattle grazing, agricultural infrastructure, other related activities and property values. Although some agricultural properties will be more affected by the project than others, the proportion of the annual impact across the agricultural sector in the MIW region is low. For an assessment of impacts on landholders, refer to section 0 of this report.

Table 5.10 Predicted regional economic benefits

Economic impact	Construction	Operation
Total project expenditure	$2.2 billion for the entire construction phase	$730 million per annum from the peak operation year and continuing until operation ceases
Project expenditure expected to be spent in the MIW region	up to $1.65 billion for the entire construction phase	up to $511 million per annum from the peak operation year and continuing until operation ceases
Direct contribution to the MIW GRP	$153 million in the peak construction year	$68 million per annum from the peak operation year and continuing until operation ceases
Indirect contribution to the MIW GRP	$638 million in the peak construction year	$140 million per annum from the peak operation year and continuing until operation ceases

5.7.2 Coordinator-General's conclusions

To maximise the economic benefits of the project, I expect the proponent to:

- maximise local employment opportunities over the life of the project, including opportunities for local Indigenous people and other disadvantaged groups
- provide training and development opportunities for people locally and regionally
- be a signatory to the QRC Code and ensure that Queensland suppliers, contractors and manufacturers are given full, fair and reasonable opportunity to tender for project-related business activities.

As the workforce requirements of the project will change over time, I have imposed a condition in Appendix 1 requiring the proponent to provide an annual report to the Coordinator-General during the construction phase and for two years following the commencement of rail operations. The report must describe the actions to enhance local and regional employment, training and development opportunities.

6. Environmental, hazard and risk management

The proponent will develop and implement an environmental management system (EMS), which will form an overarching management framework for the project. The EIS identified that the EMS will guide the EMPs for the construction and operations phases of the project and will be integrated with the proponent's existing Health, Safety and Security Management System, which includes a comprehensive list of policies, procedures and guidelines.

The construction and operation EMPs will be developed based on the AEIS EMP Framework, and will be linked with other procedures such as the incident management and complaint management procedures. The hierarchy of subject-specific management plans and sub-plans within the EMP Framework and a cross-reference of management measures and proponent commitments are detailed in Appendix 1.

The proponent has prepared a preliminary Emergency Management Plan, which will be included in the EMPs. Proponent commitment 13.2 states that the proponent will finalise the Emergency Management Plan in consultation with emergency service providers.

6.1 Hazard and risk management

Potential hazards and risks to people, property and the surrounding environment were assessed in the EIS in accordance with the requirements of Australian Standard/New Zealand Standard (AS/NZS) ISO 31000: 2009 *Risk management – Principles and guidelines.*

The EIS identified 26 potential hazards including traffic accidents, train derailment or collision, spill or leak of hazardous substances, plant operation accidents, fire, dust, wildlife management and pest management.

The proponent intends to mitigate each identified risk using both preventative and responsive measures, as outlined in the hazard analysis and evaluation section of the EIS. Ongoing development and implementation of an Emergency Management Plan and Hazardous Substances Management Plan are included in the AEIS EMP Framework.

Proponent commitment 13.3 states that the proponent will develop and implement an overarching Rail Health and Safety Management System (RHSMS) to mitigate risks across the project. A Safety Management Plan and a Risk Management Plan will be implemented as components of the RHSMS.

Specific hazard and risk matters associated with the project are discussed below. Flooding, landholder, traffic and road safety impacts are evaluated in sections 5.2.1, 5.2.4 and 5.4, respectively. Refer also to my assessment of wildlife management, air quality and pest management in sections 5.1, 5.2.2 and 5.2.4.

6.1.1 Project interface with existing infrastructure

The project's rail alignment would interface with a high-pressure buried gas pipeline and high-voltage electrical lines. The EIS identified that potential project interface incidents will be avoided by preventative measures, such as:

- consulting owners/operators of gas pipelines and electrical power lines during the detailed design phase of the project
- installing signage and implementing safety measures regarding high-voltage power line crossings
- installing security fencing and warning signs, and using security patrols to prevent unauthorised access.

To prevent train malfunction and/or accident, proponent commitments 13.4–13.7 state rail safety management measures. The proponent has committed to conduct routine inspections and maintain tracks, wagons, locomotives and signalling equipment. The proponent will also install either passive or active controls at level crossings and construct grade separators at identified crossings as required by DTMR. Rail safety

accreditation will be obtained and maintained and all communication systems will be installed as per Australian Standards.

6.1.2 Hazardous substances

A potential impact of the project includes the spill or leak of a hazardous substance and associated degradation of soil and/or water quality leading to impacts on terrestrial and aquatic ecological values. An inventory of hazardous substances that will be used for the project is listed in the EIS including diesel fuel (for vehicle and train operations), ammonium nitrate and fuel oil (for blasting during track construction) and hydraulic oils (for lubrication of equipment). The inventory of hazardous substances provides an indicative list of the hazardous substances that will be used, the likely quantities to be stored on site for each project phase and the purpose for the substance. Safety data sheets will be available at appropriate locations where these substances are stored or used for the project. The proponent proposed that all substances will be handled appropriately and stored according to either their label instructions or the safety data sheet to minimise the potential for contamination.

The proponent has included a Hazardous Substances Management Plan within the AEIS EMP Framework, which outlines how hazardous materials would be stored and handled to minimise the accidental release of contaminants to the greatest extent possible.

Prior to construction and operation, an Emergency Spill Response Plan will be developed as a component of the Emergency Management Plan within the EMP Framework to detail response actions in the event of a spill of hazardous substances. Any spillage will be handled in accordance with the requirements of the *Environmental Protection Act 1994* and will include reporting of the spill to the nominated Incident Controller. Proponent commitment 13.9 states that, as part of the Emergency Spill Response Plan, spilled materials will be prevented from entering drains and/or watercourses through the use of absorbent materials which a licensed contractor would remove and dispose of for treatment, along with any contaminated soils.

The AEIS EMP Framework includes monitoring and corrective actions to manage hazardous substances, including weekly inspection of storage areas, bunded areas, spill kits, vehicles, plant and machinery.

6.1.3 Bushfire

Regional bushfire mapping identified that the rail corridor has a low to medium natural hazard risk for bushfires, which poses a potential project risk of a bushfire occurring at a laydown yard, temporary construction camp or flash welding yard.

The EIS identified that the risk of bushfire will be avoided by:

- clearing vegetation in all work areas and managing vegetation growth in other areas to prevent excessive fuel load accumulation
- maintaining fire breaks around areas identified as being potential sources of bushfire risk
- minimising storage of flammable chemicals and providing appropriate bunding and buffers in storage design

- incorporating bushfire response strategies in the EMP, maintaining firefighting capability at the site and training personnel.

Proponent commitment 13.10 states that the proponent will extend the Bushfire Management Plan developed for the CCMR project to this project, as a sub-plan of the Fire Management Plan (a component of the Emergency Management Plan within the EMPs). The Bushfire Management Plan has been developed to address rail-specific fire risks and includes measures to prevent and respond to bushfires in order to protect the rail corridor, rail operations and neighbouring landholders and properties. An annual bushfire risk assessment will be conducted to inform the development of an annual Bushfire Hazard Mitigation and Management Plan and a Hazard Reduction Plan as sub-plans of the Bushfire Management Plan in an ongoing program of communication and consultation with stakeholders.

The Bushfire Management Plan identifies activities that could potentially increase the risk of bushfire as well as relevant control measures. Key aspects of the plan include:

- interface agreements with adjoining property owners
- establishment of fire breaks and asset protection zones
- compliance with local bylaws, state legislation, regulations and guidelines
- training personnel
- ongoing consultation with Queensland Fire and Rescue Services and the Rural Fire Brigade.

6.1.4 Coordinator-General's conclusions

Based on the mitigation measures in the Proponent Commitments Register, the RHSMS and constituent management plans, the project's EMP Framework and various sub-plans, I am satisfied that the potential hazards and risks can be appropriately managed throughout the life of the project.

7. Conclusion

In undertaking my evaluation of the EIS, I have considered the EIS and AEIS, submissions on the EIS and AEIS, agency advice and additional information provided to me by the proponent.

I am satisfied that the requirements of the SDPWO Act have been met and that sufficient information has been provided to enable the necessary evaluation of potential impacts, and the development of mitigation strategies and conditions of approval. I consider that the mitigation measures, all commitments and the conditions stated in this report would result in acceptable overall outcomes.

Based on the information provided by the proponent and outlined in section 5.7, I conclude that the project will deliver significant economic benefits to local, regional and state economies. The employment benefits generated by the project will be significant, with an estimated 2017 construction jobs, 369 operational jobs and further indirect local, regional and Indigenous employment opportunities expected to be generated.

The project will establish new rail infrastructure in the region, which will deliver the objectives of the GBSDA and facilitate coal export from the Galilee Basin.

Accordingly, I approve the North Galilee Basin Rail project to proceed subject to the conditions in Appendix 1. In addition, I require that the proponent's commitments, as presented in the EIS documentation and in Appendix 2 of this report, be fully implemented.

To proceed further, the proponent will be required to:

- obtain approval under the EPBC Act
- obtain the relevant development approvals under the SDPWO Act (as the project will fall within the GBSDA and the APSDA)
- obtain a range of state and local government regulatory approvals required for the project
- finalise and implement the construction and operations environmental management plans, based on the AEIS EMP Framework
- finalise the environmental offsets package.

If there are any inconsistencies between the project (as described in the EIS documentation) and the conditions in this report, the conditions shall prevail. The proponent must implement all the conditions of this report.

Copies of this report will be issued to:

- Australian Government Department of the Environment
- DEHP
- DNRM
- DTMR
- WRC
- IRC.

A copy of this report will also be available on the Department of State Development, Infrastructure and Planning's website at **www.dsdip.qld.gov.au/cg**

This report will generally lapse three years from the date it is published on the department's website, or when an approval application is decided for the project, unless a later time is subsequently decided by the Coordinator-General.

Appendix 1. Conditions and recommendations

Schedule 1. Stated conditions and SDA recommendations

This schedule provides the Coordinator-General's stated conditions under section 39 of the SDPWO Act for any project elements located outside an SDA requiring approvals under SPA.

These conditions must be included by the assessment manager(s) in the relevant approval. The assessment manager may impose additional conditions not inconsistent with these stated conditions.

For project elements located inside an SDA, the stated conditions in this schedule are to be considered as recommendations made under section 35(4) of the SDPWO Act. The recommendations relate to the applications for development approvals and material changes of use for the project. The Coordinator-General will be responsible for ensuring these recommendations are implemented.

Condition 1. Compliance and auditing of conditions

(a) The holder of this approval must:

  (i) within 3 months of the commencement of the approved activities, obtain from an independent third party a certified report on compliance with the conditions of this approval

  (ii) obtain further such reports at regular intervals, not exceeding 6 monthly intervals during construction and 3 yearly intervals during operation, from the completion of the report specified in condition 1(a)(i)

  (iii) provide each report in conditions 1(a)(i) and 1(a)(ii) to the administering authority within 30 business days of its completion

  (iv) take any corrective and/or preventive action necessary to comply with the conditions of this approval.

(b) The holder of this approval must provide an annual Update Report detailing activities during the previous 12 months to the administering authority detailing:

  (i) Significant disturbance undertaken

  (ii) Rehabilitation undertaken

  (iii) Results and interpretation of any monitoring.

Condition 2. General

(a) All plant and equipment must be maintained and operated in proper condition.

(b) Measures to prevent fauna being harmed from entrapment must be implemented during construction and operation activities.

Condition 3. Environmental nuisance

(a) Activities must not cause environmental nuisance at any nuisance sensitive place unless specifically authorised by a condition of this approval or where an alternative arrangement is in place.

Condition 4. Air quality

(a) Notwithstanding condition 3, dust deposition attributable to project activities, when measured at a nuisance sensitive place, must not exceed 120 milligrams per square metre per day, averaged over 1 month.

(b) Other indicators that are measured at any nuisance sensitive place must not exceed the air quality objectives specified in Schedule 1 of the *Environmental Protection (Air) Policy 2008*.

(c) The holder of this approval must develop and implement an Ambient Dust Monitoring Program that includes parameters such as dust deposition (insoluble matter) and suspended particulate concentrations of PM10 and PM2.5.

Condition 5. Noise and vibration

(a) Notwithstanding condition 3, blasting operations must be designed to not exceed an airblast overpressure level of 120 dB (linear peak) at any time, when measured at or extrapolated to any nuisance sensitive place.

(b) Blasting operations must be designed to not exceed a ground-borne vibration peak particle velocity of 10mm/s at any time, when measured at or extrapolated to any nuisance sensitive place.

Condition 6. Water quality

(a) Contaminants must not be directly or indirectly released to waters unless authorised by a specific condition of this approval.

Condition 7. Sediment and Erosion control

(a) Measures must be implemented to minimise stormwater entry onto significantly disturbed land.

(b) Sediment and erosion control measures to prevent soil loss and deposition beyond significantly disturbed land must be implemented and maintained.

Condition 8. Flammable or combustible liquids

(a) All flammable and combustible liquids must be contained within an on-site containment system and controlled in a manner that prevents environmental harm and maintained in accordance with the current edition of AS1940—Storage and Handling of Flammable and Combustible Liquids.

Condition 9. Rehabilitation

(a) Unless otherwise approved by the administering authority, within 6 months after the completion of an activity, the holder of this approval must commence reinstatement of temporarily disturbed areas that is:

  (i) a stable landform

  (ii) re-profiled to a level consistent with surrounding soils and established drainage lines.

(b) After decommissioning, all significantly disturbed land caused by the activities must be rehabilitated to meet the following final acceptance criteria:

  (i) any contaminated land (e.g. contaminated soils) is remediated and rehabilitated

(ii) for land that is not being cultivated by the landholder:

(1) groundcover, that is not a declared pest species is established and self-sustaining

(2) vegetation of similar species richness and species diversity to preselected analogue sites is established and self-sustaining

(iii) for land that is to be cultivated by the landholder, the cover crop is revegetated, unless the landholder will be preparing the site for cropping within 3 months of project activities being completed.

(c) Monitoring of performance indicators must be carried out on rehabilitation activities until the final acceptance criteria in condition (b) have been met for the rehabilitated area.

Schedule 2. Coordinator-General's recommendations

This section includes general recommendations, made under section 35(4) of the SDPWO Act. The recommendations relate to the applications for development approvals for the project.

While the recommendations guide the assessment managers in assessing the development applications, they do not limit their ability to seek additional information or the power to impose conditions on any development approval required for the project.

Each recommendation nominates the entity to be consulted by the proponent.

Part A. General recommendations

Recommendation 1. Pre-clearance Surveys

(a) Prior to commencement of construction, the proponent must conduct pre-clearance ecological surveys of areas to be impacted, consistent with:

  (i) Queensland state government survey guidelines

  (ii) Australian government threatened species guidelines.

(b) The surveys must be sufficient to identify the extent to which the following will be unavoidably impacted by the project:

  (i) Matters of state environmental significance as defined by the State Planning Policy

  (ii) Matters of National Environmental Significance as listed under the *Environment Protection and Biodiversity Conservation Act 1999*.

(c) Survey results, where available, must be included in the Offsets Strategy for the project in accordance with Appendix 1, Schedule 3, Condition 3.

The entity responsible for ensuring this recommendation is implemented is the Department of Environment and Heritage Protection.

Recommendation 2. Threatened species

(a) Prior to the commencement of construction, the proponent must develop and document impact mitigation and management measures that maximise the ongoing protection and long-term conservation of threatened species known or likely to occur within the project area.

(b) Mitigation and management measures under recommendation 2(a) must:

  (i) detail actions and procedures to be followed during the pre-construction, construction, operational and (if appropriate) rehabilitation phases of the project

  (ii) be supported by a program of monitoring, reporting and review to facilitate adaptive management of the actions and measures, should it be required

  (iii) detail how the project will comply with all relevant provisions of the *Nature Conservation Act 1992* (Qld).

(c) All identified impact mitigation, management, reporting and monitoring measures documented in (a) and (b) must be implemented for all stages of the project's construction and operations.

The entity responsible for ensuring this recommendation is implemented is the Department of Environment and Heritage Protection.

Recommendation 3. Landholder engagement

(a) All landholder engagement associated with land access negotiations must be conducted in a manner consistent with the best practice guidelines contained in the Land Access Code (State of Queensland, 2010).

The Coordinator-General is responsible for ensuring this recommendation is implemented.

Recommendation 4. Rail Coal Dust Management

(a) The proponent must develop and implement coal dust management procedures to mitigate the emission of coal dust from loaded and unloaded trains with the objective to:

(i) prevent environmental nuisance at any nuisance sensitive place unless specifically authorised by a condition of another approval

(ii) minimise damage to rail infrastructure due to coal dust contamination of ballast

(iii) minimise the loss of ecological values.

The entity responsible for ensuring this recommendation is implemented is the Department of Transport and Main Roads.

Recommendation 5. Stock Routes

(a) The proponent must document and implement management measures for gazetted stock routes impacted by the project that:

(i) provide safe passage across the rail for stock, personnel and the general public

(ii) maintain stock routes in accordance with any agreements reached with landholders, the relevant local government authority (LGA) or the administering authority, including provisions for any re-aligned stock routes.

The entity responsible for ensuring this recommendation is implemented is the Department of Natural Resources and Mines.

Part B. Recommendations relating to the contents of an MCU application

Recommendation 6. MCU Application within a State Development Area

(a) As part of any application to change land use within the State Development Area, the proponent must provide to the Coordinator-General:

(i) a detailed description of all components of the project within the State Development Area, including maps and drawings at an appropriate scale.

(ii) detailed information on how all components of the project will address and satisfy the requirements of the development scheme for the State Development Area

(iii) detailed information on how the project will interact and co-exist with:

(A) the existing Newlands–Abbot Point rail line, and

(B) the proposed Alpha Coal project rail line.

(iv) documented management measures and procedures prepared in accordance with Recommendation 7

(v) documented evidence that any accommodation components of the project will achieve an acceptable level of amenity for residents and minimise social impacts

(vi) copies of any infrastructure agreements with state agencies or the relevant LGA.

The Coordinator-General is responsible for ensuring this recommendation is implemented.

Recommendation 7. Management measures and procedure requirements to be included in MCU and development approval applications

(a) The proponent in any application for an MCU or Development Approval must prepare and document management measures and procedures that will:

(i) ensure compliance with applicable environmental legislation and any stated conditions under the SDPWO Act

(ii) implement relevant commitments made by the proponent in the project's environmental impact statement documentation

(iii) minimise adverse impacts to the greatest extent practicable to:

(A) the functioning and biodiversity of ecosystems

(B) soil structure and quality

(iv) minimise the clearing of native vegetation to the greatest extent practicable

(v) prevent environmental nuisance from dust, odour, light, smoke or noise at a nuisance sensitive place

(vi) establish rehabilitation objectives, including a rehabilitation schedule

(b) The management measures and procedures must detail appropriate performance criteria and standards, monitoring and auditing and corrective actions so that all reasonable and practicable measures to prevent or minimise environmental harm are identified

(c) When approved, the approval holder must:

(i) implement and make available the management measures and procedures in (b) to all employees, contractors and subcontractors

(ii) make the management measures and procedures publicly available on the proponent's website prior to the commencement of any construction work

(iii) regularly review and amend as necessary the management measures and procedures in response to monitoring and auditing reports and changes in legislation and standards. Any management measures and procedures must be updated on the proponent's website within 30 business days.

The Coordinator-General is responsible for ensuring this recommendation is implemented.

Note to the applicant:

Matters to consider in developing management measures and procedures may include but are not necessarily limited to:

- soils (including geotechnical investigations, soil types, salinity, sodicity and acid sulphate potential)
- erosion and sediment control (suggested guideline: International Erosion Control Australasia 2008, Best Practice Erosion and Sediment Control)
- native flora and fauna
- fauna passage, connectivity between populations and prevention of entrapment during construction
- weeds and pests
- progressive rehabilitation of disturbed areas
- surface waters (suggested guideline: Department of Natural Resources and Mines guideline *Riverine Protection Permit Exemption Requirements Version 1.01* (WSS/2013/726))
- surface flood waters
- dust and air quality (including coal dust management)
- noise and vibration from construction activities (suggested guideline *Application requirements for activities with noise impacts*, DEHP)
- rail operational noise (suggested guideline NSW Environment Protection Authority Rail Infrastructure Noise Guideline 2013)
- chemical and fuel storage
- waste management
- stock routes
- agricultural land integrity
- lighting and visual amenity
- existing transport and utility infrastructure
- non-indigenous cultural heritage
- decommissioning and rehabilitation
- hazard and risk (including managing any adverse impacts of flood, severe storms, bushfire and landslide).

Definitions	
administering authority	The Coordinator-General if the land is to be included in a State Development Area
alternative arrangement	A written agreement between the approval holder and the occupier of a nuisance sensitive place about the way in which a particular nuisance impact will be dealt with at a sensitive place, and may include an agreed period of time for which the arrangement is in place. An alternative arrangement may include, but is not limited to, a range of nuisance abatement measures to be installed at the sensitive place, or provision of alternative accommodation for the duration of the relevant nuisance impact.
associated monitoring requirements	Monitoring for noise and blasting levels must be in accordance with the most recent edition of the Department of Environment and Heritage Protection *Noise Measurement Manual* 2013 and any relevant Australian standard.
certified	A Statutory Declaration by a suitably qualified person accompanying the written document warranting that: all relevant material has been considered in the written document, and the content of the written document is accurate and true, and the written document meets the requirements of the condition.
coal dust management procedures	Appropriate procedures would be consistent with the aims, objectives and mitigation measures in the QR Network (2010) *Coal Dust Management Plan* and include reference to: a) wagon loading systems b) load profiling c) coal wagon veneering d) dust monitoring systems e) wagon washing f) periodic removal of dust from ballast and tracks.
environmental impact statement documentation	Environmental impact statement documentation prepared for the North Galilee Basin Rail project in accordance with the provisions of the *State Development and Public Works Organisation Act 1971*.
environmental nuisance	as defined in Section 15 of the *Environmental Protection Act 1994*.
measured	The standards used to measure air particulates and contaminants including the most recent version of either: *Australian Standard AS3580.9.6 Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM_{10} high volume sampler with size-selective inlet – Gravimetric method,* or *Australian Standard AS3580.9.9 Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM_{10} low volume sampler – Gravimetric method,* or *Australian Standard AS3580.9.8 Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM_{10} continuous direct mass method using a tapered element oscillating microbalance (TEOM) analyser* *Australian Standard/New Zealand Standard AS/NZS3580.9.3:2003 Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – Total suspended particulate matter (TSP) – High volume sampler gravimetric method* or using an alternative sampling methodology determined in consultation with the Department of Environment and Heritage Protection.

Definitions	
minimise	taking all reasonable and practical measures to minimise the adverse effect having regard to the following matters: a) the nature of the harm or potential harm b) the sensitivity of the receiving environment c) the current state of technical knowledge for the activity d) the likelihood of successful application of different measures that might be taken to minimise the adverse effects e) the financial implications of the different measures as they would relate to the type of activity f) if the adverse effect is caused by the location of the activity being carried out, whether it is feasible to carry out the activity at another location.
monitoring	Monitoring and sampling carried out in accordance with the requirements of the following documents (as relevant to the sampling being undertaken): a) for waters and aquatic environments, the Queensland Government's Monitoring and Sampling Manual 2009—Environmental Protection (Water) Policy 2009 b) for noise, the Environmental Protection Regulation 2008 c) for air, the Queensland Air Quality Sampling Manual and/or Australian Standard 4323.1:1995 Stationary source emissions method 1: Selection of sampling positions or the most recent version of Australian Standard AS3580.10.1 Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric method. d) for soil, the Guidelines for Surveying Soil and Land Resources, 2nd edition (McKenzie et al. 2008), and/or the Australian Soil and Land Survey Handbook, 3rd edition (National Committee on Soil and Terrain, 2009) e) for dust, Australian Standard AS3580
nuisance sensitive place	Includes: • a dwelling (including residential allotment, mobile home or caravan park, other residential premises, motel, hotel or hostel • a library, childcare centre, kindergarten, school, university or other educational institution • a medical centre, surgery or hospital • a protected area under the *Nature Conservation Act 1992*. • a public park or garden that is open to the public (whether or not on payment of money) for use other than for sport or organised entertainment • a workplace used as an office or for business or commercial purposes, which is not part of the project activity(ies) and does not include employees accommodation, grazing and farmland, unoccupied buildings or public roads
project	The North Galilee Basin Rail project, declared a Coordinated Project under the *State Development and Public Works Organisation Act 1971*.
proponent	Adani Mining Pty Ltd
rail transport infrastructure	As defined in Schedule 6 of the *Transport Infrastructure Act 1994*

Definitions	
relevant provisions	Relevant provisions of the *Nature Conservation Act 1992* include but are not limited to: • A Clearing Permit to clear protected plants, except where an exemption applies. The Nature Conservation (Protected Plants) Conservation Plan 2000 outlines how clearing permits, licences and exemptions can be issued to take protected plants. • A Species Management Program will need to be submitted for consideration in relation to tampering with animal breeding places. Section 332(4) of the Nature Conservation (Wildlife Management) Regulation 2006 identifies that the removal of a breeding place may occur under an approved species management program or a damage mitigation permit. • The management principles outlined in Section 73 of the *Nature Conservation Act 1992.*
sediment and erosion control measures	Suitable measures are included in the document International Erosion Control Association (Australasia) *Best Practice Erosion and Sediment Control*.
significantly disturbed	Has the meaning in Schedule 12, section 4 of the Environmental Protection Regulation 2008.
State Development Area	Refers to any State Development Area declared by the Governor-in-Council incorporating part or all of the project
state government survey guidelines	• Department of Environment and Resource Management (2011) Ecological Equivalence Methodology Guideline: Policy for Vegetation Management Offsets: Queensland Biodiversity Offset Policy or • Department of Environment and Resource Management (2011) Biocondition, a Condition Assessment Framework for Terrestrial Biodiversity in Queensland, Assessment Manual or • equivalent methodology determined in consultation with the Department of Environment and Heritage Protection
suitably qualified person	A person who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis to performance relative to the subject matter using the relevant protocols, standards, methods or literature.
threatened species	Includes native wildlife that is prescribed under the *Nature Conservation Act 1992* as— endangered wildlife vulnerable wildlife near threatened wildlife. Or Threatened flora and fauna listed in a category defined in section 179 of the *Environment Protection and Biodiversity Conservation Act 1999*.
waters	all or any part of a creek, river, stream, lake, lagoon, swamp, wetland, spring, unconfined surface water, unconfined water in natural or artificial watercourses, bed and bank of any waters, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and underground water.

Part C. Recommended conditions under the *Transport Infrastructure Act 1994*

Recommendation 8. Transport Infrastructure

(a) The proponent must implement all necessary measures to mitigate adverse impacts on the safety, condition and efficiency of state-controlled and local roads for all stages of the project.

(b) An impact mitigation program must be submitted to DTMR for review and approval at least three months prior to the commencement of project construction, or some other time period agreed in writing with DTMR and address one or more of the following:

- (i) construction of any required works (including site accesses) as and when included in an approved Road Impact Assessment (RIA)
- (ii) payment of any contributions towards the cost of works, rehabilitation or maintenance as and when included in a RIA
- (iii) undertaking or implementing any other action as and when stated in an approved Road-use Management Plan (RMP)
- (iv) actions or payments as otherwise agreed in writing with DTMR and/or the relevant LGA or in an infrastructure agreement.

(c) The RIA prepared for (b) must be submitted to DTMR and/or the relevant LGA for review and approval six months prior to the anticipated commencement of the relevant project stage or as otherwise agreed in writing between the proponent and DTMR or relevant LGA and should include but not be limited to:

- (i) upgrades of the intersections of the following roads:
  - (1) Bruce Highway/Glenore Road
  - (2) Bowen Developmental Road/Access road to Camp 3
  - (3) Bowen Developmental Road/Access road to Camp 4
  - (4) Suttor Developmental Road/Stratford Road
  - (5) Gregory Developmental Road/New access road
  - (6) Bowen Developmental Road/Collinsville – Elphinstone Road
  - (7) Suttor Developmental Road/Collinsville Elphinstone Road
  - (8) Bowen Developmental Road/Strathalbyn Road
- (ii) implementation of the following crossings of the rail with state controlled roads:
  - (1) Bruce Highway crossing – rail over road
  - (2) Bowen Developmental Road – road over rail
  - (3) Collinsville – Elphinstone Road – road over rail
  - (4) Suttor Developmental Road – road over rail (interim at-grade)
  - (5) Gregory Developmental Road – road over rail.
- (iii) assessment of the impacts of heavy vehicles on road infrastructure (including structures) on key routes used for hauling project construction inputs.

(d) The RMP(s) prepared for (b) should be submitted to DTMR and/or the relevant LGA for review and approval six months prior to the anticipated commencement of the relevant project stage.

(e) Any infrastructure agreement between the proponent, DTMR or the relevant LGA prepared for (b) must be signed by each party prior to commencement of project construction. The infrastructure agreement must include inter alia:

  (i) the design and construction of level crossing facilities for the Suttor Development Road

  (ii) the design and construction of a grade-separated crossing (road over rail bridge) for the Suttor Developmental Road within 18 months of any of the following:

    (1) rail traffic at the crossing is contracted to exceed 12 train movements per day (6 trains each way, on average)

    (2) annual average daily traffic count on the road exceeds 500 vehicles per day

    (3) or as otherwise agreed in writing with DTMR

  (ii) the design and construction of a grade-separated crossing for the Bowen Development Road in consultation with:

    (1) Aurizon Holdings, the owner of the Newlands-Abbot Point rail line, and

    (2) the proponent for the proposed Alpha Coal project, if required by the Coordinator-General at the time of developing the relevant infrastructure agreement.

(f) In the event that agreement cannot be reached between the proponent and DTMR, the matter may be referred to the Coordinator-General, by either party, to bring the matter to a conclusion and meet these conditions.

The entity responsible for ensuring this recommendation is implemented is the Department of Transport and Main Roads

Recommendation 9. Permits, approvals and traffic management plans

(a) To ensure efficient processing of the project's required transport-related permits and approvals, the proponent must undertake the following, no later than three months (or such other period agreed in writing with DTMR and the relevant LGA) prior to the commencement of construction works or significant project-related traffic:

  (i) submit detailed drawings of any works required to mitigate the impacts of project-related traffic to DTMR or the relevant LGA for review and approval

  (ii) obtain all relevant licences and permits required under the *Transport Infrastructure Act 1994* for works within the state-controlled road corridor (s33 for road works approval, s62 for approval of location of vehicular accesses to state roads and s50 for any structures or activities to be located or carried out in a state-controlled road corridor)

  (iii) obtain permits for any excess mass or over-dimensional loads for all phases of the project in consultation with DTMR's Heavy Vehicles Road

Operation Program Office, and the relevant LGA(s), as required by the *Transport Operations (Road Use Management) Act 1995*

(iv) prepare and implement a Construction Traffic Management Plan in accordance with DTMR's *Guide to preparing a Traffic Management Plan,* to include each site where road works are to be undertaken (including site access points, road intersections or other works undertaken in the state-controlled road corridor).

The entity responsible for ensuring this recommendation is implemented is the Department of Transport and Main Roads.

Definitions	
Infrastructure agreements	Infrastructure agreement(s) are negotiated between a proponent and DTMR and/or the relevant LGA(s). They are intended to formalise arrangements about transport infrastructure works, contributions and road-use management strategies detailed and required under the impact mitigation program. The infrastructure agreement/s should incorporate the following: (a) project-specific works and contributions required to upgrade impacted road infrastructure and vehicular access to project sites as a result of the proponent's use of state-controlled and local transport infrastructure by project traffic (b) project-specific contributions towards the cost of maintenance and rehabilitation, to mitigate impacts on state-controlled and/or local road pavements or other infrastructure (c) agreed performance criteria that detail protocols for consultation about reviewing and updating project-related traffic assessments and impact mitigation measures that are based on actual traffic volume and impacts, should previously advised traffic volumes and/or impacts change (d) the proponent's undertaking to fulfil all commitments relating to transport infrastructure as detailed in the North Galilee Basin Rail project environmental impact statement commitment register.

Definitions	
Road impact assessments	An acceptable RIA report is one developed by a suitably qualified person in accordance with the DTMR *Guidelines for Assessment of Road impacts of Development (2006)* (GARID) and includes: a) a completed DTMR 'Transport Generation proforma detailing project-related traffic and transport generation information or as otherwise agreed in writing with DTMR and the relevant LGA(s) b) use of DTMR's Pavement Impact Assessment tools or such other method or tools as agreed in writing with DTMR and the relevant LGA(s) c) a clear indication of where detailed estimates of project-related traffic are not available, and documentation of the assumptions and methodologies that have been previously agreed in writing with DTMR and relevant LGA(s), prior to RIA finalisation d) details of the final impact mitigation proposals, listing infrastructure-based mitigation strategies, including contributions to road works, rehabilitation, maintenance and summarising key road-use management strategies e) Australian Level Crossing Assessment Model (ALCAM) assessments of all rail crossings. Development impact is to be projected at 5 year increments for the first 10 years of construction and operation of the project with future reviews and assessments to occur every 5 years thereafter including decommissioning.
Road use management plans	An acceptable Road-use Management Plan (RMP) is one developed by a suitably qualified person in accordance with DTMR's *Guide to Preparing a Road-use Management Plan* for each stage of the project and includes: a) a table listing RMP commitments and provides confirmation that all works and road-use management measures have been designed and/or will be undertaken in accordance with all relevant DTMR standards, manuals and practices and/or as required by the relevant LGA b) optimised project logistics and minimised road-based trips on all state-controlled and local roads.
Significant project-related traffic	An increase in project traffic equal to or greater than 5% in either traffic numbers (AADT) or axle loadings (ESAs), as outlined in the GARID

Schedule 3. Imposed conditions

This appendix includes conditions imposed by the Coordinator-General under section 54B of the SDPWO Act. The conditions are relevant to applications for development approvals for those parts of the project where there is no relevant approval applicable under other legislation.

All of the conditions imposed in this appendix take effect from the date of this Coordinator-General's report.

These conditions do not relieve the proponent of the obligation to obtain all approvals and licences from all relevant authorities required under any other Act.

In accordance with section 54B(3) of the SDPWO Act, I have nominated the entity to have jurisdiction for the condition in this schedule.

Pursuant to section 54D of the SDPWO Act, these conditions apply to anyone who undertakes the project, such as the proponent and an agent, contractor, subcontractor or licensee of the proponent, and any public utility providers undertaking public utility works as a result of the project.

Condition 1. Flooding

(a) A suitably qualified person must document and certify that the design and construction of the project:

- (i) meets the criteria stated in Table 5.6 of this report
- (ii) is in accordance with the design criteria in the Department of Transport and Main Roads (March 2010) Road Drainage Manual 2nd edition
- (iii) meets the following criteria for a two per cent annual exceedance probability rainfall event (50 year Annual Recurrence Interval):
  - (1) not cause, or have the potential to increase flood damage at a residential premises or occupied commercial workplace
  - (2) a maximum increase in afflux of 0.1 m at a residential premises or occupied commercial workplace
  - (3) a maximum increase in afflux of 0.2 m at infrastructure
  - (4) a design objective of an increase in afflux of 0.3m, with a maximum increase in afflux of 0.5 m at other locations
  - (5) a maximum culvert outlet velocity of 2.5 m/s
  - (6) any increase in duration of floodplain inundation is not to exceed 72 hours or 20 per cent of existing flood duration (whichever is greater)
  - (7) any increase in duration of inundation must not alter rural land uses or result in significant impacts upon valued pasture land, other valued agricultural land uses such as cultivated ground or flood-free ground and evacuation access for cattle.

(b) Relevant land owners likely to be impacted by changes to the existing flooding/drainage system must be consulted prior to completion and submission to the Coordinator-General of the final design for the rail component of the project.

(c) The certified final design and a report on the consultation required in (b) must be provided to the Coordinator-General for approval at the completion of the final design and revised flood modelling.

The Coordinator-General is to have jurisdiction for this condition.

Definitions	
annual exceedance probability	Is the probability that at least one event in excess of a particular magnitude will occur in any given year
certify	A Statutory Declaration by a suitably qualified person accompanying the written document warranting that: • all relevant material has been considered in the written document • the content of the written document is accurate and true • the written document meets the requirements of the condition.
commercial workplace	A workplace used as an office or for business or commercial purposes, which is not part of the project activity(ies) and does not include employees accommodation, grazing and farmland, unoccupied buildings or public roads
infrastructure	Includes state or local government controlled roads, unoccupied buildings, electricity supply or communication structures and airfields
flood damage	Damage caused by flooding that would adversely affect land and/or premises to an extent likely to have a significant cost.
project	The North Galilee Basin Rail project, declared a Coordinated Project under the *State Development and Public Works Organisation Act 1971*.
relevant land owners	Includes private freehold and leasehold land owners, and owners of infrastructure assets including public utilities and government agencies likely to be affected by flooding caused by the rail component of the project.
significant construction activities	Construction activities associated with the rail component of the project that involve bulk earthworks, rail line foundations, bridging or drainage structures but does not include establishment of access roads, laydown areas or camps.
suitably qualified person	A person who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis to performance relative to the subject matter using the relevant protocols, standards, methods or literature.

Condition 2. Social impact assessment reporting requirements

(a) The proponent must provide an annual report to the Coordinator-General from the commencement of construction up to and including the peak construction workforce period, and for two years following the commencement of project operations describing:

(i) the actions to inform the community about project impacts and show how community concerns about project impacts have been taken into account when reaching decisions

(ii) the actions to enhance local and regional employment, training and development opportunities.

(iii) the actions and adaptive management strategies to avoid, manage or mitigate project-related impacts on local and regional housing markets.

(iv) the actions to avoid, manage or mitigate project-related impacts on local community services, social infrastructure and community safety and wellbeing

(v) an assessment of the impacts and benefits of utilising a FIFO workforce and mitigation measures adopted.

The Coordinator-General is to have jurisdiction for this condition.

Condition 3. Offsets

(a) The proponent must prepare an offsets strategy that:

(i) details any offset requirements conditioned by the Commonwealth Minister for the Environment in any approval for the project under the *Environment Protection and Biodiversity Conservation Act 1999*

(ii) details proposed offsets to address any significant residual impacts for matters of state environmental significance consistent with (a)(ii)

(iii) Takes account of the results of any pre-clearance surveys undertaken in accordance with Appendix 1, Schedule 2, Recommendation 1.

(iv) Includes but is not necessarily limited to:

(1) a detailed description of the land to which the strategy relates, the values affected and the extent and likely timing of impact on each value

(2) evidence that values impacted can be offset

(3) the offset delivery mechanism(s) comprising one or more of: land-based offsets; direct benefit management plans; offset transfers and/or offset payments

(4) a legally binding mechanism that ensures protection and management of offset areas

(b) The offsets strategy must be provided to the Coordinator-General for approval within 60 days of an approval decision under the *Environment Protection and Biodiversity Conservation Act 1999* and no later than 2 months prior to the commencement of construction.

(c) The approved offsets strategy must be implemented as directed by the Coordinator-General.

The Coordinator-General has jurisdiction for this condition

Appendix 2. Proponent commitments

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Adani Mining Pty Ltd

NORTH GALILEE BASIN RAIL PROJECT

Additional information to the Environmental Impact Statement

Final Commitment Register

July 2014

Commitments

The table below provides a summary of commitments identified in the North Galilee Basin Rail Project (NGBR Project) Environmental Impact Statement (EIS) and Additional information to the Environmental Impact Statement (AEIS). Commitments have been listed generally in order of appearance of the respective chapters as presented in the EIS. Commitments that are applicable to multiple EIS chapters have only been listed once (and/or chapter topics are considered together), with duplication of commitments removed. For a comprehensive summary of commitments as well as mitigation and management measures, refer to NGBR Project AEIS Volume 2 Appendix H Revised environmental management plan framework.

	Commitment	Cross-reference
1	**Project description**	
1.1	A decommissioning and rehabilitation management plan will be developed for areas temporarily disturbed during construction. Rehabilitation success criteria will be established in accordance with the Department of Environment and Heritage Protection Guideline 'Rehabilitation requirements for mining resource activities' – or other relevant guidelines at the time of rehabilitation.	AEIS Volume 2 Appendix B Revised project description
1.2	Further decommissioning activities will occur at the end of the 90 year life of the NGBR Project. Appropriate rehabilitation strategies will be planned and refined throughout the life of the NGBR Project, and in accordance with any legislated requirements closer to the time of intended end-of-life decommissioning.	
1.3	Water intended for potable use will be treated to an acceptable level as per the Australian Drinking Water Guidelines.	
2	**Land use and tenure**	
2.1	Stock route agreements will be developed, in consultation with key stakeholders, which specify the final treatment for each stock route, designs of the stock route crossings (including drainage, ramps and stockyards) and ongoing maintenance arrangements.	EIS Volume 1 Chapter 3 Section 3.4.4
2.2	Where closure of stock routes is required, Adani will conduct discussions with the Department of Natural Resources and Mines (DNRM), Isaac Regional Council, Whitsunday Regional Council and landholders regarding re-alignment.	

	Commitment	Cross-reference
2.3	Discussions with the relevant telecommunications, water and gas infrastructure owners and service providers will be undertaken during detailed design to establish the most effective protection, relocation or modification for each service crossing	
2.4	Ongoing consultation will be undertaken with the relevant electricity infrastructure owners regarding potential disruptions to their infrastructure, including appropriate and acceptable protection measures	
2.5	Infrastructure agreements will be developed with all relevant infrastructure owners prior to construction commencing	
2.6	Consultation with the Department of Energy and Water Supply (DEWS) and DNRM (Water) will be undertaken to confirm the mitigation requirements relating to development and location of the final rail corridor within the Suttor River dam site (RA8). Should the NGBR Project need to be relocated at some time in the future as a result of construction of the RA8 Dam, Adani will contribute to the full cost of relocation.	EIS Volume 1 Chapter 3 Section 3.4.5
2.7	Adani will comply with requirements outlined in the *Mineral Resources Act 1989* regarding construction on a granted mining tenure.	EIS Volume 1 Chapter 3 Section 3.4.2
3	**Topography, geology, soils and land contamination**	
3.1	A soil survey will be undertaken prior to construction commencing to verify soil types and develop a Soils Management Plan and an Erosion and Sediment Control Plan (ESCP).	EIS Volume 1 Chapter 5 Section 5.4.1
3.2	A Soils Management Plan will be developed for problematic soils identified during the detailed soil survey and include the following: – Identification of cracking clays with potential trafficability hindrances – Identification of unstable soils that would require additional provisions in the ESCP – Identification of saline soils, which will typically be unsuitable for use in rehabilitation – Identification of acidic or sodic soils that may require amelioration and management prior to rehabilitation. The Soils Management Plan will also include measures for managing problematic soils identified during the soil survey.	

	Commitment	Cross-reference
3.3	An acid sulfate soils (ASS) investigation will be undertaken for areas of PASS between chainages 3.4 km and 9.9 km for areas < 20 mAHD in accordance the State Planning Policy and the latest version of the Queensland ASS Technical Manual Soil Management Guideline.	
3.4	An ASS Management Plan will be prepared and specifically tailored to the construction activities based on the results of the ASS investigation in accordance the State Planning Policy and the latest version of the Queensland ASS Technical Manual Soil Management Guideline. That is, for any activities below 5 meters AHD that will: – Disturb >100m3 (bulked volume) of ASS material – Place hard fill material of >500 m3, with an average thickness > 0.5 m3 and/or – Disturb existing groundwater or surface water regimes.	
3.5	The ASS Management Plan will developed in accordance with the State Planning Policy and the latest version of the Queensland ASS Technical Manual Soil Management Guideline. Applicable management techniques may include: – Chemical neutralisation (use of pure fine agricultural lime, Aglime) through mechanical mixing by plough or excavator, to provide adequate homogeneity of the sediment-lime mix – The less preferred, higher risk method of anoxic storage or placement below the water table and beneath clean non-ASS fill – Disposal of neutralised material upon acceptance of relevant permits.	
3.6	A detailed geotechnical investigation will be undertaken and will determine the risk of heaves and mud waves, and where applicable, management measures will be included in an ASS Management Plan.	
3.7	Additional investigations on all land within the final rail corridor will be undertaken in order to assess the potential contamination status and develop appropriate procedures to manage identified potential or actual contamination. Additional assessments will include a site inspection by a ‘suitably qualified person’ as a minimum. Where required, a Sampling and Analysis Plan will be developed and tailored to each property / potentially contaminated area.	
3.8	For the properties containing Strategic Cropping Land (SCL) that did not progress past the preliminary	

	Commitment	Cross-reference
	History of Cropping (HOC) assessment, applications will be submitted to DNRM if required in accordance with the relevant legislation.	
4	**Nature conservation, Matters of National Environmental Significance & Offsets**	
4.1	Baseline field surveys of identified "hotspots" within, and near, construction areas will be undertaken prior to commencement of construction.	EIS Volume 1 Chapter 6 Section 6.4.3 EIS Volume 1 Chapter 7 Section 7.4 AEIS Volume 2 Appendix E Revised offsets
4.2	A comprehensive survey of the ecological values of the final rail corridor will be undertaken to: – Confirm state significant biodiversity values under the relevant offset policies – Confirm the extent of matters of national environmental significance, including threatened ecological communities and potential habitat for species listed under the *Environment Protection and Biodiversity Conservation Act 1999* – Determine the presence of individuals, populations/colonies and/or important habitat areas for threatened species not detected during field surveys for the EIS, via targeted additional field studies where considered likely to occur. – Confirm the extent and condition of regional biodiversity corridors within the final rail corridor – Confirm the extent of watercourse vegetation – Complete biocondition assessment of confirmed state significant biodiversity values or matters of national environmental significance – Determine likely extent of potential groundwater dependent ecosystems.	
4.3	The findings of the comprehensive survey of ecological values will be provided to the Department of Environment and Heritage Protection and the Commonwealth Department of the Environment.	
4.4	The comprehensive survey of ecological values will inform the development of the environmental management plan, Species Management Plans, the final offset package, Fauna Crossing Strategy, subsequent vegetation clearing applications and any associated property maps of assessable vegetation.	
4.5	A Construction Flora and Fauna Management Plan will be developed prior to construction commencing and incorporating the results of baseline field surveys. This plan will include development of Species	

	Commitment	Cross-reference
	Management Plans for identified threatened species, and will be implemented during construction to manage and mitigate the potential adverse impacts on flora and fauna.	
4.6	A Fauna Crossing Strategy will be developed in consultation with, and for the approval of, the Department of Environment and Heritage Protection to mitigate potential impacts on fauna communities utilising habitat traversed by the NGBR Project. The Fauna Crossing Strategy will include fauna-friendly design principles for the design of culverts, bridges and other watercourse structures, particularly in important habitat areas of mapped remnant vegetation and habitat potentially suitable for threatened species. The Fauna Crossing Strategy will set design criteria for fauna-friendly features, including: – Culverts with ledges that facilitate fauna movement – Using grids that allow natural lighting – Protecting and enhancing entries and exits – Standard, four strand barbed wire fencing, with a plain top wire in sensitive areas.	
4.7	Weed mapping will be undertaken prior to commencement of construction. Mapping will cover the final rail corridor and ancillary infrastructure areas but will be particularly focused at high risk locations.	
4.8	A Construction Weed and Pest Management Plan will be developed prior to construction commencing. The Weed and Pest Management Plan will align with the priorities of Isaac Regional Council and Whitsunday Regional Council with regards to weed and pest species, and Adani's responsibilities under the *Plant Protection Act 1989*, the *Chemical Usage (Agricultural and Veterinary) Control Act 1988* and the *Agricultural Chemicals Distribution Controls Act 1966*. The plan will include measures for monitoring, management and where necessary, eradication of weeds, disposal of green waste and vehicle/plant weed wash down procedures.	
4.9	A Mosquito Management Plan will be developed as part of the Construction Weed and Pest Management Plan for the construction phase of the NGBR Project.	
4.10	An Operation Weed and Pest Management Plan will be developed to manage pest and weed species during operation. The Weed and Pest Management Plan will align with the priorities of Isaac Regional Council and Whitsunday Regional Council with regards to weed and pest species, and Adani's responsibilities under the *Plant Protection Act 1989*, the *Chemical Usage (Agricultural and Veterinary) Control Act 1988* and the	

	Commitment	Cross-reference
	Agricultural Chemicals Distribution Controls Act 1966.	
4.11	Prior to construction commencing, consultation with the Department of National Parks, Recreation, Sport and Racing will be undertaken to obtain historical data on previously conducted turtle nesting surveys in the region.	
4.12	Pre-clearance surveys will be undertaken in areas identified as potential habitat for threatened species, prior to commencement of clearing. During pre-clearance surveys, habitat features that may be used by fauna for nesting or shelter will be marked (e.g. hollow-bearing trees, log piles) and thoroughly checked by a fauna spotter-catcher prior to vegetation clearing commencing.	
4.13	A monitoring program will be developed and implemented to assess the success of the pre-construction and construction mitigation and management measures for flora and fauna. The monitoring program will include: – Monitoring of habitat features (i.e. hollows, logs) that have been relocated into adjacent habitat or artificial habitat (i.e. nest boxes, artificial water sources) that have been installed into adjacent habitat to compensate loss of habitat – Monitoring of fauna-friendly design features incorporated into culverts, bridges and other watercourse structures – Monitoring of rehabilitated areas to assess success against rehabilitation criteria using the BioCondition assessment methodology.	
4.14	The Rail Bushfire Management Plan developed for the Carmichael Coal Mine and Rail project (refer to Carmichael Coal Mine and Rail SEIS, Volume 4, Appendix S2) will be extended for use with the North Galilee Basin Rail Project. This plan has been developed to address rail-specific fire risks and to protect the rail corridor, rail operations and the corridor's neighbours against bushfire.	EIS Volume 1 Chapter 7 Section 7.4.4
4.15	Offsetting will be undertaken to address any residual loss of TEC area where adjustments to footprints are not possible.	
4.16	As a precaution, appropriate monitoring, avoidance, mitigation and management measures for species that 'may occur' will be incorporated into Species Management Plans. Should further surveys provide no evidence to indicate the presence of these species, these measures will be removed from the Species	

	Commitment	Cross-reference
	Management Plans.	
4.17	A Water Quality Management Plan will be established to monitor changes in the water quality of the Caley Valley Wetland and other major watercourses.	
4.18	A property map of assessable vegetation will be prepared and certified by the Department of Natural Resources and Mines, to confirm potential impact areas, where required.	EIS Volume 1 Chapter 6 Section 6.4.3 EIS Volume 1 Chapter 7 Section 7.4 AEIS Volume 2 Appendix E Revised offsets
4.19	Biocondition assessment of potential impact areas and potential offset sites will be undertaken to determine their ecological equivalence.	
5	**Chapter 9 Water resources**	
5.1	A Water Quality Management Plan will be developed and implemented prior to construction commencing.	EIS Volume 1 Chapter 9 Section 9.4.3
5.2	Further investigations for the detailed design of watercourse structures will be undertaken and include detailed identification and consideration of all afflux affected property and assets. This will determine afflux levels and appropriate drainage structure dimension requirements.	
5.3	Additional hydrology and hydraulic modelling will be undertaken during detailed design to refine bridge design, culvert design and afflux values, and ensure the minimisation of hydraulic impacts.	
5.4	At quarry locations, further investigation into potential groundwater impacts will be undertaken to better characterise the groundwater conditions and impacts at these locations.	
6	**Air quality**	
6.1	A Dust Management Plan will be developed and implemented for the construction phase of the NGBR Project.	EIS Volume 1 Chapter 10 Section 10.4.3
6.2	A Coal Dust Management Plan will be implemented to address the operation of all trains and maintenance activities.	
6.3	Adani will consult with the Department of Environment and Heritage Protection and the Department of Transport and Main Roads during preparation of the Dust Management Plan and Coal Dust Management Plan.	

	Commitment	Cross-reference
6.4	All complaints relating to air quality (including dust emissions) will be recorded and managed in accordance with the complaints management procedure. Corrective action will be undertaken in accordance with the environmental management plan if the complaint is validated.	
6.5	Potential impacts to occupants of construction camps will be fully mitigated to avoid any potential health risks.	
7	**Greenhouse gas**	
7.1	An energy efficiency review will be undertaken at the commencement of operations and every five years following, to identify initiatives and technology that may be integrated into the NGBR Project.	EIS Volume 1 Chapter 11 Section 11.4.1
8	**Noise and vibration**	
8.1	Operational noise monitoring will be undertaken to validate noise predictions. Where operational noise monitoring identifies noise impact occurring at a sensitive receptor, additional mitigation measure will be employed.	EIS Volume 1 Chapter 12 Section 12.4.3
8.2	Sensitive receptors included in the environmental management plan will be updated during detailed design to ensure that receptors applicable to the rail alignment are appropriately identified and managed.	
8.3	Adani will consult with the Department of Environment and Heritage Protection during the planning stage of operational noise monitoring regarding applied noise standards.	
8.4	Respond to complaints relating to construction in accordance with complaints management procedures. Corrective action will be undertaken in accordance with the environmental management plan if the complaint is validated.	
8.5	Undertake operational noise monitoring to validate model predictions and employ additional mitigation such as screening, barriers, bunds or building works as necessary.	
8.6	Potential impacts to occupants of construction camps will be fully mitigated to avoid any potential health risks.	

	Commitment	Cross-reference
9	**Waste**	
9.1	A waste management strategy has been developed for the NGBR Project. It will continue to be developed and refined during the detailed design and will include: – The development of a procurement plan – Formalisation of a waste management standard – Development of site based management plans for wastewater discharge – Waste auditing and monitoring.	EIS Volume 1 Chapter 13 Section 13.6
10	**Transport**	
10.1	A construction Traffic Management Plan (TMP) will be developed and implemented prior to construction commencing on site. Development of the TMP will include consultation with Department of Transport and Main Roads (DTMR), Whitsunday Regional Council, Isaac Regional Council and the Queensland Police Service.	EIS Volume 1 Chapter 14 Section 14.6
10.2	The TMP will include measures to manage driver fatigue in accordance with DTMR strategies and any obligations under the *Heavy Vehicle National Law Act 2012*.	
10.3	A Road Use Management Plan (RUMP) will be developed in conjunction with relevant infrastructure owners and in consultation with Queensland Police Service, where relevant.	
10.4	A Road Impact Assessment (RIA) will be prepared prior to construction commencing for all key roads and approaches to key intersections in the study area. The RIA will identify locations on the road network where a detailed pavement impact assessment (PIA) is required. A PIA will be prepared and submitted to DTMR/Council prior to construction commencing. The PIA will assess the impact of construction traffic on the life of the affected road pavements and recommend remedial measures. The extent of the remedial measures and compensation will be determined through an infrastructure agreement process, involving Adani, DTMR and local councils.	
10.5	Prior to commencement of construction, further investigation and consultation will be undertaken with affected infrastructure owners and associated regulatory agencies regarding final crossing treatment	

	Commitment	Cross-reference
	arrangements, impact management practices to be employed and the development and execution of Infrastructure Agreement with respective parties.	
10.6	Infrastructure agreements will be developed with all relevant infrastructure owners prior to construction commencing.	
11	**Cultural heritage**	
11.1	A Cultural Heritage Management Plan (CHMP) will be developed in accordance with the *Aboriginal Cultural Heritage Act 2003* and the Department of Aboriginal and Torres Strait Islander and Multicultural Affairs (DATSIMA) guidelines.	EIS Volume 1 Chapter 15 Section 15.5
11.2	Ongoing consultation will be conducted with Native Title and Traditional Owner stakeholders including development of Indigenous Land Use Agreements.	
11.3	Comprehensive cultural heritage surveys will be undertaken in accordance with Adani's duty of care under the *Aboriginal Cultural Heritage Act 2003* and the *Queensland Cultural Heritage Act 1992*.	
11.4	A Non-indigenous CHMP will be developed as part of the Construction EMP (separate to Indigenous CHMP's that are developed with each of the affected Indigenous traditional owner groups) to manage compliance with the *Queensland Cultural Heritage Act 1992*.	EIS Volume 1 Chapter 15 Section 15.4.1
12	**Social and economic impacts**	
12.1	Adani will monitor and review impacts and management strategies on an annual basis during the construction phase and the first two years of operation. Subsequent impacts and the respective management strategies will be reviewed annually and reported through Adani's annual reporting process.	EIS Volume 1 Chapter 16 Section 16.6
12.2	Adani will extend its existing community development plan to the NGBR Project.	
12.3	Adani will include community investment into its overall business and planning process, for integrating and delivering effective business outcomes and will seek to do this in a transparent and genuine manner.	
12.4	Adani will develop a Local Content Strategy in accordance with Queensland Resource Council's Queensland	EIS Volume 1 Chapter 16

	Commitment	Cross-reference
	Resources and Energy Sector Code of Practice for Local Content 2013 and associated implementation guidelines. In developing the Local Content Strategy, Adani will work with the Whitsunday Regional Council, Isaac Regional Council, the economic development groups in the region and local businesses in conjunction with the Queensland Government and the Industry Capability Network.	Section 16.6.1
12.5	Preference for workforce sourcing will be given in the hierarchy of local, regional, state and national recruitment for direct, as well as contractor employment opportunities.	
12.6	Adani will continue to engage with the Jangga, Birriah and Juru Peoples through the CHMP and native title processes and will continue to work with traditional owners to further develop and agree upon Indigenous business and employment opportunities.	
12.7	A non-indigenous CHMP will be developed as a part of the Construction Environmental Management Plan.	
12.8	Adani has commenced engagement with DATSIMA to develop an appropriate Indigenous Participation Plan.	
12.9	Adani commits to the development, training and employment of apprentices/trainees on the NGBR Project, where appropriate. Adani will support skills and up-skilling development of its workforce and is strongly encouraging its contractors to actively support apprentice/trainee development, training and employment through the placement of appropriate number of apprentices and trainees on the work site, subject to associated regulatory and associated restrictions.	
12.10	Adani will engage with regional training providers to offer appropriate training and apprenticeship programs.	
12.11	For sustainability of the region's community and economy Adani will also explore supporting skills development in other industrial sectors relevant to the regional study area	
12.12	Adani will develop a Workforce Management Plan for the NGBR Project in consultation with the Department of Education, Training and Employment. The plan will be applicable to Adani, as well as the contractors engaged for the NGBR Project.	EIS Volume 1 Chapter 16 Section 16.6.2
12.13	The Workforce Management Plan will incorporate a Code of Conduct, developed in consultation with the Queensland Police Service.	

	Commitment	Cross-reference
12.14	Adani will consult with landholders about the location and design for stock and vehicle/equipment crossings of the final rail corridor and ancillary infrastructure (both temporary and permanent) based on minimising impacts on access to bisected properties whilst taking into account engineering design constraints. The outcomes may include: – Holding yards established at either side of stock crossings as necessary – Private tracks joined to local roads or grade separated where possible to preserve their utility – Surface drainage patterns preserved (where possible) with the design of culverts and cut/fill areas.	EIS Volume 1 Chapter 16 Section 16.6.3
12.15	Adani commits to monitoring regional housing conditions through consultations with key housing stakeholders in Bowen and implement an approach to accommodation management that is transparent and flexible to changing housing conditions.	EIS Volume 1 Chapter 16 Section 16.6.4
12.16	Adani commits to developing a workforce integration and cohesion program.	EIS Volume 1 Chapter 16 Section 16.6.5
12.17	Adani commits to engaging with regional health providers and emergency service providers, including Queensland Fire and Emergency Services and Queensland Police Service, for input into the Emergency Management Plan	
12.18	A stakeholder engagement plan for the NGBR Project will be developed within Adani's overall stakeholder engagement strategy	EIS Volume 1 Chapter 16 Section 16.6.7
13	**Climate and natural hazards & Hazard, risk, health and safety**	
13.1	A Risk Management Plan will developed and implemented for the NGBR Project and include preventative and responsive mitigation measures to reduce the overall risk of potential hazards identified as high risk.	EIS Volume 1 Chapter 17 Section 17.5 EIS Volume 1 Chapter 18 Section 18.7
13.2	An Emergency Management Plan will be developed, including specific emergency response plans for potential hazards and risk identified through the Risk Management Plan. Adani commits to engage with emergency service providers, including Queensland Fire and Emergency Services and Queensland Police	EIS Volume 1 Chapter 18 Section 18.5.1

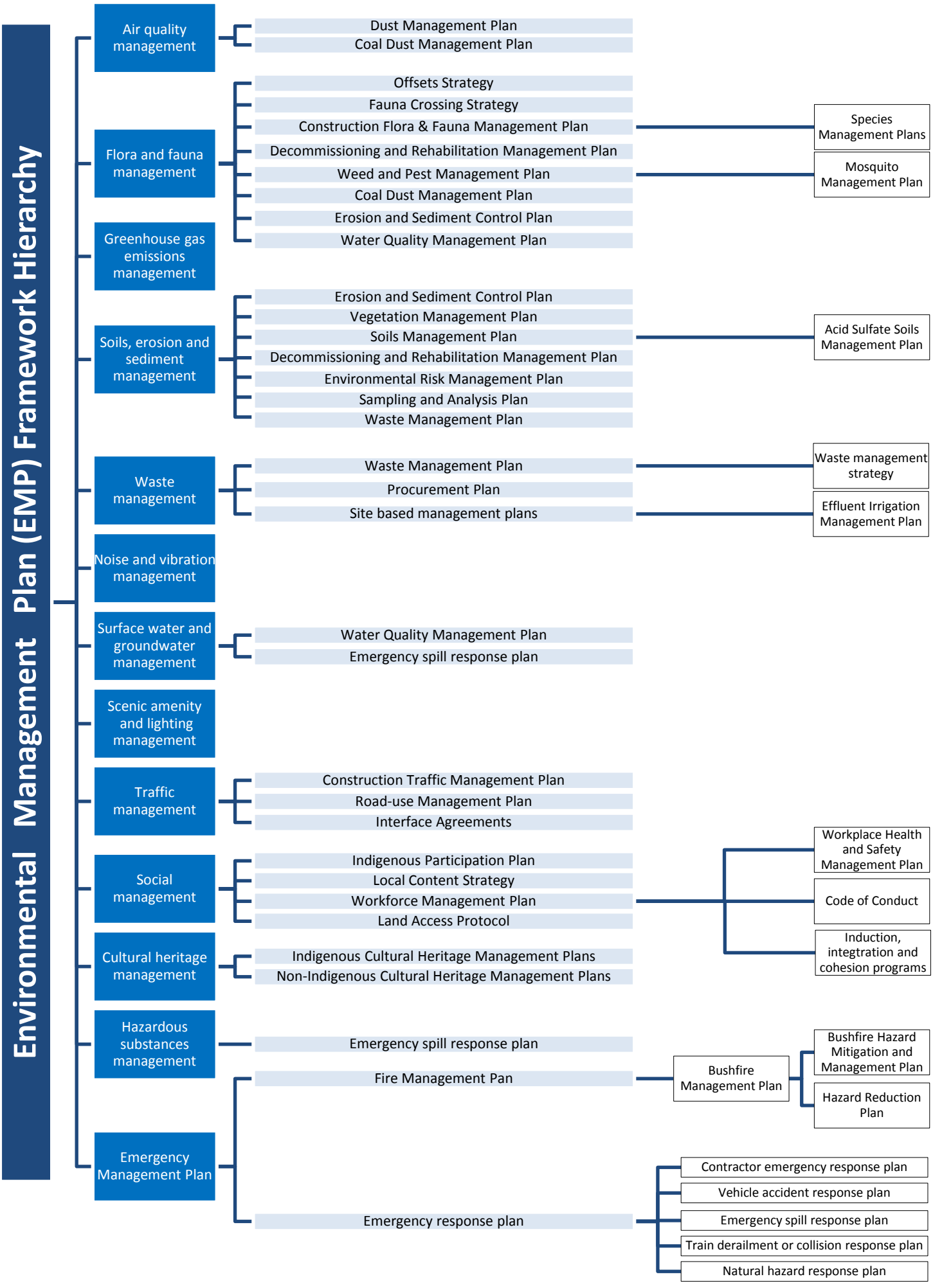
	Commitment	Cross-reference
	Service, for input into the Emergency Management Plan.	
13.3	Adani will develop and implement a Rail Health and Safety Management System (RHSMS), including a Safety Management Plan, for the mitigation of risk so far as reasonably practicable. The RHSMS will provide a systematic way to identify hazards and control risks while maintaining assurance that the risk controls are effective, to provide a safe and healthy work environment to its employees, contractors and visitors.	
13.4	Rail safety accreditation will be obtained and maintained. Tracks, wagons and locomotives will be routinely inspected and maintained.	
13.5	Proper signalling systems will be installed and will be routinely inspected and maintained.	
13.6	The Project will install either passive or active controls at level crossings. Grade separators will be constructed at identified crossings as required by DTMR.	
13.7	The Project will provide radio communications systems, transponders/GPS, rail track signalling systems and in-vehicle communication as per Australian Standards.	
13.8	Provision of adequate and safe access for fire fighting/other emergency vehicles and safe evacuation. Adani will work closely with QPS, DCS and other emergency service providers with regards to services and emergency responses.	
13.9	As part of the spill response plan, spillages will be prevented from entering drains or water courses and absorbent material will be placed on spillages which will be collected for disposal and any contaminated soil removed for treatment and disposal. A licenced contractor will be used for removal and disposal of spilled waste oil and clean-up material.	
13.10	The Rail Bushfire Management Plan developed for the Carmichael Coal Mine and Rail project (refer to Carmichael Coal Mine and Rail SEIS, Volume 4, Appendix S2) will be extended for use with the North Galilee Basin Rail Project. This plan has been developed to address rail-specific fire risks and to protect the rail corridor, rail operations and the corridor's neighbours against bushfire.	

	Commitment	Cross-reference
14	**Consultation**	
14.1	Adani will undertake consultation with affected landholders regarding property impacts, valuation and compensation arrangements, including consideration of ongoing flood modelling and property-scale mapping.	AEIS Volume 2 Appendix I Revised consultation
14.2	Adani will continue to consult with affected resource tenement holders and the Department of Natural Resources and Mines in regard to how and when consent is required (if any) to be obtained for access to, and/or for other activities on, affected resource tenements during detailed design, construction and/or operations.	

Appendix 3. Environmental Management Plan Framework

The figure below shows the hierarchy of subject-specific management plans and sub-plans which are outlined in the AEIS EMP Framework.

The table below cross-references the management measures (including subject-specific management plans and sub-plans outlined in the AEIS EMP Framework) with proponent commitments.


Environmental Management Plan (EMP) Framework Hierarchy
Air quality management
Dust Management Plan
Coal Dust Management Plan
Flora and fauna management
Offsets Strategy
Fauna Crossing Strategy
Construction Flora & Fauna Management Plan
Decommissioning and Rehabilitation Management Plan
Weed and Pest Management Plan
Coal Dust Management Plan
Erosion and Sediment Control Plan
Water Quality Management Plan
Species Management Plans
Mosquito Management Plan
Greenhouse gas emissions management
Soils, erosion and sediment management
Erosion and Sediment Control Plan
Vegetation Management Plan
Soils Management Plan
Decommissioning and Rehabilitation Management Plan
Environmental Risk Management Plan
Sampling and Analysis Plan
Waste Management Plan
Acid Sulfate Soils Management Plan
Waste management
Waste Management Plan
Procurement Plan
Site based management plans
Waste management strategy
Effluent Irrigation Management Plan
Noise and vibration management
Surface water and groundwater management
Water Quality Management Plan
Emergency spill response plan
Scenic amenity and lighting management
Traffic management
Construction Traffic Management Plan
Road-use Management Plan
Interface Agreements
Social management
Indigenous Participation Plan
Local Content Strategy
Workforce Management Plan
Land Access Protocol
Workplace Health and Safety Management Plan
Code of Conduct
Induction, integtration and cohesion programs
Cultural heritage management
Indigenous Cultural Heritage Management Plans
Non-Indigenous Cultural Heritage Management Plans
Hazardous substances management
Emergency spill response plan
Emergency Management Plan
Fire Management Pan
Bushfire Management Plan
Bushfire Hazard Mitigation and Management Plan
Hazard Reduction Plan
Emergency response plan
Contractor emergency response plan
Vehicle accident response plan
Emergency spill response plan
Train derailment or collision response plan
Natural hazard response plan

Management measures and proponent commitments

Topic	EMP Framework management plan(s) (AEIS, Volume 2, Appendix H)	Relevant management plans/strategies	EIS/AEIS reference	Commitment register reference (Appendix 2 of this report)
Biodiversity (refer to section 5.1 of this report)	Flora and fauna management (refer to section 4.2 of AEIS EMP Framework)	Offsets Strategy Fauna Crossing Strategy Construction Flora and Fauna Management Plan Species Management Plans Decommissioning and Rehabilitation Management Plan Weed and Pest Management Plan Mosquito Management Plan Coal Dust Management Plan Erosion and Sediment Control Plan Water Quality Management Plan	EIS, Volume 1, Chapter 6, section 6.4.3 EIS, Volume 1, Chapter 9, section 9.4.3	Commitments 1.1, 3.1, 4.4–4.6, 4.8–4.10, 4.16, 4.17, 5.1, 6.2, 6.3
Impacts on landholders (refer to section 0 of this report)	Air quality management Noise and vibration management Surface water and groundwater management (refer to sections 4.1, 4.6 and 4.7 of AEIS EMP Framework)	Dust Management Plan Coal Dust Management Plan Water Quality Management Plan Emergency spill response plan Erosion and Sediment Control Plan Environmental Risk Management Plan	EIS, Volume 1, Chapter 10, section 10.4.3 EIS, Volume 1, Chapter 9, section 9.4.3 EIS, Volume 1, Chapter 5, section 5.4.3	Commitments 3.1, 5.1, 6.1–6.3, 13.9

Topic	EMP Framework management plan(s) (AEIS, Volume 2, Appendix H)	Relevant management plans/strategies	EIS/AEIS reference	Commitment register reference (Appendix 2 of this report)
Land disturbance and rehabilitation (refer to section 5.3 of this report)	Soils, erosion and sediment management (refer to section 4.4 of AEIS EMP Framework)	Erosion and Sediment Control Plan Vegetation Management Plan Soils Management Plan Acid Sulfate Soils Management Plan Decommissioning and Rehabilitation Management Plan Environmental Risk Management Plan Sampling and Analysis Plan	EIS, Volume 1, Chapter 5, section 5.4.3 EIS, Volume 1, Chapter 6, section 6.4.3	Commitments 1.1, 3.1, 3.2, 3.4–3.7
Transport (refer to section 5.4 of this report)	Traffic management (refer to section 4.9 of AEIS EMP Framework)	Construction Traffic Management Plan Road Use Management Plan Coal Dust Management Plan	EIS, Volume 1, Chapter 14, section 14.6 EIS, Volume 1, Chapter 18, section 18.5.1	Commitments 6.2, 6.3, 10.1–10.3
Cultural heritage (refer to section 5.5 of this report)	Cultural heritage management (refer to section 4.11 of AEIS EMP Framework)	Indigenous Cultural Heritage Management Plans Non-Indigenous Cultural Heritage Management Plan	EIS, Volume 1, Chapter 15, section 15.5	Commitments 11.1, 11.4
Social impacts (refer to section 5.6 of this report)	Social management Emergency Management Plan (refer to section 4.10 and Appendix A of AEIS EMP Framework)	Local Content Strategy Indigenous Participation Plan Workforce Management Plan Workplace Health and Safety Management Plan Stakeholder Engagement Plan	EIS, Volume 1, Chapter 16, sections 16.6.1, 16.6.2, 16.6.5, and 16.6.7	Commitments 12.4, 12.8, 12.12, 12.13, 12.18

Topic	EMP Framework management plan(s) (AEIS, Volume 2, Appendix H)	Relevant management plans/strategies	EIS/AEIS reference	Commitment register reference (Appendix 2 of this report)
Economic impacts (refer to section 5.7 of this report)	Social management (refer to section 4.10 of AEIS EMP Framework)	Local Content Strategy Indigenous Participation Plan Workforce Management Plan	EIS, Volume 1, Chapter 16, sections 16.6.1 and 16.6.2	Commitments 12.4, 12.8, 12.12, 12.13
Environmental, hazard and risk management (refer to section 6 of this report)	Hazardous substances management Emergency Management Plan (refer to section 4.12 and Appendix A of AEIS EMP Framework)	Rail Health and Safety Management System Safety Management Plan Risk Management Plan Fire Management Plan Bushfire Management Plan Emergency Response Plan Contractor emergency response plan Vehicle accident response plan Emergency spill response plan Train derailment or collision response plan Natural hazard response plan	EIS, Volume 1, Chapter 18, sections 18.5.1 and 18.7 AEIS, Volume 2, Appendix H, section 3.10	Commitments 4.14, 12.17, 13.1–13.3, 13.9, 13.10

Acronyms and abbreviations

Acronym	Definition
ACH Act	*Aboriginal Cultural Heritage Act 2003* (Qld)
AEIS	Additional information on the environmental impact statement
ALCAM	Australian Level Crossing Assessment Model
APSDA	Abbot Point State Development Area
ARI	Annual Recurrence Interval
AS/NZS	Australian Standard/New Zealand Standard
BIBO	bus-in/bus-out
Bonn Convention	The Convention on the Conservation of Migratory Species of Wild Animals adopted in Bonn, Germany
CAMBA	China–Australia Migratory Bird Agreement
CCMR project	Carmichael Coal Mine and Rail project
CDMP	Coal Dust Management Plan
CHMP	Cultural Heritage Management Plan
DATSIMA	Department of Aboriginal and Torres Strait Islander and Multicultural Affairs
dB(A)	decibels measured at the 'A' frequency weighting network
DEHP	Department of Environment and Heritage Protection
DETE	Department of Education, Training and Employment
DIDO	drive-in/drive-out
DNRM	Department of Natural Resources and Mines
DTMR	Department of Transport and Main Roads
EIS	environmental impact statement
EMP	Environmental Management Plan
EMS	Environmental Management System
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cwlth)
EPP (Air)	Environmental Protection (Air) Policy 2008
ERMP	Environmental Risk Management Plan
ESCP	Erosion and Sediment Control Plan
FIFO	fly-in/fly-out
GARID	*Guidelines for the Assessment of Road Impacts of Development* (DTMR)
GBDS	Galilee Basin Development Strategy
GBOS	Galilee Basin Offsets Strategy
GBRCMP	Great Barrier Reef Coast Marine Park
GBRMP	Great Barrier Reef Marine Park
GBRWHA	Great Barrier Reef World Heritage Area
GBSDA	Galilee Basin State Development Area
GQAL	good quality agricultural land
GRP	Gross Regional Product
GSP	Gross State Product
ha	hectare

Acronym	Definition
HVR	high value regrowth
IAS	initial advice statement
ICH	Indigenous cultural heritage
ICNG	The New South Wales Environmental Protection Agency *Interim Construction Noise Guideline*
ILUA	Indigenous Land Use Agreement
IRC	Isaac Regional Council
JAMBA	Japan–Australia Migratory Bird Agreement
km	kilometre
L_{Aeq}	the average A-weighted sound pressure level of a continuous steady sound that has the same mean square sound pressure as a sound level that varies with time
L_{Amax}	the maximum average A-weighted sound pressure measured over a specified period of time
LGA	local government area or local government authority
LOS	level of service
LP Act	*Land Protection (Pest and Stock Route Management) Act 2002* (Qld)
m	metre
MCU	material change of use
MIW	Mackay, Isaac and Whitsunday
MNES	matters of national environmental significance
mtpa	million tonnes per annum
NC Act	*Nature Conservation Act 1992* (Qld)
NICH	non-Indigenous cultural heritage
NRM	Natural Resource Management
NT Act	*Native Title Act* 1993 (Cwlth)
PIA	Pavement Impact Assessment
PM_{10}	particulate matter with equivalent aerodynamic diameter less than 10μm
$PM_{2.5}$	particulate matter with equivalent aerodynamic diameter less than 2.5μm
PPDA	Priority Port Development Area
QPS	Queensland Police Service
QRC	Queensland Resources Council
QRC Code	Queensland Resources Council's *Queensland Resources and Energy Sector Code of Practice for Local Content 2013*
RE	regional ecosystem
RHSMS	Rail Health and Safety Management System
RIA	Road Impact Assessment
RING	The New South Wales Environmental Protection Agency *Rail Infrastructure Noise Guideline*
RMP	Road-use Management Plan
ROKAMBA	Republic of Korea–Australia Migratory Bird Agreement
RPI Act	*Regional Planning Interests Act 2014* (Qld)

Acronym	Definition
SCR	state-controlled roads
SDA	state development area
SDIPOLB	State Development, Infrastructure and Planning (Red Tape Reduction) and Other Legislation Amendment Bill 2014
SDPWO Act	*State Development and Public Works Organisation Act 1971* (Qld)
SIA	social impact assessment
TEC	threatened ecological community
TMP	traffic management plan
TOR	terms of reference
TSP	total suspended particles
VM Act	*Vegetation Management Act 1999* (Qld)
WPA	wetland protection area
WRC	Whitsunday Regional Council

Glossary

Term	Definition
assessment manager	For an application for a development approval, means the assessment manager under the *Sustainable Planning Act 2009* (Qld).
controlled action	A proposed action that is likely to have a significant impact on a matter of national environmental significance; the environment of Commonwealth land (even if taken outside Commonwealth land); or the environment anywhere in the world (if the action is undertaken by the Commonwealth). Controlled actions must be approved under the controlling provisions of the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth).
controlling provision	The matters of national environmental significance, under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth), that the proposed action may have a significant impact on.
coordinated project	A project declared as a ' coordinated project' under section 26 of the SDPWO Act. Formerly referred to as a 'significant project'.
Coordinator-General	The corporation sole constituted under section 8A of the *State Development and Public Works Organisation Act 1938* and preserved, continued in existence and constituted under section 8 of the SDPWO Act.
environment	As defined in Schedule 2 of the SDPWO Act, includes: a) ecosystems and their constituent parts, including people and communities b) all natural and physical resources c) the qualities and characteristics of locations, places and areas, however large or small, that contribute to their biological diversity and integrity, intrinsic or attributed scientific value or interest, amenity, harmony and sense of community d) the social, economic, aesthetic and cultural conditions that affect, or are affected by, things mentioned in paragraphs (a) to (c).
environmental effects	Defined in Schedule 2 of the SDPWO Act as the effects of development on the environment, whether beneficial or detrimental.
imposed condition	A condition imposed by the Queensland Coordinator-General under section 54B of the SDPWO Act. The Coordinator-General may nominate an entity that is to have jurisdiction for the condition.
initial advice statement (IAS)	A scoping document, prepared by a proponent, that the Coordinator-General considers in declaring a coordinated project under Part 4 of the SDPWO Act. An IAS provides information about: • the proposed development • the current environment in the vicinity of the proposed project location • the anticipated effects of the proposed development on the existing environment • possible measures to mitigate adverse effects.

matters of national environmental significance	The matters of national environmental significance protected under the *Environment Protection and Biodiversity Conservation Act 1999*. The eight matters are: a) world heritage properties b) national heritage places c) wetlands of international importance (listed under the Ramsar Convention) d) listed threatened species and ecological communities e) migratory species protected under international agreements f) Commonwealth marine areas g) the Great Barrier Reef Marine Park h) nuclear actions (including uranium mines).
nominated entity (for an imposed condition for undertaking a project)	An entity nominated for the condition, under section 54B(3) of the SDPWO Act.
properly made submission (for an EIS or a proposed change to a project)	Defined in Schedule 2 of the SDPWO Act as a submission that: a) is made to the Coordinator-General in writing b) is received on or before the last day of the submission period c) is signed by each person who made the submission d) states the name and address of each person who made the submission e) states the grounds of the submission and the facts and circumstances relied on in support of the grounds.
proponent	The entity or person who proposes a coordinated project. It includes a person who, under an agreement or other arrangement with the person who is the existing proponent of the project, later proposes the project.
protected areas	a protected area under: a) the *Nature Conservation Act 1992* b) a marine park under the *Marine Parks Act 1992* or c) a World Heritage Area.
significant project traffic	An increase in project traffic equal to or greater than 5% in either traffic numbers or axle loadings, as outlined in the GARID
significant residual impacts	As defined in the *Environmental Offsets Act 2014*.
social impact assessment	An assessment of a project's potential social and economic impacts, presented in an EIS under the SDPWO Act, which includes proposed management and mitigation measures.

stated condition	Conditions stated (but not enforced by) the Coordinator-General under sections 39, 45, 47C, 49, 49B and 49E of the SDPWO Act. The Coordinator-General may state conditions that must be attached to a: • development approval under the *Sustainable Planning Act 2009* • proposed mining lease under the *Mineral Resources Act 1989* • draft environmental authority (mining lease) under Chapter 5 of the *Environmental Protection Act 1994* (EPA) • proposed petroleum lease, pipeline licence or petroleum facility licence under the *Petroleum and Gas (Production and Safety) Act 2004* • non-code compliant environmental authority (petroleum activities) under Chapter 4A of the EPA.
wetland protection area	A wetland considered to be of high ecological significance in a Great Barrier Reef catchment.
works	Defined under the SDPWO Act as the whole and every part of any work, project, service, utility, undertaking or function that: a) the Crown, the Coordinator-General or other person or body who represents the Crown, or any local body is or may be authorised under any Act to undertake, or b) is or has been (before or after the date of commencement of this Act) undertaken by the Crown, the Coordinator-General or other person or body who represents the Crown, or any local body under any Act, or c) is included or is proposed to be included by the Coordinator-General as works in a program of works, or that is classified by the holder of the office of Coordinator-General as works.

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