



Adani Mining Pty Ltd

NORTH GALILEE BASIN RAIL PROJECT

Environmental Impact Statement

Chapter 1 Introduction

November 2013

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1. Introduction

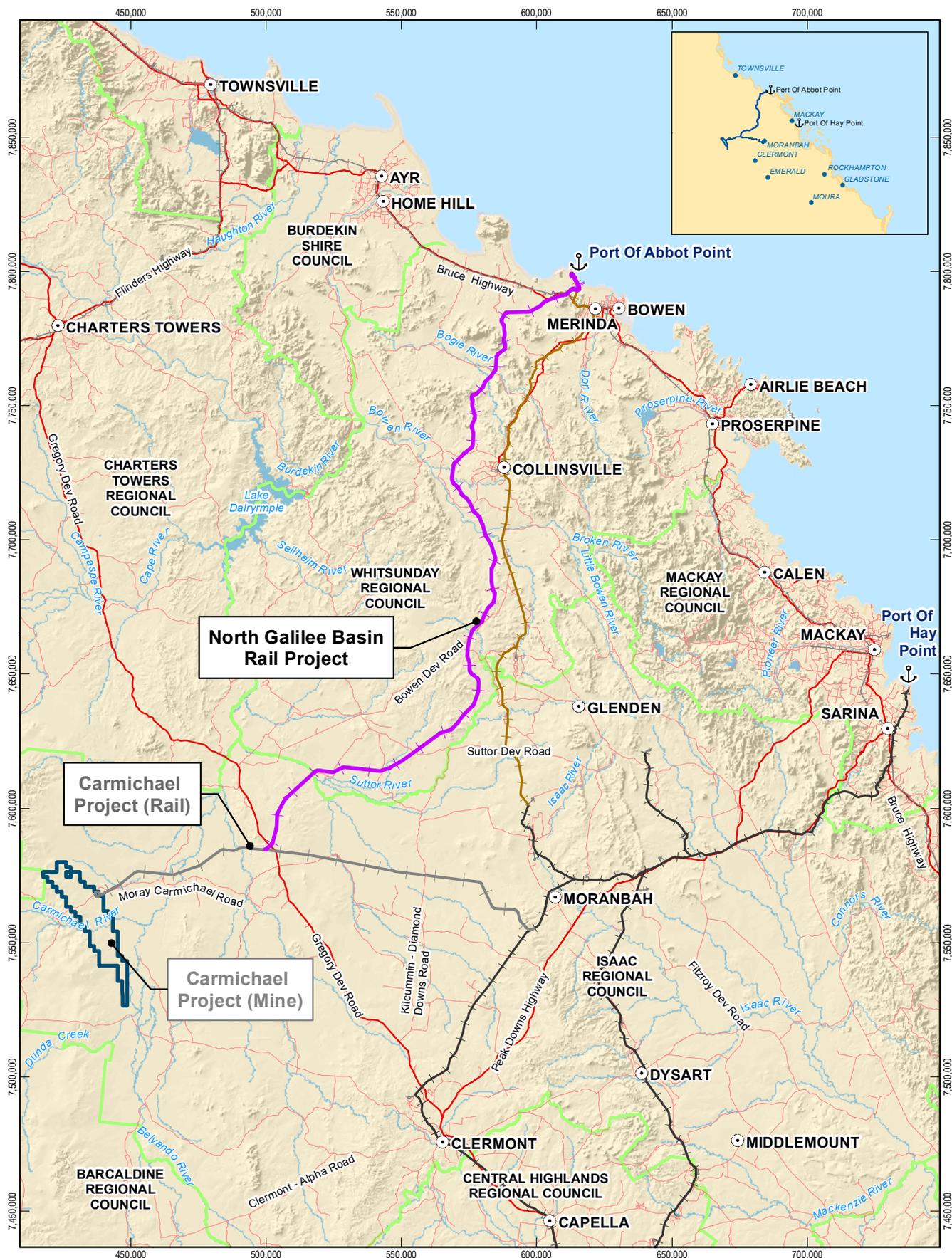
1.1 Project overview

Adani Mining Pty Ltd (Adani) proposes the construction and operation of the North Galilee Basin Rail Project (NGBR Project), a multiuser, standard gauge, greenfield rail line that will transport coal from mines in the northern Galilee Basin to the Port of Abbot Point. The NGBR Project is approximately 300 km in length and connects the proposed Carmichael Coal Mine and Rail Project's east-west rail corridor, approximately 70 km east of the proposed Carmichael Coal Mine in the vicinity of Mistake Creek, with supporting infrastructure at the Port of Abbot Point (refer Figure 1-1). The NGBR Project will have an operational capacity of up to 100 million tonnes per annum (mtpa) of coal product expected to be sourced from both Adani and third-party mines in the northern Galilee Basin. Key features of the NGBR Project include:

- Approximately 300 km of standard gauge, bi-directional rail track located within a nominal 100 m wide rail corridor (the final rail corridor)
- A rail maintenance access road running parallel to the rail track for approximately 300 km and wholly within the final rail corridor
- Seven passing loops, each 4.3 km in length
- Signalling infrastructure
- Approximately 4.5 km of fill greater than 15 m in depth (11 locations) and approximately 3.4 km of cut greater than 15 m in depth (nine locations)
- At-grade and grade-separated road, rail, stock and occupational crossings
- Bridge and culvert structures at major waterways and drainage lines, and various other longitudinal and cross drainage structures
- A rolling stock maintenance facility near the Port of Abbot Point including provisioning line, train maintenance line, wagon and locomotive service sheds, wash bay and queuing line
- Five temporary accommodation camps for construction workers
- A temporary construction depot at the southern end of NGBR Project
- Temporary construction yards, concrete batching plants, bridge and track laydown areas and heavy vehicle turning circles.

During construction, quarries and borrow pits within acceptable haulage distances will be required to provide a cost effective source of fill, gravel, aggregate and ballast. The number and location of borrow pits and quarries will be investigated further during detailed design and each may require screening and crushing plants to process material.

Further detail regarding the description of the NGBR Project, including a detailed overview of construction and operation, is provided in Volume 1 Chapter 2 Project description.



North Galilee Basin Rail Project

Carmichael Project (Rail)

Carmichael Project (Mine)

- LEGEND**
- Town
 - Major Port
 - Other Rail Network
 - Goonyella System
 - Newlands System
 - Major Road
 - Local Road
 - Watercourse
 - Local Government Area
 - Carmichael Project (Rail)
 - North Galilee Basin Rail
 - Carmichael Project (Mine)

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 0 10 20 30 40 50
 Kilometres
 Map Projection: Universal Transverse Mercator
 Horizontal Datum: Geocentric Datum of Australia (GDA)
 Grid: Map Grid of Australia 1994, Zone 55



Adani Mining Pty Ltd
 North Galilee Basin Rail Project

Job Number | 41-26457
 Revision | B
 Date | 29 Aug 2013

Project location

Figure 1-1

1.2 Project proponent

Adani Mining Pty Ltd (Adani) is the proponent for the NGBR Project. Adani is a subsidiary of Adani Enterprises Ltd, and forms part of the broader Adani Group of companies based in Ahmedabad, India.

Adani is a registered Australian company with corporate governance and reporting obligations under Australian Law, distinct from the management and obligations of other Adani Group subsidiaries in other jurisdictions.

Adani Abbot Point Terminal Pty Ltd, also an Australian subsidiary of Adani Enterprises Limited, has purchased the lease of Abbot Point Coal Terminal 1 and is proposing to develop Abbot Point Coal Terminal 0 as part of their overall programme for exportation of coal.

Adani has not been subject to any proceedings under an Australian Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources. Under both State and Federal laws, Adani is required to obtain all relevant approvals, including all necessary environmental approvals, prior to the commencement of a project.

Internationally, any representations to statutory authorities or proceedings initiated and /or currently before the courts are under judicial consideration.

Adani has a proven record of obtaining and complying with all necessary approvals for its projects including the Environmental Authority for the Carmichael Coal Mine ongoing exploration program.

Adani is committed to complying with all required approvals for the NGBR Project.

1.3 Project rationale

There are a number of key State and Federal government policies that guide and inform the development of Queensland's abundant coal resources. The Coal Plan 2030 (DSDIP 2010) informs the development of major coal regions and export markets in Queensland over the next 20 years. The development of regional coal resources, the growth of global markets and the need for domestic infrastructure to supply those markets are all prominent elements of the plan. The plan also states that India is, and will continue to be, a major market for Australian export coal, and that the servicing of this market will require significant coal and infrastructure developments.

The Queensland Government's Queensland Infrastructure Plan (DLGP 2011a) guides the development of major infrastructure within the State; supporting Queensland's resource regions is a key initiative of the infrastructure plan, with improving rail access between the Galilee Basin and the Port of Abbot Point a specific focus. The private sector is seen as the major proponent of such projects, a view supported by the Australian Government's National Ports Strategy (Infrastructure Australia 2010).

The Galilee Basin spans over 247,000 km² of land which is considered to be one of the last undeveloped coal reserve within Queensland and is expected to become the largest coal producing region in the State. In June 2012, the Queensland government announced its support for the development of the coal industry in the Galilee Basin and recognised the need for infrastructure, particularly rail links from mine to port, to support such development. The State government also committed to the designation of common north-south and east-west rail corridors through its Preferred Corridors Policy.

The Galilee Basin Development Strategy released in November 2013 (DSDIP 2013) consolidates the Queensland government's support for stimulating development of the Galilee Basin's southern and central coal resources. An important component of the strategy is the support offered to 'first movers'.

While the Carmichael Coal Mine and Rail Project is being developed in line with the State Government's preferred east-west rail corridor to address the transportation need direct to the Port of Hay Point (Dudgeon Point expansion), the NGBR Project is proposed to provide a more direct and operationally more cost effective transport solution direct to the Port of Abbot Point. The NGBR Project is proposed to have an operational capacity of up to 100 mtpa. This would accommodate use by both Adani and third-party users in the northern Galilee Basin (and southern Galilee Basin if an extension is developed to join the NGBR Project), reducing the need for new independent tracks, additional environmental footprints and additional adverse impacts to landowners in the region.

The NGBR Project will also align with the Queensland Government's draft Moving Freight Strategy, which is designed to enable more efficient freight movement across Queensland (DTMR 2013). The NGBR Project will help to preserve train paths on existing regional rail lines for non-coal rail services; this is considered to be a priority action as part of the draft strategy (DTMR 2013).

The NGBR Project will be strategically significant in a local, regional, state and environmental context. The Queensland Regionalisation Strategy (DLGP 2011b) considers critical infrastructure associated with the expansion of mining in the Galilee Basin, for example the NGBR Project, to be a great opportunity for the Mackay, Isaac and Whitsunday region. The NGBR Project is consistent with the Queensland Regionalisation Strategy as it will provide significant employment opportunities in these regions during both construction and operation. The NGBR Project will also provide a more cost effective and direct, open access rail route from the Galilee Basin to the growing coal export facilities at the Port of Abbot Point. This would aid in the reduction of current rail congestion and cumulative impacts experienced on the Goonyella and Newlands systems via Moranbah.

1.4 Relationship to other projects

Adani is committed to financing the environmental assessment and ongoing development of several projects in Queensland, including:

- Carmichael Coal Mine and Rail Project (refer EPBC 2010/5736)
- Abbot Point Coal Terminal 0 Project (refer EPBC 2011/6194)
- Dudgeon Point Coal Terminals Project (refer EBC 2012/6240)

The Carmichael Coal Mine and Rail Project includes the construction and operation of the coal mine which is predicted to be the largest coal mine in Queensland with maximum operational capacity of up to 60 mtpa and the east-west railway line will run between the coal mine and a junction with Aurizon's Goonyella system, south of Moranbah on the Blair Athol line. The NGBR Project will directly connect the Carmichael Coal Mine with the Port of Abbot Point; with a connection to the proposed east-west railway line approximately 70 km east of the Carmichael Coal Mine.

Adani also currently own the lease for Abbot Point Coal Terminal 1 and are proposing to develop Terminal 0 to facilitate increased coal export capacity in association with the proposed Carmichael Coal Mine and Rail Project and the NGBR Project.

The NGBR Project's primary function is to link proposed coal mines in the northern Galilee Basin to the Port of Abbot Point where product coal can be exported internationally. This includes the China Stone Coal Project.

The NGBR Project is proposed in accordance with the Galilee Basin Coal Infrastructure Framework (GBCIF) (State of Queensland 2013a) single, north-south, multi-user, common access rail corridor from the Galilee Basin to Abbot Point. A single north-south corridor promotes the minimisation of impacts to landholders and the broader region.

A number of other proposed projects are implicated in this GBCIF, which seeks to significantly reduce the likelihood of cumulative impacts occurring between multiple proposed projects including the NGBR Project. The proposed projects potentially affected by the GBCIF are identified as follows:

- Central Queensland Integrated Rail Project
- Galilee Coal Project (rail component)
- Alpha Coal Project (rail component)
- Carmichael Coal Mine and Rail Project.

These projects and their relationship to the NGBR Project including the co-location and / or co-use of infrastructure are discussed further in the following section and Volume 1 Chapter 19 Cumulative impact assessment Section 19.3.

1.5 Project alternatives

1.5.1 Preferred option

There are currently no developed options for the direct transportation of product coal out of the Galilee Basin. Aurizon's Goonyella and Newlands systems have capacity constraints and limited options for upgrade due to the existing low axle load narrow gauge rail infrastructure and the bottleneck that already exists at the Moranbah junction. In addition, there are currently no rail lines between either of these Aurizon rail systems to service the vast Galilee Basin coal reserves.

The proposed Carmichael Coal Mine and Rail Project includes a 120 km portion of dual gauge rail that will run west to east from the mine site to Diamond Creek, and a 69 km narrow gauge portion that will run east from Diamond Creek and connect to the Goonyella rail system south of Moranbah. This would enable carriage of product coal over the existing narrow gauge networks either directly to the Port of Hay Point (Dudgeon Point Expansion) or indirectly to the Port of Abbot Point. As such, the Carmichael Coal Mine and Rail Project rail infrastructure offers a short-term incremental solution that maintains port optionality, but is primarily only a medium- to long-term solution for export directly to Dudgeon Point.

Dual port capability for the export of coal is required by Adani to insure against potential force majeure conditions that may affect one of the mine-to-port supply chain routes. In addition, dual port capability will help to accommodate any future production increases from Adani and/or third-party mines in the Galilee Basin, which may exceed the capacity of one port. Given Adani's interests in the existing and proposed export facilities at the Port of Abbot Point (refer Section 1.4), a highly efficient, long-term and more direct transport route to the port was identified as a key business requirement.

A high-level desktop assessment and multi-criteria analysis was undertaken to identify possible south to north rail alignments branching off the Carmichael Coal Mine and Rail Project rail

infrastructure heading to the Port of Abbot Point (Worley Parsons 2013). One of the early stages in the corridor selection study was the identification of 'no go' zones, for which maximum avoidance was exercised. These zones included national parks, severe topographical features, major floodplains, social centres and current or proposed mining lease areas. The assessment and analysis also included a consideration of the following environmental, hydrological, geotechnical and engineering constraints:

- Topography
- Geology, including
 - Reactive clay soils
 - Wet or low strength soils
- Hydrology, including
 - Waterway crossings
 - Flood prone areas
 - Direction of crossing, to avoid parallel alignment with waterways
- Environment, including
 - Declared water supply catchments
 - Mining tenures
 - Referable wetlands
 - Strategic cropping land
 - Nature refuges and coordinated conservation areas
 - Endangered regional ecosystems
 - Essential habitat
 - Threatened ecological communities
- Railway operation, including overall length
- Existing infrastructure, including
 - Gas pipelines
 - High voltage power lines
 - Water mains.

Three initial corridor options were developed and refined into a further five, based on the above constraints and 'no go' zones. A multi-criteria analysis was lastly applied to rank the corridors and select a preferred option for further investigation, development and optimisation.

The environmental constraints that were considered during selection of the preferred rail corridor study included

- Referable wetlands
- Strategic cropping land
- Endangered regional ecosystems
- Threatened ecological communities
- Essential habitat.

Figure 1-2 illustrates the eight corridors that were assessed in the multi-criteria analysis. This multi-criteria analysis recommended Option 4C as the preferred corridor. This preferred corridor

was refined to the preliminary investigation corridor and subsequently to a final rail corridor and adjacent ancillary infrastructure areas through concept level engineering and design work undertaken by Aarvee Associates.

The term 'final rail corridor' is used throughout the NGBR Project Environmental Impact Statement (EIS) to describe this corridor. It is acknowledged that further constraints could be identified through the EIS process that would further refine the final rail corridor.

It is noted that the final rail corridor presented in the EIS differs slightly to that presented in the Initial Advice Statement which was submitted to the CG's office in April 2013. The modified alignment has been designed to further reduce the potential environmental impacts of the NGBR Project. The amendments to the alignment have been developed subject to further investigations undertaken during the EIS process and as a result of ongoing consultation with relevant stakeholders and community groups.

The preferred option is the development of the NGBR Project, which comprises the construction and operation of approximately 300 km of standard gauge railway connecting the proposed Carmichael Coal Mine and Rail Project rail infrastructure (near Mistake Creek) directly with supporting infrastructure (including rail loop/s and port infrastructure, the subject of separate investigations) at the Port of Abbot Point. This preferred option will facilitate transport of up to 100 mtpa product coal directly to the Port of Abbot Point.

1.5.2 Co-location and co-use

Adani have investigated various other options for routing a rail corridor to the Port of Abbot Point using co-location and / or co-use.

The proposed Carmichael Coal Mine and Rail Project, while enabling direct transportation of coal to the Port of Hay Point (Dudgeon Point expansion), only allows for indirect transportation to the Port of Abbot Point via the already constrained Goonyella rail system. As well as being indirect, the Goonyella system has a much lower axle load with very limited capacity for upgrade, all of which combined would act to increase coal prices and reduce the cost-competitiveness of Galilee Basin coal in the global market.

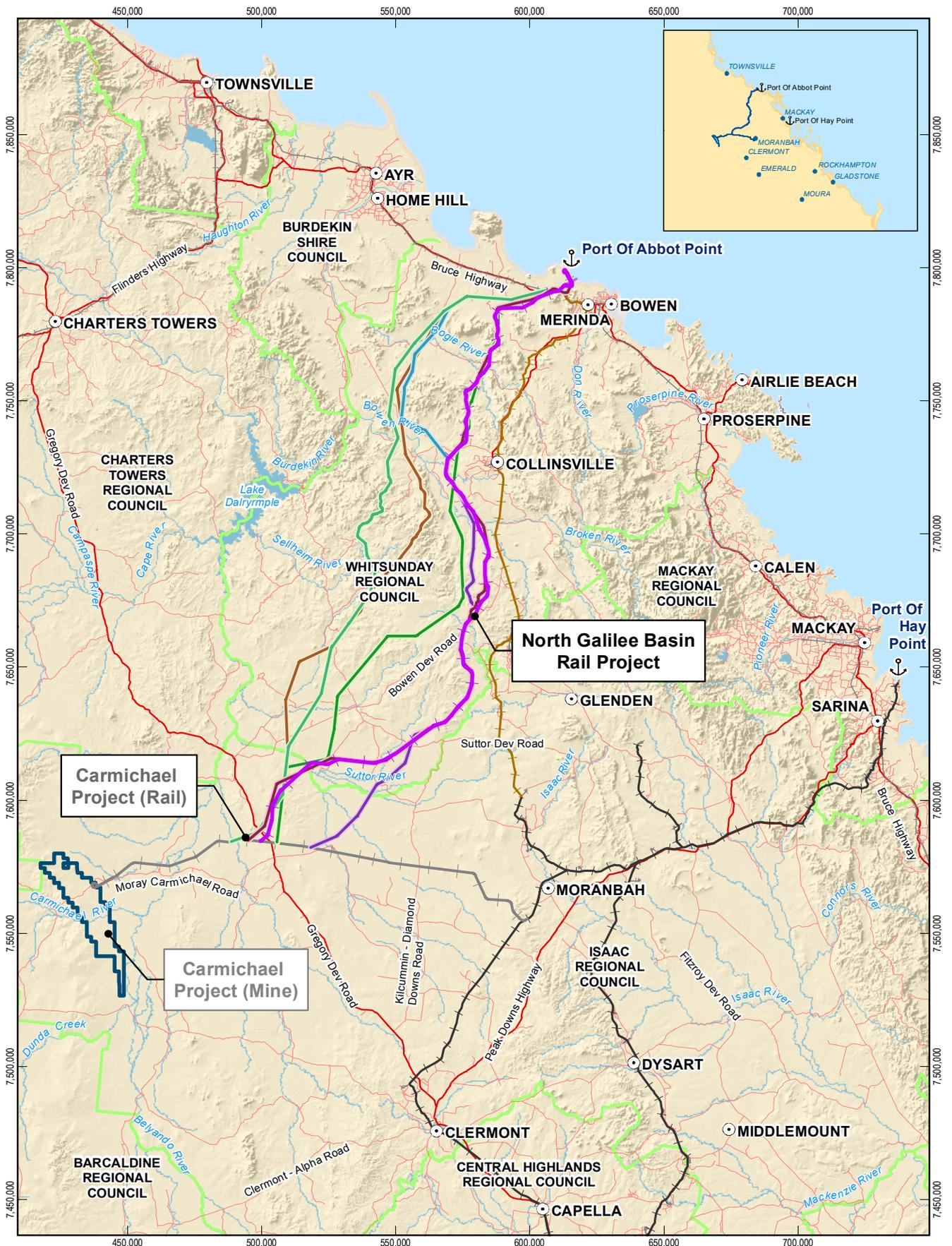
Adani has considered developing and / or utilising a consolidated corridor with Waratah Coal's proposed China First Project, however, due to uncertain timeframes and the identification of a more favourable and technically better route, opportunities for co-use and / or co-alignment with the China First Project are limited. Adani has also previously considered co-utilising a consolidated corridor with Hancock Coal Infrastructure's proposed Alpha Coal Project (Alpha) however, with the railway's 60 mtpa capacity already fully allocated, uncertain development timeframes and a route that traverses large flood plains, the potential for co-use of the railway is limited.

Aurizon is seeking to develop an integrated rail system to service existing and proposed coal mines in the Galilee Basin. The proposed Central Queensland Integrated Rail Project alignment is a narrow gauge solution connecting to already congested and less scalable network on the Newlands system. Moreover, the proposed Central Queensland Integrated Rail is a much longer, and therefore less cost-effective, route to the Port of Abbot Point, besides being an operationally less efficient narrow gauge system as compared to the heavy haul standard gauge proposed for the NGBR Project. Opportunities to consolidate the Aurizon and Adani alignments have been explored, however, due to uncertainty with regard to Aurizon's development timelines, in addition to the above technical aspects, Adani has decided to propose the much shorter, standard gauge, NGBR Project.

The NGBR Project does offer the opportunity to provide a co-use outcome for the China Stone Coal Project located north of the Carmichael Coal Mine.

1.5.3 Do nothing

The development of the NGBR Project will provide a direct link between the Galilee Basin's vast thermal coal resources to the Port of Abbot Point. The 'do nothing' option will result in increased traffic on Aurizon's Goonyella and Newlands rail systems and thus increase the bottleneck situation currently being experienced on the existing rail system near Moranbah. This will subsequently result in the need for an upgrade to a much larger section of each rail line with associated social and environmental disturbances. The transportation of such a large quantity of coal over the much longer narrow gauge route would increase costs of producing the thermal coal, which in turn would reduce the cost-competitiveness of Galilee Basin coal in the global market.



LEGEND

- | | | | | | |
|--------------|-------------------------|-----------------------------|--------|------|-----------------------------|
| ● Town | — Other Rail Network | — Major Road | Option | — 4 | — North Galilee Basin Rail |
| ⚓ Major Port | — Goonyella System | — Local Road | — 1 | — 4A | — Carmichael Project (Mine) |
| | — Newlands System | — Watercourse | — 2A | — 4B | |
| | — Local Government Area | — Carmichael Project (Rail) | — 3 | — 4C | |
| | | | | — 5 | |

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1:2,000,000 (at A4)

0 10 20 30 40 50

Kilometres

Map Projection: Universal Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia (GDA)
Grid: Map Grid of Australia 1994, Zone 55



Adani Mining Pty Ltd
North Galilee Basin Rail Project

Corridor selection study

Job Number | 41-26457
Revision | A
Date | 01 Nov 2013

Figure 1-2

1.6 The environmental impact assessment process

1.6.1 Overview

An initial advice statement (IAS) was prepared for the NGBR Project, dated May 2013. The purpose of the IAS was to provide the Coordinator-General with sufficient information to make a coordinated project declaration under Section 26(1)(a) of the *State Development and Public Works Organisation Act 1971* (SDPWO Act). On 14 June 2013, the Coordinator-General declared the NGBR Project to be a coordinated project requiring assessment via an EIS.

A referral under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) was also prepared for the NGBR Project, dated May 2013. The purpose of the referral was to provide the Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) with sufficient information to make a referral decision under the EPBC Act. In June 2013, SEWPaC issued a referral decision declaring the NGBR Project to be a controlled action. SEWPaC later advised that the NGBR Project would require assessment via an EIS under the EPBC Act, in parallel to the EIS assessment process being undertaken by the Coordinator-General under the SDPWO Act.

This EIS has been prepared to meet the Terms of Reference (TOR) issued by the Coordinator-General under the SDPWO Act. This EIS includes a Matters of National Environmental Significance (MNES) chapter which assesses impacts on controlling provisions under the EPBC Act including World Heritage Properties, Natural Heritage Places, Commonwealth Marine Areas, EPBC listed threatened ecological communities, listed threatened species and listed migratory species under Commonwealth legislation. The MNES chapter has been prepared in accordance with the final Guidelines for an Environmental Impact Statement for the North Galilee Basin Rail Project (EPBC 2013/6885).

This EIS will be submitted to both the Coordinator-General and SEWPaC for assessment under the SDPWO Act and EPBC Act respectively.

1.6.2 EIS objectives

The objective of this EIS is to ensure that all potential direct and indirect environmental, social and economic impacts of the NGBR Project are identified and adequately assessed, and that appropriate mitigation and management measures are developed to minimise or avoid adverse impacts. This EIS is the key environmental document for the assessment of the NGBR Project and the granting of statutory approvals.

Another objective of this EIS is to serve as a platform for government agencies, stakeholders and the local community to gain an understanding of the NGBR Project and provide valuable feedback. For Adani, this EIS and associated draft Environmental Management Plan serve as a definitive commitment to the mitigation and management measures that will be implemented to minimise and avoid adverse environmental impacts that may result if the NGBR Project proceeds.

1.6.3 EIS structure

The structure of this EIS is divided into two volumes. Volume 1 contains Chapters 1 to Chapter 23 while Volume 2 contains Appendix A to Appendix T. The content of Volume 1 includes:

- Chapter 1 - An introduction to the EIS, an assessment of the NGBR Project's need and alternatives, an overview of the community and stakeholder consultation undertaken for

the NGBR Project and a summary of the environmental assessment process including methodology for the assessment of potential environmental impacts

- Chapter 2 - A detailed description of the NGBR Project
- Chapter 3 to 23 – A detailed assessment of the various environmental aspects that have the potential to be impacted by the NGBR Project. These chapters include existing environment information, assessment of potential impacts as a result of the NGBR Project, proposed mitigation and management measures, assessment of residual impacts and assessment of cumulative impacts.

Volume 1 is divided into sections that link closely with the TOR structure to ensure that all relevant matters concerning environmental and social values, resources and receptors are addressed.

The content of Volumes 2 includes:

- Appendix A - A cross-reference table to the TOR
- Appendix B - A public consultation report summarising consultation that has been undertaken for the NGBR Project and how issues raised by stakeholders and the community have been addressed
- Appendix C to N - Additional technical detail relating to background environmental information that supports the environmental impact assessment undertaken in Volume 1
- Appendix O - An offset strategy for identified residual impacts to State and Commonwealth ecological values that cannot be avoided or mitigated
- Appendix P – The framework for the Project Environmental Management Plan, which includes all mitigation and management measures identified within Volume 1 and a structure for implementing these measures during pre-construction, construction and operation
- Appendix Q - A summary of the technical team involved in the preparation of this EIS
- Appendix R – Adani's land acquisition protocol
- Appendix S – A register of commitments made throughout Volume 1 of the EIS
- Appendix T – Concept design drawings.

1.6.4 Environmental impact assessment methodology

Environmental impact assessment is the process undertaken to identify, evaluate and mitigate potential environmental impacts of a proposed development. As the environmental assessment for the NGBR Project included input from a wide range of technical disciplines, a systematic approach was required to ensure consistency in describing the scale of impacts across the range of studies such that significance of impacts were comparable. A standardised approach to evaluating significance does not replace the methodologies used by technical disciplines to identify or assess impacts, nor does it replace methods of impact assessment prescribed by existing guidance. Rather, it adds to the impact assessment by providing clear, more readily comparable conclusions regarding the significance of impacts. The standardised approach employed for the NGBR Project involved:

- Defining the sensitivity of environmental and social values, resources and receptors
- Defining the impacts caused by the NGBR Project and their magnitude

- Evaluating the significance of each impact
- Identifying mitigation measures and calculating residual impact.

The environmental and social systems, resources and receptors potentially affected by the NGBR Project were defined through desktop based research, field surveys and preliminary consultation with state agencies, local councils, regional stakeholders and local communities. A summary of the issues raised during consultation and how they were incorporated into the environmental assessment is provided in Section 1.7.

To determine the magnitude of potential impacts from the NGBR Project, the scale of the impact, its geographic extent, duration, reversibility, additive or cumulative effects and likelihood of occurrence were considered. The significance of the impact was determined as a product of the magnitude of impact and the sensitivity of the environment, resource, social value or receptor that it would potentially impact. In order to standardise the significance of potential environmental impacts, a multi-disciplinary workshop was held by the NGBR Project team in June 2013. Volume 2 Appendix Q EIS team summary provides a list of the NGBR Project team and their relevant technical experience.

In the instances where limited baseline data was available, a conservative approach was taken by assuming the highest likely value and highest likely magnitude of impact. Any gaps in information and assumptions made in determining the worst impact have been clearly stated in the reporting, and mitigation measures have included recommendations for further studies, reassessment once further information becomes available or a robust monitoring program.

The development of mitigation and management aimed to:

- Be appropriate in terms of the effort and expense in relation to the scale and nature of the impact
- Target the protection and/or restoration of the systems/resources affected
- Respond to the impact following a mitigation hierarchy (i.e. avoid > minimise > rehabilitate > manage > offset / compensate).

An impact considered to be of extreme significance (where not simply considered grounds for a fundamental re-design of the project) would need to be met with a high level of mitigation that avoids, eliminates or makes provisions for full offsetting or compensation in advance and ensures that measures are demonstrably effective. Compliance with international and national standards and the use of specialists with internationally or nationally recognised expertise would be required in development and implementation. A high level of ongoing monitoring would be required.

Conversely an impact that was considered to be of low significance may either not need mitigation at all or only require mitigation by control of impacts through day to day management with only occasional monitoring required as validation.

Once mitigation measures were identified, residual impacts were assessed. This was achieved through assessing and describing the effects of mitigation and subsequently, how the proposed measures would reduce the magnitude of the impact significance. The application of mitigation and management measures should in theory reduce the magnitude of the impact and hence result in a reduced residual impact.

1.6.5 Cumulative Impacts

Cumulative impacts can be defined as impacts on the environment, which result from the incremental impact of an action when added to other past, present or reasonably foreseeable future actions, regardless of what agency or person undertakes those other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time or from a combination of concurrent effects from a single action. Cumulative impacts can be additive, synergistic or interactive and can result in impacts that are larger, more significant and longer lasting than is the case with individual effects.

There is no defined process for undertaking cumulative impact assessments within Australia.

Setting boundaries is the process of establishing the limits of the area to be assessed for cumulative impacts and the identification of activities within this boundary. The primary spatial boundary for this cumulative impact assessment is the project footprint – this is the area that is under project control and responsibility, i.e. the NGBR Project final rail corridor and associated infrastructure. However, boundaries can vary from issue to issue and need to reflect ecosystem requirements rather than artificial boundaries.

Cumulative impacts during the construction are likely to be short-term. Operation impacts are more likely to be medium to long-term (e.g. continuing for more than two years after the activity has ceased, or ongoing).

The potential cumulative impacts of the NGBR Project are assessed within Volume 1 Chapter 19 Cumulative impacts.

1.6.6 Ecologically sustainable development

An important consideration throughout development of the NGBR Project and preparation of this EIS has been consideration of ecologically sustainable development. Ecologically sustainable development is defined as 'using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased (SEWPaC 1992). Ecologically sustainable development focuses on assimilating economic expansion, social advancement and environment integrity in a way that allows development to meet the needs of Australian's today while conserving ecosystems, and without impeding the ability of future generations to meet their own needs.

This EIS considers the beneficial and adverse cumulative impacts across the lifetime of the NGBR Project and where possible provides mitigation and management measures that seek a balance between environmental integrity, social development and economic development.

A core objective of ecologically sustainable development is following a path of economic development in a way that enhances the individual and community well-being of current generations, while safeguarding the welfare of future generations. The NGBR Project represents a long-term investment in Queensland and Australia's rail infrastructure with significant economic and social benefits for current and future generations including:

- Substantial employment opportunities during both construction (1,700 people) and operation (369 people)
- Increased jobs for local and state suppliers, services and contractors throughout both construction and operation
- Increased ability to export coal overseas at higher profit rates due to transport efficiency, thereby aiding in the expansion of the Queensland economy

The NGBR Project will require a capital investment of approximately \$2.2 billion and see the development of key infrastructure that will enable effective coal transportation from the Galilee Basin, one of Queensland's largest coal reserves, to the Port of Abbot Point. The NGBR Project will facilitate an increased rate of coal exportation from Queensland, thereby aiding in the economic expansion of the State.

Another core objective of ecologically sustainable development is to provide for equity within and between generations (SEWPaC 1992). This objective focuses not only on the short-term (within generations) but also the long-term (between generations) environmental, social and economic impacts. While the NGBR Project will have short and long-term environmental impacts, a number of mitigation measures will be implemented to limit and avoid serious, long-term and irreversible environmental damage. A benefit of the NGBR Project is that it will be designed as a multi-user railway with a design life of more than 90 years, ensuring it remains available for use by future generations.

Protecting biological diversity, and maintaining essential ecological processes and life-support systems, is a third core objective of ecologically sustainable development (SEWPaC 1992). An ecological assessment has been undertaken for the NGBR Project to determine the biological diversity and ecological processes that have potential to be impacted (refer Volume 1 Chapter 6 Nature conservation). The alignment of the NGBR Project final rail corridor was selected taking into consideration vulnerable and endangered terrestrial and aquatic flora and fauna species, as well as threatened and endangered ecological communities. Where possible, modifications have been made to the NGBR Project design to eliminate or minimise its effect on these species and communities.

1.7 Community and stakeholder consultation

Stakeholder and community consultation has been an integral component of the NGBR Project development and EIS process. The aim of consultation has been to inform stakeholders and the broader community about the NGBR Project and to actively seek their involvement in the identification of potential impacts and development of mitigation and management measures. The key objectives of the consultation process included:

- Establishing an open two-way flow of information
- Communicating detailed NGBR Project information in an easy to interpret format
- Facilitating opportunities for local and regional communities and other stakeholders to identify issues, impacts and possible mitigation measures
- Building community understanding and support for the EIS process.

A community and stakeholder consultation report was prepared for the NGBR Project and is provided in Volume 2 Appendix B Public consultation.

1.7.1 Consultation methodology

A consultation plan was developed for the NGBR Project to ensure effective and timely consultation during the EIS process. The consultation plan outlined:

- The types of consultation activities to be undertaken
- The timing of activities
- Identification of key stakeholder and community representatives
- Integration with other EIS activities and the project development process

- Consultation responsibilities
- Communication protocols
- Reporting and feedback arrangements
- How consultation feedback will be considered by the proponent and integrated into the EIS process.

Community and stakeholder engagement was undertaken in accordance with the principles of the International Association of Public Participation (IAPP 2004). Stakeholders and the community were engaged using a range of consultation and communication techniques, including face-to-face meetings, briefings and public information sessions, as well as the provision of information material, including factsheets. These were supported by stakeholder feedback mechanisms, including a free call telephone line and NGBR Project email address.

A preliminary list of relevant stakeholders was developed through desk-based research. Relevant stakeholders identified for the NGBR Project included Commonwealth, State and local government representatives, potentially affected landowners, local businesses and residents, community interest groups, industry representatives, environmental groups, media and surrounding communities. A comprehensive list of affected and interested persons and how the consultation process included these persons is provided in Volume 2 Appendix B Public consultation.

Community and stakeholder consultation has been undertaken throughout the EIS process including development of the draft and final TOR. This included meetings with state government agencies, the council and other relevant stakeholders as well as community information sessions. This approach aimed to ensure that multiple opportunities have been provided for targeted stakeholders and the wider community to participate and comment on the NGBR Project.

1.7.2 Draft Terms of Reference consultation

The draft TOR was publicly displayed by the Coordinator-General between 13 July 2013 and 12 August 2013. To encourage interest and participation in development of the final TOR, community information sessions were held between 23 and 25 July 2013 at three locations, Moranbah, Collinsville and Bowen. The events were advertised in local and regional newspapers, and were staffed by representatives of the NGBR Project team. Participants were provided with opportunities to give feedback on the NGBR Project either verbally (with notes taken by the NGBR Project team), or in writing via submission.

Issues raised by submissions, were considered by the Coordinator-General in finalising the TOR.

1.7.3 Commonwealth Government

A meeting was held with representatives of SEWPaC on 29 May 2013 to provide an overview of the NGBR Project. This meeting focused on the description of the NGBR Project and the connectivity of the NGBR Project to other projects in the region. Further consultation is planned to be undertaken with SEWPaC in relation to the NGBR Project.

1.7.4 State Government

A State government agency briefing was held in Brisbane to coincide with release of the draft TOR in July 2013 as detailed in Table 1-1. In addition to the agency briefings outlined in Table 1-1, other government consultation included:

- Regular project meetings with the Coordinator-General's Office, with delegates from other departments invited as required
- Several EIS and social impact assessment consultation meetings and workshops with representatives from State government.

When the draft EIS is released in late 2013 there will be further government agency briefings and meetings.

Table 1-1 Summary of agency briefings and meetings

Location	Purpose	Date	Attendance
Coordinator-General's office, Brisbane	DTOR meeting – Coordinator-General's office	1 July 2013	4
Coordinator-General's office, Brisbane	DTOR briefing – State agencies	19 July 2013	31
DNRM offices, Longreach	National Stock Route crossing treatments	8 August 2013	3
DTMR offices, Mackay	National Stock Route crossing treatments	13 August 2013	4
Coordinator-General's office, Brisbane	NGBR rail corridor through the Abbot Point State Development Area State Development Area Division of DSDIP	20 August 2013	4

Attendees at the State agency meetings included:

- The Coordinator-General and Department of State Development, Infrastructure and Planning
- Department of Environment and Heritage Protection
- Department of Housing and Public Works
- Department of Natural Resources and Mines
- Department of Transport and Main Roads
- Department of Communities, Child Safety and Disability Service
- Department of Agriculture, Fisheries and Forestry
- Department of Energy and Water Supply
- Queensland Health
- Department of Community Safety

- Department of Education, Training and Employment
- Queensland Police Service
- Department of Local Government, Community Recovery and Resilience
- Department of Aboriginal and Torres Strait Islander and Multicultural Affairs
- Department of National Parks, Recreation Sport and Racing

As the meetings occurred in the initial phase of the EIS, discussions focussed on the project description and the scope of the EIS, rather than impact identification or mitigation. Key issues raised in these meetings and how they addressed within this EIS is summarised in Volume 2 Appendix B Public consultation.

1.7.5 Council briefings and meetings

Separate NGBR Project briefings and meetings were held with the Isaac and Whitsunday Regional Councils during the EIS preparation. The purpose of these meetings was to:

- Inform councils of the NGBR Project and the EIS process
- Gain an understanding of the issues and opportunities currently facing the region
- Identify the potential impacts, benefits and mitigation measures for the NGBR Project.

An overview of the council briefings and meetings is provided in Table 1-2.

Table 1-2 Council briefings and meetings

Location	Purpose	Date	Attendance
Isaac Regional Council, Town Square, Moranbah	Social impact assessment interview	25 June 2013	7
Whitsunday Regional Council, Proserpine	Social impact assessment interview	27 June 2013	6
Isaac Regional Council, Town Square, Moranbah	Draft TOR briefing	23 July 2013	14
Whitsunday Regional Council, Proserpine	Draft TOR briefing	25 July 2013	9
Isaac Regional Council, Town Square, Moranbah	Proposed road and stock route crossing treatments	7 August 2013	4
Whitsunday Regional Council, Proserpine	Proposed road and stock route crossing treatments	9 August 2013	4

Further detail regarding issues raised during council meetings are provided in Volume 2 Appendix B Public consultation.

1.7.6 Community information sessions

Three community information sessions were held, one each in Moranbah, Collinsville and Bowen during July 2013. The community information sessions ran for three hours each and

were in a drop-in format, in which members of the community were encouraged to visit and learn about the NGBR Project. Volume 2 Appendix B Public consultation provides an overview of the key issues raised by stakeholders during community information session and where they are addressed within the EIS

1.7.7 Other consultation

Consultation with landholders has been ongoing since February 2013 and included consultation with all 29 directly affected landholders. Consultation and communication focussed on gaining feedback on the NGBR Project alignment and facilitating land access agreements.

Consultation with Traditional Owners commenced in the first quarter of 2013 and included negotiations regarding Cultural Heritage Management Plans (CHMPs). Consultation was also undertaken with community groups and historical societies in Bowen and Collinsville, as well as relevant local government authorities to assist in identifying potential non-Indigenous cultural heritage places, and potential adverse impacts.

Further information regarding consultation with landholders and Traditional Owners is provided Volume 2 Appendix B Public consultation.

1.7.8 Public exhibition of the EIS

Following acceptance of the draft EIS by the Queensland Coordinator-General and SEWPaC, the document will be placed on public display for a submission period of 30 business days (or as determined by the Coordinator-General and SEWPaC).

As part of the public exhibition period, the following will be undertaken:

- Place public notices in local newspapers to provide details about:
 - Timing of the public display period
 - Locations where people can view the document, including static and staffed display points, together with web-based information
 - How to make public submissions in response to the EIS
- Provide information about the public display period and submission requirements on Adani's website
- Provide internet hosting of the draft EIS during the submission period
- Produce and distribute an NGBR Project factsheet to publicise release of the EIS, provide information on the public display process and call for submissions
- Notify key stakeholders who are recorded on the NGBR Project's database about the EIS and review period
- Conduct agency briefings and community information sessions to present findings of the EIS.

1.7.9 How to make a submission

Written submissions on the draft EIS can be made by any interested party during the submission period (refer Section 1.7.9). All submissions will be compiled by the Coordinator-General and provided to Adani to inform preparation of additional information to the EIS.

The Coordinator-General and SEWPaC will consider written submissions on the NGBR Project during the decision making process.

A 'properly made' submission is one:

- Made in writing to the Coordinator-General
- Received on or before the deadline for submissions
- Stating the name and address of each submitter
- Signed by each submitter
- Stating the grounds of the submissions and the facts and circumstances relied on in support of the grounds.

Any submissions to the Coordinator-General should be addressed to:

The Coordinator-General
c/- EIS Project Manager – North Galilee Basin Rail
Coordinated Project Delivery
PO Box 15517
City East QLD 4002 Australia

1.7.10 Future consultation activities

Following completion of the public display period, all stakeholder and community feedback will be reviewed and addressed in the final EIS document (or supplementary report if required).

A decision by the Coordinator-General about whether to approve the NGBR Project will be made public via DSDIP's and Adani's websites. Adani will provide future updates about the progress and status of the NGBR Project through its website.

Consultation will continue throughout the life of the NGBR Project to ensure due consideration of all project-related opportunities and concerns. Further details on Adani's plans for longer term consultation as part of the NGBR Project's construction and operation are included in Volume 1 Chapter 16 Social and economic impacts and Volume 2 Appendix P Environmental management plan framework.