

# Moura Link–Aldoga Rail Project

## Terms of Reference for an Environmental Impact Statement

Under Part (4) of the Queensland *State Development and  
Public Works Organisation Act 1971*

March 2008

## TABLE OF CONTENTS

|                                                                           |            |
|---------------------------------------------------------------------------|------------|
| <b>ABBREVIATIONS</b> .....                                                | <b>III</b> |
| <b>PREAMBLE</b> .....                                                     | <b>1</b>   |
| PROJECT PROPONENT.....                                                    | 1          |
| PROJECT BACKGROUND .....                                                  | 1          |
| ADMINISTRATIVE PROCEDURES FOR THESE TERMS OF REFERENCE .....              | 2          |
| RESULTS OF CONSULTATION ON THE TERMS OF REFERENCE .....                   | 4          |
| <b>PART A: INFORMATION AND ADVICE ON THE PREPARATION OF THE EIS</b> ..... | <b>5</b>   |
| 1. INTRODUCTION .....                                                     | 5          |
| 2. EIS OBJECTIVES .....                                                   | 5          |
| 3. GENERAL EIS GUIDELINES .....                                           | 5          |
| 4. STAKEHOLDER CONSULTATION .....                                         | 7          |
| 5. GENERAL EIS FORMAT.....                                                | 7          |
| <b>PART B: SPECIFIC REQUIREMENTS – CONTENTS OF THE EIS</b> .....          | <b>8</b>   |
| EXECUTIVE SUMMARY .....                                                   | 8          |
| GLOSSARY OF TERMS.....                                                    | 8          |
| <b>1. INTRODUCTION</b> .....                                              | <b>9</b>   |
| 1.1 PROJECT PROPONENT.....                                                | 9          |
| 1.2 PROJECT DESCRIPTION .....                                             | 9          |
| 1.2.1 <i>Relationship to other projects</i> .....                         | 9          |
| 1.3 PROJECT RATIONALE.....                                                | 9          |
| 1.3.1 <i>Need for the Project</i> .....                                   | 9          |
| 1.3.2 <i>Costs and benefits of the Project</i> .....                      | 9          |
| 1.4 ALTERNATIVES TO THE PROJECT .....                                     | 9          |
| 1.5 THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS.....                      | 10         |
| 1.5.1 <i>Methodology of the EIS</i> .....                                 | 10         |
| 1.5.2 <i>Objectives of the EIS</i> .....                                  | 10         |
| 1.5.3 <i>Submissions</i> .....                                            | 10         |
| 1.6 PUBLIC CONSULTATION PROCESS .....                                     | 10         |
| 1.7 PROJECT APPROVALS.....                                                | 11         |
| <b>2 DESCRIPTION OF THE PROJECT</b> .....                                 | <b>13</b>  |
| 2.1 SITE LOCATION .....                                                   | 13         |
| 2.2 CONSTRUCTION ACTIVITIES .....                                         | 13         |
| 2.3 COMMISSIONING ACTIVITIES.....                                         | 14         |
| 2.4 OPERATION ACTIVITIES.....                                             | 14         |
| 2.5 DECOMMISSIONING .....                                                 | 14         |
| 2.6 WORKFORCE, ACCOMMODATION AND SUPPORT INFRASTRUCTURE.....              | 14         |
| 2.7 ENERGY AND TELECOMMUNICATIONS REQUIREMENTS .....                      | 15         |
| 2.8 WATER SUPPLY AND MANAGEMENT .....                                     | 15         |
| 2.9 SEWAGE AND STORMWATER .....                                           | 16         |
| 2.10 TRANSPORT – ROAD, RAIL, AND SHIPPING.....                            | 16         |
| 2.11 WASTE .....                                                          | 16         |
| 2.12 AIR AND NOISE EMISSIONS .....                                        | 16         |
| <b>3 ENVIRONMENTAL VALUES AND MANAGEMENT OF IMPACTS</b> .....             | <b>17</b>  |
| 3.1 CLIMATE.....                                                          | 17         |
| 3.2 LAND.....                                                             | 17         |
| 3.2.1 <i>Land use and infrastructure</i> .....                            | 17         |
| 3.2.2 <i>Topography and geomorphology</i> .....                           | 18         |
| 3.2.3 <i>Geology and soils</i> .....                                      | 18         |
| 3.3 NATURE CONSERVATION .....                                             | 20         |
| 3.3.1 <i>Terrestrial flora</i> .....                                      | 21         |
| 3.3.2 <i>Terrestrial fauna</i> .....                                      | 22         |
| 3.3.3 <i>Aquatic biology</i> .....                                        | 23         |
| 3.4 WATER RESOURCES.....                                                  | 24         |
| 3.5 AIR ENVIRONMENT .....                                                 | 26         |
| 3.6 NOISE AND VIBRATION .....                                             | 27         |

|          |                                                    |           |
|----------|----------------------------------------------------|-----------|
| 3.7      | WASTE .....                                        | 28        |
| 3.7.1    | <i>Waste generation</i> .....                      | 28        |
| 3.7.2    | <i>Waste management</i> .....                      | 28        |
| 3.8      | TRANSPORT.....                                     | 29        |
| 3.8.1    | <i>Transport methods and routes</i> .....          | 29        |
| 3.8.2    | <i>Road infrastructure alterations</i> .....       | 31        |
| 3.8.3    | <i>Coal haulage</i> .....                          | 31        |
| 3.9      | CULTURAL HERITAGE .....                            | 32        |
| 3.10     | VISUAL AND LIGHTING IMPACTS .....                  | 33        |
| 3.10.1   | <i>Description of visual amenity</i> .....         | 33        |
| 3.10.2   | <i>Description of existing light sources</i> ..... | 33        |
| 3.11     | SOCIAL AND ECONOMIC ENVIRONMENT .....              | 33        |
| 3.12     | HAZARD AND RISK .....                              | 35        |
| 3.12.1   | <i>Risk assessment</i> .....                       | 35        |
| 3.12.2   | <i>Health and safety</i> .....                     | 36        |
| 3.12.3   | <i>Emergency management plan</i> .....             | 36        |
| <b>4</b> | <b>ENVIRONMENTAL MANAGEMENT PLANS.....</b>         | <b>37</b> |
| <b>5</b> | <b>CONCLUSIONS AND RECOMMENDATIONS .....</b>       | <b>38</b> |
| <b>6</b> | <b>REFERENCES .....</b>                            | <b>38</b> |
| <b>7</b> | <b>RECOMMENDED APPENDICES .....</b>                | <b>38</b> |
| 7.1      | FINAL TERMS OF REFERENCE .....                     | 38        |
| 7.2      | DEVELOPMENT APPROVALS .....                        | 38        |
| 7.3      | CONSULTATION REPORT .....                          | 38        |
| 7.4      | STUDY TEAM.....                                    | 38        |
| 7.5      | TECHNICAL DATA AND BASELINE STUDIES .....          | 38        |
| 7.6      | LIST OF PROPONENT COMMITMENTS.....                 | 39        |

## Abbreviations

The following abbreviations have been used in this document:

|                 |                                                                                                                               |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------|
| ACH Act         | Aboriginal Cultural Heritage Act 2003 (Qld)                                                                                   |
| AHD             | Australian height datum                                                                                                       |
| ALCAM           | Australian Level Crossing Assessment Model                                                                                    |
| ANZECC          | Australian and New Zealand Environment and Conservation Council                                                               |
| ASS             | Acid Sulphate Soils                                                                                                           |
| CHMP            | Cultural Heritage Management Plan                                                                                             |
| CO <sub>2</sub> | Carbon dioxide                                                                                                                |
| CG              | The Coordinator-General of the State of Queensland                                                                            |
| DEWHA           | Australian Government Department of Environment, Water, Heritage and the Arts                                                 |
| DIP             | Department of Infrastructure and Planning                                                                                     |
| DMR             | Queensland Department of Main Roads                                                                                           |
| EIS             | Environmental Impact Statement, as defined by Part 4 of the <i>State Development &amp; Public Works Organisation Act 1971</i> |
| EMP             | Environmental Management Plan                                                                                                 |
| EP Act          | Environmental Protection Act 1994 (Qld)                                                                                       |
| EPA             | Queensland Environmental Protection Agency                                                                                    |
| EPBC Act        | Environment Protection and Biodiversity Conservation Act 1999 (C'th)                                                          |
| EPP             | Environmental Protection Policy                                                                                               |
| GQAL            | Good Quality Agricultural Land in State Planning Policy 1/92: Development and the Conservation of Agricultural Land.          |
| GSDA            | Gladstone State Development Area                                                                                              |
| IAS             | Initial Advice Statement, as defined by Part 4 of the <i>State Development &amp; Public Works Organisation Act 1971</i>       |
| IPA             | Integrated Planning Act 1997 (Qld)                                                                                            |
| LP ACT          | Land Protection (land and stock route management) Act 2002                                                                    |
| MSL             | Moura Short Line                                                                                                              |
| NCA             | Nature Conservation Act 1992 (Qld)                                                                                            |
| NCL             | North Coast Line                                                                                                              |
| QR              | Queensland Rail                                                                                                               |
| SDPWO Act       | State Development & Public Works Organisation Act 1971 (Qld)                                                                  |
| ToR             | Terms of Reference as defined by Part 4 of the <i>State Development &amp; Public Works Organisation Act 1971</i>              |
| WICT            | Wiggins Island Coal Terminal                                                                                                  |

## **Preamble**

### ***Project proponent***

The Proponent for this proposal is Queensland Rail Limited (QR). QR provides innovative rail-based transport services and in 2006/2007, annual revenue was \$3.1b. Within Queensland, QR is the largest provider of rail transportation solutions for Australia's coal mining industry. In 2006/07 QR transported 164 million tonnes of coal in Queensland, of which approximately 10Mt was for domestic use and the remainder exported.

In Queensland, QR operates over 400 services per week from over 30 coal mines. It rails coal to six existing export coal terminals and domestically to electricity generation and minerals processing industries. These services are operated on QR's interconnected coal network of over 2,000 km of track (75% electrified).

### ***Project background***

The proposed Moura Link-Aldoga Rail Project includes the construction and operation of track and facilities to support electrified and non-electrified haul trains. It is intended that the haul trains will access the proposed new terminal at Wiggins Island both from the north and from the west, on a rail network shared also by trains accessing the Gladstone State Development Area (GSDA) and other facilities in the vicinity of the Port of Gladstone.

QR aims to upgrade the Moura and Blackwater systems to accommodate the growth from coal and general freight to suit industry demand. The ultimate capacity will be refined during the Preliminary Engineering and Environmental Impact Statement (EIS) phase.

The proposal is to construct:

- a new rail line to carry Moura/Surat traffic arriving via the Moura Short Line (MSL) in the south to the North Coast Line (NCL) southeast of Mount Larcom, and quadruplication of the NCL from the new yard to just east of the township of Yarwun; and
- a rolling stock maintenance yard and provisioning facilities at Aldoga in the north of the GSDA.

QR has examined a number of alternatives prior to adopting the scheme proposed. In particular, a number of rail options have been investigated for connection of the MSL and NCL to the proposed Wiggins Island Coal Terminal (WICT) on Golding Point (north of the greater Gladstone region).

These initial studies identified that rail provisioning and rolling stock maintenance facilities should be located in the vicinity of the WICT to provide the lowest cost option. This option was assessed in detail during the WICT EIS.

However, during the WICT EIS there was significant community opposition to transporting coal to the WICT through existing and growing rural residential areas along the pre-existing MSL. Also a land, port, rail and road infrastructure study (being undertaken at the same time as the WICT EIS) was identifying infrastructure corridors through the GSDA.

The study raised the possibility of providing a single Rail Provisioning and Rolling stock Maintenance Facility south of Mount Larcom to service the GSDA precinct and existing and future port developments north of the Calliope River, including the proposed WICT. This option was developed further by QR and is now the rail scheme proposed.

The new corridor passes through rural areas to the west of the Bruce Highway, outside the GSDA. East of the Bruce Highway most of the rail works are contained within the GSDA. From the northern end of this new link, Moura/Surat traffic will follow the same path as Blackwater traffic along an enlarged NCL corridor to the WICT loop, thus avoiding the greater Gladstone urban area (see Figure 1 Locality Plan). This effective bypass of the Gladstone urban area is a key strategic benefit of the proposal. It is a direct response to the community's clearly-stated preference (as expressed in submissions to the WICT EIS) that the city not be exposed to further increases in rail haulage of coal through Gladstone.

Construction is expected to commence during the first half of 2010. The Project is expected to commence operations approximately two years later; however the progress of this Project is very much dependent on the support of the mining industry and implementation of the WICT Project.

As the proposal traverses land under the jurisdiction and interest of State and Local Government Agencies, this Terms of Reference (ToR) document has been drafted to meet the legislative requirements of all Government agencies.

QR has prepared an Initial Advice Statement (IAS), which provides further detail relating to the Project, which can be viewed at the Queensland Department of Infrastructure and Planning website: <http://www.infrastructure.qld.gov.au/eis>.

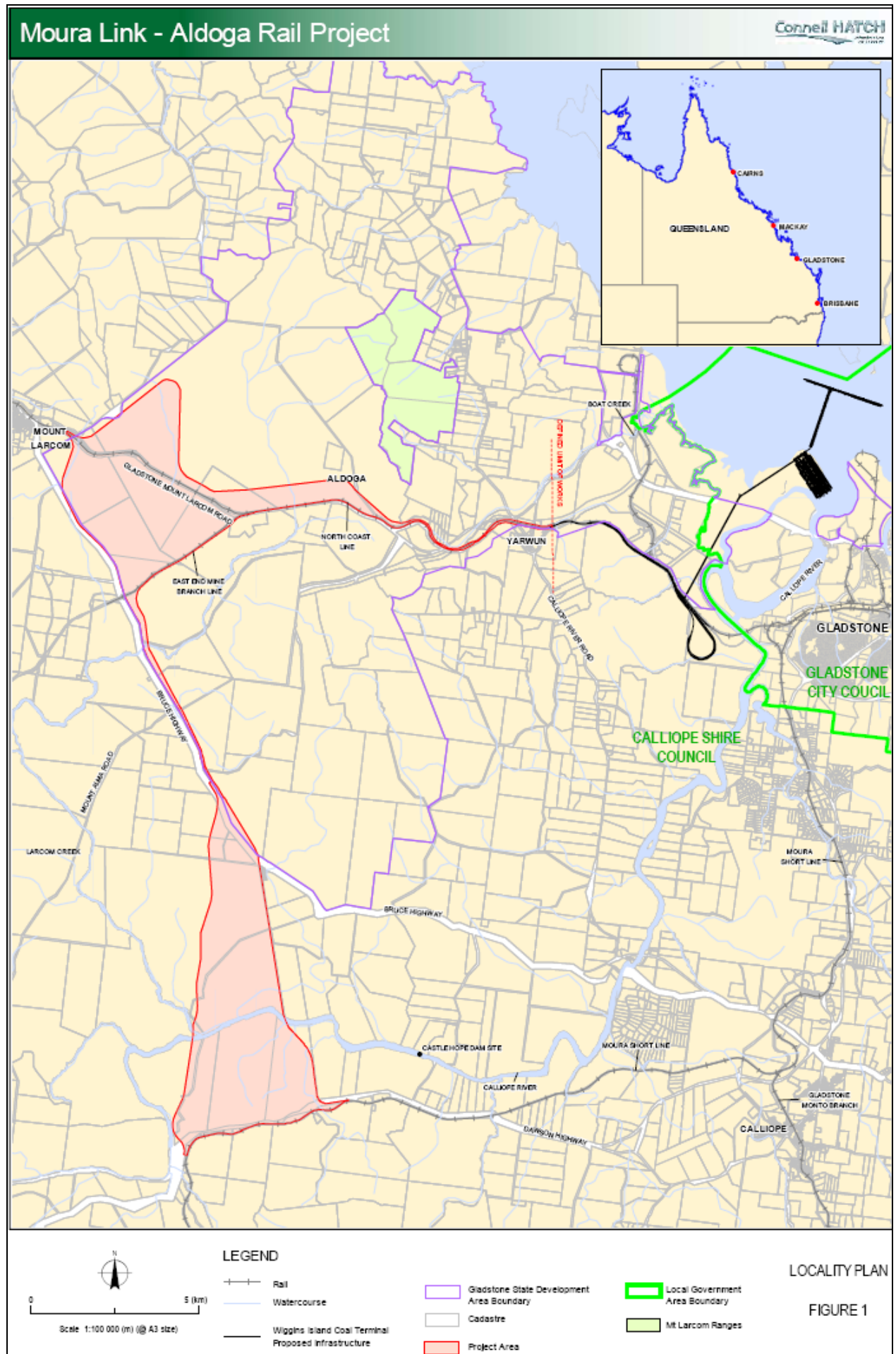
### ***Administrative procedures for these Terms of Reference***

On 26 September 2007, the Project was declared to be a 'significant project' by the Queensland Coordinator-General (CG) pursuant to Section 26(1)(a) of the *State Development and Public Works Organisation Act 1971* (SDPWO Act), which requires QR to prepare an EIS.

On 7 December 2007, the Australian Government Department of Environment, Water, Heritage and the Arts (DEWHA) determined that the Project is not a 'controlled action' under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Representatives of State and local governments and other relevant authorities have been invited to act as Advisory Agencies for the EIS process and they have been requested to examine the IAS and comment on the draft ToR. The Department of Infrastructure and Planning (DIP) will manage the impact assessment process for this Project on behalf of the CG.

QR will prepare an EIS addressing the ToR. Once the EIS meets the CG's requirements, a public notice will be placed in relevant newspapers. The notice will state where copies of the EIS can be viewed or purchased; the submission period; and where submissions should be sent. QR may need to prepare a Supplementary Report to the EIS to address specific matters raised during the EIS submission period. At the end of the EIS phase, the CG will prepare a report assessing the EIS and other material in accordance with Section 35 of the SDPWO Act.



The CG Report will include an assessment and conclusion about the environmental effects of the Project and any associated mitigation measures. Material that will be assessed includes: the EIS; properly made submissions and other submissions accepted by the CG; and any other material the CG thinks relevant to the Project such as a Supplementary Report, comments and advice from Advisory Agencies and other entities, technical reports and legal advice.

### ***Results of consultation on the Terms of Reference***

The results of the consultation on the draft ToR have been included, where appropriate, into the final ToR for the Project. These ToR provide information in two broad categories:

- Part A – Information and advice on the preparation of the EIS; and
- Part B – Specific requirements – contents of the EIS.

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## **Part A: Information and advice on the preparation of the EIS**

### **1. Introduction**

The objective of the Terms of Reference (ToR) is to identify those matters that should be addressed in the Environmental Impact Statement (EIS). The ToR is based on the outline of the proposed Project as provided in the Initial Advice Statement (IAS).

The State Government, from which the Project Proponent requires approvals, may request additional information on any matter not adequately dealt with in the EIS report. In order to clarify the nature and level of investigations that are envisaged in the ToR, the Proponent may contact relevant Government agencies (known as Advisory Agencies), peak community interest organisations and relevant individuals and groups as necessary. However, the Coordinator-General (CG) reserves the final decision on interpretation of the requirements of the ToR.

### **2. EIS objectives**

The objective of the EIS is to ensure that all potential environmental, social and economic impacts of the Project are identified and assessed and, where possible, how any adverse impacts would be avoided. Direct, indirect and cumulative impacts must be fully examined and addressed. The Project, including selection of the rail route, should be based on sound environmental protection and management criteria.

The EIS should be a self-contained and comprehensive document that provides sufficient information for an informed decision on the potential impacts of the Project and the management measures employed to mitigate adverse impacts. The EIS document should provide:

- for interested bodies and persons: a basis for understanding the Project, prudent and feasible alternatives, affected environmental values, impacts that may occur, and the measures to be taken to mitigate all adverse impacts.
- for groups or persons with rights or interests in land: an outline of the effects of the proposed Project on that land including access arrangements.
- for government agencies and referral bodies: a framework for decision-makers to assess the environmental aspects of the proposed Project with respect to legislative and policy provisions, and based on that information, to make an informed decision on whether the Project should proceed or not, and if so, subject to what conditions, if any.
- for the Proponent: a mechanism by which the potential environmental impacts of the Project are identified and understood, including information to support the development of management measures, such as an Environmental Management Plan, to mitigate the effects of adverse environmental impacts of the development.

Completion of the EIS in accordance with the final ToR does not guarantee approval of the Project.

### **3. General EIS guidelines**

The EIS is to provide stakeholders with sufficient information to understand the type and nature of the Project, the potential environmental, social and economic impacts, and the measures proposed by the Proponent to mitigate all perceived adverse impacts on the natural, built and social environment. It should be recognised that state and local governments, special interest groups and the general public will have an interest in the EIS.

All phases of the Project should be described in the EIS including design, pre-construction, construction, operation and decommissioning and final rehabilitation. Direct, indirect and cumulative impacts should be identified and assessed with respect to the environmental values of the project area and potential receiving environments.

Specifically the EIS provides:

- an executive summary of the potential environmental impacts of the Project;
- an overview of the Proponent and existing operations;
- a description of the entire Project, including associated infrastructure requirements;
- a description of feasible alternatives capable of substantially meeting the proposal's objectives;
- an outline of the various approvals required for the Project to proceed;
- descriptions of the existing environment, particularly where this is relevant to the assessment of impacts;
- measures for avoiding, minimising, managing and monitoring adverse impacts, including a statement of commitment to implement the measures;
- rigorous assessment of the risks of adverse and beneficial environmental impacts arising from the Project and relevant alternatives on environmental, social and economic values, relative to the 'no project' scenario;
- any information derived from baseline and predictive studies, the required extent of which will be commensurate to risks;
- an outline of stakeholder consultation undertaken; and
- a response to issues raised during public and stakeholder consultation.

The main EIS document needs to be supported by appendices containing relevant data, technical reports and other sources of the EIS analysis. In preparing the EIS, the approach to be adopted requires that:

- predictions of environmental impacts are based on scientifically supported studies;
- the EIS is to present all technical data, sources or authority and other information used to assess impacts;
- the methods used to undertake any specialist studies are outlined, together with any relevant assumptions and professional or scientific judgements;
- the scientific reliability of investigations and predictions is indicated, including the estimated degree of certainty or, if possible, statistical confidence wherever appropriate;
- proposed measures to mitigate and manage identified issues are described and evaluated; and
- residual impacts that are not quantifiable are described qualitatively, in as much detail as reasonably practicable.

The assessment of all environmental impacts needs to encompass both potential impacts on and uncertain risks to the environment. The level of investigation of potential impacts or particular risks needs to be proportionate to both the severity of the potential consequences of possible events and the likelihood of those events occurring.

Project specific types of relevant impacts requiring investigation are set out in Part B. However, the EIS will need to address other issues or aspects that may emerge during the investigations and preparation of the EIS. Ultimately, it is the Proponent's responsibility to ensure that adequate studies are undertaken and reported.

#### **4. Stakeholder consultation**

The Proponent should undertake a comprehensive and inclusive program of consultation with government agencies, key stakeholders and interested parties. The consultation program should provide stakeholders with the opportunity to obtain information about the Project, to raise issues and express their concerns and to receive feedback on how the Proponent intends to address the issues and mitigate all adverse impacts of the Project.

Consultation with the advisory agencies should be the principal forum for identifying legislation, regulations, policies and guidelines relevant to the Project and EIS process. Where appropriate, information bulletins can be used to circulate information to a wider audience. These bulletins can also be used to inform stakeholders of the Proponent's progress in the EIS process and on specific investigations.

The Proponent is encouraged to provide opportunities for the general public to obtain information about, and comment on, the Project through public information sessions.

#### **5. General EIS format**

The EIS should be written in a format matching the ToR or include guidelines (preferably as an appendix) describing how the EIS responds to the ToR. The EIS documentation is to include appendices containing:

- a copy of the final ToR;
- a list of persons, interest groups and agencies consulted during the EIS;
- a list of advisory agencies consulted with an appropriate contact; and
- the names of, and work done by, all personnel involved in the preparation of the EIS.

Maps, diagrams and other illustrative material should be included in the EIS to assist in the interpretation of the information.

The EIS should be produced on A4-size paper capable of being photocopied, with maps and diagrams on A4 or A3 size. The EIS should also be produced on CD ROM. CD ROM copies should be in ADOBE® PDF format for placement on the internet. All compression must be down-sampled to 72 dpi (or ppi). PDF documents should be no larger than 2 MB in file size. Text size and graphics files included in the PDF document should be of sufficient resolution to facilitate reading and enable legible printing.

## **Part B: Specific requirements – contents of the EIS**

The EIS report should include the following sections, but need not be limited to these sections or structure.

### ***Executive summary***

The Executive Summary should be written as a separable document, able to be reproduced on request and distributed to interested parties who may not wish to read or purchase the EIS as a whole.

The structure of the Executive Summary should generally follow that of the EIS, but focus on key issues to enable the reader to obtain a clear understanding of the Project and its potential adverse and beneficial environmental, social and economic impacts and the management measures to be implemented by the Proponent to mitigate all adverse impacts.

The executive summary should include:

- the title of the Project;
- name and contact details of the Proponent, and a discussion of previous Projects undertaken by the Proponent and their commitment to effective environmental management;
- a concise statement of the aims and objectives of the Project;
- the legal framework, decision-making authorities and advisory agencies;
- an outline of the background and need for the Project, including the consequences of not proceeding with the Project;
- a description of the alternative options considered and reasons for the selection of the proposed development option;
- a brief description of the Project (design, pre-construction, construction and operational activities) and the existing environment, utilising visual aids where appropriate;
- an outline of the principal environmental impacts predicted and the proposed environmental management strategies (including waste minimisation and management) and commitments to minimise the significance of these impacts; and
- detailed maps of the proposed Project location.

### ***Glossary of terms***

A comprehensive glossary of technical terms and acronyms should be provided.

# 1. Introduction

The introduction should clearly explain the purpose of the EIS, to whom it is directed and provide an overview of the structure of the document.

## 1.1 *Project proponent*

This section should describe the relevant experience of the Project Proponent, including nature and extent of business activities, experience and qualifications, and environmental record including the Proponent's environmental policy.

## 1.2 *Project description*

This section should provide a brief description of the key elements of the Project including associated infrastructure requirements with specific locations illustrated on maps.

### 1.2.1 *Relationship to other projects*

This section should describe how the Project relates to any other actions, of which QR should reasonably be aware, that are being, or might be taken, or that have been approved in the area affected by the Project. In particular, mention should be made of other relevant proposals and rail facilities upgrades, and to the proposed development of the facilities at WICT, and the nature of the interdependency of this Project.

## 1.3 *Project rationale*

This section should provide a statement of the objectives of the proposal and a brief outline of the events leading up to the proposal's formulation. Information should be provided on the envisaged time scale for implementation, Project life, and actions already undertaken within the project area. The current status of the Project should be described and an outline of the relationship of the Project to other developments or actions to which it may relate. Discussion should include consideration of multiple users of the network, including how multiple maintenance yard facilities and/or options for multi-user maintenance facilities can be accommodated.

### 1.3.1 *Need for the Project*

The EIS should describe the justification for the Project in a regional, state and national context. This section should also describe:

- the rationale and justification for the Project in relation to any relevant policy or regulatory framework;
- expected local, regional, state or national benefits;
- the Project's technical feasibility and commercial viability; and
- the Project's compatibility with any relevant Queensland Government policy.

### 1.3.2 *Costs and benefits of the Project*

This section should summarise:

- the economic costs and benefits to other industries and the wider community arising from the Project; and
- regional social impacts including employment, skills development and any workforce accommodation issues arising from the Project.

## 1.4 *Alternatives to the Project*

The EIS should describe any prudent and feasible conceptual, technological and locality alternatives to the Project, or specific elements of the Project. The consequences of not

proceeding with the Project must be discussed. Alternatives should be discussed in sufficient detail to justify the ultimate selection of the preferred option.

Compliance with government policy should be included in this discussion. Reasons for selecting preferred options should be defined in terms of technical, commercial, social and natural environment aspects.

## **1.5 The environmental impact assessment process**

### **1.5.1 Methodology of the EIS**

This section should provide an outline of the approvals process including the environmental impact assessment process, and any associated licence or permit application processes. It should include information on the relevant stages of the approvals process, statutory and public consultation requirements and any interdependencies that exist between the approvals sought.

This section should make clear the objectives of the EIS process under the *State Development and Public Works Organisation Act 1971* (SDPWO Act), and development approval under the *Integrated Planning Act 1997* (IPA) and *Environment Protection Act 1994* (EP Act).

This section should include a description of the impact assessment process, in terms of timing and decision making, to be accomplished for various stages of the Project. In particular, this section should outline mechanisms in the process for public input and feedback. It should be noted that it is necessary for the Proponent to undertake wide consultation as part of the impact assessment process.

### **1.5.2 Objectives of the EIS**

This section should provide a statement of the objectives of the environmental impact assessment process, detail how the relevant legislation will be addressed and highlight the EIS as the key environmental document for providing advice to decision makers considering approvals for the Project.

It should be highlighted that the purpose of the EIS is to:

- provide public information on the need for, and likely effects of the Project;
- detail acceptable standards and levels of impacts (both beneficial and adverse) on environmental values; and
- demonstrate how environmental impacts can be managed through the protection and enhancement of environmental values.

The relationship of other Project environmental management planning documentation, conditions, approvals and environmental authorities should be discussed in relation to the EIS.

### **1.5.3 Submissions**

Interested and affected persons should be made aware of how submissions on the EIS will be addressed and taken into account in the decision-making process. The EIS should inform the readers on:

- how to make submissions;
- what form the submissions should take; and
- when submissions must be made to be endorsed for any appeal process.

## **1.6 Public consultation process**

This section should outline the public consultation process that has taken place during EIS preparation and the outcomes of such consultation. It should outline any further opportunities for public input on the EIS.

The public consultation program should provide opportunities to encourage and facilitate active community involvement. The public consultation process should identify broad issues of concern to local community and interest groups at all stages including Project planning, design, construction, commissioning, and operations, including decommissioning and final rehabilitation.

The key objectives of the consultation program should be to:

- inform the different interest groups about the Project proposal;
- seek an understanding of interest group concerns about the proposal;
- explain the impact assessment research methodology, and how public input might influence the final recommendations for the Project;
- provide an understanding of the regulatory approval process; and
- obtain local information and input into the Project.

The public consultation program should be incorporated into the EIS and provide ongoing opportunities for community involvement, feedback and education. Details should be provided on programs for public meetings, interest group meetings, production of regular summary information and updates and any other consultation mechanisms for encouraging and facilitating active public consultation. A list of affected persons, interested stakeholders and information on the consultation activity with each party should be included.

Any indigenous component of the public consultation program should be guided by engagement that:

- is geographically specific;
- uses appropriate language and media; and
- considers the communication skill level of participants.

In particular, the EIS should describe:

- QR's program for communicating and consulting with the public and stakeholder groups during the course of the EIS preparation and include the information provided and the methods for engaging with local stakeholders in the assessment of social and economic impacts; and
- the outcomes of consultation undertaken as part of specific impact studies, the issues and suggestions of stakeholders or members of the public (by theme and source, rather than individually) and the response made by QR in the context of either the EIS studies or the refined proposal.

## **1.7 Project approvals**

### ***Relevant approvals legislation policy and planning requirements***

This section should identify the principal development approvals for the project, and specify the legislation and policies controlling the approvals process. Reference should be made to the EP Act, SDPWO Act, IPA, *Transport Infrastructure Act 1994*, *Fisheries Act 1999*, *Vegetation Management Act 1999* and other relevant Queensland laws.

A description of the Environmentally Relevant Activities necessary for each aspect of the Project should be given. The EIS should clearly identify all activities either directly or indirectly associated with the Project that will require development approval under IPA, or under other legislation. Any requirements of the Australian Government EPBC Act, including the results of an EPBC Referral, should also be included. Requirements of the *Native Title Act 1993* should also be covered.

This section should identify all relevant state, regional and local planning policies and plans and discuss how the Project complies with these policies and plans. This section

should also outline the Project's consistency with existing land uses or town planning criteria.



## **2 Description of the Project**

This section should describe the Project and its components, including how it would be constructed, operated and decommissioned (including rehabilitation). Details should include:

- design parameters for aspects of the Project that may impact upon any endangered and threatened species;
- a program covering activities relating to design, construction, commissioning and first operating activities; and
- an outline of any major transport routes impacted on by the supply of construction materials, equipment and personnel involved in the construction process.

### **2.1 Site location**

This section should include a detailed description of the proposed sites associated with the Project, including plans of the areas in relation to the surrounding features and land uses. Mapping should include details of:

- the location of the facilities in a regional and local context;
- land tenures;
- present land uses/approvals and infrastructure;
- surrounding industries and other land uses;
- any features of environmental significance including rivers, streams, other waterbodies and wetlands;
- appropriately scaled plan/s (or overlay) showing the location of:
- the levels of the Highest Astronomical Tide, Mean High Water Spring Tide, and Low Water Spring Tide;
- any marine plants;
- buffers between development activities and aquatic features and marine plants within and adjacent to the development site;
- any proposed buffer zones/corridors; and
- the locations and layouts of new structures.

The EIS should provide details on adjacent areas that could be affected by the Project and existing infrastructure facilities and proposed infrastructure corridors that are on, and adjacent to, the various sites/locations.

Any non-freehold parcels (excluding roads) which do not have existing 'rail' tenure but are impacted by the proposal should be listed in a table. The table should identify real property description, tenure and existing land use.

### **2.2 Construction activities**

The extent and nature of the Project's construction phase should be described for each major element of the project (e.g. road infrastructure as well as rail infrastructure elements). The description should include:

- a description of the pre-construction activities proposed;
- an indicative construction timetable, including expected commissioning and start-up dates and hours of operation;
- major work programs for the construction phase;
- process inputs, handling and storage including an outline of procedures for loading and unloading materials and contingency plans for spillages;
- clean up and restoration of areas used during construction, including camp site(s) and storage areas; and

- the arrangements and facilities for supply of permanent way ballast for the construction of the rail facilities should be described. This should indicate the location of ballast storage and handling works, and transport logistics for this material, both during construction and operation.

### **2.3 Commissioning activities**

This section should describe the activities involved in commissioning the extended rail corridor, rail loop and new rail yard.

### **2.4 Operation activities**

This section should describe the operation and maintenance requirements for all elements of the Project including:

- impacts within and surrounding the area as a result of operation and maintenance activities; and
- safety plans in event of an emergency;

### **2.5 Decommissioning**

It is understood that rail facilities such as the Moura Link and Aldoga Yard are anticipated to have a very long operational life spanning many decades. Consequently, there is less expectation of detailed decommissioning strategies in the EIS for this Project than for other types of projects. Nonetheless, this section should present the general strategies and methods for final closure, decommissioning, and rehabilitation of all Project elements, should that ever be required. The removal of plant, equipment, structures and buildings should be described and the methods proposed for the stabilisation of the affected areas should be given. Information should be provided on how buildings and structures would be removed or made safe.

The EIS should outline the development and implementation of rehabilitation success criteria for the decommissioning of the Moura Link and Aldoga Yard at the end of operational life.

### **2.6 Workforce, accommodation and support infrastructure**

The EIS should provide information on the number of personnel to be employed, the skills base of the required workforce and the likely sources (i.e. local, regional or other) for the workforce during the construction and operational phases for each aspect of the Project. Estimates should be provided according to occupational groupings and variations in the workforce numbers over the duration of the Project (e.g. histogram). For the construction workforce, the information should show anticipated peaks in worker numbers during the construction period. For the operational workforce, the information should show any proposed staging and increase in workforce numbers up to ultimate development.

An outline of policies for recruitment of workers (addressing recruitment of local and non-local workers) should be included. An accommodation strategy for the construction workforce must be included, which addresses the estimated housing needs of both single and accompanied construction workers. This should include details of the size, location and management of any temporary worker accommodation that will be required either on-site or off-site and arrangements for their transport to and from the project areas. Maps should be included as necessary to illustrate the site and should include the location of any proposed construction workers' accommodation in the vicinity of the Project.

If camp sites are to be used to accommodate the workforce, details on the number, location (shown on a map), proximity to the construction site and typical facilities for these sites should be provided. Information should include data relating to facilities for:

- food preparation and storage;
- ablution (washing) facilities;
- disease vector and vermin control;
- fire safety;
- first aid to support on-site emergency response capabilities;
- dust and noise control in relation to proximity of camp site to the construction area; and
- the service personnel required to maintain the camp and the supply of services to each construction camp.

Local and State Government approvals required for establishment and operation of such camps should be outlined.

## **2.7 Energy and telecommunications requirements**

Electricity supply requirements for the construction and operation of the Project should be provided and locations of any associated easements should be shown on an infrastructure plan. Timeframes should be provided for the anticipated dates for the commencement of construction of supply facilities, testing and final commissioning. This section of the EIS should include details on energy demand and annual consumption.

The EIS should provide details of telecommunication requirements, sources and methods, describe any impacts on existing telecommunications infrastructure (such as optical cables, microwave towers, etc.) and identify the owners of any existing infrastructure.

## **2.8 Water supply and management**

The EIS should provide information on water usage by the Project. In particular, information should be provided on the demand for raw and treated water for the various processes and the proposed and optional sources of water (e.g. bores, any surface storage such as dams and weirs, municipal water supply pipelines) for construction and operation for all aspects of the Project.

Details on the estimated rates of supply from each source (average and maximum rates) should be included. Details on daily, seasonal and/or peak operational requirements should include:

- quality of water required, including strategies to prevent contamination;
- quantity of water required including:
  - maximum hourly and daily demand;
  - mean daily demand;
  - total annual consumption;
  - any additional water supply infrastructure; and
  - requirements for fire-fighting or other emergency services.

A determination of potable water demand and supply requirements for each phase of the Project should be made, including existing town water supply to meet such requirements. Any on-site water storage and treatment proposals for use by the workforce should be described. An assessment of the capability of the water network to provide the necessary demand should include:

- current and projected raw and treated water consumption and storage;
- contingency plans for planned and non-planned supply failures; and

- projected dates for increased raw and treated water supplies.

## **2.9 Sewage and stormwater**

The EIS should describe the amount and nature of sewage and stormwater generated for onsite or offsite treatment and disposal, and the facilities proposed to accommodate these streams. Site layout plans should be provided, which incorporate requirements and conceptual plans for sewage and stormwater management facilities, including descriptions of any discharge requirements for both the construction and operational stages. This should include proposals for drainage structures and dams and an overall site water balance. The topography of the site and adjacent areas should be discussed if any run-off is expected to leave the site.

## **2.10 Transport – road, rail, and shipping**

This section of the EIS should provide a brief overview of transport requirements for the Project. Full details of transport volumes and routes should be provided under section 3.8.

## **2.11 Waste**

This section should provide a brief overview of the waste management requirements of the Project. Full details of the waste volumes, characteristics and management strategies should be provided in section 3.7.

## **2.12 Air and noise emissions**

The EIS should provide information on any air emissions and in particular, sources of emission of particulate matter (dust) and any toxic air emissions. Section 3.5 will provide detailed information regarding air emissions, required for presentation in the EIS.

A description of noise emissions should be provided and include principal noise sources, and any noise abatement measures proposed. Further information requirements for noise emissions, to be presented in the EIS, are detailed in section 3.6.

### 3 Environmental values and management of impacts

This section of the EIS should:

- describe the existing environmental values of the areas affected by the Project through reference to background information and corresponding studies;
- describe the potential adverse and beneficial impacts of the Project on the identified environmental values, including analysis of any cumulative impacts;
- present environmental protection objectives, standards and indicators; and
- demonstrate viable strategies to manage or mitigate potentially adverse impacts.

The EIS should detail environmental protection measures which are to be incorporated in the planning, construction, operations, decommissioning and associated works for the Project. Measures proposed in the EIS should attempt to minimise environmental harm and maximise socio-economic and environmental benefits of the proposal.

The following headings presented below should be adopted as the EIS structure. The environmental mitigation measures and monitoring programs identified in this section of the EIS should ultimately form the basis of the Environmental Management Plans for the Project.

#### 3.1 *Climate*

This section should describe climatic conditions in the project area and seasonal conditions (e.g. cyclones, floods) that may influence timing and/or construction methods and how this would be managed. This section should include a discussion on how weather conditions would be taken into consideration when determining how the risk of adverse impacts to the project area during the construction period could be minimised.

#### 3.2 *Land*

This section should detail the existing land use environment for all areas associated with the Project. Any new permanent or temporary facilities (e.g. accommodation camps) constructed for the Project should be captured in the discussion. This section should also describe the potential for the construction and operation of the Project to change existing and potential land uses of the Project site and surrounding areas.

##### 3.2.1 *Land use and infrastructure*

###### *Description of environmental values*

The EIS should identify the following, demonstrated with maps:

- land tenure (including reserves, tenure of special interest such as protected areas and forest reserves, roads and road reserves, existing railways and rail reserves, and stock routes);
- land use (urban, residential, industrial (including future industrial development envisaged by the Development Scheme for the GSDA), agricultural, forestry, recreational, mining including mining and petroleum exploration tenures, mining leases, mining claims, mineral development licences, extractive industry permits, petroleum leases and pipeline licences);
- areas covered by applications for native title determination, with a description of Native Title Representative Bodies' boundaries;
- location of gas and water pipelines, power lines, telecommunication cables, roads, railways, bridges, airports, airstrips, helipads and any other infrastructure; and

- the distance of the Project from residential and recreational facilities, or other potentially non-compatible land uses.

### ***Potential impacts and mitigation measures***

This section should include:

- assessment of the compatibility of the proposal with surrounding land uses (particularly industrial development envisaged by the Development Scheme for the GSDA) and existing and proposed infrastructure facilities and corridors;
- description of possible impacts on access (including access from the Bruce Highway and Mount Larcom Road) to land, particularly to prime industrial sites envisaged by the Development Scheme for the GSDA. Detail the measures to resolve any possible access problems which may be generated as a result of the proposal;
- description of possible impacts on surrounding land uses and human activities, including impacts to Good Quality Agricultural Land (GQAL), addressing loss of access to land, fragmentation of sites, increase of fire risk and loss of productive land for those purposes, as well as residential and industrial uses. Describe how any such impacts on surrounding land uses and human activities will be addressed;
- proposed measures to minimise impact on GQAL;
- strategy and progress in relation to making of any required Native Title agreements;
- proposed management of any nearby pipelines, electric power transmission lines especially where construction and maintenance machinery are likely to be used in the vicinity of other infrastructure corridors;
- potential for other non-Project activities to impact on the project area (e.g. quarrying, trenching, excavation for construction, residential, industrial, water supply, transport and road construction); and
- management of fences and gates to be crossed during construction and neighbouring site access proposals.

### **3.2.2 Topography and geomorphology**

#### ***Description of environmental values***

Maps should be provided locating the Project elements and its environs in both a regional and local context. The topography of the project area should be detailed, with contours at suitable increments shown with respect to Australian Height Datum (AHD). Significant features of the landscape and any environmentally sensitive areas, or areas of a high conservation value, should be included on the maps and in the discussion.

#### ***Potential impacts and mitigation measures***

Any measures taken to avoid or minimise impacts on major topographic features should be described as are the objectives to be used for the Project in re-contouring and landscaping. The extent to which use is made of appropriate native plant species during any landscaping and re-vegetation should also be depicted.

### **3.2.3 Geology and soils**

#### ***Description of environmental values***

The EIS should provide a description and map of the geology of the project area, with particular reference to the physical and chemical properties of surface and sub-surface materials and geological structures within the proposed areas of disturbance/subsidence. Geological properties that may influence: ground stability (including

seismic activity, geological faults and associated geological hazards); occupational health and safety; rehabilitation programs; or the quality of wastewater leaving any area disturbed by the proposal should be presented and discussed.

Soils of the project areas should be mapped at a suitable scale, with particular reference to the physical and chemical properties of the soils which would influence land contamination, erosion potential, stormwater run-off quality, rehabilitation and agricultural productivity of the land. Information should also be provided on soil stability and suitability for construction of all Project facilities.

Soils should be mapped and described in accordance with *Australian Soil and Land Survey Field Handbook* (Gunn *et al*, 1988 and McDonald *et al*, 1990). An appraisal of the depth and quality of soil appropriate for use should be undertaken. Information, including borehole locations, should be presented in accordance with the standards required in the *Planning Guidelines: The Identification of Good Quality Agricultural Land* (DPI, DHLGP, 1993)(GQAL), which supports State Planning Policy 1/92: Development and the Conservation of Agricultural Land.

This section should discuss the potential for:

- the existence of GQAL within and adjacent to the disturbance zone of the project (GQAL to be clearly identified on maps); and
- land contamination from existing and historical use, based on land use history and the nature and quantity of any contaminants (a preliminary site investigation should be prepared including a risk based search of the Environmental Protection Agency (EPA) Contaminated Land Register and Environmental Management Register).

### ***Potential impacts and mitigation measures***

This section of the EIS should provide information on potential impacts to the land resources and proposed mitigation and management methods to be used for the Project proposal. This section should provide information on:

- the availability and suitability of construction materials such as rock, sand and gravel;
- the environmental consequences of the excavation and removal of soils from any borrow pits;
- measures to ensure that construction or maintenance activities do not accelerate soil erosion in the project area;
- how timing of construction, with particular consideration to seasons, may impact on soils;
- the management of existing contaminated land and potential for contamination from construction activities and/or operations;
- details of erosion control measures and criteria used to assess methods that would minimise or alleviate sedimentation over various terrain types, including waterway beds, banks and adjacent areas;
- methods of stockpiling and disposal of trench material from excavated streambed, bank, including adjacent areas;
- adjustments to the project area and/or rehabilitation measures to minimise impacts on GQAL;
- the description of topsoil management, including transport, storage and replacement of topsoil to disturbed areas, and minimisation of topsoil storage times;

- an assessment to identify the potential for heavy metals to be released from sorbed geological materials, including potential effects and mitigation methods to reduce any impact;
- erosion and sediment control measures to ensure:
  - prevention of soil loss in order to maintain land capability/suitability;
  - reduction of wind-generated dust concentrations; and
  - prevention of significant degradation of local waterways from suspended solids.

This section should also provide information on the potential risk for intercepting acid sulphate soils (ASS) and groundwater draw-down during the construction phase of the Project. In particular, this should assess all areas subject to excavation or filling below the level of 5 metres AHD, and for wetland areas where the natural hydrology (surface or groundwater) may be affected by the proposal such that oxidation of potential ASS may occur.

The preliminary report should have regard to State Planning Policy 2/02 and any consultations with the Department of Natural Resources and Water. If there is potential for ASS to be disturbed, an ASS sampling plan should be prepared, underlining the methodology in accordance with the State Planning Policy 2/02, to be undertaken at the time of further geotechnical investigations.

The means of preventing land contamination (within the meaning of the EP Act) should be addressed and methods proposed for preventing, recording, containing and removing any contaminated land outlined. Intentions should be stated concerning the classification (in terms of the Queensland Contaminated Land Register) of any contamination on the land and storage areas after completion of the Project.

### **3.3 Nature conservation**

This section should detail the existing nature conservation values of the project area. The flora and fauna communities should be described, particularly those that are rare or threatened, in environmentally sensitive localities, including watercourses, riparian zones and habitat corridors. The description should include species lists.

Reference should be made to both Queensland and Australian Government legislation and policies on threatened species and ecological communities. All surveys undertaken should be in accordance with best practice advice from the EPA and should include consideration of seasonality, potential for occurrence of significant species, rarity of species and the sensitivity of the species to disturbance.

This section should also discuss the likelihood of direct and indirect environmental harm on flora and fauna in both terrestrial and aquatic environments in sensitive areas.

The EIS should demonstrate how the Project elements, including all access routes and campsites, would comply with the following course of action:

1. avoiding impacts on areas of remnant vegetation and other areas of conservation value;
2. mitigation of impacts through rehabilitation and restoration;
3. measures to be taken to replace or offset the loss of conservation values, where avoidance and mitigation or impacts cannot be achieved; and
4. justification of why measures 1 to 3 above would not apply in areas where loss would occur.



### 3.3.1 Terrestrial flora

#### **Description of environmental values**

Terrestrial vegetation maps at a suitable scale should be provided for the project area. Mapping should show and discuss:

- location and extent of vegetation types using the EPA's regional ecosystem type, descriptions and the EPA's website ([www.epa.gov.qld.au/environment/sciencce/wildlife/](http://www.epa.gov.qld.au/environment/sciencce/wildlife/)) listing the biodiversity status of regional ecosystems;
- location of species listed as 'protected plants' under the *Nature Conservation Act 1992* (NC Act) and subsequent regulations and amendments;
- any plant communities of cultural, commercial or recreational significance;
- areas of re-growth or restoration and remnant vegetation; and
- any 'threatened species or communities' under the EPBC Act.

Discussion of vegetation map units should include their relationship to regional ecosystems. Sensitive or important vegetation types should be highlighted discussing their value as habitat for fauna. The conservation of specific rare floral and faunal assemblages or community types should also be appraised.

The description should contain a review of published information regarding the assessment of the significance of the vegetation to conservation, recreation, scientific, education and historical interest. The assessment should also include the significance of native vegetation (including re-growth and restored areas in addition to remnant vegetation), from a local, regional, state and national perspective.

For each significant natural vegetation community likely to be impacted by the Project, vegetation surveys should be undertaken at a sufficient number of sites. Discuss the potential for seasonal changes in these vegetation communities. Surveys should be conducted as follows:

- all data requirements of the Queensland Herbarium "CORVEG" database should be collected;
- a complete list of species present and observed at each site should be recorded;
- the relative abundance of plant species present should be recorded;
- any plant species of conservation, cultural, commercial or recreational significance should be identified;
- vegetation mapping and data should be submitted to the Queensland Herbarium to assist the updating of the CORVEG database; and
- specimens of species listed as 'protected plants' under the NC Act, other than common species, are to be submitted to the Queensland Herbarium for identification and entry into the Queensland Herbarium Records System database.

The location of any horticultural crops in the vicinity of the project area should be clearly defined on maps.

Existing information on plant species may be used instead of new survey work provided that the data is derived from surveys consistent with the above methodology. Methodology used for flora surveys should be specified in the appendices to the EIS. Any existing information should be revised and comments provided on whether the areas are degraded, cleared or affected in ways that would affect their environmental value.

The occurrence of pest plants (weeds), particularly declared plants under the *Land Protection (Land and Stock Route Management) Act 2002* (LP Act), should be shown on a map at an appropriate scale. A weed management strategy will be required to include the provision of surveys for pest plants to occur after significant rainfall events to allow for germination.

### ***Potential impacts and mitigation measures***

This section should include:

- a discussion of clearing activities in relation to the requirements of the *Vegetation Management Act 1999* and associated policies;
- a discussion on the ability of identified vegetation to withstand any increased pressure resulting from the Project and any measures proposed to mitigate potential impacts;
- a description of the methods to ensure immediate rehabilitation of disturbed areas following construction, including the species chosen for revegetation which should be consistent with the surrounding associations;
- a description of the offset measures required to conform with relevant legislative requirements;
- details of any post construction monitoring programs and what benchmarks will be used;
- a description of methods to minimise the potential for the introduction and/or spread of weeds or plant disease, including:
  - identification of the origin of construction materials, machinery and equipment;
  - vehicle and machinery wash-down and any other hygiene protocols; and
  - staff or operator education program; and
- a weed management plan presented in the EMP, to be developed in consultation with local government environmental officers, to cover construction, commissioning, rehabilitation and operation periods.

### **3.3.2 Terrestrial fauna**

#### ***Description of environmental values***

The terrestrial and riparian fauna occurring in the areas affected by the Project should be described, noting the broad distribution patterns in relation to vegetation, topography and substrate. The description of the fauna present or likely to be present in the areas should include:

- species diversity (i.e. a species list) and abundance of animals, including amphibians, birds, reptiles, mammals and bats;
- habitat requirements and sensitivity to changes; including movement corridors and barriers to movement;
- the existence of feral or exotic animals;
- the existence of threatened and/or noteworthy fauna species under Local, State and/or National legislation in the study areas; and
- observed migratory birds, nomadic birds, and terrestrial fauna.

Discuss the potential for seasonal changes in fauna distribution patterns. The EIS should indicate how well any affected fauna assemblages are represented and protected elsewhere in the sub-region where Project activities occur. Site data should be recorded in a format compatible with EPA Wildlife Online database.

### ***Potential impacts and mitigation measures***

This section of the EIS should include:

- impacts the proposal may have on terrestrial fauna, relevant wildlife habitat and other fauna conservation values;
- impacts the proposal may have on threatened and/or significant species inhabiting the area and measures to reduce and/or mitigate impacts;
- measures to minimise wildlife capture and mortality;
- monitoring of terrestrial fauna health, productivity and biodiversity;
- details of the methodology that would be used to assess and handle injuries that may be inflicted on livestock or native fauna as a result of construction or operational works for the Project;
- methods of minimising the introduction of feral animals and other exotic fauna; and
- effects of construction activities and disposal of construction wastes on biting insect species or pests and the associated health significance, including measures to prevent increase in these species.

### **3.3.3 Aquatic biology**

#### ***Description of environmental values***

The aquatic flora and fauna occurring in the areas affected by the Project should be described, noting the patterns and distribution in the waterways. A description of the habitat requirements and the sensitivity of aquatic flora species to changes in flow regime, water levels and water quality in the project areas should be provided. The discussion of the aquatic fauna and flora present or likely to be present in the project area at any time during the year should include:

- fish species, mammals, reptiles, amphibians, and aquatic invertebrates occurring in the waterways within the project area;
- aquatic (waterway) macrophytes including native and exotic/weed species; and
- aquatic substrate and stream type, including extent of tidal influence and common levels such as Highest Astronomical Tide and Mean High Water Spring.

The occurrence of pest plants (weeds), particularly declared plants under the LP Act, should be shown on a map at an appropriate scale. A weed management strategy will be required to include the provision of surveys for pest plants to occur after significant rainfall events to allow for germination.

#### ***Potential impacts and mitigation measures***

This section should include:

- discussion of the potential impacts on the Project on the aquatic ecosystems and a description of the methods used to mitigate and rehabilitate impacts on these ecosystems;
- potential for, and mitigation measures to prevent, the creation of new mosquito and biting midge breeding sites during construction (e.g. in quarries and borrow pits);
- proposed waterway barriers, stream diversions, causeway construction and crossing facilities, stockpiled material and other impediments that would restrict free movement of fish;
- measures to avoid fish spawning periods, such as seasonal construction of waterway crossings and measures to facilitate fish movements through water crossings;
- details of alternatives to waterway crossings where possible (e.g. designs to span creeks to avoid the requirement of infrastructure within the creek bed or bank);

- offsets proposed for unavoidable, permanent loss of fisheries habitat within the Project footprint;
- a description of methods to minimise the potential for the introduction and/or spread of weed species or plant disease;
- monitoring of aquatic biology health, productivity and biodiversity in areas subject to direct discharge; and
- all permits/authorities required by the Project associated with activities in waterways (e.g. permits under the *Fisheries Act 1994* to construct temporary or permanent waterway barriers and disturb protected marine plants).

### **3.4 Water resources**

#### ***Description of environmental values***

The section of the EIS should provide a description of the existing water resource environment that may be affected by the Project in the context of environmental values as defined in such documents as the EP Act, Environmental Protection (Water) Policy 1997 (EPP (Water)), Australian and New Zealand Environment and Conservation Council (ANZECC) National Water Quality Management Strategy documents (e.g. ANZECC 2000 Guidelines for Fresh and Marine Water Quality) and the EPA Queensland Water Quality Guidelines 2006.

An indication of the quality and quantity of water resources in the vicinity of the project area should be given. This section should describe:

- existing surface and groundwater in terms of physical, chemical and biological characteristics;
- existing surface drainage patterns, flows, history of flooding including extent, levels and frequency and present water uses;
- status of the proposed Castle Hope Dam;
- environmental values of the surface waterways of the affected area in terms of:
  - values identified in the EPP (Water);
  - physical integrity, fluvial processes and morphology of watercourses, including riparian zone vegetation and form;
  - hydrology of waterways and groundwater;
- existing and other potential surface and groundwater users and holders of Quarry Material Allocation Notices in the project area; and
- any Water Resource Plans relevant to the affected catchments.

If the Project is likely to use or affect local sources of groundwater, this section should provide a description of groundwater resources in the area in terms of:

- geology/stratigraphy;
- aquifer type - such as confined, unconfined;
- depth to and thickness of the aquifers;
- depth to water level and seasonal changes in levels;
- groundwater flow directions (defined from water level contours);
- interaction with surface water;
- possible sources of recharge; and
- potential exposure to pollution.

The environmental values of the groundwater of the affected areas should be described in terms of:

- values identified in the EPP (Water);
- sustainability, including both quality and quantity;

- physical integrity, fluvial processes and morphology of groundwater resources; and
- groundwater dependent ecosystems.

### ***Potential impacts and mitigation measures***

This section should assess potential impacts of the Project on water resource environmental values identified in the previous section. It should also define and describe the objectives and practical measures for protecting or enhancing water resource environmental values, to describe how nominated quantitative standards and indicators may be achieved, and how the achievement of the objectives will be monitored, audited and managed. Matters to be addressed should include:

- the potential impacts the proposed Project may have on the flow and the quality of surface and ground waters from all phases of the Project, with particular reference to their suitability for the current and potential downstream uses and discharge licences;
- any proposed flood mitigation measures;
- the potential impacts of the Project on the proposed Castle Hope Dam and associated inundation area (discussions should include any alternative route proposals, including rejected alignments);
- the potential impacts of surface water flow on existing infrastructure, with reference to the EPP (Water) and the *Water Act 2000*;
- the potential to harvest rainwater for environmental purposes or train washing to reduce dust emissions;
- chemical and physical properties of any waste water including stormwater at the point of discharge into natural surface waters, including the toxicity of effluent to flora and fauna;
- potential impacts on other downstream receiving environments, if it is proposed to discharge water to a riverine system;
- the results of a risk assessment for uncontrolled releases to water due to system or catastrophic failure, implications of such emissions for human health and natural ecosystems, and list strategies to prevent, minimise and contain impacts; and
- an assessment of the potential to contaminate surface and ground water resources and measures to prevent, mitigate and remediate such contamination;

In relation to water supply, usage and wastewater disposal, the EIS should assess:

- anticipated flows of water to and from the project areas;
- the effects of predictable climatic extremes (droughts, floods) upon the structural integrity of containment walls where dams, weirs or ponds are proposed;
- the requirements under the Calliope River Basin Draft Resource Operations Plan for any water supply required;
- quality of water contained in dams; and
- the need or otherwise for licensing any dams (including referable dams), under the *Water Act 2000*.

The EPA Queensland Water Quality Guidelines 2006, ANZECC 'National Water Quality Management Strategy, Australian and New Zealand Guidelines for Fresh and Marine Water Quality' (2000) and the EPP (Water) should be used as a reference for evaluating the effects of various levels of contamination.

Management strategies should be adequately detailed to demonstrate best practice management and that environmental values of receiving waters will be maintained to

nominated water quality objectives. Monitoring programs, which will assess the effectiveness of management strategies for protecting water quality during the construction, operation and decommissioning of the Project, should be described.

### **3.5 Air environment**

#### ***Description of environmental values***

This section should describe the existing air environment which may be affected by the proposal having particular regard for dust particulates and gaseous and odorous compounds. The background levels and sources of suspended particulates, and any other major constituent of the existing air environment that may be affected by the proposal should be discussed.

Any existing data on local meteorology and ambient levels of pollutants should be gathered.

The environmental values of the air shed for the affected areas should be described in terms of the *Environmental Protection (Air) Policy 1997* (EPP (Air)).

#### ***Potential impacts and mitigation measures***

The EIS should consider potential air quality variations during construction and operations. Potential sources include dust from increased train operation, nitrogen oxides, particulate matter less than 10 micrometers (PM<sub>10</sub>) and hydrocarbons from diesel locomotive provisioning maintenance and refuelling, wagon maintenance, shunting and fuel storage.

The EIS should examine the effects of air emissions to air quality throughout construction and during operations and, where appropriate, predictions of ground level concentrations or ambient air quality should be made at any residential, industrial and agricultural developments believed to be sensitive to the effects of predicted emissions. These predictions should be made for both normal and expected maximum emission conditions, and worst case meteorological conditions. The techniques used to obtain the predictions should be referenced, and key assumptions and data sets explained. In particular the potential additional dust emissions from increased train operation resulting from the project should be outlined.

The assessment of the Project's impact on air quality should consider:

- the potential for the Project to generate dust nuisance throughout construction and during operation (particular mention should be made of the impact on the Yarwun and Mt Larcom communities);
- the existing air quality of the Project and surrounding area;
- records of any complaints made in the project area regarding air quality;
- features of the Project design and rail operator measures to suppress or minimise emissions, including dusts and odours; and
- an air quality monitoring program within the project areas and at sensitive receptors.

The limitations and accuracy of the dispersion models used for calculating ground level concentrations and a sensitivity analysis of each model to variations in the input parameters should be explored and stated.

Air quality predictions should be compared to the relevant goals in the National Environmental Protection Council (Ambient Air Quality) Measure, the National Health and Medical Research Council and the EPP (Air) goals.

Proposed air quality and dust mitigation measures should be described, including proposals for monitoring and reporting operational dust levels achieved.

### **Greenhouse gas emissions**

Greenhouse gas emissions should be described in the context of the project implementation, including:

- an inventory of projected future emissions, both on-site and off-site, attributable to the construction of the Project, expressed as total mass CO<sub>2</sub> equivalents per annum; and
- any intended measures to avoid, minimise or offset greenhouse emissions.

### **3.6 Noise and vibration**

#### ***Description of environmental values***

The EIS should describe the potential effects from noise and vibration of Project activities to the existing environmental values. If Project activities have the potential to adversely impact on the noise environment, baseline monitoring should be undertaken at a selection of noise sensitive sites affected by the proposal. Noise sensitive places in relation to the Project should be identified on a map at a suitable scale.

Any discussion about existing (baseline) noise and vibration levels in the vicinity of the proposed project should be provided. The daily variation of existing noise levels at nearby sensitive sites should be determined and reported in the EIS, specifically in regards to variations during different periods of the day and night. Methods used to determine this should be based on relevant EPA Guidelines and Australian Standards, and any relevant requirements of the Environmental Protection (Noise) Policy 1997 (EPP (Noise)).

Comment should be provided on any current activities near the project areas that may cause a background level of noise and ground vibration (e.g. other industry, railway, major roads, etc.).

#### ***Potential impacts and mitigation measures***

Information should be submitted on the expected generation of noise from proposed project activities.

The levels of noise generated during construction (including any blasting) and operation of all components of the Project should be assessed against current typical background levels. Anticipated noise levels, their timing and duration, should be considered relative to the sensitivity of the area.

In addition, an assessment should be made of the potential emission of low-frequency noise (noise with significant components below 200Hz) from major items of equipment and plant. If necessary, measures should be described for reducing the intensity of these components. Reference should be made to the EPA's draft guideline, '*Assessment of Low Frequency Noise*'.

An estimate should be made of the cumulative noise level at the boundaries of the sites of the Project and at the boundaries of existing and future land uses likely to be affected by noise from the Project. This estimate should include noise from construction, operation and from transport movements.

The potential environmental impacts of noise and vibration at all potentially sensitive sites (as defined in the EPP (Noise)) (including night-time noise from rail yard activities on the Yarwun community) should be quantified and compared with standards contained with the EPP (Noise) and any relevant Australian Standards.

Proposals to minimise or eliminate these effects should be outlined, including details of any screening, buffer areas, tree planting, lining, enclosing or bunding of facilities, or

timing schedules for construction and operations that would minimise environmental harm and environmental nuisance from noise.

Off-site transport noise and vibration factors due to road and rail should be described and include a discussion on existing speed zones, scheduled transport movements and industry occurring in the project area.

### **3.7 Waste**

#### **3.7.1 Waste generation**

This section should provide technical details of waste generation and treatment and minimisation management strategies. All sources of waste associated with the construction, operation and decommissioning of the Project should be identified and described including:

- the type and amount of wastes produced, including an inventory of all solid and liquid (including wastewater and sewage) wastes generated by each stage of the Project;
- collection, handling, transport and fate of all wastes including storage;
- market demand for recyclable waste (where appropriate); and
- opportunities for waste avoidance and minimisation strategies.

#### **3.7.2 Waste management**

The EIS should provide details of waste management methods which demonstrate that waste minimisation and cleaner production strategies have been implemented through the selection of processes, equipment and facilities to prevent or minimise environmental impacts. This information should include:

- a brief description of the existing environmental values that may be affected by the Projects waste, the impacts on those values and mitigation measures. This should include the mitigation of bush fire hazard created by significant amounts of waste vegetation generated by clearing for the project;
- a waste management plan developed in accordance with the waste management hierarchy and principles of the Environmental Protection (Waste Management) Policy 2000;
- the potential to harvest rainwater for environmental purposes or train washing to reduce dust emissions;
- descriptions of processes, equipment and facilities to be incorporated into the overall Project specifically for the purpose of avoiding waste generation, separation of wastewater from solid waste, reusing or recycling wastes, or on-site treatment methods for wastes to lessen their effect on the natural environment;
- proposed means for management of wastes produced under circumstances other than as a result of normal Project development, including wastes generated during modification (e.g. run-off, chemical cleaning before commissioning), unusual conditions when the facilities are operating (e.g. start-up, maintenance, shut-down) and domestic sewage and refuse;
- methods to prevent seepage and contamination of groundwater from waste stockpiles; and
- methods to avoid stormwater contamination by raw materials, wastes or products and present the means of containing, recycling, reusing, treating and disposing of stormwater, having regard for the requirements of the EPP (Water);

Storm water management should also address:

- nominated stormwater discharge points and discharge criteria;



- design criteria, diversions, volume and capacity of any retention ponds, process tanks or bunded areas, as well as those reasonable and practicable measures proposed to prevent the likely release of contaminated stormwater to any drain or waters;
- potential impacts during extreme rainfall events;
- information on the collection, treatment and disposal of contaminated stormwater runoff from the plant and associated materials handling facilities;
- details of contaminants (e.g. chemical composition, particulates, metals, effluent, temperature and pH) in controlled discharges of proposed wastewater and stormwater management systems; and
- impacts of discharges on all potential receiving waters, particularly effects on the downstream environment of stormwater releases.

Where solid or liquid wastes are to be disposed of to off-site facilities, the expected disposal strategies should be described, including details of transportation, handling and storage by licensed contractors.

### **3.8 Transport**

#### **3.8.1 Transport methods and routes**

The EIS should detail all requirements for the transport of plant, equipment, raw materials, product, wastes and personnel during the construction, operation and decommissioning phases of the Project. The description should address the use of existing facilities and all requirements for the construction, upgrading or relocation of any transport related infrastructure. This information should cover all transportation modes (i.e. road, rail and shipping) required for all aspects of the Project and include:

- the types, quantities, origin and destination of goods to be moved, including construction materials, plant, raw materials, wastes and hazardous materials;
- the volume of traffic generated by workforce personnel and service vehicles;
- methods of movement, including transportation type and volume of transport modes likely to be used;
- the proposed transport routes;
- anticipated times at which each type of transportation movements may occur;
- details of vehicle traffic and transport of heavy and oversize indivisible loads (including types and composition);
- proposed road closures (temporary or permanent);
- the ability of existing transport infrastructure to support the additional demand (including assessment of all road/rail level crossings and/or occupational crossings) using AS1742.7(2007) Railway Crossings, the Australian Level Crossing Assessment Model (ALCAM), and other relevant QR Safety Management Systems Standards; and
- any requirements for new transport facilities, upgrades (e.g. new access requirements) and increased maintenance.

This section should describe existing transport infrastructure within and adjacent to the project area. The location and owner/custodians of all tenures, reserves, roads and road reserves, railways and rail reserves, pipelines, transmission lines, stock routes easements and the like, covering the affected land should be shown. The locations and descriptions of all existing roads and railways likely to be affected by Project activities should be provided.

### ***Potential impacts and mitigation measures***

Assessment of the Project impacts on transport infrastructure and operations for all components of the Project should be discussed, with reference to the *Transport Infrastructure Act 1994*, the *Transport Planning and Coordination Act 1994*, the *Transport Operations (Road Use Management) Act 1995* and related legislation.

The EIS should provide sufficient assessment of the impacts of Project traffic during construction and operations to allow the Department of Main Roads (DMR) and Queensland Transport to ascertain its effect on transport safety and efficiency requirements.

The Proponent should fully assess all transport-related impacts of the Project including sea, rail, road, air and pipelines, such as:

- road and rail safety issues, for example, ensuring safe access to construction sites and safety for other transport users;
- effects of the project on other users and potential users of the rail network;
- road use resulting in reduced life of roads/pavements requiring additional or accelerated rehabilitation and maintenance;
- seasonal considerations such as potential for transport impacts during wet weather, storms or flood events;
- impact of traffic numbers and flows associated with workforce transport to and from the site;
- reduced efficiency of traffic flows along road sections and at intersections along key routes, especially during construction including details on maximum traffic delays; and
- environmental issues relating to transport (e.g. noise abatement, weed management, vegetation clearing in road/rail reserves, dust control and erosion protection).

This section should outline:

- procedures for assessing and agreeing on the scope of required mitigation works with road/rail corridor managers, including any associated works such as sourcing water and gravel;
- strategies to minimise the effects of Project transport on existing and future public roads, pipelines or rail corridors (including assessment of all road/rail level crossings and/or occupational crossings) using AS1742.7(2007) Railway Crossings, the Australian Level Crossing Assessment Model (ALCAM), and other relevant QR Safety Management Systems Standards;
- steps to be taken to prevent access from public roads/rail corridors to the rail yard; and
- access requirements to the public road/rail reserves to conduct rail maintenance.

A road management plan should be developed to include findings of studies and transport infrastructure impact assessments. Conditions of approval for transport management impacts should also be detailed in the Environmental Management Plan (EMP) (see section 4.0).

Road infrastructure impacts and mitigation requirements should be assessed according to DMR Guidelines for Assessment of Road Impacts of Development (April 2006). Reference should be made to other DMR planning documents, relevant legislation and to any relationship between required Project road works/maintenance and works proposed in the current Road Implementation Program of Queensland DMR.

The EIS should discuss the results of consultation with the relevant district and regional officers of DMR and local government regarding the potential impacts and mitigation requirements of the Project on the road network.

This section should address how transport elements and impacts of the Project, taking into account future demand growth, relate to Queensland Transport's and the DMR existing transport strategies for the Central Queensland area and the future infrastructure needs of this area as presented in State Government documents. In addition, the impacts of the project construction transport tasks on any road infrastructure of the relevant local governments should be identified.

### **3.8.2 Road infrastructure alterations**

The EIS should detail proposed alterations to road infrastructure occasioned by the Project. This includes road realignments; grade separated crossings, level crossings, road upgrades and resurfacing, bridges, access roads, and associated civil works. Where the project necessitates an alteration to road infrastructure, the EIS should outline alternative options and a reason for the selection of the proposed development option, giving full regard to environmental, safety, economic and community factors (including business continuity during construction).

Results of consultation with the relevant district and regional officers of DMR and local government regarding road crossing design and construction solutions is to be described.

Indicate any requirements for changes in land tenure/ownership of any proposed grade separated, or at-grade crossings of, and the need for changes to the reserve boundaries of local and/or State-controlled roads. Identify responsibility for the on-going maintenance of any structures.

A traffic analysis should be presented to indicate the impacts or improvements to traffic flows and capacity both during construction and operation. Particular attention should be paid to:

- requirements for access to road/rail corridors during construction, including emergency access;
- methods to be adopted to ensure safety and avoid obstruction to other road/rail users during construction;
- proposed traffic management arrangements and plans; and
- capacity and safety improvements as a result of road infrastructure alterations (including assessment of all road/rail level crossings and/or occupational crossings) using AS1742.7(2007) Railway Crossings, the Australian Level Crossing Assessment Model (ALCAM), and other relevant QR Safety Management Systems Standards.

### **3.8.3 Coal haulage**

This section should describe the additional transport task of coal haulage that will be undertaken on the rail line, as well as any road transport tasks directly related to servicing the rail line during operations. This should address at least the following information with comparison to existing operations:

- tonnage rates per day, per month, or per annum for various stages, or scenarios of operation (such as initial operation, growth scenarios and ultimate capacity expectations);
- train size, speeds and frequency of movement; and
- operating hours, daylight, night time, during adverse weather conditions.

### **3.9 Cultural heritage**

#### ***Description of environmental values***

The EIS should describe the existing cultural heritage values that may be affected by the Project activities. A cultural heritage assessment should be undertaken to describe Indigenous and non-Indigenous cultural heritage sites and places and their values. The Indigenous component of the assessment must be conducted by the appropriate Aboriginal Party and/or an appropriately qualified cultural heritage practitioner, in accordance with the *Aboriginal Cultural Heritage Act 2003* (ACH Act). Non-Indigenous cultural heritage is administered under the *Queensland Heritage Act 1992*.

The assessment should include:

- findings of consultation with:
  - DEWHA concerning the Register of the National Estate, Commonwealth Heritage list and National Heritage list;
  - EPA regarding the Queensland Heritage Register and other information regarding places of potential non-Indigenous cultural heritage significance;
  - the Department of Natural Resources and Water regarding the Indigenous Site Database;
  - any local government heritage register; and
  - any existing literature or previous assessments relating to the affected areas.
- liaison with relevant community groups/organisations (e.g. local historical societies) concerning:
  - places of non-Indigenous cultural heritage significance; and
  - opinion regarding significance of any cultural heritage places located or identified.

Investigations and consultation should be undertaken in such manner and detail as to satisfy statutory responsibilities and duties of care, including those under the *Queensland Heritage Act 1992* and the ACH Act, and the Australian *Aboriginal and Torres Strait Islander Heritage Protection Act 1984*.

#### ***Potential impacts and mitigation measures***

Every attempt should be made by the Project to avoid significant heritage areas. The Proponent should provide an assessment of any likely effects on sites of non-Indigenous or Indigenous cultural heritage values, including but not limited to the following:

- description of the significance of artefacts, items or places of conservation or cultural heritage values likely to be affected by the Project and their values at a local, regional and national level; and
- recommended means of mitigating any negative impact on cultural heritage values and enhancing any positive impacts.

The management of cultural heritage impacts should be detailed in a Cultural Heritage Management Plan (CHMP) that is developed specifically for the Project in accordance with the ACH Act. The CHMP should provide a process for the management of identified cultural heritage items, places and values within the project area. The CHMP should be based on information contained in the cultural heritage study reports and/or information from consultation with Indigenous communities or their representatives.

### **3.10 Visual and lighting impacts**

#### **3.10.1 Description of visual amenity**

Describe the existing visual quality/landscape character of the project area and the surrounding area and its prominence including local, regional, state and national significance. Information in the form of maps, drawings, sections, elevations and photographs may also be utilised, particularly addressing the following:

- major views and other features contributing to the amenity of the area;
- character of the local and surrounding areas including character of built form (scale, form, materials and colours) and vegetation (natural and cultural vegetation); and
- identification of the areas of the proposal that have the capacity to absorb land use changes without detriment to the existing visual quality and landscape character.

#### **Potential impacts and mitigation measures**

Identify the potential exposure of the proposed new facilities from public and private areas. This is to be placed into context of the current views of the existing rail infrastructure along the MSL and the NCL. Present mitigation measures if appropriate.

#### **3.10.2 Description of existing light sources**

Determine the existing light sources within the project area and its immediate surroundings. Of particular interest would be:

- visual aspect at night in relation to the location of the existing rail infrastructure in a predominantly rural setting;
- vehicular and rail movements at night within the surrounding area; and
- proximity of existing light sources to significant receptor areas such as fauna habitats, residential and business establishments.

#### **Potential impacts and mitigation measures**

An assessment of all potential impacts of lighting of the project should be undertaken both during the construction and operational phases, with particular reference to:

- alterations to visual impact at night;
- potential impact of increase in vehicular and rail traffic in the area;
- effects of lighting from night operations and maintenance on residents; and
- changed habitat conditions for nocturnal fauna and associated impacts.

Potential mitigation measures and their corresponding effectiveness should be discussed.

### **3.11 Social and economic environment**

#### **Description of environmental values**

This section should detail the existing social and economic environment. Issues to be addressed include:

- key characteristics of potentially affected communities in the project area, with community profiles, providing information on:
  - rural properties, croplands and grazing areas;
  - population and demographics of the affected community (including size, age structure, gender composition, residency);
  - workforce characteristics, including types of skills or occupations and availability both for construction and operation phases of the Project;
  - identification of existing labour force and unemployment statistics;

- health, emergency services and educational facilities; and
- other community services and facilities (e.g. recreational, cultural, leisure and sporting facilities);
- accommodation, with an emphasis on:
  - the size of the private rental market in the area;
  - the vacancy rate and price of rental accommodation, including assessment of seasonal fluctuations;
  - the availability and typical cost of housing for purchase in the area; and
  - the level of, and demand for, social housing in the area;
- housing and other land uses:
  - constraints and opportunities for new housing construction or other land uses in the vicinity of the project area, including the potential for growth of the urban area to encroach on the project site; and
  - land areas in the Shire for residential purposes including available serviced residential lots, land under development and undeveloped broad acre land that is appropriately zoned.
- the character and basis of the local and regional economies, including:
  - existing economic base and economic activity;
  - types and numbers of businesses;
  - availability and prices of goods and services; and
  - a description of large scale industrial developments and their effects in the region.

### ***Potential impacts and mitigation measures***

The social and community impacts of the Project should be addressed, incorporating any stakeholder concerns about adverse impacts to the natural, social, economic or built environment. Relevant strategies and resources that are proposed to address all expected impacts should be outlined. Attention should be paid to impacts on:

- demographic, social, cultural and economic profiles;
- local residents, current land uses, existing lifestyles, enterprises and values;
- affected and adjoining landowners/occupiers resulting from the Project (e.g. land values);
- local and state labour markets, with regard to the source of the workforce and competing projects, with the information presented according to occupational groupings of the workforce; and
- the potential for both the construction and operation workforces and associated contractors to affect housing demand, community infrastructure and services and community cohesion, including health care services, education facilities and the rental market.

Pressures on the host community resulting from existing and proposed projects running concurrently with this project present additional difficulties for the community. As such, the cumulative social impacts on the community, brought about by this project together with other concurrent known projects must be investigated. Other known projects include, but are not limited to, the Wiggins Island Coal Terminal; Gladstone Pacific Nickel; Rio Tinto Alumina Refinery Stage 2 Expansion; Santos Gladstone LNG; Sunshine/Sojitz LNG Project, Arrow/LNG Ltd Project (Gladstone LNG Pty Ltd) and the LNG plant proposed by Queensland Gas Company and British Gas Group.

Particular attention should be paid to:

- the increase in population in the region brought about by the construction and operational workforces and the resulting implications for the provision of government and other services;

- the availability of accommodation for the project's workforce and the possible cumulative impact on the housing and rental market; and
- the proposed long-term and on-going use of any worker's village constructed for the project;

For identified impacts on social values, proposed mitigation and enhancement strategies should be described, and approaches to facilitate initial negotiations towards community acceptance of these strategies identified. In particular, strategies are to be developed which avoid, mitigate or offset the short and medium-term adverse effects on the housing market. Practical monitoring regimes to be implemented should also be discussed.

Any new skills and training to be introduced in relation to the Project should be identified. Adequate provision should be made for apprenticeship and employee training schemes. The EIS should indicate the occupational skill groups required and potential skill shortages anticipated.

The EIS should include strategies responding to Government Policy relating to:

- the level of training provided for construction contracts on Queensland Government building and construction contracts - The State Government Building and Construction Contracts Structured Training Policy (the 10% Policy);
- Indigenous employment opportunities - Indigenous Employment Policy for Queensland Government Building and Civil Construction Projects (the 20% Policy); and
- the use of locally sourced goods and services – Department of Tourism, Regional Development and Industry, Local Industry Policy.

The general economic benefits from the Project should be described, including:

- the relative significance of this proposal in the local and regional economic context;
- the short and long-term beneficial (e.g. job creation) and adverse (e.g. competition with local small business) impacts that are likely to result from the development;
- the need for any additional infrastructure provision by government to support the Project;
- implications for future development in the locality (including constraints on surrounding land uses and existing industry); and
- the extent to which local and other Australian goods and services will be used.

### **3.12 Hazard and risk**

#### **3.12.1 Risk assessment**

The Proponent shall carry out a risk assessment in accordance with appropriate parts of Australian Standard/New Zealand Standard Risk Management Standard 4360:1999.

The study shall assess risks during the construction, operational and decommissioning phases of the rail line and rail yard. Where possible these risks are to be assessed in quantitative terms.

Indicate possible hazards, accidents, and abnormal events that may arise throughout the duration of the project, in the construction and operational stages. This would be expected to include accidents involving train operations, explosions and fires associated with such incidents, and interfaces with other infrastructure such as surrounding roads. This section should present historical data to provide an indication of incidents, consequences and frequency of occurrence of train accidents associated with rail yard and long haul coal lines in the QR network.

Details are to be provided of the safeguards which will be employed or installed to reduce the likelihood and severity of hazards, consequences and risks to persons, and fauna at the rail yard. Where possible, the reduced level of risk which would be experienced with these safeguards in place should be indicated.

Compare assessed and mitigated risks with acceptable risk criteria for land uses adjacent to the corridor, including public roads which border or cross the corridor.

### **3.12.2 Health and safety**

Details should be provided of any impacts of the Project during construction and operation on the health, safety and quality of life of the community, workforce, suppliers and other stakeholders from factors such as air emissions, odour, dust, pests, traffic noise and vibration, waste and water. This includes health and safety matters associated with on-site and off-site workforce accommodation. It should include details of:

- compliance with relevant Health and Safety legislation;
- security arrangements; and
- details of on-site emergency response capabilities (e.g. on-site paramedic or first-aid officer), for both the construction and operation phases of the Project, which should include personnel trained for fire suppression and containment, rescue and first aid.

### **3.12.3 Emergency management plan**

An outline of the proposed emergency management procedures is to be provided for the range of situations identified in the above risk assessment as providing measurable risks, including strategies to deal with contingencies such as hydrocarbon/oil spills, natural disasters, and train accidents during operations.

In regard to fires, the EIS should address:

- building fire safety measures for any construction or permanent accommodation;
- details of any emergency response plans and bushfire mitigation plans under the State Planning Policy 1/03 Mitigating the Adverse Impacts of Flood, Bushfire and Landslide;
- on-site fire fighting equipment provided and the level of training of staff who will be tasked with emergency management activities; and
- detailed maps showing the plant outline, hazardous material store, incident control points, fire fighting equipment, etc.

The EIS should present emergency planning and response strategies to deal with relevant incidents above, which have been determined in consultation with state and regional emergency service providers.

The EIS should present plans for the involvement of the relevant state agencies (such as the Queensland Ambulance Service) in relation to emergency medical response and transport and first aid matters.



## 4 Environmental management plans

This section of the EIS should present EMPs developed for the Project. It is expected that all EMPs will, where relevant, be prepared in accordance with the EPA Guideline Preparing Environmental Management Plans. The EMPs should be developed from the preceding information in the EIS. An EMP should provide life-of-proposal control strategies in accordance with agreed performance criteria for specified acceptable levels of environmental harm. In addition, EMPs should identify:

- potential impacts on environmental values;
- mitigation strategies;
- relevant monitoring;
- appropriate indicators and performance criteria;
- reporting requirements; and
- appropriate corrective actions, should an undesirable impact or unforeseen level of impact occur.

The aims of an EMP are to provide:

- commitments by the Proponent to practical and achievable strategies and design standards (performance specifications) for the management of the Project to ensure that environmental requirements are specified and complied with;
- an integrated plan for comprehensive monitoring and control of impacts;
- local, State and Australian Government authorities, stakeholders and the Proponent with a common focus for approvals conditions and compliance with policies and conditions; and
- the community with evidence that the environmental management of the Project is acceptable.

The recommended structure of each element of the EMP is:

|                         |                                                                                                                                                                                                                       |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Element/issue           | Aspect of construction or operation to be managed (as it affects environmental values).                                                                                                                               |
| Operational Policy      | The operational policy or management objective that applies to the element.                                                                                                                                           |
| Performance Criteria    | Measurable performance criteria (outcomes) for each element of the Operation.                                                                                                                                         |
| Implementation Strategy | The strategies, tasks or action program (to nominated operational design standards) that will be implemented to achieve the performance criteria.                                                                     |
| Monitoring              | The monitoring requirements to measure actual performance (i.e. specified limits to pre-selected indicators of change).                                                                                               |
| Auditing                | The auditing requirements to demonstrate implementation of agreed construction and operation environmental management strategies and compliance with agreed performance criteria.                                     |
| Reporting               | Format, timing and responsibility for reporting and auditing of monitoring results.                                                                                                                                   |
| Corrective Action       | The action (options) to be implemented in case a performance requirement is not reached and the person(s) responsible for undertaking the action (including staff authority and responsibility management structure). |

## **5 Conclusions and recommendations**

The EIS should form conclusions and state recommendations with respect to the project proposal, based on the studies presented, the EMPs and conformity of the proposal with legislative and policy requirements.

## **6 References**

All references used in the preparation of the EIS should be presented in a recognised format such as the Harvard standard (refer to the Style Guide, Australian Government Publishing service). This standard lists references by presenting them in the following order: author (date of publication) title, publisher, and place of publication.

## **7 Recommended appendices**

### **7.1 *Final Terms of Reference***

The final Terms of Reference should be included as an Appendix to the EIS.

### **7.2 *Development approvals***

A list of the development approvals required by the Project should be provided.

### **7.3 *Consultation report***

A list of advisory agencies should be provided in a summary Consultation Report. This report should also list Australian, State and Local government agencies, individual stakeholders and community groups that were consulted. The report should be supplemented with feedback and/or comments received during the EIS public display period.

A summary of the issues raised by these groups and the consultation activities undertaken to address these issues should be provided in the text of the EIS.

A community consultation program should be developed to incorporate in detail the methodology used in the consultation process, the communication methods and the criteria used to identify stakeholders.

Information about identifying interested and/or affected persons (as defined by the EP Act) should also be provided.

### **7.4 *Study team***

The qualifications and experience of the study team and specialist sub-consultants engaged in the proposal should be provided.

### **7.5 *Technical data and baseline studies***

Relevant supporting data and information generated from specialist studies undertaken as part of the EIS are to be included as appendices. These studies may include:

- geology;
- soil survey and land suitability;
- land use and capability;
- waterway hydrology and groundwater;
- flora and fauna;
- air quality;
- noise and vibration;
- transport and traffic;
- housing and accommodation;
- non-indigenous and Indigenous cultural heritage;
- social, and socio-economic impacts; and

- hazard and risk.

## **7.6 List of proponent commitments**

A list of proposed commitments made by the Proponent in the EIS should be provided, together with a reference to the relevant section in the EIS.