



**Queensland**  
Government

**QR NORTHERN MISSING LINK PROJECT  
(North Goonyella to Newlands)**

**TERMS OF REFERENCE  
FOR AN  
ENVIRONMENTAL IMPACT STATEMENT**

**UNDER PART (4) OF THE QUEENSLAND STATE DEVELOPMENT  
AND PUBLIC WORKS ORGANISATION ACT 1971**

**The Coordinator-General**  
October 2005

## Preamble

### Project Proponent

The proponent for this Proposal is Queensland Rail (QR). QR has a global reputation for providing innovative rail-based transport services and is a \$2 billion a year business. On any week day, the QR network operates 900 train services and moves more than 400 000 tonnes of freight. QR has considerable expertise and is a well respected industry leader in the design and construction of railways and the systems needed to operate them.

### Project Summary

The Proposal involves the construction of a 72 km rail link between North Goonyella and Newlands. The line would be a single 60 kg rail, 26TAL on concrete sleepers track with a desirable 80km/h train speed. Initially, the line would utilise diesel locomotives. However, plans for subsequent electrification are being considered. The rail corridor would be 40 to 60m wide and include at least three passing loops.

The proposed rail line route will traverse land under the jurisdiction and interest of Local, and State Government Agencies. This Terms of Reference (TOR) document has been drafted to meet the legislative requirements of all Government agencies.

Queensland Rail has prepared an Initial Advice Statement (IAS), which provides further detail relating to the Project, which can be viewed at [www.sdi.qld.gov.au/eis](http://www.sdi.qld.gov.au/eis).

### Administrative Details for the EIS Process

The QR Northern Missing Link Project (North Goonyella to Newlands) was on 12 August 2005 declared a significant project by the Coordinator-General (CG) pursuant to Section 26 of the *Queensland State Development and Public Works Organisation Act 1971* (the 'SDPWOA') and this declaration requires QR to prepare an EIS under that Act. These TOR are to assist QR to develop a comprehensive EIS for the Project.

Consequently, the abbreviation 'EIS' used in this TOR should be interpreted as satisfying the impact assessment requirements of all relevant State statutes for this Project.

The Coordinator-General will manage the impact assessment process for this Project.

A body of State and Local Government representatives and other appropriate authorities has been invited to participate as Advisory Agencies for the EIS process and has been requested to examine the IAS and to comment on the draft TOR. The IAS and draft TOR have also been provided for public comment. Comments of Advisory Agencies and the public have been considered for incorporation into the final TOR issued by the CG to the proponent.

When QR has prepared the EIS, it will be made available for public and Advisory Agency review and comment. The Coordinator-General will coordinate the consultation process between QR, the Advisory Agencies and the public, and will collate and review all comments received on the EIS.

QR will be requested to provide responses to the comments received on the EIS, and is likely to prepare a Supplementary EIS for this purpose. At the conclusion of this process, the CG will prepare an Evaluation Report on the EIS. The CG's Report will be provided to the Chief Executive of QR, the Queensland Minister for Transport, the Queensland Minister for the Environment, the Chief Executive of Queensland Transport, and any Assessment Manager/s under the *Integrated Planning Act 1997*.

The Coordinator-General's Report will indicate to the Development Approval Assessment Manager for the project, either the conditions for approval, whether it should be part or preliminary approval, or whether the application must be refused.

Where approval is required under another Act, the CG's Report may recommend (with reasons) to the person who will consider an approval required for the Project that:

- Approval for the project be refused, or
- Stated conditions to be imposed on the approval.

Alternatively, the CG's Report may recommend that there are no conditions to be attached to any approval given under another Act.

To build and operate the rail link, the Chief Executive of Queensland Transport may, by written notice to the relevant local government and in the gazette, indicate that the land is intended to be used for a railway, pursuant to Section 242 of the *Transport Infrastructure Act 1994*.

This TOR provides information in two broad categories:

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

The Project Manager for any further enquiries will be:

Mr Denis Wayper

Project Manager – Northern Missing Link Project  
Major Projects  
The Coordinator-General  
PO Box 15009  
BRISBANE CITY EAST QLD 4002  
Tel: (07) 3224 8554 Fax: (07) 3225 8282  
Email: Denis.Wayper@coordinatorgeneral.qld.gov.au

## Table of Contents

<b>PREAMBLE</b> .....	<b>2</b>
<b>PART A – INFORMATION AND ADVICE ON THE PREPARATION OF THE EIS</b> .....	<b>6</b>
1. INTRODUCTION.....	6
2. EIS OBJECTIVES .....	6
3. GENERAL EIS GUIDELINES.....	7
4. STAKEHOLDER CONSULTATION .....	8
5. GENERAL EIS FORMAT .....	8
TERMS OF REFERENCE GLOSSARY .....	9
<b>PART B – SPECIFIC REQUIREMENTS – CONTENTS OF THE EIS</b> .....	<b>10</b>
1. INTRODUCTION.....	11
1.1 <i>Project Description</i> .....	11
1.2 <i>Project Objectives</i> .....	11
1.3 <i>Project Proponent</i> .....	11
1.4 <i>Objectives of the EIS</i> .....	11
1.5 <i>Public Consultation Process</i> .....	11
1.6 <i>Project Approvals</i> .....	12
2. PROJECT SUBSTANTIATION .....	12
2.1 <i>Need for the Project</i> .....	12
2.2 <i>Relationship to other Projects</i> .....	12
2.3 <i>Alternatives</i> .....	12
3. DESCRIPTION OF THE PROJECT .....	13
3.1 <i>Location and General Description</i> .....	13
3.2 <i>Construction</i> .....	13
3.3 <i>Ballast Supply and Logistics</i> .....	13
3.4 <i>Water Supply/Storage</i> .....	13
3.5 <i>Stormwater Drainage</i> .....	14
3.6 <i>Workforce and Accommodation</i> .....	14
3.7 <i>Electricity and Telecommunications</i> .....	14
3.8 <i>Transport</i> .....	14
3.9 <i>Waste</i> .....	14
3.10 <i>Rail operations</i> .....	15
4. ENVIRONMENTAL VALUES AND MANAGEMENT OF IMPACTS.....	15
4.1 <i>Land Systems</i> .....	15
4.2 <i>Climate</i> .....	17
4.3 <i>Water Resources</i> .....	17
4.4 <i>Nature Conservation</i> .....	18
4.5 <i>Historic and Cultural Heritage</i> .....	22
4.6 <i>Social and Economic Environment</i> .....	23
4.7 <i>Air Environment</i> .....	25
4.8 <i>Noise and Vibration</i> .....	25
4.9 <i>Waste</i> .....	26
4.10 <i>Traffic, Transport and Access Arrangements</i> .....	27
4.11 <i>Hazard and Risk</i> .....	29
5. ENVIRONMENTAL MANAGEMENT PLANS .....	30

6.	CONCLUSION AND RECOMMENDATIONS .....	30
7.	REFERENCES AND APPENDICES .....	31

# Part A – Information and Advice on the preparation of the EIS

## 1. INTRODUCTION

This Terms of Reference (TOR) for an Environmental Impact Statement (EIS) for the QR Northern Missing Link Project (North Goonyella to Newlands) has been developed in accordance with the requirements of Sections 29 30 and 31 of the *State Development & Public Works Organisation Act 1971* (the 'SDPWOA').

The objective of the TOR is to identify those matters that should be addressed in the EIS. The TOR is based on the initial outline of the proposed Project given 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.

Reference to any culturally sensitive confidential information should be indicative only and disclosure of any such information must be negotiated with traditional custodians; other confidential information supplied by or to the Proponent must be clearly identified and placed in discrete attachments to the main report.

An executive summary should be provided in the EIS and be available separately for public information.

## 2. EIS OBJECTIVES

The objective of the EIS is to identify potential environmental, social and economic impacts and to ensure that impacts are avoided where possible. Unavoidable impacts (direct, indirect and cumulative) must be examined fully and addressed, so that the development of the Project, including the selection of the preferred corridor alignment, is based on sound environmental protection and management criteria. Consistent with this objective, the EIS should be a self-contained and comprehensive document containing sufficient information to make an informed decision on the potential impacts. The document should provide:

- For interested bodies and persons: a basis for understanding the Project, alternatives and preferred solutions, the existing environment that would be affected, both on and off the site, the 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 the CG and other Government decision makers: a framework against which decision-makers are able to consider the environmental aspects of the proposed Project in view of legislative and policy provisions and decide whether the Project can proceed or not; as appropriate, set conditions for approval to ensure environmentally sound development and, where required by legislation, recommend an environmental management and monitoring program.

- For the Proponent: a definitive statement of measures or actions to be undertaken to minimise any adverse impacts during and following the implementation of the proposed Project. A draft Environmental Management Plan (EMP) that describes acceptable impacts and environmental management strategies to agreed performance criteria is the recommended means of achieving this objective.

Completion of the EIS to the satisfaction of the final TOR does not mean the Project will necessarily be approved.

### **3. GENERAL EIS GUIDELINES**

The key principle is that there should be sufficient detail presented in the EIS to enable readers to judge the impact of the Project on the natural and built environment. The EIS should be a stand alone document. It should contain sufficient information from the route selection criteria and other appended studies to avoid the need to search out previous reports.

It should be acknowledged that readers are likely to include representatives of State and Local Governments, special interest groups and the general public.

The EIS should relate to the entire life of the Project including construction, operation, maintenance, and decommissioning (including rehabilitation) of all Project related sites. The EIS should enable reasonable economic and technically achievable conditions to be developed to ensure that the impact of the Project is reduced to acceptable levels.

The EIS should state the following about information, assessments and assumptions provided in the EIS:

- The source of the material, with appropriate references;
- How recent the material is;
- How the reliability of the material was tested; and
- Any uncertainties in the material.

The EIS should state the criteria adopted in assessing the proposed Project and its impacts, such as compliance with relevant legislation, policies, standards, community acceptance and maximisation of environmental benefits and minimisation of risks.

The level of analysis and detail in the EIS should reflect the level of significance of the expected impacts on the environment.

Any prudent and feasible alternatives should be discussed and treated in sufficient detail, and reasons for selection of the preferred option should be clearly identified.

Where possible, information provided in the EIS should be clear, logical, objective and concise, so that non-technical persons may easily understand it. Where appropriate, text should be supported by maps and diagrams. Factual information contained in the document should be referenced wherever possible. Where applicable, aerial photography and/or digital information (e.g. of Project sites, corridors etc) should be presented.

The terms “detail” and “discuss” should be taken to include both quantitative and qualitative matters as practicable and meaningful. Similarly, adverse and beneficial effects should be presented in quantitative and/or qualitative terms as appropriate. Should QR require any information in the EIS to remain confidential, this should be clearly indicated, and separate information should be prepared on these matters.

Within this TOR the term "Project" includes all activities undertaken on lands covered by the proposed rail corridor, any right-of-way (ROW) necessary for construction purposes and supporting project infrastructure.

Copies (number to be advised) of the prepared EIS should be lodged with the Coordinator-General for distribution to Advisory Agencies for comment and review during the public review period. In addition, an electronic version of the EIS will be made accessible through either the CG or QR Internet sites. A quantity of the EIS documents should also be prepared for distribution to relevant interstate and intrastate libraries and other key Government offices. There is a preference for documents to be made available in CD ROM format, however a quantity of hard copy documents should also be produced.

While every attempt has been made to ensure that these TOR address all of the major issues associated with this Project, they are not necessarily exhaustive and should not be interpreted as excluding from consideration matters deemed to be significant but not incorporated in them or matters (currently unforeseen) that emerge as important or significant during the completion of scientific studies, from public consultation, or otherwise, during the course of preparation of the EIS.

#### **4. STAKEHOLDER CONSULTATION**

To facilitate the assessment process, the Proponent is strongly encouraged to regularly consult with Advisory Agencies and other appropriate stakeholders throughout the EIS process.

It is the responsibility of the Proponent, in consultation with Advisory Agencies, to identify legislation, policies and methodologies relevant to the EIS process, and to determine appropriate parts of the community which should be consulted during the EIS preparation stage. It is recommended that an open community consultation process be carried out in addition to the legislated environmental impact assessment process. Copies of the draft EIS will be provided to all Advisory Agencies and on request to relevant individuals and peak groups with an interest in the Project.

#### **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 main text of the EIS is to include appendices containing:

- A copy of the final TOR.
- A list of persons and agencies consulted during the EIS.
- A list of Advisory Agencies with an appropriate contact.
- 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.

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 500 kB in file size. The executive summary should be supplied in HTML 3.2 format with \*.jpg graphics files. Text size and graphics files included in the PDF document should be of sufficient resolution to facilitate reading and enable legible printing, but should be such as to keep within the 500kB file size.



## TERMS OF REFERENCE GLOSSARY

The following abbreviations have been used in this document:

<b>AHD</b>	Australian Height Datum
<b>ANZECC</b>	Australia and New Zealand Environment and Conservation Council
<b>CHMP</b>	Cultural Heritage Management Plan
<b>CG</b>	the Coordinator-General of the State of Queensland.
<b>DLGP</b>	Department of Local Government and Planning
<b>DMR</b>	Department of Main Roads
<b>DNRM</b>	Department of Natural Resources and Mines
<b>DPI&amp;F</b>	Department of Primary Industries & Fisheries
<b>DSDTI</b>	Department of State Development Trade and Innovation
<b>EIS</b>	Environmental Impact Statement
<b>EMP</b>	Environmental Management Plan
<b>EP Act</b>	<i>Environmental Protection Act 1994</i>
<b>EPA</b>	Environmental Protection Agency
<b>ERA</b>	Environmentally Relevant Activity
<b>ESD</b>	Ecologically Sustainable Development
<b>IAS</b>	Initial Advice Statement as defined by part 4 of the <i>State Development &amp; Public Works Organisation Act 1971</i>
<b>kg</b>	kilogram
<b>km</b>	kilometre
<b>m</b>	metre
<b>NTRB</b>	Native Title Representative Bodies
<b>QR</b>	Queensland Rail
<b>ROW</b>	Right-of-Way
<b>SDPWOA</b>	<i>State Development &amp; Public Works Organisation Act 1971</i>
<b>TAL</b>	tonnes axle loading
<b>TOR</b>	Terms of Reference as defined by part 4 of the <i>State Development &amp; Public Works Organisation Act 1971</i>

## **Part B – Specific Requirements – Contents of the EIS**

The EIS Report shall address the following matters and may be structured with similar headings to the TOR:

### **TITLE OF PROPOSED DEVELOPMENT**

### **NAMES AND ADDRESSES OF PROPONENTS**

### **EXECUTIVE SUMMARY**

The Executive Summary should be written as a stand-alone document, able to be reproduced on request for interested parties who may not wish to read or purchase the EIS as a whole. The structure of the executive summary should follow that of the EIS, though focused strongly on the key issues allowing the reader to obtain a clear understanding of the proposed Project, its environmental and socio economic implications and management objectives. The 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 to and need for the Project, including the consequences of not proceeding with the Project.
- An outline of the alternative options considered and reasons for the selection of the proposed development option.
- A brief description of the Project (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.

### **GLOSSARY OF TERMS**

A glossary of technical terms, acronyms and references should be provided.

## **1. INTRODUCTION**

The introduction should clearly explain the function of the EIS, why it has been prepared and what it sets out to achieve. It should define the audience to whom it is directed, and contain an overview of the structure of the document.

### **1.1 Project Description**

This section should provide a brief description, including a summary of any major associated infrastructure requirements of the key elements of the project. Detailed descriptions should follow in the appropriate sections.

### **1.2 Project Objectives**

This section should:

- State objectives leading to the development of the proposal.
- Outline events leading up to the proposed Project's formulation, including alternatives, envisaged time scale for implementation and project life, and action already taken within the Project area.

### **1.3 Project Proponent**

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

### **1.4 Objectives of the EIS**

This section should provide a statement of objectives of the environmental impact assessment process. The structure of the EIS can then be outlined as an explanation of how the EIS will meet its objectives.

The audience should be able to distinguish the EIS as the key environmental document providing advice to decision makers considering approvals for the Project. The information in this section is required to ensure:

- That relevant legislation is addressed;
- There is awareness of the process to be followed; and
- That stakeholders are aware of any opportunities for input and participation.

### **1.5 Public Consultation Process**

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

The public consultation program should provide opportunities to encourage and facilitate active community involvement and education through public meetings, interest group meetings, production of regular summary information and updates, and other consultation mechanisms.

The public consultation process should identify broad issues of concern to local community and interest groups at all stages from project planning, through commissioning, operations and final decommissioning.

## **1.6 Project Approvals**

### **1.6.1 Relevant Legislation and Policy 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 *Environmental Protection Act 1994*, *State Development and Public Works Organisation Act 1971*, *Transport Infrastructure Act 1994*, *Integrated Planning Act 1997* and other relevant Queensland laws. A description of the Environmentally Relevant Activities (ERAs) necessary for each aspect of the project should be given.

## **2. PROJECT SUBSTANTIATION**

### **2.1 Need for the Project**

This section should provide a broad statement of the objectives which have led to the development of the Project and a brief outline of the events leading up to the Project's formulation, envisaged time scale for implementation and project lifespan, anticipated establishment costs and actions already undertaken within the Project area. In particular mention should be made of the potential for other infrastructure, including rail and port infrastructure to provide additional coal handling capacity for Central Queensland coal producers.

### **2.2 Relationship to other Projects**

This section should also 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 rail facilities to upgrade the existing Newlands rail system, and to the proposal for Stage 3 expansion of the facilities at Abbott Point port, and the nature of the interdependency of the two projects.

### **2.3 Alternatives**

This section should describe feasible alternative corridors for the proposed Project, as well as the option of taking no action i.e. of not building the rail link. Alternatives should be discussed in sufficient detail to enable an understanding of reasons for preferring certain options and courses of action and rejecting others. Reasons for selecting preferred options should be delineated in terms of technical, commercial, social and natural environment aspects. In particular, discussion of reasonably practicable alternatives to the Project should include:

- Alternative routes considered, aided by maps and diagrams. The Route options highlighting the preferred route, should be shown on topographical maps at a suitable scale.
- The rationale for selection of the preferred corridor and reasons other options were rejected.

### **3. DESCRIPTION OF THE PROJECT**

The EIS should provide detailed description of construction, operation and decommissioning stages (including rehabilitation) of the project and any supporting compression requirements. Details should include:

- Design parameters for aspects of the Project that may impact upon the endangered and threatened species.
- A program covering activities relating to design, construction, commissioning and first operating activities.

The objective of this section is to describe the Project through its lifetime of construction, operation and maintenance. It also allows further description of which approvals may be required and how they may be managed through the life of the Project.

#### **3.1 Location and General Description**

Maps should be provided showing the general location of the Project area, and in particular:

- The location of all construction works; and
- Access tracks and construction compounds.

The Project should be illustrated on maps and described, incorporating engineering specifications where appropriate and the rationale for the preferred operational program should be explained.

#### **3.2 Construction**

The extent and nature of the Project's construction phase should be described, including expected staging of construction phases where proposed. The description should include the type and methods of construction to be employed, the construction equipment to be used and the items of plant to be transported onto the construction site. Locations for equipment storage during construction, and logistics for moving equipment should be outlined. The volume and source of proposed general construction materials should be clearly identified along with suitable access routes.

#### **3.3 Ballast Supply and Logistics**

The arrangements and facilities for supply of permanent way ballast for the construction of the rail link 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.

#### **3.4 Water Supply/Storage**

The EIS should provide information on water usage by the Project, including the quality and quantity of all water used during construction. In particular, the proposed and optional sources of water supply should be described (eg. bores, municipal water supply pipelines, etc).

### **3.5 Stormwater Drainage**

The EIS should describe the proposed stormwater drainage system and proposed disposal arrangements, both for construction purposes and for the operational purposes along the right of way.

### **3.6 Workforce and Accommodation**

This section should provide details on the employment requirements and skills base of the required workforce for both the construction and operations phases of the project for the rail link and any other facilities. The report should describe the deployment strategies proposed for the workforce over the construction period and the length of the rail link.

Information should be provided on the accommodation requirements for the workforce, including the proportion of workforce with family members.

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

- Food preparation and storage;
- Ablution facilities;
- Vector and Vermin control;
- Fire safety;
- Indoor air quality; and
- Dust and noise control in relation to proximity of camp site to the construction area.

Outline local government approvals required for establishment and operation of such camps.

### **3.7 Electricity and Telecommunications**

This section should identify the extent of electricity supply requirements for electrification of the rail link, and the expected nature of facilities for power supply. (It is recognised that supply of grid power to the project will be by others, and does not form part of this project scope.)

Telecommunications and other signalling communications requirements should also be noted.

### **3.8 Transport**

This section should provide a brief overview of transport requirements. Full details of transport volumes and routes during construction and operation should be provided under Section 4.10 Traffic, Transport and Access Arrangements.

### **3.9 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 4.9 Waste.

### **3.10 Rail operations**

This section should outline an analysis of freight demand and logistics during operations. This should include descriptions of operating characteristics of the line and expected train movements, including initial traffic and growth scenarios and ultimate capacity expectations.

## **4. ENVIRONMENTAL VALUES AND MANAGEMENT OF IMPACTS**

This section should address all elements of the environment, (such as land, water, nature conservation, cultural heritage, social and economic, air, noise, waste, transport and traffic and hazards and risk) in a way that is comprehensive and clear.

The EIS should assess the impacts of the construction, operation and decommissioning stages (including rehabilitation) of the Project and any supporting facilities, together with impacts associated with potential ongoing maintenance, access and servicing resulting from the development.

The functions of this section are to:

- Describe existing environmental values of the area that may be affected by the proposal;
- Describe potential adverse and beneficial impacts of the proposal on the identified environmental values;
- Present environmental protection objectives and the standards and measurable indicators to be achieved; and
- Examine viable strategies for managing impacts.

Environmental protection objectives may be derived from legislative and planning requirements which apply to the proposal including Commonwealth strategies, State planning policies, local authority strategic plans, environmental protection policies under the *Environmental Protection Act 1994*, and any catchment management plans prepared by local water boards or land care groups in support of the Central Qld Strategy for Sustainability 2004 and Beyond. Special attention should be given to those mitigation strategies designed to protect the values of any sensitive areas and any identified ecosystems of high conservation value within the area of possible proposal impact.

It is recommended that the EIS follow the heading structure shown below. The mitigation measures, monitoring programs, etc., identified in this section of the EIS should be used to develop the Environmental Management Plans for the project (see Section 5).

### **4.1 Land Systems**

#### **4.1.1 Description of Environmental Values**

This section should detail the existing land environment for all areas associated with the Project, including areas affected by the rail corridor, and any new permanent or temporary facilities constructed for the rail link.

#### ***Land Use and Infrastructure***

The EIS should provide a description of current land uses, including native title issues, in the proposal area, with particular mention of land with special purposes. The location of areas covered by applications for native title or native title determinations in the area should be shown. Identify minerals, energy and related tenures such as mining and

petroleum exploration tenures, mining leases, mining claims, mineral development and pipeline licences and extractive resource areas.

Maps at suitable scales showing existing land uses and tenures, reserves, roads and road reserves, stock routes and the like, and the proposed corridor, should be provided for the entire area that could be affected by the development. Also indicate locations of gas and water pipelines, power lines and any other easements. The maps should identify locations of conservation value, existing dwellings and recreational areas, and the zoning of all affected lands according to any existing town or strategic plan.

Identify lots within the proposed route listed on the Environmental Protection Agency's Environmental Management Register/Contaminated Lands Register. Where lots are listed on a register, evaluate the potential for the presence or absence of the source of contamination within the proposed route, access routes, construction camps etc.

A land suitability map of the proposed and adjacent area should be provided, setting out land suitability and current land uses, e.g. grazing, native and improved pastures and horticulture. Land classified as Good Quality Agricultural Land under the Department of Natural Resources Land Classification System is to be shown in accordance with State Planning Policy 1/92.

### ***Topography/Geomorphology***

Maps should be provided locating the Project in both regional and local contexts. The topography of the proposal site should be detailed with contours at suitable increments, shown with respect to Australian Height Datum (AHD). Significant features of the locality should be included on the maps. Such features would include any locations subsequently referred to in the EIS (e.g. the nearest noise sensitive locations) that are not included on other maps for this section. Commentary on the maps should be provided highlighting the significant topographical features.

### ***Soils***

Soils should be mapped at a suitable scale and described according to the Australian Soil and Land Survey Field Handbook (Gunn et al 1988 and McDonald et al, 1990) using the Australian Soil Classification (Isbell, 1996). An appraisal of the depth and quality of useable soil should be undertaken. The location of each borehole should be accurately presented on maps, and boreholes should equitably represent different soil types present. Information should be presented according to the standards required in the Planning Guidelines: The Identification of Good Quality Agricultural Land (DPI, DHLGP, 1993), that supports State Planning Policy 1/92: Development and the Conservation of Agricultural Land.

#### **4.1.2 Potential Impacts and Mitigation Measures**

This section should describe the potential for the construction and operation on the project to change the existing and potential uses of the corridor and adjacent areas, and the measures to minimise these impacts.

#### ***Land Use and Infrastructure***

- Identify any land units requiring specific management measures.
- Assess the compatibility of the proposal with surrounding land uses (e.g. mining).
- Describe possible impacts on surrounding rural land uses and human activities, including impacts to Good Quality Agricultural land, grazing land and forestry land, loss of access to land, fragmentation of properties, increase of fire risk, as well as impacts on residential and industrial uses.



- Indicate the range of measures to be taken to minimise the described impacts on surrounding land uses.
- Describe strategy and progress in relation to making of Native Title agreements, where applicable, including NTRBs, consultant selection, traditional owner involvement and related statutory processes.
- Include the specification of all possible impacts on, or sterilization of, identified mineral or energy resources, pipeline licence corridors and extractive industry deposits, the amount of sterilization (if any) of the deposits resulting from the construction and/or operation of the rail line and associated infrastructure.

### **Topography/Geomorphology**

- Discuss the Project in the context of major topographic features and any measures taken to avoid or minimise impact to such (if required).
- The objectives to be used for the Project in re-contouring and landscaping should be described. Consideration should be given to the use of threatened plant species during any landscaping and revegetation.

### **Soil Erosion**

For all permanent and temporary landforms, possible erosion rates and management techniques should be described. For each soil type identified, erosion potential (wind and water) and erosion management techniques should be outlined. Methods proposed to prevent or control erosion should be specified and should be developed to prevent soil loss in order to maintain land capability/suitability, and to prevent significant degradation of local waterways by suspended solids.

## **4.2 Climate**

This section should describe climatic conditions in the Project area in relation to their bearing on the design of Project facilities, construction methods and operational parameters.

Discuss seasonal conditions (e.g. cyclones, thunderstorms, floods and storms) that may influence timing and/or construction methods and how this will be managed.

Discuss how weather will be monitored to minimise the risk of adverse impacts to the Project area during the construction period.

## **4.3 Water Resources**

### **4.3.1 Description of Environmental Values**

This section describes the existing environment for water resources that may be affected by the proposal in the context of environmental values as defined in such documents as the *Environmental Protection Act 1994*, *Environmental Protection (Water) Policy 1997* and *ANZECC 2000*. If a licence or permit will be required under the *Water Act 2000* to take or interfere with the flow of water, this section of the EIS should provide sufficient information for a decision to be made on the application.

- Existing surface and ground water in terms of physical, chemical and biological characteristics.

- Environmental values of the surface waterways of the affected area in terms of:
  - Values identified in the *Environmental Protection (Water) Policy*.
  - Sustainability, including both quality and quantity.
  - Physical integrity, fluvial processes and morphology of watercourses, including riparian zone vegetation and form.
  - Any Water Resource Plans, Land and Water Management Plans relevant to the affected catchment.
- Existing surface drainage patterns, flows, history of flooding including extent, levels and frequency and present water uses.
- The watercourses to be crossed by the rail corridor showing planned crossing locations on a map. Discuss consideration of alternative crossing locations in environmentally sensitive areas.

#### **4.3.2 Potential Impacts and Mitigation Measures**

This section is to assess potential impacts on water resource environmental values identified in the previous section. It will 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:

- Likely impacts associated with the construction and operation of crossings of water courses, particularly with respect to erosion and scouring, and selection criteria for determining the final crossing type for various stream orders to protect watercourse integrity.
- Potential impacts on flooding levels upstream of any new crossing of water courses
- Amelioration or mitigation measures to address each impact identified that may affect local and regional water quality, particularly measures to ensure beds and banks of water courses remain stable and measures to safeguard downstream water quality.
- The quality of water leaving construction sites (including physical, chemical and biological characteristics), potential impacts for any likely discharged water and how the impacts will be assessed.
- The effects of drainage works, placement of fill, clearing or any other alterations to existing topography and landform on the hydrology of the site including any alteration to drainage patterns and the water table and secondary influence on flooding. If levee banks or stream diversionary constructions are proposed, the effects on neighbouring landholders should be considered, and any works requiring permits or licensing in accordance with the *Water Act 2000* identified.
- Discussion of the proposed drainage structures for all aspects of the proposal, including supporting facilities such as access roads.
- Discussion of the timing of the construction works relative to likely periods of flooding and proposals to minimise the risk of adversely impacting downstream water quality.
- Discussion of measures to ensure viable weed seeds are not released into the water environment including from machinery traversing creek systems or riparian areas.

#### **4.4 Nature Conservation**

This section should detail the existing nature conservation values of the Project area. The EIS should identify any actions of the Project that require an authority under the *Nature*

*Conservation Act 1992*, and/or would be assessable development for the purposes of the *Vegetation Management Act 1999*.

The flora and fauna communities should be described, in particular those that are rare or threatened, in environmentally sensitive localities, including waterways, riparian zones, and wilderness and habitat corridors. The description should include species lists.

Reference should be made to both State and Commonwealth 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 all likely direct and indirect environmental harm on flora and fauna in both terrestrial and aquatic environments in sensitive areas.

#### **4.4.1 Terrestrial Flora**

##### **4.4.1.1 Description of Environmental Values**

Terrestrial vegetation maps at a suitable scale (e.g. 1:100,000 generally or 1:50,000 for appropriate detail locations) should be provided for the entire Project corridor. Mapping should be produced from aerial photos and ground truthing and should show and discuss:

- Location and extent of vegetation types using the EPA's regional ecosystem type descriptions in accordance with *The Conservation Status of Queensland's Bioregional Ecosystems*. (Sattler P.S. & Williams R.D. (Eds) 1999.) and the EPA's web site ([www.epa.qld.gov.au/environment/science/wildlife/](http://www.epa.qld.gov.au/environment/science/wildlife/)) listing the biodiversity status of regional ecosystems.
- Location of species listed as Protected Plants under the *Nature Conservation (Wildlife) Regulation 1994* and subsequent amendments.
- Any plant communities of cultural, commercial or recreational significance should be identified.
- Vegetation map unit descriptions should also discuss their relationship to regional ecosystems. Sensitive or important vegetation types should be highlighted and their value as habitat for fauna and conservation of specific rare floral and faunal assemblages or community types discussed.
- A comparison of site mapping with mapping produced by the Qld Herbarium for the *Vegetation Management Act 1999*, with identification of any differences.

Details of any riparian vegetation and native grasslands, and their value for fauna habitat and conservation of specific rare floral and faunal assemblages or community types, from both a local and regional perspective, should be provided. Any special landscape values of any natural vegetation communities should be described.

Existing information on plant species may be used instead of new survey work provided that the data are derived from surveys consistent with the above methodology. Methodology used for flora surveys should be specified in the appendices to the report. 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* should be shown on a map at an appropriate scale.

#### **4.4.1.2 Potential Impacts and Mitigation Measures**

- Discuss the ability of identified stands of vegetation to withstand any increased pressure resulting from the proposal and identify measures proposed to mitigate impacts.
- The area of each remnant regional ecosystem to be cleared shall be detailed for the proposed route and any alternatives considered, as well as supporting facilities.
- The future use (such as erosion control or habitat) or method of disposal of cleared vegetation shall be detailed.
- Describe the methods to ensure rapid rehabilitation of disturbed areas following construction including the species chosen for revegetation which should be consistent with the surrounding associations. Include details of any post construction monitoring programs and what benchmarks will be used for review of monitoring.
- Identify necessary permits/authorities required by the Project (e.g. Riverine Protection Permits may be required dealing with riverbank vegetation and in the construction of waterway crossings, temporary or permanent).
- Describe methods of minimising the potential for the introduction and/or spread of weeds, including:
  - Identification of the origin of construction materials, machinery and equipment.
  - The need for vehicle and machinery washdown and any other hygiene protocols.
  - Staff/operator education programs.
- Include a weed management plan in the EMP, to be developed in consultation with local government environmental officers, to cover construction, rehabilitation and operation periods.

#### **4.4.2 Terrestrial Fauna**

##### **4.4.2.1 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. Wildlife corridors and refugia along the proposed route should be identified and mapped.

The description of the fauna present or likely to be present in the area should include:

- Species diversity (i.e. a species list) and abundance of animals, including amphibians, birds, reptiles, mammals and bats.
- Any species which are poorly known but suspected of being rare or threatened.
- Habitat requirements and sensitivity to changes including movement corridors and barriers to movement.
- The existence of feral or exotic animals.
- Existence of any rare, threatened or otherwise noteworthy species/communities in the study area, including discussion of range, habitat, breeding, recruitment, feeding and movement requirements, and current level of protection (e.g. any requirements of Protected Area Management Plans).

The EIS should contain results from surveys for species listed as threatened or migratory under the *EPBC Act*. Surveys are to be conducted at the appropriate time of year when the species is known to be present on the site, so that identification and location of these species is optimal.

The EIS should indicate how well any affected communities are represented and protected elsewhere in the subregion where Project sites occur. The methodology for subregional analysis of representativeness and adequacy of protection for the terrestrial/riparian vegetation communities and the flora and fauna taxa that inhabit them within the affected areas should be clarified.

Site data should be recorded in a format compatible with EPA WildNet databases.

#### **4.4.2.2 Potential Impacts and Mitigation Measures**

- Identify any impact the proposal may have on terrestrial fauna, relevant wildlife habitat and other fauna conservation values.
- Provide details on any management measures proposed, (such as provision of nest hollows, use of cleared vegetation for ground-level habitat, 'gliding poles', vegetated overpasses) to reduce identified impacts on terrestrial fauna resulting from fragmentation of habitat & creation of barriers to movement.
- Provide details of the methodology that will be used to minimise injuries and mortality that may be inflicted on livestock or native fauna as a result of operation of the Project.
- Discuss the method of minimising the introduction of feral animals, and other exotic fauna.

#### **4.4.3 Aquatic Biology**

##### **4.4.3.1 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 described.

The discussion of the fauna and flora present or likely to be present at any time during the year in the area should include:

- Fish species, mammals, reptiles, amphibians, and aquatic invertebrates occurring in the waterways within the project area.
- Aquatic (waterway) plants.

##### **4.4.3.2 Potential Impacts and Mitigation Measures**

- Discuss the 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).
- Discuss any proposed stream diversions, causeway construction and crossing facilities, stockpiled material and other impediments (temporary or permanent) required for construction or maintenance purposes that will restrict free movement of fish (short or long term). Also include if seasonal construction of waterway crossings can avoid fish spawning periods.

## 4.5 Historic and Cultural Heritage

### 4.5.1 Description of Environmental Values

The EIS should describe the existing environmental values for cultural heritage that may be affected by the Project activities.

A cultural heritage study will be required which will describe indigenous and non-indigenous cultural heritage sites and places, and their values, and include:

- Consultation with:
  - The Register of the National Estate.
  - The Queensland Environmental Protection Agency regarding the Queensland Heritage Register and other information regarding places of potential non-indigenous cultural heritage significance.
  - The Department of Natural Resources and Mines regarding the Indigenous Site Database.
  - Any local government heritage register.
  - Any existing literature relating to the affected areas.
- Liaison with representatives of relevant indigenous community/communities concerning:
  - Places of significance (including archaeological sites, natural sites, story sites etc), and appropriate involvement in field surveys.
  - Any requirements by communities and/or informants relating to selection of consultants and confidentiality of site data. Non-indigenous communities may also have relevant information.
  - Significance assessment of any cultural heritage sites/places located.
- Liaison with relevant community groups/organisations (eg local historical societies) concerning:
  - Places of non-indigenous cultural heritage significance
  - Opinion regarding significance of any cultural heritage places located or identified
- Identifying locations of culturally significant sites likely to be impacted by rail line construction, including:
  - Stone artefact scatters.
  - Culturally significant vegetation.
  - Buildings or places of archaeological significance.
  - Archaeological sites, natural sites, story sites etc.
- When examining tenure, the location of historical mining areas should be shown on maps. This may be used to identify former mining zones or historical workings where slumping or other problems might occur in the future.
- A report of work done which includes background research, relevant environmental data and methodology, as well as results of field surveys, significance assessment and conclusions and management recommendations (having due regard for any confidentiality requirements specified by community representatives).

As a minimum, investigations and consultation should be undertaken in such manner and detail to satisfy statutory responsibilities and duties of care, including those under the *Queensland Heritage Act 1992*, the *Aboriginal Cultural Heritage Act 2003* and the *Commonwealth Aboriginal and Torres Strait Islander Heritage Protection Act 1984*, to protect areas and objects of cultural heritage significance.

#### **4.5.2 Potential Impacts and Mitigation Measures**

Every attempt should be made to identify a rail corridor that avoids any significant heritage areas. The Proponent should provide an assessment of any likely effects on sites of European or Indigenous cultural heritage values, including but not limited to the following:

- Describing the significance of artefacts, items or places of conservation or cultural heritage value likely to be affected by the proposal and their values at a local, regional and national level.
- Recommended means of mitigating any negative impacts 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. The CHMP should provide a process for the management of identified cultural heritage places and values within the proposed rail line route. The CHMP should be based on information contained in the cultural heritage study report and/or information from Indigenous community/communities. The CHMP should include the following:

- A process for including Indigenous communities associated with the proposed route in protection and management of Indigenous cultural heritage.
- Processes for mitigation, management and protection of identified cultural heritage places and material along the proposed route, including associated infrastructure developments, both during the construction and operational phases of the Project.
- Provisions for the management of the accidental discovery of cultural material, including burials.
- A conflict resolution process.

The development of the CHMP should be negotiated with all relevant stakeholder representatives, subject to any confidentiality specified by indigenous communities and registered Native Title applicants.

As a minimum, impact assessment, protection and management strategies should satisfy statutory responsibilities and duties of care, including those under the *Queensland Heritage Act 1992*, the *Aboriginal Cultural Heritage Act 2004* and the *Commonwealth Aboriginal and Torres Strait Islander Heritage Protection Act 1984*.

#### **4.6 Social and Economic Environment**

##### **4.6.1 Description of Environmental Values**

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

- Structure of potentially affected communities in the study area.
- Community profile, providing information on the following characteristics:
  - Rural properties, farms, croplands and grazing areas.
  - Demography and family structure.
  - Health status and sensitive groups.
  - Workforce characteristics, including types of skills or occupations and availability during both construction and operational stages.
  - Accommodation type, quantity and availability (as it relates to the need for accommodation of the Project construction and operation workforce).
  - Public health and education facilities.

- Local government and public services.
- Other community services and facilities.
- Socio-demographic characteristics, including employment and unemployment rates.
- Economic base and economic activity.

#### **4.6.2 Potential Impacts and Mitigation Measures**

The social and economic impacts of the proposed development should be addressed as part of the EIS incorporating any assessment of stakeholder concerns about adverse impacts to the natural, social, economic or built environment so that appropriate mitigation strategies can be developed. Considerations should be given to the following:

- Restrictions to public access and recreational use during construction and operational phases, and after decommissioning.
- Strategies to minimise access requirements for operation and maintenance activities.
- The potential and mechanisms for local communities and businesses to meet contracts for services and supplies for the construction, rehabilitation and operation phases of the Project.
- Employment strategies for local residents including members of indigenous communities interested in employment opportunities, which would identify skills required for the Project and initiate appropriate recruitment and training programs.
- Describe the impact of the project on public health and safety of adjacent communities, including such impacts as noise, dust, waste, transport, and other hazards .
- Discuss the impact of accommodation requirements, such as construction camps or other staff and family housing arrangements during the construction and operation stages, on communities along the corridor..
- Any impacts (positive or negative) on the local and regional housing construction sector should be identified, with regard to the supply of dwellings for the construction workforce.
- Impact of the Project workforce on local human services (e.g. housing, education and health facilities), and local community social and recreational environments.
- 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)).
  - The use of locally sourced goods and services (making use of DSDTI Local Industry Policy).
- Strategies to foster cross-cultural awareness for the project and its participants
- Direct and indirect impact of the Project on the regional, state and national economies in terms of direct and indirect effects on employment, income and production.

#### **4.6.3 Impact upon Property Management**

This section should address the current and future management processes for properties which are impacted by the rail corridor, by virtue of the fact that the corridor may intersect these properties, or separate adjoining properties, and there is potential for current



farming or grazing practices to be affected in some material way. Mention should be made of the following:

- The impact of the Project on existing agricultural and grazing land uses and management practices – e.g. disruption to stockyards, fences, water points, sowing or harvesting of crops, movement of livestock, agricultural machinery and any loss of agricultural land.
- Describe the range of measures required to mitigate real & potential disruptions to rural practices and management of properties (both within properties and with adjoining landholdings), such as separation of stock areas by rail corridor and the types of alternative corridor crossing points.
- Identification of economic impacts resulting from fragmentation of rural lots, costs of alternative property management practices, or losses of agricultural land or productivity, and outline measures & processes to manage these impacts.

## **4.7 Air Environment**

### **4.7.1 Description of Environmental Values**

This section should describe the existing air environment, which may be affected by the proposal in the context of environmental values as defined by the *Environmental Protection Act 1994* and *Environmental Protection (Air) Policy*.

### **4.7.2 Potential Impacts and Mitigation Measures**

The following air quality issues should be considered:

- Impacts of dust generation from construction activities, especially in areas where the corridor follows existing road networks or passes in close proximity to residences.
- Identification of climatic patterns that could affect dust generation and movement.
- Predicted changes to existing air quality from vehicle emissions and dust generation along haulage routes and storage locations of construction materials, including ballast.
- Potential for impacts on air quality from operation of diesel powered locomotives in rail operations.
- Describe the potential for coal dust emissions to provide an environmental nuisance to any sensitive receptor along the proposed rail corridor.
- Propose any amelioration or mitigation measures for each identified impact relating to train, vehicle, and equipment emissions, dust generation, and gaseous emissions.

## **4.8 Noise and Vibration**

### **4.8.1 Description of Environmental Values**

Sensitive noise and vibration receptors adjacent to the rail corridor should be mapped and typical background noise levels discussed. The potential sensitivity of such receptors should be discussed and performance indicators and standards should be nominated for each affected receptor. Current background levels for noise should be surveyed or reported. Noise from existing facilities should be measured in sensitive places and used to assist the modelling of predicted levels for the new proposal.

#### **4.8.2 Potential Impacts and Mitigation Measures**

The following analysis of noise impacts should be assembled:

- The levels of noise generated during construction and operation of the rail line and ancillary activities (e.g. access roads, camp sites) should be assessed against current typical background levels.
- The potential environmental harm of noise at all potentially sensitive places, in particular any places of work or residence, should be quantified and compared with objectives, standards to be achieved and measurable indicators.
- This should also include environmental harm on terrestrial animals.
- Proposals to minimise or eliminate these effects should be provided, including details of any screening, lining, enclosing or mounding along the corridor, or timing schedules for construction and operations that would minimise environmental harm and environmental nuisance from noise and vibration.
- Assessment should be made of the potential emission of low-frequency noise (noise with components below 200Hz) from trains and major items of plant or equipment. If necessary, measures should be described for reducing the intensity of these components.
- Where relevant, noise impact on nearby noise sensitive receptors should be assessed for maximum noise events, (e.g. train movements), and for a time weighted average daily record. The impact of additional train movement, including loading, unloading and shunting at North Goonyella mine and Newlands mine, on any nearby noise sensitive receptors should be indicated.

#### **4.9 Waste**

##### **4.9.1 Waste Generation**

Identify and describe all sources of waste associated with construction, operation and decommissioning of the rail line. Describe all activities including:

- Chemical and mechanical processes conducted on the construction sites/camps (e.g. chemical storage, sewage treatment, power generation, fuel burning, mechanical workshop, diesel storage).
- The amount and characteristics of solid and liquid waste produced on-site (rail corridor, construction camps) by the Project.
- Any waste treatment process involved, including site drainage and erosion controls.
- Selection criteria, and show on the map likely run off/stormwater discharge points.
- Hazardous materials to be stored and/or used on-site, provide their Material Safety Data Sheets and environmental toxicity data and biodegradability for raw materials and final products.

Descriptions should also include (using maps and plans as appropriate) data on waste:

- Generation points.
- Storage methods and facilities.
- Quantities.
- Disposal arrangements.
- Recycling/reuse arrangements.

The EIS should provide details of any waste water output<sup>1</sup> including:

- Volume estimates of industrial and domestic effluent that will be produced at each Project site.
- Quality of effluent produced.
- Any mobile sewerage facilities to be used.
- The proposed method of disposal and extent of use of local government facilities (i.e. Council Sewerage works).

#### **4.9.2 Waste Management**

Waste management strategies should incorporate measures to avoid waste generation where possible. Discuss waste management strategies, including reduction, reuse, recycling, storage, transport and disposal of waste, including measures to minimise attraction of vermin, insects and pests.

### **4.10 Traffic, Transport and Access Arrangements**

This section should analyse transport impacts in terms of (a) the transport task during construction, and (b) the transport operations of coal haulage along the rail line in operation

#### **4.10.1 Construction Transport Methods and Routes**

With the use of maps and data tables discuss transport methods and routes for delivering construction equipment, rail line construction and maintenance materials, other necessary goods and consumables and workforce transportation. Information should include:

- Volumes, tonnage, and composition of construction inputs, including ballast for rail track construction.
- Hazardous or dangerous material that may be transported.
- Method of transport (e.g. sea, rail, road) and the type of vehicles most likely to be used for transport.
- Number and type of workforce traffic and service vehicles.
- Number of trips generated (both light and heavy vehicles).
- Origin and destination of inputs and transport route proposed (with the use of maps) for each phase of the project construction and in particular, for the expected range and locations of workforce populations and their travel patterns. Existing traffic volumes will need to be shown.
- Details of over-dimension, excess mass loads or any hazardous goods.
- Timing and duration of transport.

Overall, it is important that the EIS clearly and fully describes transport information for all stages of the project construction including:

- Any new access requirements to State-controlled or local government roads.
- Full details of where the rail corridor crosses or runs within or close to road reserves.

The EIS should provide sufficient details to allow Main Roads and Queensland Transport to ascertain compliance with legislative and design requirements.

---

<sup>1</sup> Potential impacts to any aquifers, underground water flows and surface waters to be traversed by construction of the proposed rail line should be discussed in Section 4.3.2

#### **4.10.2 Coal Haulage**

This section should describe the 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:

- 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.
- Operating hours, daylight, night time, during adverse weather conditions.
- Expected road traffic pattern changes directly relating to servicing the rail operations.

#### **4.10.3 Potential Construction Transport Impacts and Mitigation Measures**

Assessment of impacts for the construction period should discuss the following:

- The likely impacts and mitigation strategies of increased traffic on local and regional road networks (with appropriate directional distributions), with reference to:
  - Road safety issues on public roads, including danger from large transport vehicles, safe access to construction sites (e.g. consideration of the need for turning lanes, improved sight lines, waiting areas, off-road parking locations).
  - Reduced efficiency of traffic flows on roads and intersections along key routes, during construction.
  - Additional wear/reduced life of pavements requiring additional or accelerated rehabilitation and maintenance if any.
  - Social, amenity, environmental or cultural heritage impacts of transport not covered in other sections.
- The proposed traffic management arrangements and plans, especially within rural residential areas and steps to be taken to prevent public access to construction access ways not provided on public roads.
- Specific issues related to construction phase activities:
  - Site depot location and access.
  - Construction traffic on local road networks, daily movement patterns and emergency access, especially in rural residential areas.
  - Methods to be adopted to avoid obstruction to other road uses during construction
- Environmental issues relating to transport (e.g. weed management, dust control and erosion protection) are adequately assessed and ways to ameliorate any adverse impacts are outlined.
- The impacts of construction with regard to seasonal considerations such as potential for road impacts during wet weather.

Findings of studies and assessments should be incorporated into a road management strategy including Transport and Traffic Management Plans.

Reference should be made to any relationship between Project road works and works proposed in the current Road Implementation Program(s) of the Department of Main Roads (DMR). Road infrastructure impacts should be described and assessed according to DMR's *Guidelines for Assessment of Road Impacts of Development Proposals (Nov 2000)*. Reference should be made to other Main Roads planning documents.

It is anticipated that there will be an increase in haulage vehicles transporting sections of rail via the main service routes. Furthermore, local traffic along shire roads adjacent to

the proposed route will increase substantially as a result of construction activity. The Project will need to advise Councils if and when significant increases in vehicle use on minor roads is expected, and discuss rehabilitation strategies.

#### **4.10.4 Operational Transport Impacts and Mitigation Measures**

This section should describe the relevant transport impacts of the coal haulage tasks presented in 4.10.2, including any direct maintenance and servicing tasks associated with operations. This should include the following areas of interest:

- Safety principles for operations.
- Impact management strategies contained in EMP for train operations.
- Full details of where the rail corridor crosses or runs within or close to road reserves.
- Assessment of road / rail intersections in the missing link rail corridor for all proposed stages of operating scenarios.
- An outline of the proposed process to be employed in assessing and managing road/rail interactions at downstream locations on the rail network, at future stages when operational capacity on the downstream line increases.
- Impacts associated with identified direct road traffic pattern changes for the operational phase.

### **4.11 Hazard and Risk**

#### **4.11.1 Risk Assessment**

- The Proponent shall carry out a Risk Assessment in accordance with appropriate parts of *AS/NZS Risk Management Standard 4360:1999*.
- The study shall assess risks during the construction, operational and decommissioning phases of the rail line. Where possible these risks are to be assessed in quantitative terms.
- Indicate possible hazards, accidents, and abnormal events that may arise for the project, both during construction and in operation. This would be expected to include accidents involving train operations, explosions and fires associated with such incidents, and interfaces with other infrastructure.
- Based on historical data provide an indication of incidents, consequences and frequency of occurrence of train accidents associated with 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 along the corridor. Where possible indicate the reduced level of risk which would be experienced with these safeguards in place.
- 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.

#### **4.11.2 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.

The following should also be presented:

- Contingency plans to deal with hydrocarbon (e.g. diesel, lubricating oils) oil spills during construction, operation and maintenance of the rail line.
- Contingency plans to account for natural disasters such as storms, floods and fires during the construction, operation and maintenance phases.
- Contingency plans to deal with train accidents during operations.
- Emergency planning and response procedures to deal with relevant incidents above, which have been determined in consultation with State and regional emergency service providers.
- Plans for involvement of the relevant State agencies (such as the Queensland Ambulance Service) in relation to emergency medical response and transport and first aid matters.

## **5. ENVIRONMENTAL MANAGEMENT PLANS**

Draft Environmental Management Plans (EMPs) should be presented in the EIS for construction and for operation, and should detail measures to address impacts identified in this EIS for the respective phase of the Project. EMPs should contain the following:

- Environmental element - the environmental aspect requiring management consideration.
- Potential impacts - as identified in the EIS.
- Performance objective - the target or strategy to be achieved through management.
- Management actions - the strategies and actions to be undertaken to achieve the performance objective, including any necessary approvals, applications, and consultation.
- Performance indicators - criteria against which the implementation of the actions and the level of achievement of the performance objectives will be measured.
- Monitoring - process of measuring actual performance.
- Responsibility - assign responsibility for carrying out strategies and monitoring actions to relevant persons/organisations.
- Reporting - the process and responsibility for reporting monitoring results.
- Corrective action - the action to be implemented in the case of non-compliance and the person/organisation responsible for action.

## **6. CONCLUSION AND RECOMMENDATIONS**

The EIS should make conclusions and recommendations with respect to the proposal, based on the studies presented, the Environmental Management Plans and conformity of the proposal with ESD policy. This should include reference to proponent commitments for the management and operation of the project.

## **7. REFERENCES AND APPENDICES**

References should be consistent and in a recognised format. Items in the Appendices may include:

- Site plans.
- Terms of Reference.
- Study Team
- Statutory Permits and Development Approvals.
- Research Reports and Specialist studies.
- List of Proponent Commitments