The **Coordinator-General**

North Surat – Taroom Coal Project

Terms of reference for an environmental impact statement

July 2012

Queensland Government

Contents

Introduction 1

Part A. About the project 3

1. Project summary 3
2. Project proponent 4
3. Legislative framework 4
4. Contact information 5

Part B. Contents of the EIS for State matters 7

1. Executive summary 7
2. Glossary of terms 8
3. Introduction 8
   - 3.1. Project proponent 8
   - 3.2. Project description 8
   - 3.3. Project rationale 8
   - 3.4. Relationship to other projects 8
   - 3.5. Project alternatives 9
   - 3.6. The environmental impact assessment process 9
   - 3.7. Public consultation process 10
   - 3.8. Project approvals 11
4. Project description 14
   - 4.1. Overview of the project 14
   - 4.2. Location 15
   - 4.3. Construction phase 15
   - 4.4. Operational phase 17
   - 4.5. Associated infrastructure 18
   - 4.6. Decommissioning and rehabilitation 20
5. Environmental values and management of impacts 21
   - 5.1. Climate, natural hazards and climate change 21
   - 5.2. Land 23
   - 5.3. Nature conservation 29
   - 5.4. Water resources 36
   - 5.5. Air quality 40
   - 5.6. Greenhouse gas emissions 41
   - 5.7. Noise and vibration 42
   - 5.8. Waste 44
   - 5.9. Transport 45
   - 5.10. Indigenous cultural heritage 49
   - 5.11. Non-Indigenous cultural heritage 50
6. Social values and management of impacts 51
   - 6.1. Description of existing social values 51
   - 6.2. Potential impacts 54
   - 6.3. Impact mitigation measures and management strategies 55
7. Economies and management of impacts 56
   - 7.1. Economy 56
   - 7.2. Strategies for local participation 58
   - 7.3. Impact upon property management 58
8. Hazard and risk 59
   - 8.1. Hazard and risk assessment 59

8.2. Cumulative risk 60
8.3. Health and safety 60
8.4. Emergency management plan 61
9. Cumulative impacts 61
10. Sustainable development 62
11. Environmental management plan 62
12. Conclusions and recommendations 63
13. References 63
14. Appendices 64
Part C. Content of EIS for matters of national environmental significance 65
1. Background and context 65
2. EIS for MNES 66
2.1. General requirements 66
2.2. Specific requirements 67
2.3. Impact on a listed threatened species and communities 67
2.4. Impact on a listed migratory species 70
Appendix 1. Extract of Schedule 4 of the EPBC Regulations 2000 73
Acronyms and abbreviations 77
Glossary 79
References 82

Introduction

These terms of reference (TOR) set out the matters to be addressed in an environmental impact statement (EIS) for the North Surat – Taroom Coal Project (the project). The project proponent for the project is Cockatoo Coal Limited.

The project involves:

- a greenfield open-cut thermal coal mine in the Surat Basin
- a water supply pipeline
- rail facilities connecting to the proposed Surat Basin Rail, leading to the coal export terminal under construction at Wiggins Island in the Port of Gladstone.

This document is divided into three parts:

(1) Part A—About the project

(2) Part B—Contents of the EIS for State matters

(3) Part C—Content of EIS for matters of national environmental significance (Australian Government matters).

The TOR must be read in conjunction with *Preparing an environmental impact statement: Guideline for proponents*, which explains:

- the target audience for the EIS
- stakeholder consultation requirements
- document format
- copy requirements.

The guideline is available from **www.projects.industry.qld.gov.au** or from the EIS project manager (refer to Part A, Section 4 for contact details).

Part A. About the project

1. Project summary

The proposed project includes an open-cut coal mine, located in the Surat Basin, 2.8 kilometres (km) south-east of Taroom township, 42 km north-west of Wandoan and approximately 400 km north-west of Brisbane.

The proposed mine is expected to produce approximately eight million tonnes per annum (Mtpa) of product coal for the 20 years life of the mine (amended from 25 years by proponent since release of initial advice statement). The mine is intended for the extraction of thermal coal for the export market to the North Asia, Japan, Korea, Taiwan market as well as the emerging markets of China, India and south-east Asia. Lower specification coal suited for domestic power generators may also be produced.

The project land area is 5868 hectares (ha) consisting of 5159 ha on the Mining Lease Application (MLA), 145 ha power line easement, 264 ha water pipeline easement and 300 ha spur rail line easement.

The coal resource lies within the Mineral Development Licences Number 158 and 275 (MDL 158 and MDL 275). A single MLA covering the entire project area was made on 21 December 2011. The Taroom coal resource holds approximately 314 Mt of indicated and inferred resource. Mining would occur 24 hours per day, seven days per week, 52 weeks a year generating approximately 12 Mtpa run of mine (ROM) coal to produce 8 Mtpa of product coal.

The infrastructure to be developed within the mining lease (ML) includes roads, communications towers, offices, ablutions and crib room facilities, creek diversion, waste water treatment facilities, power lines, coal handling processing plant, coal stockpile and blending facility, train load out facility and dams.

Associated mine infrastructure to be constructed off the ML includes site access from the main road, a 31 km railway spur to the proposed Surat Basin Railway, a water supply pipeline, the length and alignment of which is dependent on the water supply source, and a construction workers accommodation village. On 25 June 2012 the proponent advised that while the 52 km power supply transmission line to the proposed Wandoan substation remains as part of the project, it is proposed that Ergon Energy would construct the transmission line and undertake the impact assessment process outside the scope of the EIS for the project and is therefore not part of this project assessment.

The project would require a raw water supply of approximately 4200 megalitres per annum. The water supply source has yet to been confirmed by the proponent. Potential sources of water for the project to be assessed by the proponent through the EIS include the Glebe Weir, Dawson River water allocations, groundwater or coal seam gas (CSG) extraction wastewater.

Construction of the project is proposed by the proponent to commence in late 2014, subject to the issue of the ML and other approvals. Commissioning is expected to commence in 2015. Mine decommissioning and rehabilitation will be completed by 2037.

The project will require capital expenditure of approximately $1.12 billion. The project is expected to employ 1000 people over an 18-month construction period and have a permanent workforce of 550 people during operations. Further information on the project can be viewed at: **www.projects.industry.qld.gov.au**

2. Project proponent

The project proponent is Cockatoo Coal Limited, an Australian public company, on behalf of the North Surat Joint Venture. Cockatoo Coal Limited is managing the North Surat Joint Venture, which comprises Cockatoo Coal (Taroom) Pty Limited (51 per cent) and MCH Surat Basin Investments Pty Ltd (49 per cent), to develop the Taroom coal mine, Collingwood coal mine and Woori coal mine in the northern Surat Basin.

Contact details for the proponent are:

Mr Michael Correll
Environment & Approvals Manager – Surat Cockatoo Coal Limited
Level 4, 10 Eagle Street
Brisbane QLD 4000

tel +61 7 3640 4712
mobile +61 448 077 185
email mcorrell@cockatoocoal.com.au
www.cockatoocoal.com.au

3. Legislative framework

On 14 February 2012, the Coordinator-General declared the project to be a 'significant project' under section 26(1)(a) of the *State Development and Public Works Organisation Act 1971* (Qld) (SDPWO Act). This declaration initiated the statutory environmental impact assessment procedure of Part 4 of the SDPWO Act, which requires the proponent to prepare an EIS for the project.

The declaration of the project as a 'significant project' does not indicate support for, or approval of, the project by the Coordinator-General or the Queensland Government. Rather, it is a requirement for the project to undergo a rigorous EIS process.

At the conclusion of the EIS process, the Coordinator-General will prepare a report evaluating the EIS (Coordinator-General's report).

On 22 March 2012, the Commonwealth Environment Minister determined that the project is a 'controlled action' under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act), due to the likely potential impacts on matters of national environmental significance (MNES) (reference number EPBC 2012/6237).

The Queensland Government confirmed on 4 April 2012 that the controlled action would be assessed by EIS to be prepared pursuant to the bilateral agreement between the Commonwealth and the State of Queensland. The bilateral agreement aims to minimise duplication of environmental impact assessment processes, allowing the Commonwealth Environment Minister to rely on the Queensland process to reach a conclusion about an action under the EPBC Act.

Part C of this document details the requirements to be addressed in the EIS for MNES.

4. Contact information

For information about the EIS process for the project, contact:

The Coordinator-General
c/-EIS Project Manager—North Surat – Taroom Coal Project
PO Box 15517
City East Qld 4002
tel + 61 7 3898 0508
fax + 61 7 3225 8282
email taroomcoalproject@coordinatorgeneral.qld.gov.au
web www.projects.industry.qld.gov.au

Part B. Contents of the EIS for State matters

This section details the matters to be assessed by the Coordinator-General on behalf of the State of Queensland.

The EIS should follow the format and content outlined in this TOR. Discuss any proposed change to the overall structure of the EIS documents with the EIS project manager (refer to page 5 for contact details).

For details of the Commonwealth matters to be assessed, refer to Part C of this document (page 65).

1. Executive summary

The executive summary should convey the most important and preferred aspects and options relating to the project to the reader in a concise and readable form. It should use plain English, avoid jargon, be written as a stand-alone document and be structured to follow the EIS. It should be easy to reproduce and distribute on request to those who may not wish to read or purchase the whole EIS.

The executive summary should include:

- project title
- proponent's name and contact details
- a discussion of any relevant projects previously undertaken by the proponent, if applicable, and the proponent's commitment to effective environmental management
- a concise statement of the aims and objectives of the project
- the legal framework for the project, 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
- an outline of the alternative options considered and reasons for selecting the proposed development option
- a brief description of the project (pre-construction, construction, operational activities and decommissioning) and the existing environment, using visual aids where appropriate
- an outline of the principal environmental impacts predicted and the proposed environmental management strategies, commitments and rehabilitation strategies to minimise the significance of these impacts
- a discussion of the cumulative impacts in relation to social, economic and environmental factors of associated infrastructure projects proposed within the region
- detailed maps of the proposed project location and any other critical figures.

2. Glossary of terms

Provide a glossary of technical terms, acronyms, abbreviations and references.

3. Introduction

Clearly explain the function of the EIS, why it has been prepared and what it sets out to achieve. Include an overview of the structure of the document.

3.1. Project proponent

Describe the proponent's experience, including:

- the nature and extent of business activities
- experience and qualifications
- environmental record, including a list of any breach of relevant environmental laws during the previous ten years
- the proponent's environmental, health, safety and community policies.

3.2. Project description

Briefly describe the key elements of the project with illustrations or maps. Summarise any major associated infrastructure requirements. Provide detailed project descriptions in Part B, Section 4 (refer to page 14).

3.3. Project rationale

Describe the specific objectives and justification for the project, including its strategic, economic, environmental and social implications, technical feasibility and commercial drivers. Discuss the status of the project in a regional, state and national context. Explain the project's compatibility with relevant policy, planning and regulatory frameworks.

3.4. Relationship to other projects

Describe how the project relates to other infrastructure projects (of which the proponent should reasonably be aware) that have been, are being undertaken or that have been proposed or approved in the area potentially affected by the project.

As a result of this assessment, there may be opportunities to co-locate existing or proposed infrastructure, enabling efficiency gains and mitigating environmental and property impacts. Where co-location may be likely, outline opportunities to coordinate or enhance impact mitigation strategies. Discuss the opportunities in sufficient detail to enable the reader to understand the reasons for preferring certain options or courses of action and rejecting others.

3.5. Project alternatives

Describe feasible alternatives including conceptual, technological and locality alternatives to the proposed project and the consequences of not proceeding with the project, including a description of the impacts that will be avoided if the project does not go ahead. Detail the criteria used to determine the alternatives and provide sufficient detail to enable the reader to understand why certain options or courses of action are preferred and why others are rejected (including the 'no action' option). Discuss the interdependencies of project components, particularly in regard to how any infrastructure requirements relate to the viability of the project.

With respect specifically to coal mining methods, describe why an open-cut mining method has been proposed instead of underground mining or a combination of the two and why a 24-hour/365-day-a-year mining operation is proposed rather than shorter operational hours. Discuss the alternative markets for the product coal, in particular examining the alternative domestic market rather than the proposal to export the product coal.

With respect to the project's associated infrastructure, being a water pipeline, rail spur line and power transmission line, discuss the alternative easement locations, easement widths and alternative construction methodologies examined.

With respect to coal export, demonstrate the alternative transport-to-port option should the proposed Surat Basin Rail not proceed or the rail not be operational in time for first production at the Taroom coal mine.

This information is required to assess why the scope of the project is as it is and to ensure that the environmentally sustainable design principles and sustainable development aspects were considered and incorporated during the project's scoping phase.

Refer to Part C for details of Commonwealth requirements on project alternatives.

3.6. The environmental impact assessment process

3.6.1. Methodology of the EIS

Provide an outline of the environmental impact assessment process, including the role of the EIS in the Coordinator-General's decision making process. Include information on relevant stages of EIS development, statutory and public consultation requirements and any interdependencies that exist between approvals sought. The information in this section is required to ensure:

- relevant legislation is addressed
- readers are informed of the process to be followed
- stakeholders are aware of any opportunities for input and participation.

3.6.2. Objectives of the EIS

Provide a statement of the objectives of the environmental impact assessment process. The structure of the EIS can then be outlined and used to explain how the EIS will meet its objectives. The purpose of the EIS is to:

- provide public information on the need for the project, alternatives to it, assess options and make informed decisions for its implementation
- present the likely effects of the project on the natural, social and economic environment
- demonstrate how environmental impacts can be avoided, managed or mitigated and the offsets for any residual impacts
- provide information to formulate the project's environmental management plan (EMP).

3.6.3. Submissions

Inform the reader how and when properly made public submissions on the EIS will be addressed and taken into account in the decision-making process. Indicate points in subsequent approval processes for the project (e.g. 'material change of use' (MCU) applications under the *Sustainable Planning Act 2009* (SPA) where submitters may have appeal rights. Also indicate any implications for submissions in the event of any appeal processes.

3.7. Public consultation process

Overview

The public consultation process should provide opportunities for community involvement and education. It may include interviews with individuals, public communication activities, interest group meetings, printed material and other mechanisms to encourage and facilitate active public consultation. The public consultation processes (community engagement) for all parts of the EIS should be integrated.

Consultation with advisory agencies should be the principal forum for identifying legislation, regulations, policies and guidelines relevant to the project and EIS process.

Consultation plan

Develop and implement a comprehensive and inclusive consultation plan with the stakeholder groups identified in section 3.2 of *Preparing an EIS: Guideline for proponents*.

The consultation plan should identify broad issues of concern to local and regional community and interest groups and address issues from project planning through commencement, project operations and decommissioning. The consultation plan should identify:

- the stakeholders to be targeted
- the types of consultation and communication activities to be undertaken
- timing of activities
- how consultation activities will be integrated with other EIS activities and the project development process
- consultation responsibilities

- communication protocols
- reporting and feedback arrangements
- how results of consultation will be considered by the proponent and integrated into the EIS process.

Public consultation report

Include, as an appendix, a public consultation report detailing how the public consultation plan was implemented, and the results. It must include:

- a list of stakeholders identified, including the Australian, State and local government agencies, and/or the affected parties (as defined by the *Environmental Protection Act 1994* (EP Act))
- criteria for identifying stakeholders and methods used to communicate with them
- details of the activities conducted to date and the future consultation strategies and programs, including those during the operational phase of the project (also outlined and included in the EMP)
- a summary of the issues raised by stakeholders and the means by which the issues have been addressed
- details of how consultation involvement and outcomes were integrated into the EIS process
- details of how consultation outcomes will be integrated into future site activities (including opportunities for engagement and provision for feedback and action if necessary).

3.8. Project approvals

3.8.1. Relevant state legislation and approvals

List and describe policies, regulations and legislation at the Commonwealth, State and local government level relevant to the planning, approval, construction and operation of all components of the project on and off the proposed MLAs and in the Surat Basin Infrastructure Corridor State Development Area (SBIC SDA).

Commonwealth legislation

Relevant Commonwealth legislation may include, but is not limited to:

- *Aboriginal and Torres Strait Islander Heritage Protection Act 1994*
- *Native Title Act 1993*
- *Energy Efficiency Opportunities Act 2006*
- *National Greenhouse and Energy Reporting Act 2007*.

Queensland legislation

Relevant Queensland legislation may include, but is not limited to:

- *Aboriginal Cultural Heritage Act 2003* (ACH Act)
- *Building Act 1975*
- *Dangerous Goods Safety Management Act 2001*

- *Disaster Management Act 2003*
- *Electricity Act 1994*
- EP Act
- *Explosives Act 1999*
- *Fire and Rescue Service Act 1990*
- *Fisheries Act 1994*
- *Greenhouse Gas Storage Act 2009*
- *Land Act 1994*
- *Land Protection (Pest and Stock Route Management) Act 2002*
- *Local Government Act 2009*
- *Mineral Resources Act 1989*
- *Nature Conservation Act 1992*
- *Petroleum and Gas (Production and Safety) Act 2004*
- *Queensland Heritage Act 1992*
- SPA
- *SDPWO Act*
- *Strategic Cropping Land Act 2011* (SCL Act)
- *Transport Infrastructure Act 1994* (TI Act)
- *Transport Operations (Road Use Management) Act 1995* (TORUM Act)
- *Transport Planning and Coordination Act 1994*
- *Transport Security (Counter Terrorism) Act 2008* and Regulations
- *Vegetation Management Act 1999* (VM Act)
- *Waste Reduction and Recycling Act 2011*
- *Water Act 2000*
- *Water Supply (Safety and Reliability) Act 2008* (WSSR Act).

Queensland approvals

Key Queensland approvals required, and to be considered in the EIS process, may include but are not limited to:

Construction

- approval for a ML for mining purposes
- approval for taking or interfering with the flow of surface or groundwater (e.g. dams, diversions, watercourse pumping) under the Water Act and development permits for works under SPA
- riverine protection permit for excavating or placing of fill, or removing vegetation within a watercourse under the *Water Act* (if activities do not meet the self-assessable guidelines—activities in a watercourse, lake or spring associated with mining operations) within ML and for excavating or placing of fill, or removing vegetation within a watercourse if outside the ML

- development permit for operational work that is the clearing of native vegetation—VM Act
- approval to take native wildlife—NC Act
- approval to take protected plants—NC Act
- licence to interfere with breeding place of a native animal—NC Act
- approval to close a road temporarily or permanently—TORUM Act
- material change of use of a premises for an environmentally relevant activity (ERA)—ERA16: Extractive and screening activities (dredging)—EP Act
- road impact assessment (including transport impact assessment) and road-use management plan for development on land not contiguous to a state-controlled road—TI Act
- approvals under the TI Act for the transportation of oversized plant, equipment and materials
- approvals under the SCL Act for activities where SCL or potential SCL is located on the resource authority
- granting of a non-standard environmental authority (EA) for mining activities
- approval for a MCU from the Coordinator-General for elements of the supporting infrastructure situated within the Surat Basin Infrastructure Corridor State Development Area (SBICSDA)
- approval for connection to/interference with the proposed Wandoan Substation and transmission of power to Taroom coal mine
- local government approvals for supporting infrastructure not on the ML requiring a MCU, operational works, building works and/or ERAs devolved to local government, including a development permit for operational works for a particular dam. This may also trigger referral agency assessment including but not limited to strategic cropping land, main roads and vegetation management
- licence for the storage of fuel and combustible liquids associated with supporting infrastructure not on the ML.

Identify the relevant approval agency for each of the approvals required.

Operation

- approvals under the TI Act for the transportation of oversized plant, equipment and materials.

3.8.2. Relevant plans

Outline the project's consistency with the existing national, state, regional and local planning framework that applies to the project location, including the location of associated project infrastructure. Refer to all relevant statutory and non-statutory plans, planning policies, guidelines, strategies, agreements and local government planning schemes. These include but are not limited to the following:

- Surat Basin Regional Planning Framework (Department of Local Government and Planning 2011b)

- Surat Basin Resource Town Housing Affordability Strategy (Department of Local Government and Planning 2011c)
- Major Resource Projects Housing Policy (Department of Employment, Economic Development and Innovation 2011b)
- Queensland Local Industry Policy (Department of Employment, Economic Development and Innovation 2010)
- Queensland Skills Plan (Department of Education, Training and the Arts 2008)
- Queensland Infrastructure Plan – Central Queensland (Department of Local Government and Planning 2011a)
- Surat Basin Infrastructure Corridor State Development Scheme (Department of Employment, Economic Development and Innovation 2011c)
- Central Queensland Regional Plan (Department of Local Government and Planning 2002)
- Water Resource (Great Artesian Basin) Plan 2006
- Water Resource (Fitzroy Basin) Plan 2011
- Central Queensland Strategy for Sustainability: 2004 and Beyond (Christensen & Rodgers 2005)
- State Planning Policy 1/03: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide (Department of Local Government and Planning & Department of Emergency Services 2003)
- *Road Planning and Design Manual* including the *Interim Guide to Road Planning and Design Practices* (refer to **www.tmr.qld.gov.au/Business-industry/Technical-standards-publications/Road-planning-and-design-manual.aspx**).

3.8.3. Environmentally relevant activities

Briefly describe each ERA under the EP Act and associated activities that are to be carried out in connection with the project. Present a detailed description of each ERA in Section 5, (Environmental values and management of impactsEnvironmental values and management of impacts) and provide details of the impact on land, water, air, noise and any other relevant environmental values identified.

4. Project description

Describe the project through its lifetime of pre-construction, construction, operation and decommissioning. The project description also allows further assessment of which approvals may be required and how they may be managed through the life of the project.

4.1. Overview of the project

Provide an overview of the project to put it into context. Include:

- a rationale explaining the selection of the preferred operating scenario, including details such as cost, environmental impacts, and the operational efficiencies of each option

- a description of the key components of the project including the use of text and design plans where applicable
- a summary of any environmental design features of the project
- the expected cost, timing, and overall duration of the project, including details of and justification for, any staging of the development.

4.2. Location

Describe, using maps at suitable scales and levels of detail, the regional and local context of the project and all associated infrastructure. Provide real property descriptions of the land on which project components are to be located. Maps should show the precise location of the project area, in particular the:

- location and boundaries of current or proposed land tenures that the project area is or will be subject to, and details of the ownership of that land
- location, boundaries, and area and size of the project footprint, including easement widths and access requirements
- location and size of any proposed buffers surrounding the working areas (for construction and operation)
- location of infrastructure relevant to the project, including but not limited to, the state-controlled road network, local roads and railways, stock routes and marine infrastructure
- location of natural features such as waterways (e.g. rivers, streams, creeks, other water bodies and wetlands), shorelines and significant and/or assessable vegetation
- location of the project on a map of the Fitzroy Basin
- location of any proposed construction site offices, compounds and workforce accommodation sites (temporary and/or permanent).

Provide GPS coordinates of the location of key project infrastructure and the project area boundaries and emergency locations where available. Provide electronic shape-files for use by the Department of Environment and Heritage Protection (DEHP) detailing the extent of disturbance and location of infrastructure within the MLs and off site for related infrastructure, as well as the boundary of the MLs, in a format compatible with ArcGIS.

4.3. Construction phase

Provide a detailed staging plan and approximate timeframes for the project's construction activities.

Provide an estimate of the number and roles of persons to be employed during the construction phase of the project.

Prepare a plan outlining the location of the proposed workers construction camps and detailed management plan for the construction camps. Discuss if worker accommodation camps are 'closed' with no drive up starts. Describe traffic management measures including use of bus-in/bus-out arrangements.

Provide the following information on the pre-construction, construction and commissioning of the project, including detailed plans, drawings and maps.

4.3.1. Pre-construction activities

Describe all pre-construction activities for the mine and the supporting infrastructure, both on and off the mining lease, including nature, scale and timing of:

- land acquisitions required, be it in full or as easements, leases etc.
- vegetation clearing
- site access
- earthworks
- interference with watercourses and floodplain areas, including wetlands
- accommodation for the workforce required for the construction of the temporary workerforce accommodation camps
- site establishment requirements for construction facilities, including access restriction measures and expected size, source and control of the construction workforce accommodation, services (water, sewage, communication, power, medical, recreation) and safety requirements
- temporary works
- upgrade, relocation, realignment, deviation of or restricted access to roads and other infrastructure
- equipment to be used.

4.3.2. Construction

Describe all the construction elements of the project, for the mine and the supporting infrastructure, both on and off the mining lease, including:

- an indicative construction timetable, including expected commissioning and start-up dates and hours of operation
- major work programs for the construction phase, including an outline of construction methodologies
- construction equipment to be used
- construction inputs, handling and storage including an outline of potential locations for source of construction materials
- major hazardous materials to be transported, stored and/or used on site, including environmental toxicity data and biodegradability
- clean-up and restoration of areas used during construction, including camp site(s) and storage areas.

4.3.3. Commissioning

Describe the commissioning process for the mine and the supporting infrastructure including the associated environmental impacts and any monitoring and approval requirements unique to the commissioning process.

4.4. Operational phase

Provide full details of the operation for all elements of the project, including:

- a description of the project site, including concept and layout plans of buildings, structures, plant and equipment to be employed
- nature and description of all key operational activities
- the capacity of the project equipment and operations
- estimated numbers and roles of persons to be employed, both employees and contactors, during the operational phase of the project.

Tenements and tenures

Describe and illustrate any existing mining tenements, petroleum (including CSG), geothermal and greenhouse gas tenures and licences overlying and adjacent to the project site, and any proposed applications required for this project.

Describe in detail any issues related to the overlap of tenements and tenures for different resources or purposes, including the sequential exploitation of the resources or uses to which the tenements and tenures may be put.

Resource base and mine life

Summarise the results of studies and surveys undertaken to identify the mineral and natural resources required to implement the proposal. Describe the required location, volume, tonnage and quality of natural resources (such as land, water, timber, energy, etc). Provide specific details of the following:

- the proposed mine life and an outline of the coal/mineral resource base, including the total thickness of seams or extent of the ore body
- the planned recovery of resources
- locations of any resources that would be sterilised by the planned activities
- the quantity of coal/mineral to be mined annually, including any proposed ramping of production or staging of development.

Mining methods and equipment

Provide specific details of the following:

- the mining type and methods to be used, including the major equipment to be used in the various components of the operation
- the use of different techniques in areas of different topographic or geo-technical character
- chemicals to be used, including hydraulic fluids used and released in underground operations.

Mine sequencing

Provide specific details of the following:

- the proposed sequence and timing of mining of each seam/ore body within the mining lease

- the physical extent of excavations, location of stockpiles of overburden and/or coal/mineral reject to be handled during the project's operation or left after mining ceases, including the rate of throughput of stockpiles of product, reject and overburden
- typical cross sections of the mine workings showing voids, surface profiles and geological strata
- the proposed progressive backfilling and rehabilitation of excavations
- the area disturbed at each major stage of the project.

4.5. Associated infrastructure

Detail, with the aid of concept and layout plans, requirements for new infrastructure or upgrading/relocating existing infrastructure to service the project. Consider infrastructure such as transportation (road/rail/air/ship), water supply and storage, energy supply, telecommunications, stormwater, waste disposal and sewerage.

Describe:

- all infrastructure required to be constructed, upgraded, relocated or decommissioned for the construction and/or operation of the project, such as resource extraction areas, access roads, power supply, connection to sewerage or water supply
- the design and construction standards to be met (e.g. waterway crossings should be designed to meet the requirements of the Fisheries Act and self-assessable codes for minor or temporary waterway barrier works)
- alternative approaches or the opportunity to obtain materials from alternative sources.

4.5.1. Rail transport

Provide information on rail transportation and infrastructure requirements for both construction and operational phases, including:

- the proposed new railway components (including easements and ownership arrangements) to provide access to project sites
- analysis and design plans for any interface with the proposed Surat Basin rail line
- proposed transport routes of all project-related transport movements associated with rail (including associated infrastructure such as railway crossings)
- need for increased rail crossing maintenance and upgrading
- all rail infrastructure required to be constructed, upgraded, relocated, commissioned or decommissioned for the construction and/or operation of the project, including the design and construction standards to be met.

Provide details of the associated rail infrastructure component of the project, including rail loop and connection to the proposed Surat Basin rail line, showing the:

- location of the rail corridor, railway and associated rail infrastructure
- location and boundaries of land tenures, in place or proposed, to which the rail component is or will be subject

- point of interface between the main rail corridor, branch line and proposed balloon loop (including the Surat Basin rail line, state-controlled roads, local roads, any other proposed rail infrastructure and other infrastructure such as pipelines)
- location and boundaries of the rail project footprint showing all key aspects including excavations, stockpiles, areas of fill, watercourses, bridges, culverts, hardstands, open-level crossings and occupational crossings etc.
- location of all proposed project rail transport and coal-loading infrastructure.

More detailed information regarding rail transport infrastructure will be required in accordance with Section 5.9 of this TOR. The EIS should be cross-referenced accordingly.

4.5.2. On-site water supply infrastructure

Provide information on water usage by the project, including the quality and quantity of all water supplied to and distributed within the site. In particular, the proposed and optional sources of water supply should be described (e.g. bores, surface storages, municipal water supply pipelines, CSG water). Provide estimated rates of supply from each source (average and maximum rates). Describe any proposed water conservation and management measures.

Determine potable water demand for the project, including the temporary demands during the construction period ensuring compliance with the *Australian Drinking Water Guidelines 6, 2011* (Commonwealth of Australia 2011a). Describe and identify how potable water will be supplied, treated, stored, protected and monitored. This should also include a description of natural hazard mitigation strategies for water treatment plant as per State Planning Policy 1/03: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide (Department of Local Government and Planning & Department of Emergency Services 2003). Provide details of any existing town water supply to meet such requirements. If water storage and treatment is proposed on site, for use by the site workforce and in accommodation camps, then this should be described, identifying how potable water will be supplied, treated, stored, protected and monitored.

4.5.3. Water supply infrastructure

Provide information on infrastructure required to supply water to the project, for example, pipelines from water supplies to the project. Assess and discuss the impacts of such infrastructure as part of the project, for each of the relevant subsections described in this TOR.

Describe the process and criteria used to select the preferred design and preferred construction techniques for water supply infrastructure to the project, including:

- the method of extracting and/or releasing water from a storage or third party pipeline
- any treatment methods proposed, including disposal of treated waste
- if distribution is by pipe:
  - provision for route refinement and right of way
  - pipeline design parameters, including capacity and design life

  - above-ground facilities—physical dimensions and construction materials for surface facilities along the pipeline route, including information on pipeline markers
  - the location and/or frequency of (if applicable) cathodic protection points, off-take valves, pump stations, balance tanks, control valves (isolation points), pigging facilities and any other project facilities and linkages to existing water supply infrastructure along the pipeline route
  - design measures to prevent inter-basin transfer of aquatic flora and fauna.

4.6. Decommissioning and rehabilitation

Describe the options, strategies and methods for progressive and final rehabilitation of the environment disturbed by the project, including:

- developing a preferred rehabilitation strategy with a view to minimising the amount of land disturbed at any one time
- the capacity for the identified strategic cropping land and good quality agricultural land to be rehabilitated to restore it to its pre-project condition as identified in section 5.2.3
- measurable performance criteria for rehabilitation of strategic cropping land and good quality agricultural land as detailed in the environmental management plan in Section 11
- illustrating the final topography of any excavations, waste areas and dam sites on maps at a suitable scale
- describing the means of decommissioning the project—in terms of removing equipment, structures and buildings—and the methods proposed for stabilising the affected areas
- discussing options and methods for disposing of wastes generated by demolishing project infrastructure, including sufficient detail for their feasibility and suitability to be established
- discussing future land tenure arrangements post-decommissioning of the project
- developing a proposed staging plan for rehabilitation.

Include the impacts of the preferred rehabilitation strategy in the appropriate subsections of Part B, Section 5 (refer to page 21).

Refer to infrastructure that is not intended to be decommissioned. In this situation, describe the entity to which the infrastructure is intended to be transferred, and the proposed environmental management regimes.

5. Environmental values and management of impacts

Detail the environmental protection and mitigation measures incorporated in the planning, construction, rehabilitation, commissioning, operations and decommissioning of all facets of the project. Measures should prevent, or if not possible, minimise environmental harm and maximise environmental benefits of the project. Identify and describe preferred measures in more detail than other alternatives.

The objectives of the following subsections are to:

- describe the existing environmental values of the area that may be affected by the project, using background information and/or new studies to support statements (include reference to all definitions of environmental values set out in relevant legislation, policies and plans)
- describe the potential adverse and beneficial impacts of the project on the identified environmental values and the measures taken to avoid, minimise and/or mitigate those impacts
- describe any cumulative impacts on environmental values caused by the project, either in isolation or in combination with other known existing or planned projects
- present objectives, standards and measurable indicators that protect the identified environmental values
- examine viable alternative strategies for managing impacts (present and compare these alternatives in view of the stated objectives and standards to be achieved)
- discuss the available techniques to control and manage impacts in relation to the nominated objectives.

Where negative impacts of the project cannot be avoided or adequately minimised or mitigated, present proposals to offset impacts in accordance with the Queensland Government Environmental Offsets Policy (Environmental Protection Agency 2008b) and specific-issue offset policies.

The mitigation measures, monitoring programs etc. identified in this section of the EIS should be used to develop the EMP for the project. Refer to Part B, Section 10 (page 62).

5.1. Climate, natural hazards and climate change

Describe the climatic conditions that may affect management of the project. This includes a description of the vulnerability of the project area to seasonal conditions, extremes of climate and natural or induced hazards (including bushfire). Provide a risk assessment (as part of the requirements of Subsection 8.1 of this TOR) and management plan detailing these potential climatic threats to the construction, and operation of the project. Include the following:

- a risk assessment of changing climate patterns that may affect the viability and environmental management of the project
- the preferred and alternative adaptation strategies to be implemented

- commitments to working cooperatively, where practicable, with government, other industry and other sectors to address adaptation to climate change.

Address the most recent information on potential impacts of climatic factors in the appropriate sections of the EIS.

5.1.1. Flood management

Due to the location of the site, a comprehensive flood study should be included in the EIS that includes:

- quantification of flood impacts on properties surrounding and external to the project site from redirection or concentration of flows
- identification of likely increased flood levels, increased flow velocities or increased time of flood inundation as a result of the development.

The flood study should address any requirements of local or regional planning schemes for flood affected areas. The study report should include details of all calculations along with descriptions of base data, any potential for loss of flood plain storage, and triangulated surface meshes produced in terrain modelling software. Refer to any studies undertaken by the local council in relation to flooding.

Describe the impacts on all surface water resources and changes to flow immediately downstream of the project by:

- describing local overland flow catchment characteristics and estimated change to mean and median (fiftieth percentile) annual runoff from local overland flow catchments
- describing changes to flows, including mean and median (fiftieth percentile) annual flow, in watercourses immediately downstream of the site.

Describe how State Planning Policy 1/03: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide (Department of Local Government and Planning & Department of Emergency Services 2003) would be addressed in the context of managing flood impacts, including the siting requirements for worker accommodation.

Potential impacts and mitigation measures

Provide details on the:

- potential impacts of floods at a range of flood intervals, from more frequent floods to the probable maximum flood event
- potential impacts of flooding on environmental values due to the identified likely increased flood levels, increased flow velocities or increased time of flood inundation as a result of the project
- impacts and mitigation measures for flooding (describe the construction of any flood protection levees with regards to construction material, design and methods).

5.2. Land

Detail the existing land environment values for all areas associated with the project. Describe the potential for the construction and operation of the project to change existing and potential land uses of the project sites and adjacent areas.

5.2.1. Land use and tenure

Description of environmental situation

Identify, with the aid of maps:

- land tenure, including reserves, tenure of special interest (such as protected areas and forest reserves), existing and proposed gas infrastructure, water pipelines, powerlines and transport corridors, including local roads, stock routes, state-controlled roads and rail corridors
- existing land uses and facilities surrounding the project
- distance of the project from residential and recreational areas
- declared water storage catchments
- location of the project in relation to environmentally sensitive areas.

Potential impacts and mitigation measures

Describe the potential changes to existing and potential land uses due to the construction and operation of the project. In particular, describe the following:

- impacts on project site and adjacent land uses and human activities and strategies for mitigation, such as those required by:
  - State Planning Policy 1/92: Development and the Conservation of Agricultural land (Department of Housing, Local Government and Planning & Department of Primary Industries 1992) and *Planning guidelines: The identification of good quality agricultural land* (Department of Primary Industries & Department of Housing, Local Government and Planning 1993)
  - State Planning Policy 1/12: Protection of Queensland's Strategic Cropping Land (Department of Environment and Resource Management 2012)
  - State Planning Policy 2/07: Protection of Extractive Resources (Department of Mines and Energy 2007a) and *State Planning Policy 2/07 Guideline: Protection of Extractive Resources* (Department of Mines and Energy 2007b), especially with respect to 'key resource areas' defined by that guideline
  - local government planning schemes.
- possible effect on town planning objectives and controls, including local government zoning and strategic plans
- constraints to potential developments and possibilities of rezoning adjacent to the development area
- management of the immediate environs of the project including construction buffer zones

- proposed land use changes in any areas of high conservation value and information on how easement widths and vegetation clearance in sensitive environmental areas will be minimised
- potential issues involved in proximity and/or co-location of other current or proposed infrastructure services
- any land units requiring specific management measures.

5.2.2. Scenic amenity and lighting

Description of environmental values

Detail the scenic and landscape values of the area, focusing on the visual absorption capacity of the site.

At a level of detail appropriate to the scale of the project, describe the relevant geomorphology, supported by illustrative mapping highlighting any significant features associated with environmental values.

Potential impacts and mitigation measures

Describe the potential beneficial and adverse impacts of the project on landscape character and visual qualities of the site and the surrounding area. Address the local and broader visual impacts of the project buildings and other structures during all stages of the project as it relates to the surrounding landscape. This should include views from:

- places of residence, work, and recreation
- road and walkways
- the air
- other known vantage points by day and night.

Use sketches, diagrams, computer imaging/simulation and photos where possible to portray the near views and far views of the completed structures and their surroundings from visually sensitive locations.

Detail the measures to be undertaken to mitigate or avoid identified adverse impacts.

Lighting

Provide an assessment of all potential impacts of lighting of the project, during all stages, with particular reference to objectives to be achieved and management methods and strategies to be implemented to mitigate or avoid:

- the visual impact at night
- night operations/maintenance and effects of lighting on residents and terrestrial fauna
- the potential impact of increased vehicular traffic
- changed habitat conditions for nocturnal fauna and associated impacts.

5.2.3. Topography, geology and soils

Description of environmental values

Provide maps locating the project in state, regional and local contexts. The topography should be detailed with contours at suitable increments, shown with respect to Australian height datum. Include significant features of the landscape and topography, and accompanying comments on the maps.

Provide a description, map and a series of cross-sections of the geology of the project area relevant to the project components. Describe the geological properties that may influence ground stability, occupational health and safety, or the quality of stormwater leaving any area disturbed by the project. In locations where the age and type of geology is such that significant fossil specimens may be uncovered during construction/operations, address the potential for significant finds.

A soil survey of the sites affected by the project must be conducted at a suitable scale, with particular reference to the physical and chemical properties of the materials that will influence erosion potential, stormwater run-off quality, rehabilitation and agricultural productivity of the land. Provide information on soil stability and suitability for construction of project facilities.

Describe, map and illustrate soil types and profiles according to the *Australian Soil and Land Survey Field Handbook* (National Committee on Soil and Terrain 2009), *Guidelines for Surveying Soil and Land Resources* (McKenzie et al. 2008) and *Australian Soil Classification* (Isbell & CSIRO 2002).

Undertake an appraisal of the depth and quality of useable soil. Assess each soil's agricultural land suitability in accordance with:

- *Guidelines for agricultural land evaluation in Queensland* (Department of Primary Industries 1990)
- *Planning guidelines: The identification of Good Quality Agricultural Land*, (Department of Primary Industries & Department of Housing, Local Government and Planning 1993)
- State Planning Policy 1/92: Development and the Conservation of Agricultural Land (Department of Primary Industries & Department of Housing, Local Government and Planning 1992).

Undertake soil tests and laboratory analyses of representative samples down the soil profile, with particular reference to the physical and chemical properties of the materials that will influence erosion potential, stormwater run-off quality, rehabilitation and agricultural productivity of the land. Provide geotechnical information on the soils' stability and suitability for construction of project facilities.

When conducting soil surveys use the guidelines for applying the proposed strategic cropping land criteria (available from **www.derm.qld.gov.au/land/planning/pdf/strategic-cropping/scl-guidelines.pdf**).

Identify any areas of land within the project study area identified as 'strategic cropping land or potential strategic cropping land' as identified by the SCL Act trigger maps (available from **www.derm.qld.gov.au/land/planning/strategic-cropping/mapping.html**).

Mineral resources

Summarise the results of studies and surveys undertaken to identify and delineate the mineral resources within the project area (including any areas underlying related infrastructure).

Describe in detail, as indicated in the dot points below, the location, tonnage and quality of the mineral resources within the project area. Where possible, present this information on a 'seam-by-seam' basis and include the modifying factors and assumptions made in arriving at the estimates. The mineral resources should be estimated and reported, as appropriate, in accordance with:

- the *Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves* (the JORC Code) (Joint Ore Reserves Committee of The Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists & Minerals Council of Australia 2004)
- the principles outlined in the *Australian Guidelines for the Estimating and Reporting of Inventory Coal, Coal Resources and Coal Reserves* (Coalfields Geology Council of New South Wales & Queensland Mining Council 2003).

In addition, provide maps (at appropriate scales) showing the general location of the project area and in particular the:

- location and aerial extent of the mineral resources to be developed or mined
- location and boundaries of mining tenures, granted or proposed, to which the project area is, or will be subject
- location of the proposed mine excavation(s)
- location and boundaries of any project sites
- location and boundaries of any other features that will result from the proposed mining including waste/spoil dumps, water storage facilities and other infrastructure
- location of any proposed buffers, surrounding the working areas
- any part of the resource not intended to be mined and any part of the resource that may be sterilised by the proposed mining operations or infrastructure.

Soil profiles should be mapped at a suitable scale and described according to the *Australian soil and land survey field handbook* (National Committee on Soil and Terrain 2009) and *The Australian soil classification* (Isbell & CSIRO 2002). Appraise the depth and quality of useable soil and present information according to the standards required in the *Planning guidelines: The identification of Good Quality Agricultural Land* (Department of Primary Industries & Department of Housing, Local Government and Planning 1993) and State Planning Policy 1/92: Development and the Conservation of Agricultural Land (Department of Primary Industries & Department of Housing, Local Government and Planning 1992).

Potential impacts and mitigation measures

Provide details of any potential impacts to the topography or geomorphology associated with the project and proposed mitigation measures, including:

- a discussion of 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 any re-contouring or consolidation, rehabilitation, landscaping, and fencing.

Identify the possible soil erosion rate for all permanent and temporary landforms and describe the techniques used to manage the impact. Identify all soil types and outline the erosion potential (both wind and water). Include an assessment of likely erosion effects, especially those resulting from removing vegetation, and constructing retaining walls both on-site and off-site for all disturbed areas.

Indentify erosion management techniques to be used. Provide details of an erosion-monitoring program (including rehabilitation measures for erosion problems identified during construction), and detail acceptable mitigation strategies. Summarise methods proposed to prevent or control erosion with regard to:

- the *Soil Erosion and Sediment Control—Engineering Guidelines for Queensland Construction Sites* (Institution of Engineers Australia 1996)
- the *Guideline: EPA Best Practice Urban Stormwater Management—Erosion and Sediment Control* (Environmental Protection Agency 2008a)
- preventing soil loss in order to maintain land capability/suitability
- preventing degradation of local waterways.

Identify any areas within the project footprint likely to temporarily or permanently impact SCL. Where areas of identified SCL are likely to be permanently alienated by the project, address the requirements of the SCL Act as they apply to the components of the project, in consultation with the Department of Natural Resources and Mines (DNRM) to discuss undertaking the SCL assessment process defined by the SCL Act.

Resource utilisation

Analyse the effectiveness of the mining proposal in achieving the optimum utilisation of the coal/mineral resources within the project area and consider its impacts on other resources. Demonstrate that the mining proposal will ‘best develop’ the mineral resources within the project area, minimise resource wastage and avoid any unnecessary sterilisation of these or any other of the state’s coal, mineral, and petroleum (including gas and coal seam methane) resources that may be impacted upon or sterilised by the mining activities or related infrastructure.

Land disturbance

Develop a strategy that will minimise the amount of land disturbed at any one time. Describe the strategic approach to progressive rehabilitation of landforms and final decommissioning. Describe the methods to be used for the proposal, including backfilling, covering, re-contouring, topsoil handling and revegetation.

Where waterways are proposed to be diverted, describe the impact on land use due to hydrology changes, both upstream and downstream. Also, detail the final drainage and seepage control systems and any long-term monitoring plans.

Where dams, roads, levee banks, waterway diversions and other infrastructure are to remain upon project decommissioning, provide proposals to manage and maintain these structures. Management and maintenance arrangements should be supported by appropriate erosion and stability monitoring to substantiate long-term rehabilitation sustainability.

Assess the mitigation measures for land disturbance to be used on decommissioning the site, providing sufficient detail to decide their feasibility. In particular, address the long-term stability of final voids and spoil dumps, safety of access to the site after surrender of the lease, and the residual risks that will be transferred to the subsequent landholder.

Describe the strategy that will be used to manage topsoil, considering transport, storage, maintenance and replacement of topsoil to disturbed areas. Also outline how soil from good quality agricultural land will be best used. Address the minimisation of topsoil storage times (to reduce fertility degradation). Describe erosion and sediment control measures, particularly in relation to managing sodic and saline overburden material.

If geological conditions are conducive, the proponent should consider the possibility that significant fossil specimens (such as of dinosaurs or their tracks) may be uncovered during construction/operations and propose strategies for protecting the specimens and alerting the Queensland Museum to the find.

5.2.4. Land contamination

Description of environmental values

Include:

- mapping of any areas listed on the Environmental Management Register or Contaminated Land Register under the EP Act
- identification of any potentially contaminated sites not on the registers whether or not remediation is required
- a description of the nature and extent of contamination at each site.

Potential impacts and mitigation measures

Discuss the management of any contaminated land and potential for contamination from construction, commissioning, operation and decommissioning in accordance with the *Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland* (Department of Environment 1998) and the National Environment Protection (Assessment of Site Contamination) Measure 1999 (Cwlth).

Describe the possible contamination of land from any aspect of the project, including waste, reject coal, overburden, coal washing plant and spills at chemical and fuel storage and handling areas. Identify and quantify, where possible, hazards and risks,

considering cumulative impacts, and explain how these hazards and risks will be managed.

Describe strategies and methods to be used to prevent and manage any land contamination resulting from the project, including the management of any acid generation or management of chemicals and fuels to prevent spills or leaks.

Discuss the impacts of the mining operations on the land within and adjacent to the mine site with particular reference to identified land use post-decommissioning.

State any intentions concerning the classification of land contamination after project completion and decommissioning.

5.3. Nature conservation

Detail the existing nature conservation values that may be affected by the proposal. Describe the environmental values in terms of:

- integrity of ecological processes, including habitat of endangered, vulnerable and near-threatened (EVNT) and special least concern species
- conservation of resources
- biological diversity, including habitat of EVNT and special least concern species
- integrity of landscapes and places
- aquatic and terrestrial ecosystems.

Survey effort should be sufficient to identify, or adequately extrapolate, the floral and faunal values over the range of seasons, particularly during and following a wet season. The survey should account for the ephemeral nature of watercourses traversing the proposal area, and seasonal variation in fauna populations.

Wherever possible, seek the involvement of the local Indigenous community in conducting field observations and survey activities, to identify the traditional and contemporary Indigenous uses of species.

Also outline the proposed strategies to avoid, or minimise and mitigate, impacts on the identified values within the project's footprint.

Identify key flora and fauna indicators for ongoing monitoring.

5.3.1. Sensitive environmental areas

Description of environmental values

Identify areas that are environmentally sensitive in proximity to the project on a map of suitable scale. This should include areas classified as having national, state, regional or local biodiversity significance, or flagged as important for their integrated biodiversity values. Refer to Queensland legislation and policies on threatened species and ecological communities.

Areas regarded as sensitive with respect to flora and fauna and have one or more of the following features should be identified and mapped:

- important habitat of species listed under the NC Act as presumed extinct, endangered, vulnerable or near threatened
- regional ecosystems (REs) listed as 'endangered' or 'of-concern' under state legislation
- good representative examples of remnant REs or REs that are described as having 'medium' or 'low' representation in the protected area estate as defined in the Regional Ecosystem Description Database (REDD) available at **www.derm.qld.gov.au**
- sites listed under international treaties such as World Heritage areas
- sites containing near-threatened or bio-regionally significant species or essential, viable habitat for near-threatened or bio-regionally significant species
- areas or features identified as State Significant Biodiversity Values pursuant to the *Queensland Biodiversity Offset Policy* (version 1) (Department of Environment and Resource Management 2011c)
- sites in, or adjacent to, areas containing important resting, feeding or breeding sites for migratory species of conservation concern listed under the Convention of Migratory Species of Wild Animals, and/or bilateral agreements between Australia and other countries
- sites adjacent to feeding, resting or calving areas of species of special interest
- sites containing common species that represent a distributional limit and are of scientific value or that contain feeding, breeding, resting areas for populations of echidna, koala, platypus and other species of special cultural significance
- sites of high biodiversity that are of a suitable size or with connectivity to corridors/protected areas to ensure survival in the longer term; such land may contain:
  - natural vegetation in good condition or other habitat in good condition
  - degraded vegetation or other habitat that still support high levels of biodiversity or act as an important corridor for maintaining high levels of biodiversity in the area
- a site containing other special ecological values (e.g. high habitat diversity and areas of high endemism)
- ecosystems that provide important ecological functions such as:
  - wetlands of national, state and regional significance
  - riparian vegetation
  - important buffer to a protected area or important habitat corridor between areas
- sites of palaeontologic significance such as fossil sites
- sites of geomorphological significance
- protected areas that have been proclaimed under the NC Act or are under consideration for proclamation
- areas of major interest, or critical habitat declared under the NC Act
- remnant vegetation listed under the VM Act as containing endangered and of-concern regional ecosystems where clearing is likely to result in land degradation and a loss of ecosystem function and biodiversity.

Areas of special sensitivity include the wetlands, wildlife breeding or roosting areas, any significant habitat or relevant bird flight paths for migratory species and habitat of threatened plants, animals and communities.

Potential impacts and mitigation measures

Discuss the impact of the project on species, communities and habitat of local, regional or national significance in sensitive environmental areas as identified above. Include human impacts and the control of any domestic animals introduced to the area.

Demonstrate how the project would comply with the following hierarchy:

- avoiding impact on areas of remnant vegetation and other areas of conservation value including listed species and their habitat
- mitigating impacts through rehabilitation and restoration including, where relevant, a discussion of any relevant previous experience or trials of the proposed rehabilitation
- replacing or offsetting the loss of conservation values, where impacts cannot be avoided or mitigated.

Explain why the measures above may not apply in areas where loss would occur.

Discuss the boundaries of the areas impacted by the project within or adjacent to an ecological community, including details of footprint width. If the project area will impact upon a threatened community, include reasons for the preferred alignment and the viability of alternatives.

The EIS should provide details about the approvals that will be required under the NC Act and the VM Act for development made assessable under SPA. The overall EMP for the project should address the performance requirements of the relevant policies and regional vegetation management codes (refer to **www.derm.qld.gov.au/vegetation/regional_codes.html).**

Where relevant, this section should discuss environmental offset requirements in accordance with the Queensland Government Environmental Offsets Policy (Environmental Protection Agency 2008b) and take into account the applicable specific-issue offset policies, as follows:

- Policy for Vegetation Management Offsets (Department of Environment and Resource Management 2011b)
- Queensland Biodiversity Offset Policy (Department of Environment and Resource Management 2011c)
- Fish Habitat Management Operational Policy FHMOP 005: Mitigation and Compensation for Works or Activities Causing Marine Fish Habitat Loss (Department of Primary Industries 2002)
- Offsets for Net Gain of Koala Habitat in South East Queensland Policy (Department of Environment and Resource Management 2010).

Describe any departure from no net loss of ecological values.

5.3.2. Terrestrial flora

Description of environmental values

Provide vegetation mapping for all relevant project sites, and for adjacent areas to illustrate interconnectivity. Mapping should also illustrate any larger scale interconnections between areas of remnant or regrowth vegetation where the project site includes a corridor connecting those other areas. Discuss any variances between site mapping and mapping produced by the Queensland Herbarium.

Describe the terrestrial vegetation communities within the affected areas at an appropriate scale (maximum 1:10 000), with mapping produced from aerial photographs and ground-truthing, showing the following:

- location and extent of vegetation types using the regional ecosystem type descriptions in accordance with the REDD
- location of vegetation types of conservation significance based on regional ecosystem types and occurrence of species listed as protected plants under the Nature Conservation (Wildlife) Regulation 1994 (Qld) and subsequent amendments, as well as areas subject to the VM Act
- the current extent (bioregional and catchment) of protected vegetation types of conservation significance within the protected area estate (national parks, conservation parks, resource reserves, nature refuges and conservation reserves under the Land Act)
- any plant communities of cultural, commercial or recreational significance
- the location of any horticultural crops in the vicinity of the project area
- location and abundance of any exotic or weed species.

Highlight sensitive or important vegetation types, including any riparian vegetation, and their value as habitat for fauna and conservation of specific rare floral and faunal assemblages or community types. The description should contain a review of published information regarding the assessment of the significance of the vegetation to conservation, recreation, scientific, educational and historical interests.

For each significant natural vegetation community likely to be impacted by the project, vegetation surveys should be undertaken at an appropriate number of sites, allowing for seasonal factors, and satisfying the following:

- the relevant regional vegetation management codes
- site data should be recorded in a form compatible with the Queensland Herbarium CORVEG database and HERBRECS
- the minimum site size should be 10 × 50 metres
- a complete list of species present at each site should be recorded
- the surveys to include species structure, assemblage, diversity and abundance
- the relative abundance of plant species present to be recorded
- any plant species of conservation, cultural, commercial or recreational significance to be identified

- specimens of species listed as protected plants under the Nature Conservation (Wildlife) Regulation, other than common species, are to be submitted to the Queensland Herbarium for identification.
- the methodology in *Biocondition: A Condition Assessment Framework for Terrestrial Biodiversity in Queensland: Assessment Manual* (version 2.1) (Eyre et al. 2011) and *Ecological Equivalence Methodology Guidelines* (version 1) (Department of Environment and Resource Management 2011a) for sites possibly requiring offset considerations under the Policy for Vegetation Management Offsets (version 3) (Department of Environment and Resource Management 2011b) or Queensland Biodiversity Offset Policy (version 1) (Department of Environment and Resource Management 2011c).

Existing information on plant species may be used instead of new survey work, provided that the data is derived from previous surveys at the site consistent with the above methodology. The methodology used for flora surveys should be specified in the appendices to the report.

Potential impacts and mitigation measures

Describe the potential environmental harm to the ecological values of the area arising from the construction, operation and decommissioning of the project including clearing, salvaging or removing vegetation. Discuss the indirect effects on remaining vegetation. Consider short- and long-term effects and comment on whether the impacts are reversible or irreversible.

For all components of the project, discuss:

- the potential impacts that clearing vegetation will have on listed species and communities in the extent of the proposed vegetation clearing
- any management actions to minimise vegetation disturbance and clearance
- the ability of identified vegetation to withstand any increased pressure resulting from the project, and any measures proposed to mitigate potential impacts
- the methods to ensure rapid rehabilitation of disturbed areas following construction, including a description of the species chosen for revegetation, which should be consistent with the surrounding associations, and whether the species are of local provenance
- any post-construction monitoring programs
- the potential environmental harm on flora due to any alterations to the local surface and groundwater environment, with specific reference to impacts on riparian vegetation or other sensitive vegetation communities
- a description of any foreseen impacts which increase the susceptibility of ecological communities and species to the impacts of climate change.

Outline how these measures will be implemented in the overall EMP for the project. Weed management strategies are required for containing existing weed species (e.g. parthenium and other declared plants) and ensuring no new declared plants are introduced to the area. Refer to the local government authority's pest management plan and any strategies and plans recommended for the project area by Biosecurity Queensland. Discuss the strategies in accordance with provisions of the Land

Protection (Pest and Stock Route Management) Act in the main body of the EIS and in the pest management plan within the EMP for the project.

5.3.3. Terrestrial fauna

Description of environmental values

Describe the terrestrial and riparian fauna occurring in the areas affected by the proposal, 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 area should include:

- species diversity (i.e. a species list) and abundance of animals of recognised significance
- any species that 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 introduced animals including those of economic or conservation significance
- existence (actual or likely) of any species/communities of conservation significance 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 or threatened species recovery plans)
- habitat requirements and sensitivity to changes, including movement corridors and barriers to movement
- an estimate of commonness or rarity for the listed or otherwise significant species
- use of the area by migratory fauna
- records in a form compatible with the Department of Environment and Heritage Protection *WildNet* database.

Present fauna data in columns titled: Number, collector, Start date, End date, Location, Latitude, Longitude, Zone, Easting, Northing, Datum, Precision (m), Altitude (m), Vegetation code, Slope, Aspect, Scientific name, Common name, Count, count type, Age code, Sex code, Breeding code, Identification method, Collector code, Specimen registration, Specimen location, Collection notes, vetting code.

The Department of Environment and Heritage Protection has supporting documents available which explain the above fields and codes.

Identify any species listed by the EPBC Act and the NC Act occurring in the project area. Identify any species listed by the DERM 'Back on Track' species prioritisation methodology (refer to: **www.derm.qld.gov.au/wildlife-ecosystems/wildlife/back_on_track_species_prioritisation_framework/index.html**).

Indicate how well any affected communities are represented and protected elsewhere in the bio-region where the project occurs. Specify the methodology used for fauna surveys. Provide relevant site data to DEHP in a format compatible with the Wildlife

Online database for listed threatened species (refer to: **www.derm.qld.gov.au/wildlife-ecosystems/wildlife/wildlife_online/index.html**).

Potential impacts and mitigation measures

Consider potential impacts on terrestrial fauna, relevant wildlife habitat and other fauna conservation values, including:

- impacts due to loss of range/habitat, food supply, nest sites, tree hollows, breeding/recruiting potential or movement corridors or as a result of hydrological change
- impacts on native species, particularly species of conservation significance
- cumulative effects of direct and indirect impacts
- threatening processes leading to progressive loss
- a description of any foreseen impacts that increase the susceptibility of ecological communities and species to the impacts of climate change.

Address any actions of the project or likely impacts that require an authority under the NC Act. Provide the following information on mitigation strategies:

- measures to avoid and mitigate the identified impacts. Any provision for buffer zones and movement corridors, nature reserves or special provisions for migratory animals should be discussed and coordinated with the outputs of the flora assessment
- details of the methodologies that would be used to avoid injuring livestock and native fauna as a result of the project's construction and operational works, and if accidental injuries should occur, the methodologies to assess and handle injuries
- strategies for complying with the objectives and management practices of relevant recovery plans.

Outline how these measures will be implemented in the overall EMP for the project. Rehabilitation of disturbed areas should incorporate, where appropriate, provision of nest hollows and ground litter.

Address feral animal management strategies and practices. The study should develop strategies to ensure that the project does not contribute to increased encroachment of a feral animal species. Refer to the local government authority's pest management plan and any strategies and plans recommended for the project area by Biosecurity Queensland. Discuss the strategies in accordance with the provisions of the Land Protection (Pest and Stock Route Management) Act in the main body of the EIS and in the pest management plan within the EMP for the project.

5.3.4. Aquatic biology and ecology

Description of environmental values

Describe the aquatic flora and fauna present, or likely to be present, in the areas affected by the proposal. Include:

- fish species, mammals, reptiles, amphibians, crustaceans and aquatic invertebrates occurring in the waterways within the affected area and any associated wetlands (as defined under section 5 of the Fisheries Act)

- a description of the habitat requirements and the sensitivity of aquatic species to changes in flow regime, water levels and water quality in the project areas
- aquatic plants including native and exotic/weed species
- aquatic and benthic substrate
- habitat downstream of the project or potentially impacted due to currents in associated lacustrine environments
- aquatic substrate and stream type
- any other state significant biodiversity values identified in the Queensland Biodiversity Offset Policy (version 1) (Department of Environment and Resource Management 2011c) that are not described elsewhere.

Describe any wetlands listed by DEHP as areas of national, state or regional significance and detail their values and importance for aquatic flora and fauna species.

Potential impacts and mitigation measures

Discuss the potential impacts of the project on the aquatic ecosystems and describe proposed mitigation actions, including:

- proposed location, type and design of waterway barrier works (temporary and permanent) that would impact on aquatic resources, particularly fish movement, with an appropriately scaled map
- potential mechanism to ensure adequate fish passage is provided at proposed waterway infrastructure
- alternatives to waterway crossings where possible
- measures to avoid fish spawning periods, such as seasonal construction of waterway crossings and measures to facilitate fish movements through water crossings
- offsets proposed for unavoidable, permanent loss of fisheries habitat
- methods to minimise the potential for introducing or spreading weed species or plant disease
- monitoring aquatic biology health, productivity and biodiversity in areas subject to direct discharge.

Address any actions of the project or likely impacts that require an authority under the relevant legislation, including the NC Act and/or the Fisheries Act. Outline how these measures will be implemented in the overall EMP for the project.

5.4. Water resources

5.4.1. Description of environmental values

Describe the existing water resources 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 2009 (EPP (Water)), *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (Australian and New Zealand Environment and Conservation Council & Agriculture and Resource Management Council of Australia

and New Zealand 2000) and the *Queensland Water Quality Guidelines 2009* (Department of Environment and Resource Management 2009).

Provide a description of the Fitzroy Basin and where this project is located within it.

Provide a description of the history and extent of flooding in the project area.

Provide an indication of the quality and quantity of water resources in the vicinity of the project area, describing:

- 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
- baseline details on water assets, including environments supported by those assets
- a site water balance for each asset, complemented by a regional water balance
- an assessment of how the proposed project will change both the site and regional water balances. The water balance analysis could include (but not necessarily be limited to) the following information:
  - usage of the surface water and identified aquifer(s)
  - an assessment of regional water assets
  - critical dependencies of the identified aquifer(s) and extent of hydrological interconnectivity
  - an understanding of the structural and dynamic ground and surface water systems (including recharge and discharge)
- an assessment of the quality of information and data for the identified systems.

Describe the environmental values of the surface waterways and groundwater of the affected area in terms of:

- values identified in the EPP (Water)
- physical integrity, fluvial processes and morphology, including riparian zone vegetation and form, if relevant
- any impoundments (e.g. dams, levees, weirs)
- hydrology of waterways and groundwater
- sustainability, including both quality and quantity
- dependent ecosystems
- existing and other potential surface and groundwater users
- water resource plans relevant to the affected catchments.

If the project is likely to use or affect local sources of groundwater, describe 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
- potential exposure to pollution
- current access to groundwater resources in the form of bores, springs and ponds (including quantitative yield of water and locations of access).

The groundwater assessment should include spatial and temporal monitoring, to accurately characterise baseline groundwater characteristics.

Groundwater

Review the quality, quantity and significance of groundwater in the project area, together with groundwater use in neighbouring areas. Refer to relevant legislation or water resource plans for the region. The review should also provide an assessment of the potential take of water from the aquifer and how current users and the aquifer itself and any connected aquifers will be affected by the take of water.

The review should include a survey of existing groundwater supply facilities (bores, wells, or excavations) to the extent of any environmental harm. The information to be gathered for analysis is to include:

- location
- pumping parameters
- draw down and recharge at normal pumping rates
- seasonal variations (if records exist) of groundwater levels
- springs located in and around the project area. Define which geological formation/aquifer the springs are sourced from and/or connected to
- current estimated level of take from each aquifer and analysis of the current aquifer water level conditions ie. under stress, or not under stress.

Develop a network of observation points that would satisfactorily monitor groundwater resources both before and after commencement of operations.

The data obtained from the groundwater survey should be sufficient to enable specification of the major ionic species present in the groundwater, pH, electrical conductivity and total dissolved solids.

5.4.2. Potential impacts and mitigation measures

Assess the project's potential impacts on water resource environmental values identified in the previous section. Assess the potential cumulative impacts of this project with the known developments in the Surat Basin region in accordance with the practices and procedures set out in the Water Accounting Framework for the Minerals Industry (Minerals Council of Australia 2012).

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 objectives will be monitored, audited and managed. Include the following:

- potential impacts on the flow and the quality of surface and groundwater from all phases of the project, with reference to their suitability for the current and potential downstream uses and discharge licences
- an assessment of all likely impacts on groundwater depletion or recharge regimes
- potential impacts of surface water flow on existing infrastructure, with reference to the EPP (Water) and the Water Act
- chemical and physical properties of any wastewater (including stormwater at the point of discharge into natural surface waters), and 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 of 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
- an assessment of the potential to contaminate surface and groundwater resources and measures to prevent, mitigate and remediate such contamination
- an assessment of the hydrological impacts of the proposal
- details of a monitoring program for the groundwater resources, using existing deep bores, to establish the base line yield and water quality of the supply from the bores.

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. Describe the monitoring programs that will assess the effectiveness of management strategies for protecting water resources during the construction, operation and decommissioning of the project. Outline how these strategies are incorporated into appropriate sections of the EMP.

Surface water and water courses

Assess the hydrological impacts of the proposal on surface water and water courses, particularly with regard to stream diversions, scouring and erosion, and changes to flooding levels and frequency of flooding both upstream and downstream of the project. If flooding levels will be affected, modelling of afflux should be provided and illustrated with maps.

Discuss the need or otherwise for licensing of any dams or creek diversions, under the Water Act and referable dams under the WSSR Act. Water allocation and water sources, including impacts on existing water entitlements, including water harvesting and stock and domestic entitlements, should be established.

Wastewater treatment

Reference should be made to the properties of the land disturbed and processing liquid wastes, the technology for settling suspended clays from contaminated water, and the techniques to be employed to ensure that contaminated water is contained and successfully treated on the site.

In relation to water supply and usage, and wastewater disposal, discuss anticipated flows of water to and from the proposal area. Where dams, weirs or ponds are

proposed, investigate the effects of predictable climatic extremes (storm events, floods and droughts) on:

- the capacity of the water storages (dams, weirs, ponds) and the ability of these storages to retain contaminants
- the structural integrity of the containing walls
- relevant operating regime
- the quality of water contained
- flows and quality of water discharged.

Discuss the mitigation options and the effectiveness of mitigation measures, with particular reference to sediment, acidity, salinity and other emissions of a hazardous or toxic nature to human health, flora or fauna.

Groundwater

Include an assessment of the potential environmental impact caused by the project (and its associated project components) to local groundwater resources, including the potential for groundwater-induced salinity.

Describe the response of the groundwater resource to the progression and finally cessation of the proposal.

Assess the impact of the project on the local groundwater regime caused by the altered porosity and permeability of any land disturbance.

Assess and describe any potential for the project to impact on groundwater-dependent vegetation; describe avoidance and mitigation measures.

5.5. Air quality

5.5.1. Description of environmental values

Describe the existing air quality that may be affected by the project in the context of environmental values as defined by the EP Act and Environmental Protection (Air) Policy 2008 (EPP (Air)).

Discuss the existing local and regional air shed environment, including:

- background levels and sources of particulates, gaseous and odorous compounds and any major constituent
- pollutants (including greenhouse gases)
- baseline monitoring results, sensitive receptors
- data on local meteorology and ambient levels of pollutants should be gathered to provide a baseline for later studies or for the modelling of air quality environmental harm.

Parameters should include air temperature, wind speed and direction, atmospheric stability, mixing depth and other parameters necessary for input to the models.

5.5.2. Potential impacts and mitigation measures

Consider the following air quality issues and their mitigation:

- an inventory of air emissions from the project expected during construction and operational activities (including source, nature and levels of emissions)
- 'worst case' emissions that may occur during operation. If these emissions are significantly higher than those for normal operations, it will be necessary to separately evaluate the worst-case impact to determine whether the planned buffer distance between the facility and neighbouring sensitive receptors will be adequate
- ground level predictions should be made at any site that includes the environmental values identified by the EPP (Air), including any sites that could be sensitive to the effects of predicted emissions
- dust generation from construction activities, especially in areas where construction activities are adjacent to existing road networks or are in close proximity to sensitive receivers
- climatic patterns that could affect dust generation and movement
- vehicle emissions and dust generation along major haulage routes both internal and external to the project site
- human health risk associated with emissions from project activities of all hazardous or toxic pollutants
- impacts on terrestrial flora and fauna.

The cumulative impact must be estimated by considering the regional background concentrations and incorporating the impact from the approved and known proposed mining activities in the local airshed. Air dispersion modelling shall be undertaken in accordance with NSW DECC (ex-EPA) Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (DECC 2005). A summary of the model's input data file must be provided with the EIS.

Detail the best practice mitigation measures together with proactive and predictive operational and maintenance strategies that could be used to prevent and mitigate impacts.

Discuss potential air quality impacts from emissions, with reference to the National Environmental Protection (Ambient Air Quality) Measure 2003 (Cwlth) and the EPP (Air). If an emission is not addressed in these legislative instruments, discuss the emission with reference to its risk to human health, including appropriate health-based guidelines/standards.

To ensure that all relevant dust mitigation measures related to coal rail transport are implemented to support the project, the proponent should consult with QR National's subsidiary (QR Network Pty Ltd) to determine the requirements for new coal-loading facilities, load controls and spray-on coal dust suppressant systems as a result of implementing the coal dust management plan.

5.6. Greenhouse gas emissions

5.6.1. Description of environmental situation

Provide an inventory of projected annual emissions for each relevant greenhouse gas, with total emissions expressed in 'CO_2 equivalent' terms for the following categories:

- scope 1 emissions—means direct emissions of greenhouse gases from sources within the boundary of the facility and as a result of the facility's activities (including emission from vegetation clearing)
- scope 2 emissions—means emissions of greenhouse gases from the production of electricity, heat or steam that the facility will consume, but that are physically produced by another facility

Briefly describe method(s) by which estimates were made.

Use the *National Greenhouse Accounts (NGA) Factors* (Commonwealth of Australia 2010c) as a reference source for emission estimates, supplemented by other sources where practicable and appropriate. As a requirement of the NGA factors, estimates should include the loss of carbon sink capacity of vegetation due to clearing and impoundment.

5.6.2. Potential impacts and mitigation measures

Discuss the potential for greenhouse gas abatement measures, including:

- the proposed measures (alternatives and preferred) to avoid and/or minimise direct greenhouse gas emissions
- how the preferred measures minimise emissions and achieve energy efficiency
- any opportunities to further offset greenhouse gas emissions through indirect means including sequestration and carbon trading
- the feasibility of utilising diesel fuel alternatives such as natural gas/CSG for mining equipment and on-site coal transport.

5.7. Noise and vibration

5.7.1. Description of environmental values

Describe the existing noise and vibration environment that may be affected by the project in the context of the environmental values defined by the Environmental Protection (Noise) Policy 2008 (EPP (Noise)).

Identify sensitive noise receptors adjacent to all project components and estimate typical background noise and vibration levels based on surveys at representative sites. Discuss the potential sensitivity of such receptors and nominate performance indicators and standards.

5.7.2. Potential impacts and mitigation measures

Describe the impacts of noise and vibration generated during the pre-construction, construction, operational and decommissioning phases of the project. Noise and vibration impact analysis should include:

- the levels of noise and vibration generated, including noise contours, assessed against current typical background levels, using modelling (such as Environmental Noise Model or SoundPLAN) where appropriate

- impact of noise, including low frequency noise (noise with components below 200 Hz) and vibration at all potentially sensitive receivers (e.g. residences, social and public infrastructure, such as health, recreational and educational facilities, roads, etc) compared with the performance indicators and standards nominated above in 5.7.1
- impact on terrestrial and aquatic fauna
- proposals to minimise or eliminate these effects, including details of any screening, lining, enclosing or bunding of facilities, or timing schedules for construction and operations that would minimise environmental harm and environmental nuisance from noise and vibration
- options for sensitive receivers that are otherwise unable to achieve a satisfactory internal noise level for the preservation of health and wellbeing as identified within the EPP (Noise).

Refer to the following documents:

- *Noise Measurement Manual* (Environment Protection Agency 2000)
- *Guideline: Noise and vibration from blasting* (Environmental Protection Agency 2006)
- *Guideline: Planning for Noise Control* (Environmental Protection Agency 2004)
- *Australian Standard AS 2187.2-2006 Explosives – Storage and Use, Part 2 Use of Explosives* (Standards Australia 2006)
- EP Act
- *Environment Protection and other Legislation Amendment Act (No.2) 2008* (Queensland)
- Environment Protection (Noise) Policy 2008 (Queensland)
- *Road Traffic Noise Management: Code of Practice* (Department of Main Roads, 2008)
- *Code of Practice – Railway Noise Management* (Queensland Rail 2012)
- *Guide for development in a railway environment* (Department of Infrastructure and Planning 2010a).

Night-time surface works

Provide details of any night-time surface work that may be undertaken. Specifically include:

- the reasons why night-time work may be undertaken (e.g. to avoid peak traffic periods, or to undertake work in a rail corridor)
- the likely duration of work (if known)
- the proposed hours of the work
- the nature of the work to be undertaken
- the likely impact on residents and the associated mitigation measures to be undertaken by the proponent
- the methods that will be used to communicate with affected residents.

5.8. Waste

5.8.1. Waste generation

Identify and describe all sources, likely volumes and quality (where applicable) of waste associated with pre-construction, construction, operation and decommissioning of all aspects of the project. Refer to regulated waste listed in Schedule 7 of the Environmental Protection Regulation 2008 (Qld). Describe:

- waste generated by delivery of material to site(s)
- all chemical and mechanical processes conducted on the construction sites that produce waste
- the amount and characteristics of solid and liquid waste produced on site by the project
- hazardous materials to be stored and/or used on site, including environmental toxicity data and biodegradability.

5.8.2. Waste management

Provide details of waste management strategies (including reduction, re-use, recycling, storage, transport and disposal of waste). Demonstrate that waste minimisation and cleaner production techniques and designs will be implemented to prevent or minimise environmental impacts when selecting processes, equipment and facilities.

Provide information on the variability, composition and generation rates of all waste produced at the site and processing plant.

Provide details of cleaner production waste management planning, especially how these concepts will be applied to prevent or minimise environmental impacts at each stage of the proposal. Discuss measures to improve natural resource use efficiency (e.g. energy and water), integrated processing design, any co-generation of power and by-product re-use as shown in a material/energy flow analysis.

This information is required to enable the resource management agencies and other stakeholders to assess the efficiency of resource use, and allocation issues.

- Air emissions—provide information on air emissions, including particulates, fumes and odours, during the construction and operation stages of the project. Particulate emissions include those that would be produced by any industrial process, or disturbed by wind action on stockpiles and conveyors, or by transportation equipment (e.g. trucks, either by entrainment from the load or by passage on unsealed roads). The methods to be employed to mitigate impacts from air emissions should be described in Part B, Subsection 5.5 (page 40).
- Excavated waste—describe and show the location, design and methods for constructing dumps for waste rock and subsoil. Show the location of the dumps on a map relative to topography and other natural features of the area.
- Tailings—describe the tailings waste produced by preparation and/or processing plants and the proposed methods for its disposal. Describe alternative options for tailings disposal including the proposed location, site suitability and volume of any tailings storage and/or disposal site(s), including the method of construction.

- Describe the:
  - approximate quantity of tailings to be produced by the project and its processing plant annually for the life of the mine; also present tailings characterisation information in this section
  - construction of the tailings storage facility with regards to construction material and design; and how the tailings storage facility complies with relevant codes for the construction of such containment systems
  - strategies to monitor and manage seepage into ground and surface waters. Discuss the location of the storage and/or disposal site with regard to adjacent creeks and rivers.
- Solid waste disposal—describe the quantity and quality of solid wastes (other than waste rock, subsoil and tailings addressed in other sections) and the proposed methods of their disposal. Show the proposed location, site suitability, dimensions and volume of any landfill, including its method of construction.
- Liquid waste—present a description of the origin, quality and quantity of wastewater and any immiscible liquid waste originating from the project other than that addressed in other sections. Pay particular attention to the capacity of wastes to generate acid, and saline or sodic wastewater. A water balance for the proposal and processing plant is required to account for the estimated usage of water.

The EIS may need to consider the following effects:

- groundwater from excavations
- rainfall directly on to disturbed surface areas
- run-off from roads, plant and industrial areas, chemical storage areas
- drainage (i.e. run-off plus any seepage or leakage)
- seepage from other waste storages
- water usage for:
  - process use
  - dust suppression
  - domestic purposes
- evaporation from project dams (tailings, sediment, mine area run-off and pit water)
- domestic sewage treatment—disposal of liquid effluent and sludge
- water supply treatment plant—disposal of wastes.

5.9. Transport

Present the transport assessment in separate sections for each project-affected mode (road, rail, air and sea) as appropriate for each phase of the project. These assessments should provide sufficient information to allow an independent assessment of how existing transport infrastructure will be affected by project transport at the local and regional level.

5.9.1. Existing infrastructure

Describe the extent, condition and capacity of the existing transport infrastructure (road, rail, air and sea) on which the project will depend.

Describe the existing local and state-controlled road networks which will be impacted or potentially affected by the project. Describe the environmental values of the existing road transport infrastructure that would be affected by the proposed project. Include a summary of the current pavement (width, condition, age), width for volume, speed environments, and locations and standards of existing access points and other relevant issues.

Provide map(s) of the current and planned future local and state-controlled road network systems complete with road names, which describe the project's relationship to the networks and show the location of:

- the project's construction activities and access locations (existing and proposed)
- existing towns, places and homesteads
- other major development construction activities and surrounding land uses within the region.

5.9.2. Transport activities and routes

For each mode of transport and each phase of the project, provide traffic generation information on:

- existing background traffic including volumes, composition, peak traffic and peak times along the transport routes to and from the project; include how to deal with school bus routes that may be affected by the proposal
- background traffic growth for the transport routes for all stages of the project life
- the construction of any project-related plant and utilities within or impacting on the jurisdiction of any transport authority
- the stages, timing and duration of each stage/phase and how these impact on the transport-related infrastructure
- comparison of the traffic situation and road conditions with and without the project
- expected volumes of project inputs and outputs of transported raw materials, plant, construction materials and operational equipment, wastes, hazardous goods, and finished products for all phases of the project
- how identified project inputs and outputs will be moved through the transport network (including number and type of vehicles, mode, volume, composition, trip timing and routes)
- road, rail and air traffic generated by workforce personnel including visitors (volume, composition, timing and routes)
- likely heavy and oversize/indivisible loads (volume, composition, timing and routes) highlighting any vulnerable bridges and structures along proposed routes.

Describe:

- access locations (existing and proposed) to state-controlled roads
- locations of proposed road-crossing points of existing and proposed rail infrastructure associated with the project.

5.9.3. Potential impacts and mitigation measures

Impact assessment reports should include details of the adopted assessment methodology (for impacts on roads: the road impact assessment report in accordance with the *Guidelines for Assessment of Road Impacts of Development*) (Department of Main Roads 2006). Assessment of the traffic impacts is to include the transport arrangements for permanent and temporary workforce associated with all phases of the project.

Assess project impacts on:

- local and state road networks (differentiate between the two networks) and the stock route network
- capacity, safety, local amenity, efficiency and condition of transport operations, services and assets (from either transport or project operations) including an assessment of pavement life of the road network as a result of the project
- possible interruptions to transport operations
- the natural environment within the jurisdiction of an affected transport authority (e.g. road and rail corridors)
- the nature and likelihood of product-spill during transport if relevant
- driver fatigue for workers travelling to and from regional centres and destinations
- any existing or proposed strategies for public passenger transport and active transport. Where relevant address requirements of Part 2A of the *Transport Planning and Coordination Act*
- the cumulative impact of this project adding to the impact of other known proposed or current major projects impacting on the road network.

5.9.4. Infrastructure alterations

Detail:

- any proposed alterations or new transport-related infrastructure (including road over rail grade-separated crossings) and services required by the project (as distinct from impact mitigation works) including impacts arising from the relocation of existing transport infrastructure or new transport infrastructure
- construction of any project-related plant and utilities, within or impacting on the jurisdiction of any transport authority.

Assess impact of this project on the need for:

- Taroom township heavy vehicle bypass
- intersection upgrade at Dawson and Leichhardt highways
- additional rest areas and passing opportunities.

5.9.5. Transport impact management strategies

Discuss and recommend how identified impacts will be mitigated so as to maintain safety, efficiency and condition of each mode. The staging of the Leichhardt Highway road diversion and any potential conflict with the proposed rail spur to the Surat Basin Rail requiring a road over rail grade-separated crossing should be discussed. The mitigation strategies are to be prepared in close consultation with relevant transport authorities and consider those authorities' works program and forward planning and be in accordance with the relevant transport authorities' methodologies and design manuals.

Findings of studies and transport infrastructure impact assessments should be an input into preparing a transport management plan.

Road/rail management planning

Outline:

- procedures for assessing and agreeing on the scope of required mitigation works with road/rail corridor managers (e.g. maintenance or upgrades including road intersections), including any associated works, such as sourcing water and gravel
- distinguish between proposed new works, alterations to existing transport-related infrastructure required by the project and impact mitigation works
- strategies to minimise the effects of project transport on existing and future public road or rail corridors, including road pavement life
- steps to be taken to prevent access from public roads to the project sites
- strategies to maintain safe access to public road/rail reserves to allow road/rail/pipeline maintenance activities
- process for decommissioning any temporary access to road/rail reserves, e.g. stockpile sites

Findings of studies, transport infrastructure impact assessments and proposed mitigation works should be considered in preparing a draft road-use management plan and incorporated in the plan. The transport management measures should also be detailed in the EMP.

Air service management planning

Describe the air services and their current capacity serving the region. Estimate the project's requirements for air transport to and from the region, and the services required to supply these projections. Provide an assessment of the infrastructure needed to support the projected level of air services.

Stock route network management planning

Where there are to be disruptions to the stock route network, outline options for replacing or re-aligning corridors of similar width and suitable country type to allow for the uninterrupted flow of travelling stock.

5.10. Indigenous cultural heritage

5.10.1. Description of existing Indigenous cultural heritage values

Describe the existing Indigenous cultural heritage values that may be affected by the project. Describe the environmental values of the cultural landscapes of the affected area in terms of the physical and cultural integrity of the landforms.

Describe how the cultural heritage values were ascertained. This could include:

- the results of any Aboriginal cultural heritage survey undertaken
- the DEHP Aboriginal Cultural Heritage Register and Database
- any existing literature relating to Indigenous cultural heritage in the project area.

This description should be prepared in conjunction with the appropriate Indigenous people and be subject to confidentiality requirements.

5.10.2. Potential impacts and mitigation measures

Define and describe the objectives and practical measures for protecting or enhancing Indigenous cultural heritage environmental values. Describe how nominated quantitative standards and indicators may be achieved for cultural heritage management, and describe how the achievement of the objectives will be monitored, assessed and managed.

To the greatest extent practicable, significant cultural heritage areas should be avoided by the project. The EIS should provide an assessment of likely effects on sites of 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
- recommended means of mitigating any negative impact on cultural heritage values and enhancing any positive impacts.

As a minimum, impact assessment, management and protection strategies should satisfy statutory responsibilities and duty of care.

During the EIS process, the proponent should initiate a native title agreement (NT agreement), as defined under the ACH Act that includes management and protection strategies for Indigenous cultural heritage or a cultural heritage management plan (CHMP) under the ACH Act. An NT agreement or an approved CHMP in a form which complies with Part 7 of the ACH Act will ensure that the project meets the Aboriginal cultural heritage duty of care imposed by the ACH Act.

An NT agreement or CHMP should be negotiated between the proponent and the appropriate native title/Indigenous parties and should include the following:

- a process for including Indigenous people associated with the development areas in protection and management of Indigenous cultural heritage
- processes for mitigating, managing and protecting identified cultural heritage sites and objects in the project areas, including associated infrastructure developments, during both the construction and operational phases of the project

- provisions for managing the accidental discovery of cultural material, including burials
- a clear recording process to assist initial management and recording of accidental discoveries
- a cultural heritage induction for project staff
- developing a cultural heritage awareness program to be incorporated into the contractor/employee manual and induction manual. This is to be in the form of a plain language, short document that is easy for contractors and staff 'on the ground' to understand
- a conflict resolution process.

If an NT agreement is not finalised or a CHMP has not been approved, when the EIS is submitted to the Coordinator-General the following must be provided:

- an outline of the draft CHMP or draft plan within the NT agreement that addresses management and protection strategies for cultural heritage, subject to any confidentiality provisions, outlining the position of the relevant parties
- details of the proposed steps and timeframes for finalising the CHMP or NT agreement.

5.10.3. Native title

Identify areas covered by applications for native title claims or native title determinations, providing boundary descriptions of native title representative body(ies), and whether it is necessary to notify the representative body(ies) or if there is evidence that native title does not exist.

Identify the potential for native title rights and interests likely to be impacted upon by the project and the potential for managing those impacts by an indigenous land use agreement or other native title compliance outcomes.

5.11. Non-Indigenous cultural heritage

5.11.1. Description of existing non-Indigenous cultural heritage values

Include a cultural heritage study/survey that describes non-Indigenous cultural heritage sites and places, and their values. Any such study should be conducted by an appropriately qualified cultural heritage practitioner and should include the following:

- review of:
  - the Australian Heritage Places Inventory
  - the Queensland Heritage Register and other information regarding places of potential non-Indigenous cultural heritage significance
  - any local government heritage register
  - any existing literature relating to the heritage of the affected areas
- liaison with relevant community groups/organisations (e.g. local historical societies) concerning places of non-Indigenous cultural heritage significance located or identified

- locations of culturally and historically significant sites, shown on maps, which could potentially be impacted by the project
- a constraints analysis of the proposed development area to identify and record non-Indigenous cultural heritage places.

5.11.2. Potential impacts and mitigation measures

Provide an assessment of any likely effects on sites of non-Indigenous cultural heritage values, including but not limited to the following:

- description of the significance of artefacts, items or places of conservation or non-Indigenous cultural heritage value likely to be affected by the project and their values at a local, regional, state and national level
- recommended means of mitigating any negative impacts on non-Indigenous cultural heritage values and enhancing any positive impacts
- strategies to manage places of historic heritage significance, taking account of community interests and concerns.

As a minimum, investigation, consultation, impact assessment, management and protection strategies should satisfy statutory responsibilities and duty of care, including those under the EPBC Act and Queensland Heritage Act.

6. Social values and management of impacts

6.1. Description of existing social values

Conduct a social impact assessment (SIA) in consultation with the Significant Projects Coordination Branch in the office of the Coordinator-General. Matters to be considered are detailed in the following subsections.

6.1.1. Social and cultural area

Define the project's social and cultural area of influence, including the local, district, regional and state level as relevant, taking into account the:

- potential for social and cultural impacts to occur
- location of other relevant proposals or projects
- location and types of physical and social infrastructure, settlement and land use patterns
- social values that might be affected by the project (e.g. integrity of social conditions, visual amenity and liveability, social harmony and wellbeing, and sense of community)
- Indigenous social and cultural characteristics such as native title rights and interests, and cultural heritage.

6.1.2. Community engagement

Consistent with national and international good practice, and with regard to local and regional strategies for community engagement, the proponent should engage at the earliest practicable stage with likely affected parties to discuss and explain the project, and to identify and respond to issues and concerns regarding social impacts.

Detail the community engagement processes used to conduct open and transparent dialogue with stakeholders. Such processes should include, but not be limited to, community reference group forums. Include the project's planning and design stages and future operations including affected local and state authorities. Engagement processes should consider social and cultural factors, customs and values, and linkages between environmental, economic, and social impact issues.

Discuss engagement strategies and processes, including how complaint resolution will be addressed, for all stages of the project.

6.1.3. Social baseline study

Undertake a targeted baseline study of the people residing in the project's social and cultural area, to identify the project's social issues, potential adverse and positive social impacts, and strategies and measures developed to address the impacts. The social baseline study should be based on qualitative, quantitative, and participatory methods. It should be supplemented by community engagement processes, and reference relevant data contained in Local and State Government publications, reports, plans, guidelines and documentation, including regional plans and, where available, community plans.

Describe and analyse a range of demographic and social statistics determined relevant to the project's social and cultural area including:

- major population trends/changes that may be occurring irrespective of the project
- total population (the total enumerated population for the social and cultural area and the full-time equivalent transient population), 18 years and older
- estimates of population growth and population forecasts resulting from the proposal
- family structures
- age and gender distributions
- education, including schooling levels
- health and wellbeing measures
- cultural and ethnic characteristics
- the Indigenous population including age and gender
- income including personal and household
- labour force by occupation and industry
- housing costs (monthly housing repayments (per cent of dwellings in each category), and weekly rent (per cent dwellings in each category), housing tenure type and landlord type, household and family type

- housing availability and affordability: the rental market (size, vacancy rate, seasonal variations, weekly rent by percentage dwellings in each category); the availability and typical costs of housing for purchase; monthly housing repayments by percentage dwellings in each category; and the availability of social housing
- disability prevalence
- the social and economic index for areas, index of disadvantage—score and relative ranking
- crime, including domestic violence
- any other indicators determined through the community engagement process as relevant.

The social baseline study should take account of current social issues such as:

- the social infrastructure, including community and civic facilities, services and networks—for definition see South East Queensland Regional Plan 2009–2031 (Department of Infrastructure and Planning 2009)
- settlement patterns including the names, locations, size, history and cultural aspects of settlement in the social and cultural area
- the identity, values, lifestyles, vitality, characteristics and aspirations of communities in the social and cultural area, including Indigenous communities
- land use and land ownership patterns including:
  - rural properties, farms, croplands and grazing areas including on-farm activities near the proposed activities
  - the number of properties directly affected by the project
  - the number of families directly and indirectly affected by the project including Indigenous traditional owners and their families, property owners, and families of workers either living on the property or workers where the property is their primary employment.
- use of the social and cultural area for forestry, fishing, recreation, business and industry, tourism, aquaculture, and Indigenous cultural use of flora and fauna.

Provide a description of the local labour force by occupation in accordance with the Australian and New Zealand Standard Classification of Occupations (ANZSCO) 2006 edition, at sub-major group level and associated skill level.

Cross-reference this section with Part B, Subsection 7.1 (Economy) (refer to page 56)

6.1.4. Workforce profile

The SIA should include a profile of the workforce that describes the following:

Workforce demand

The estimated composition of workforce by occupation, project stage and duration (including any planned construction prior to final investment decision) using the template provided at **www.skills.qld.gov.au**

Supply issues and strategies

- analysis of relevant local, state and national workforce profiles and labour supply
- strategies and proposed programs for:
  - recruitment and attraction
  - population groups (including Indigenous people, women, secondary school students and unemployed and underemployed)
  - unskilled and semi-skilled labour requirements
  - structured training (apprenticeships, traineeships, graduates)
  - analysis of impact on local community workforce.

The proportion of workers sourced locally, in Queensland and from overseas should be presented by occupation (ANZSCO sub-major group level) in absolute and percentage terms as a local content ratio. Outline recruitment strategies and the use of migration, fly-in/fly-out and drive-in/drive-out programs.

6.2. Potential impacts

Assess and describe the type, level and significance of the project's social impacts (both beneficial and adverse) on the local and cultural area, based on outcomes of community engagement processes and the social baseline study. Furthermore:

- describe and summarise outcomes of community engagement processes including the likely response of the affected communities, including Indigenous people
- include sufficient data to enable affected local and state authorities to make informed decisions about the project's effect on their business and plan for the provision of social infrastructure in the project's social and cultural area. If the project is likely to result in a significant increase in the population of the area, then the proponent should consult the relevant management units of the state authorities and summarise the results of the consultations
- address direct, indirect and secondary impacts from any existing projects and the proposed project including an assessment of the size, significance, and likelihood of these impacts at the local and regional level. Consider the following:
  - key population/demographic shifts; disruptions to existing lifestyles, the health and social wellbeing of families and communities; social dysfunction including alcohol and drugs, crime, violence, and social or cultural disruption due to population influx
  - the needs of vulnerable groups including women, children and young people, the aged and people with a disability
  - Indigenous peoples including cultural property issues
  - local, regional and state labour markets during the construction and operational phases, with regard to the source of the workforce. Present this information according to occupational workforce groupings. Detail whether the proponent and/or contractors are likely to employ locally or through other means and whether there are initiatives for local employment business opportunities and how

these workforce strategies relate and align to state and Commonwealth resource workforce planning, skill development and training strategies and policies

- proposed new skills and training related to the project including the occupational skill groups required and potential skill shortages anticipated
- how much service revenue and work from the project would be likely to flow to the project's social and cultural area
- impacts of pre-construction, construction and operational workforces, their families, and associated contractors on housing and accommodation availability and affordability, land use and land availability. Discuss the capability of existing housing and rental accommodation to meet any additional demands created by the project, including direct impacts on Indigenous people.

6.2.1. Cumulative impacts

Evaluate and discuss the potential cumulative social impacts resulting from the project including an estimation of the overall size, significance and likelihood of those impacts. Cumulative impacts, in this context, is defined as the additional impacts on population, workforce, accommodation, housing, and use of community infrastructure and services, from the project, and other proposals for development projects in the area, which are publicly known or communicated by the office of the Coordinator-General, if they overlap the proposed project in the same timeframe as its construction period and the life of the proposed project's operational mine.

Discuss and analyse the time series data as it relates to cumulative impacts, where the community in the study area has been subject to a number of large-scale construction projects in recent years.

The analysis should consider relevant Queensland Government plans and policies including the Surat Basin Workforce Development Plan (Skills Queensland 2012a) and the Work for Queensland: Resources Skills and Employment Plan (Skills Queensland 2012b).

6.3. Impact mitigation measures and management strategies

For identified social impacts, social impact mitigation strategies and measures should be presented to address the:

- recruitment and training of the construction and operational workforces and the social and cultural implications this may have for the host community, including if any part of the workforce is sourced from outside the social and cultural area
- identify strategies and methods such as a code of conduct to regulate the behaviour of employees and contractors during all stages of the project
- housing and accommodation issues—the Major Resource Projects Housing Policy (Department of Employment, Economic Development and Innovation 2011b) sets out the core principles to guide the identification and assessment of accommodation and housing impacts and development of mitigation and management strategies
- demographic changes in the profile of the region and the associated sufficiency of current social infrastructure, particularly health and welfare, education, policing and emergency services

- adequate provision of education, training and employment for women, people with a disability, and Indigenous peoples.

Describe any consultation about acceptance of proposed mitigation strategies, and how practical management and monitoring regimes would be implemented.

Discuss special strategies that might be deployed by the proponent during all stages of the project to mitigate 'project fatigue' impacts.

6.3.1. Social impact management plan

Present a draft social impact management plan (SIMP) that promotes an active and ongoing role for impacted communities and local authorities through the project life cycle. The draft SIMP should cover:

- project summary
- impact mitigation and management action plans
- monitoring plan
- stakeholder engagement strategy
- social impact management plan dispute resolution
- proponent commitments.

For further information on preparing the SIMP, refer to *Social impact assessment: Guideline to preparing a social impact management plan* (Department of Infrastructure and Planning 2010b).

The draft SIMP should incorporate a draft workforce management plan (WMP). The WMP should:

- consider skills needs for the project and identified shortages
- detail strategies to address the skills needs of the project
- detail strategies to address skill gaps and shortages
- describe how these strategies will support increased local and regional workforce participation.

The proponent is to consult with the Significant Projects Coordination Branch in the office of the Coordinator-General, to arrange a meeting with Skills Queensland, within one month of the issue of this TOR to the proponent, to progress the development of the draft WMP.

The fact sheet on Skills Queensland's website (**www.skills.qld.gov.au**) provides information, contact and relevant program details to develop the draft WMP.

7. Economies and management of impacts

7.1. Economy

7.1.1. Description of affected local and regional economies

Describe the existing economy in which the project is located and the economies materially impacted by the project. Include:

- a map illustrating the local and regional economies (local government areas—LGAs) that could be potentially affected by the project
- gross regional product or other appropriate measure of annual economic production
- demographic and employment profile of the study area. Include:
  - existing population (size, age, distribution)
  - existing community profiles of the study area directly affected by the project (household type, size, average income)
  - existing employment statistics (part-time/full-time, by occupation)
  - the regional economy's key industries and their contribution to regional economic income
- sufficient baseline economic data to underpin a comprehensive assessment of the direct, indirect, cumulative, costs and impacts of the project
- the key regional markets relevant to the project:
  - labour market
  - housing and land markets
  - construction services and building inputs market
  - regional competitive advantage and expected future growth
  - education and training markets.

With regard to the region's key industries and factor prices, provide information on:

- current input costs (wage rates, building costs, housing rent etc.)
- land values in the region by type of use.

7.1.2. Potential impacts and mitigation measures

The potential impacts should consider local, regional, state and national perspectives as appropriate to the scale of the project.

The analysis should describe both the potential and direct economic impacts including estimated costs, if material, on industry and the community, assessing the following:

- property values
- industry output
- employment
- the indirect impacts likely to flow to other industries and economies from developing the project, and the implications of the project for future development
- the potential impact on extractive resource availability in the region both during and after construction and any economic consequences
- the distributional effects of the proposal including proposals to mitigate any negative impact on disadvantaged groups.

The analysis should consider relevant Queensland Government plans and policies including the Queensland Infrastructure Plan – Central Queensland (Department of Local Government and Planning 2011b), Surat Basin Future Directions Statement (Department of Employment, Economic Development and Innovation 2011b), which provides the framework for a coordinated, region-wide approach that aims to maximise

the economic benefits of rapid growth, and the series of initiatives developed under the statement, including the Surat Basin Workforce Development Plan (Skills Queensland 2012a).

7.2. Strategies for local participation

The assessment of economic impacts should outline strategies for local participation, including:

- strategies for assessing the cost effectiveness of sourcing local inputs from the regional economy during the construction, operation and rehabilitation phases of the project
- employment strategies for local residents, including members of Indigenous communities and people with a disability, including a skills assessment and recruitment and training programs to be offered
- strategies responding to relevant government policy, relating to:
  - the level of training provided for construction contracts on Queensland Government building and construction contracts, with regard to the Queensland Government Building and Construction Contracts Structured Training Policy—the 10 per cent training policy (Skills Queensland 2008)
  - Indigenous employment opportunities. The Indigenous Employment Policy for Queensland Government: Building and Civil Construction Projects—the 20 per cent policy (Department of Employment, Economic Development and Innovation 2008a) could be adopted or its implementation measures used as a guide or tool for engagement of Indigenous workers
  - developing a local industry participation plan (LIPP) under the Local Industry Policy (Department of Employment, Economic Development and Innovation 2010) see the *Local Industry Policy Guidelines* (Department of Employment, Economic Development and Innovation 2011a).

7.3. Impact upon property management

Address the current and future management processes for adjacent properties that are likely to be impacted by the project during construction and/or operation. Mention the:

- impact of the project on existing agricultural 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)
- impact of the project on residential land uses, property values and property management practices
- range of measures required to mitigate real and potential disruptions to rural, residential property uses and management practices.

8. Hazard and risk

8.1. Hazard and risk assessment

Describe the potential hazards and risks to people and property that may be associated with the project, which may include but are not restricted to:

- identifying potential hazards, accidents, spillages and abnormal events that may occur during all stages of the project, including possible frequency of occurrence
- identifying all hazardous substances to be used, stored, processed or produced and the rate of usage
- potential wildlife hazards such as snakes and disease vectors
- potential natural events (e.g. flooding and bush fire) and implications related to climate change
- undertake a bushfire hazard assessment for the project area to demonstrate the severity of bushfire hazard on the subject land, the relative frequency and magnitude of potential bushfire hazard events and potential impacts and mitigation measures to comply with State Planning Policy 1/03: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide (Department of Local Government and Planning & Department of Emergency Services 2003)
- lack of baseline information to inform/measure:
  - direct impact on the water resources and vulnerable assets
  - indirect impacts on environment that is supported by the water resource
  - consequential impacts
  - cumulative impacts
- lack of adequate proposed monitoring and/or demonstrated capacity to manage
- environmental consequences
- likelihood of subsidence uncertain and/or not adequately monitored or managed
- likelihood of disruption to aquifer flow or creation of aquifer interconnectivity
- uncertain and/or not adequately monitored or managed
- drawdown of water table not adequately monitored or managed
- co-produced water or mine water not adequately monitored or managed
- groundwater-dependent ecosystems significantly impacted
- likelihood of surface water adversely impacted
- possibility of drinking water and irrigation supply contamination.

Undertake a preliminary risk assessment for all components of the project, as part of the EIS process in accordance with *Australia/New Zealand AS/NZS ISO 31000:2009 Risk management—Principles and guidelines* (Standards Australia/Standards New Zealand 2009) and *Managing environment-related risk* (HB203:2012) (Standards Australia 2012). With respect to risk assessment, the EIS should:

- deal comprehensively with external and on-site risks including transport risks

- assess risks during the pre-construction, construction, operational and decommissioning phases of the project
- include an analysis of the consequences of each hazard on safety in the project area, examining the likelihood of both individual and collective consequences, involving injuries and fatalities to workers and to the public
- present quantitative levels of risks from the above analysis.

Provide details on the mitigation strategies and safeguards that would reduce the likelihood and severity of hazards, consequences and risks to person and property, within and adjacent to the project area(s) during pre-construction, construction, commissioning, operation and decommissioning.

Provide details on the safeguards that would reduce the likelihood and severity of hazards, consequences and risks to persons, within and adjacent to the project area(s).

Present a comparison of assessed and mitigated risks with acceptable risk criteria for land uses in and adjacent to the project area(s).

Identify the residual risk following application of mitigation measures. Present an assessment of the overall acceptability of the impacts of the project in light of the residual uncertainties and risk profile.

8.2. Cumulative risk

The risk analysis is to address the potential impacts that may occur on the normal on-site day-to-day activities during the construction and/or operation of the facilities. Furthermore, determine the level of change that may result on the risk contours of other relevant existing or proposed industrial facilities in the area as a result of the proposed project (where details of such proposed facilities are provided to the proponent by the office of the Coordinator-General or otherwise published). Individual risk criteria should be used to limit risks to individual workers and members of the public. Societal risk criteria should be used to limit risk to the affected population as a whole.

Identify and adopt, where appropriate, any changes to operating or storage procedures that would reduce the possibility of these events occurring, or reduce the severity of the events should they occur. Present draft risk management plans for the construction and operational phases of the project.

8.3. Health and safety

8.3.1. Description of public health and safety community values

Describe the existing health and safety values of the community, workforce, suppliers and other stakeholders in terms of the environmental factors that can affect human health, public safety and quality of life, such as air pollutants, odour, lighting and amenity, dust, noise and water.

8.3.2. Potential impact and mitigation measures

Define and describe the objectives and practical measures for protecting or enhancing health and safety community values. Advise if worker camps will be alcohol-free. Describe how nominated quantitative standards and indicators may be achieved for social impact management, and how the achievement of the objectives will be monitored, audited and managed.

Assess the cumulative effects on public health values and occupational health and safety impacts on the community, workforce and regional health services from project operations and emissions. Recommend any practical monitoring regimes in this section. Describe the proposed mitigation measures to reduce adverse impacts including an outline of the safety management plans.

Include details of relevant consultation with the appropriate regional health service providers.

8.4. Emergency management plan

The development of emergency and evacuation planning and response procedures is to be determined in consultation with state and regional emergency service providers.

Provide an outline of the proposed integrated emergency management planning procedures (including evacuation plans and possible location(s) of landing site for the rescue helicopter service and fixed wing aircraft service) for the range of situations identified in the risk assessment developed in this section. This includes strategies to deal with natural hazards and disasters during operation and construction including identification of key stakeholders.

9. Cumulative impacts

Summarise the project's cumulative impacts and describe these impacts in combination with those of existing or proposed project(s) publicly known or advised by the office of the Coordinator-General to be in the region, to the greatest extent practicable. Assess cumulative impacts with respect to both geographic location (e.g. in the context of the catchment or the regional landscape) and environmental values. Explain the methodology used to determine the cumulative impacts of the project, detailing the range of variables considered (including relevant baseline or other criteria upon which the cumulative aspects of the project have been assessed, where applicable).

Cross reference this section with Part B sections containing more detail on the cumulative impacts including sections 5.2.4 (Land contamination), 5.3.3 (Terrestrial fauna), 6.2.1 (Social values and management of impacts), 7.1.1 (Economy), 8.2 (Cumulative risk) and 8.3 (Health and safety).

10. Sustainable development

Provide a comparative analysis of how the project conforms to the objectives for 'sustainable development'—see the *National Strategy for Ecologically Sustainable Development* (Commonwealth of Australia 1992).

Consider the cumulative impacts (both beneficial and adverse) of the project from a life-of-project perspective, taking into consideration the scale, intensity, duration and frequency of the impacts to demonstrate a balance between environmental integrity, social development and economic development.

This information is required to demonstrate that sustainable development aspects have been considered and incorporated during the scoping and planning of the project.

11. Environmental management plan

Detail the EMPs for both the construction and operation phases of the project. The EMP should be developed from, and be consistent with, the information in the EIS. The EMP must meet the requirements of section 203 of the EP Act, address discrete project elements and provide life-of-proposal control strategies. It must be capable of being read as a stand-alone document without reference to other parts of the EIS.

The EMP must comprise the following components for performance criteria and implementation strategies:

- the proponent's commitments to acceptable levels of environmental performance, including environmental objectives, performance standards and associated measurable indicators, performance monitoring and reporting
- impact prevention or mitigation actions to implement the commitments
- corrective actions to rectify any deviation from performance standards
- an action program to ensure the environmental protection commitments are achieved and implemented. This will include strategies in relation to:
  - continuous improvement
  - environmental auditing
  - monitoring
  - reporting
  - staff training
  - a rehabilitation program for land proposed to be disturbed under each relevant aspect of the proposal.

The recommended structure of each element of the EMP is shown below.

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 would be implemented to achieve the performance criteria and also include the implementation agency for each element of the EMP.
Monitoring	The monitoring requirements to measure actual performance (e.g. 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 action (including staff authority and responsibility management structure).

The proponent's commitments to environmental performance, as described in the EMP, may be included as Coordinator-General's conditions to ensure the commitments are met. Therefore, the EMP is a relevant document for project approvals, environmental authorities and permits, and may be referenced by them.

12. Conclusions and recommendations

Make conclusions and recommendations with respect to the project, based on the studies presented, the EMP and conformity of the project with legislative and policy requirements.

13. References

All references consulted should be presented in the EIS in a recognised format.

14. Appendices

Provide the following as appendices to the EIS:

- TOR for the EIS
- TOR cross-reference table, which links the requirements of each section/subsection of the TOR with the corresponding section/subsection of the EIS, where those requirements have been addressed
- a list of the project approvals required by the project.
- the consultation report, as described in Part B, Subsection 3.7, (page 10).
- a list of the relevant qualifications and experience of the key study team members and specialist sub-consultants
- a glossary of technical terms
- a list of abbreviations.
- all reports generated on specialist studies undertaken as part of the EIS, including, but not limited to:
  - flora, fauna and biodiversity
  - air quality
  - noise and vibration
  - groundwater and surface water hydrology
  - flooding
  - geology, soils and geomorphology
  - economic studies and/or cost-benefit analyses
  - transport studies
  - cultural heritage
  - hazard and risk studies
  - land use and land capability studies
  - social impact assessment
  - economic impact assessment
- a copy of the proponent's corporate environmental policy and planning framework document.
- a list of all commitments made by the proponent in the EIS, with cross-references to the relevant section in the EIS
- a copy of the proponent's land acquisition protocols.

Part C. Content of EIS for matters of national environmental significance

1. Background and context

The Commonwealth Environment Minister has determined the North Surat – Taroom Coal Project is a 'controlled action' under the EPBC Act. The relevant controlling provisions under the EPBC Act are:

- listed threatened species and communities (sections 18 and 18A)
- listed migratory species (sections 20 and 20A).

The EIS must be prepared pursuant to *An agreement between the Commonwealth and the State of Queensland under Section 45 of the Environment Protection and Biodiversity Conservation Act 1999 relating to Environmental Assessment* (the bilateral agreement) (Commonwealth of Australia 2012). The agreement sets out the Commonwealth and State requirements for the purposes of the Australian Government's assessment under Part 8 of the EPBC Act. The EIS must address potential impacts on the controlling provisions identified when the project was determined to be a controlled action.

Once the EIS has been prepared to the satisfaction of the Coordinator-General and controlling provisions addressed to the satisfaction of the Australian Government, the EIS will be made available for public comment.

The proponent may be required by the Commonwealth Environment Minister to provide additional material to the EIS to address matters relating to controlling provisions raised in submissions on the EIS.

The EIS must give enough information about the project and its relevant impacts to allow the Commonwealth Environment Minister to make an informed decision whether to approve the taking of the action under Part 9 of the EPBC Act.

At the conclusion of the environmental impact assessment process, the Coordinator-General will prepare an evaluation report and provide a copy to the Commonwealth Environment Minister.

After receiving the evaluation report and sufficient information about the relevant impacts of the action, the Commonwealth Environment Minister has 30 business days to decide whether or not to approve each controlling provision for each controlling provision, the taking of the action.

The Commonwealth Environment Minister's decision is separate to the approval decisions made by Queensland state agencies and other agencies with jurisdiction on State matters.

Consideration should be given to any relevant policy statements available from the website of the Department of Sustainability, Environment, Water, Population and Communities, including in particular the EPBC Act *Significant Impact Guidelines* (Commonwealth of Australia 2009).

2. EIS for MNES

2.1. General requirements

In accordance with Section 3.1 of Schedule 1 of the bilateral agreement, the EIS must:

- assess all the relevant impacts that the action has, will or is likely to have
- provide enough information about the action and its relevant impacts to allow the Commonwealth Environment Minister to make an informed decision whether or not to approve the action
- address the matters set out in Schedule 4 of the Environment Protection and Biodiversity Conservation Regulations 2000 (Cwlth) (EPBC Regulations). Schedule 4 is provided at Appendix 1 of this TOR.

The EIS must include a separate section addressing the controlling provisions of the EPBC Act. This part should bring together assessments of impacts on MNES from other chapters to produce a stand-alone assessment in a format suited for assessment under the EPBC Act. Cross references to other parts of the EIS should only be used where required.

As this project has been declared a 'controlled action' under the EPBC Act, project alternatives must be discussed in accordance with Schedule 4, section 2.01(g) of the EPBC Regulations. An extract of Schedule 4 of the regulations, which sets out the matters that must be addressed in an EIS, is provided at Appendix 1.

The project should initially be assessed in its own right, before assessing the cumulative impacts related to all known proposed similar developments in the region with respect to each controlling provision and all identified consequential actions. Cumulative impacts not solely related to the project development should also be assessed.

An assessment of all direct and indirect water related impacts on MNES listed as controlling provisions for the project must be provided. Information in relation to surface and ground water (and associated impacts) provided elsewhere in the EIS can be cross-referenced. However, Part C must specifically address water-related impacts, including cumulative impacts, on listed threatened species and communities and migratory species and discuss in detail proposed avoidance, mitigation and management measures and demonstrate how these measures will ensure there will not be unacceptable impacts on these matters.

Predictions of the extent of threat (risk), impact and the benefits of any mitigation measures proposed, must be based on sound science and quantified where possible. Reference all sources of information relied upon and provide an estimate of the reliability of predictions. Also identify and evaluate any positive impacts.

The extent of any new field work, modelling or testing should be commensurate with risk and should be such that, when used in conjunction with existing information, it provides confidence that well-informed decisions can be made.

2.2. Specific requirements

2.2.1. Introduction

Provide background to the project, including:

- a description of the action including: location and property description, as well as planning, construction and decommissioning phases
- how the action relates to any other actions (of which the proponent should reasonably be aware) that have been, or are being, taken or that have been approved in the region affected by the action
- a list of persons and agencies consulted during the preparation of the EIS
- the names of, and qualifications and experience of the persons involved in preparing the EIS, including sub-consultants and reviewers
- the environmental record of the proponent, including details of their environmental policy and planning framework and details of any proceedings under a Commonwealth, or state law for the protection of the environment against them
- brief summary of social/economic impacts as a result of the project.

2.2.2. Relevant legislation and approvals

List and describe Commonwealth legislation and regulations and Commonwealth, policies relevant to MNES for components of the project on and off the proposed MLAs and in the Surat Basin Infrastructure Corridor State Development Area (SBICSDA).

Commonwealth legislation

Relevant Commonwealth legislation may include, but is not limited to:

- EPBC Act.

Commonwealth approvals

Identify and outline Commonwealth approvals required including, but not limited to:

- approval, under sections Part 9 of the EPBC Act, of the proposed action for each of the applicable controlling provisions.

Commonwealth obligations

Identify and outline relevant Commonwealth obligations, under sections 139–140 of the EPBC Act, relating to the protection of:

- listed threatened species and ecological communities
- listed migratory species.

2.3. Impact on a listed threatened species and communities

Describe the listed threatened species and communities (including but not limited to those identified below) that could be affected, directly and indirectly, as a consequence of the proposal (including EPBC Act status, distribution, life history, habitat etc.).

Consider and assess all potential impacts to listed threatened species and communities for which the project was declared a controlled action that are found to be or may potentially be present in areas that may be impacted by the project. Refer to impacts on suitable habitat present irrespective of whether the species were detected in surveys. When discussing impacts on relevant listed threatened species and communities the following approach is recommended:

- discuss the individual MNES in respect of generalised known threats and those threats posed by the proposed action
- quantify and discuss likely direct, indirect and cumulative impacts from the proposed action
- describe and assess effectiveness of any mitigation measures to deal with relevant impacts, providing supporting information
- quantify and discuss residual impacts
- make a conclusion on the level of impact and its acceptability, and provide a rationale for this determination.

Conduct targeted surveys for listed threatened species and communities to identify the likely presence of listed threatened species, and provide a high level of certainty of their presence or absence from the proposed site. Surveys conducted for the project must demonstrate compliance with relevant Commonwealth survey guidelines, unless adequate justification for alternative survey methodology can be provided. Justification must also be made where any species listed under Part C, Section 2.3.1 below is not subject to targeted surveys.

Describe and map where necessary the distribution, ecology, and habitat preferences of each listed threatened species and community:

- all potential habitat for each species, irrespective of whether species/communities were detected in surveys
- habitat components important for each species, such as breeding habitat
- the location of known records (including those from databases and all surveys previously conducted in the project area).

Discuss the relationship between individuals and communities of listed threatened species and communities on the proposed site and the regional context of threatened species and communities.

Assess all potential impacts to the listed threatened species (including habitat) and communities and any others that are found to be or may potentially be present in areas that may be impacted by the project. Include evidence-based justification for conclusions reached on whether or not a species/community is significantly impacted with reference to relevant departmental guidelines, statements or policies (for example survey guidelines, species recovery plans and the EPBS Act *Significant Impact Guidelines* (Commonwealth of Australia 2009).

Identify which component of the project is of relevance to each listed threatened species or community or if the threat of impact relates to consequential actions, including but not limited to:

- a decrease in the size of a population or a long-term adverse affect on an ecological community
- reduction in the area of occupancy of the species or extent of occurrence of the ecological community
- fragmentation of an existing population or ecological community
- disturbance or destruction of habitat critical to the survival of the species or ecological community
- disruption of the breeding cycle of a population
- modification, destruction, removal, isolation or reduction of the availability or quality of habitat to the extent that the species is likely to decline
- modification or destruction of abiotic (non-living) factors (such as water, nutrients or soil) necessary for the ecological community's survival
- the introduction of invasive species that are harmful to the species or ecological community becoming established
- interference with the recovery of the species or ecological community
- action that may be inconsistent with a recovery plan.

2.3.1. List of potential listed threatened species and their status

This list is not exhaustive and indicative only.

Birds

- *Erythrotriorchis radiatus*—red goshawk (vulnerable)
- *Geohaps scripta scripta*—southern squatter pigeon (vulnerable)
- *Neochmia ruficauda ruficauda*—star finch (endangered)
- *Rostratula australis*—Australian painted snipe (vulnerable)
- *Turnix melanogasta*—black-breasted button-quail (vulnerable)

Mammals

- *Chalinolobus dwyeri*—large-eared pied bat (vulnerable)
- *Dasyurus hallucatus*—northern quoll (endangered)
- *Nyctophilus corbeni*—south-eastern long-eared bat (vulnerable)

Reptiles

- *Delma torquata*—collared delma (vulnerable)
- *Denisonia maculata*—ornamental snake (vulnerable)
- *Egernia rugosa*—yakka skink (vulnerable)
- *Furina dunmalli*—Dunmall's snake (vulnerable)
- *Paradelma orientalis*—brigalow scaly-foot (vulnerable)
- *Rheodytes leukops*—Fitzroy River turtle (vulnerable)

Plants

- *Commersonia argentea* (vulnerable)
- *Cadellia pentastylis*—ooline (vulnerable)

2.3.2. List of potential listed threatened communities

- Brigalow (*Acacia harpophylla* dominant and codominant) (endangered)
- Coolibah—Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions (endangered)
- Weeping Myall Woodlands (endangered)
- Semi-evergreen Vine Thickets of the Brigalow Belt (North and South) and Nandewar Bioregions (endangered).

2.4. Impact on a listed migratory species

Describe the relevant listed migratory species (including but not limited to those listed below) including EPBC Act status, distribution, life history, habitat etc. Specify whether suitable habitat is present and the quantity of habitat being impacted.

Assess and describe the impacts to the listed migratory species identified below and any others that are found to be or may potentially be present in areas that may be impacted by the project. Identify which component of the project is of relevance to each species or if the threat of impact relates to consequential actions, including but not limited to:

- the destruction, isolation or modification of habitat important to a migratory species
- the introduction of invasive species in an important habitat that would be harmful to a migratory species
- the disruption of the lifecycle (breeding, feeding, migration, or resting behaviour) of an ecologically important proportion of the population of a migratory species
- interference with the recovery of the species or ecological community
- action that may be inconsistent with a recovery plan.

When discussing impacts on migratory species the following approach is recommended:

- discuss the individual MNES in respect of generalised known threats and those threats posed by the proposed action
- quantify and discuss likely direct, indirect and cumulative impacts from the proposed action
- describe and assess effectiveness of any mitigation measures to deal with relevant impacts, providing supporting information
- quantify and discuss residual impacts
- make a conclusion on the level of impact and its acceptability, and provide a rationale for this determination.

2.4.1. List of potential migratory species

Migratory marine birds

- *Apus pacificus*—fork-tailed swift
- *Ardea alba*—great egret
- *Ardea ibis*—cattle egret

Migratory terrestrial species

- *Haliaeetus leucogaster*—white-bellied sea-eagle
- *Hirundapus caudacutus*—white-throated needletail
- *Merops ornatus*—rainbow bee-eater
- *Myiagra cyanoleuca*—satin flycatcher

Migratory wetland species

- *Ardea alba*—great egret
- *Ardea ibis*—cattle egret
- *Gallinago hardwickii*—Latham's snipe
- *Naettapus coromandelianus albipennis*—Australian cotton-pygmy goose
- *Rostratula benghalensis s. lat*—painted snipe

2.4.2. Mitigation measures and offsets

Describe any mitigation measures proposed to reduce the impacts on the listed threatened species and communities and listed migratory species and include the following elements:

- a description of proposed safeguards and mitigation measures to deal with relevant impacts of the action including mitigation measures proposed to be taken by state governments, local governments or the proponent
- an assessment of the expected or predicted effectiveness of the mitigation measures
- an explanation of any statutory or policy basis for the mitigation measures
- the cost of the mitigation measures (note that this is required under Schedule 4 to the EPBC Regulations).

Describe any proposed offsets for residual impacts to listed threatened species and ecological communities and listed migratory species.

Discuss any proposed offsets with reference to the Australian Government's *Draft Policy Statement: Use of Environmental Offsets under the Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth of Australia 2007) and consideration of the consultation draft EPBC Act Environmental Offsets Policy, August 2011 (Commonwealth of Australia 2011b).

Proposed offsets for EPBC protected matters must reflect the scale and intensity of the unavoidable impacts on each individual MNES. Proposed offsets must contain long-term conservation outcomes and demonstrated how these outcomes will be achieved. Any areas used as offsets must be permanently protected and managed and appropriate surveying and assessment must be provided which verifies the suitability of the offset.

Appendix 1. Extract of Schedule 4 of the EPBC Regulations 2000

Schedule 4 Matters to be addressed by draft public environment report and environmental impact statement (regulation 5.04) (correct as at 22 March 2012).

1 General information

1.01 The background of the action including:

(a) the title of the action;

(b) the full name and postal address of the designated proponent;

(c) a clear outline of the objective of the action;

(d) the location of the action;

(e) the background to the development of the action;

(f) how the action relates to any other actions (of which the proponent should reasonably be aware) that have been, or are being, taken or that have been approved in the region affected by the action;

(g) the current status of the action;

(h) the consequences of not proceeding with the action.

2 Description

2.01 A description of the action, including:

(a) all the components of the action;

(b) the precise location of any works to be undertaken, structures to be built or elements of the action that may have relevant impacts;

(c) how the works are to be undertaken and design parameters for those aspects of the structures or elements of the action that may have relevant impacts;

(d) relevant impacts of the action;

(e) proposed safeguards and mitigation measures to deal with relevant impacts of the action;

(f) any other requirements for approval or conditions that apply, or that the proponent reasonably believes are likely to apply, to the proposed action;

(g) to the extent reasonably practicable, any feasible alternatives to the action, including:

(i) if relevant, the alternative of taking no action;

(ii) a comparative description of the impacts of each alternative on the matters protected by the controlling provisions for the action;

(iii) sufficient detail to make clear why any alternative is preferred to another;

(h) any consultation about the action, including:

(i) any consultation that has already taken place;

(ii) proposed consultation about relevant impacts of the action;

(iii) if there has been consultation about the proposed action — any documented response to, or result of, the consultation;

(i) identification of affected parties, including a statement mentioning any communities that may be affected and describing their views.

3 Relevant impacts

3.01 Information given under paragraph 2.01 (d) must include:

(a) a description of the relevant impacts of the action;

(b) a detailed assessment of the nature and extent of the likely short term and long term relevant impacts;

(c) a statement whether any relevant impacts are likely to be unknown, unpredictable or irreversible;

(d) analysis of the significance of the relevant impacts;

(e) any technical data and other information used or needed to make a detailed assessment of the relevant impacts.

4 Proposed safeguards and mitigation measures

4.01 Information given under paragraph 2.01 (e) must include:

(a) a description, and an assessment of the expected or predicted effectiveness of, the mitigation measures;

(b) any statutory or policy basis for the mitigation measures;

(c) the cost of the mitigation measures;

(d) an outline of an environmental management plan that sets out the framework for continuing management, mitigation and monitoring programs for the relevant impacts of the action, including any provisions for independent environmental auditing;

(e) the name of the agency responsible for endorsing or approving each mitigation measure or monitoring program;

(f) a consolidated list of mitigation measures proposed to be undertaken to prevent, minimise or compensate for the relevant impacts of the action, including mitigation measures proposed to be taken by State governments, local governments or the proponent.

5 Other approvals and conditions

5.01 Information given under paragraph 2.01 (f) must include:

(a) details of any local or State government planning scheme, or plan or policy under any local or State government planning system that deals with the proposed action, including:

(i) what environmental assessment of the proposed action has been, or is being, carried out under the scheme, plan or policy;

(ii) how the scheme provides for the prevention, minimisation and management of any relevant impacts;

(b) a description of any approval that has been obtained from a State, Territory or Commonwealth agency or authority (other than an approval under the Act), including any conditions that apply to the action;

(c) a statement identifying any additional approval that is required;

(d) a description of the monitoring, enforcement and review procedures that apply, or are proposed to apply, to the action.

6 Environmental record of person proposing to take the action

6.01 Details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against:

(a) the person proposing to take the action; and

(b) for an action for which a person has applied for a permit, the person making the application.

6.02 If the person proposing to take the action is a corporation — details of the corporation's environmental policy and planning framework.

7 Information sources

7.01 For information given in a draft public environment report or environmental impact statement, the draft must state:

(a) the source of the information; and

(b) how recent the information is; and

(c) how the reliability of the information was tested; and

(d) what uncertainties (if any) are in the information.

Acronyms and abbreviations

Acronym/ abbreviation	Definition
ACH Act	*Aboriginal Cultural Heritage Act 2003* (Qld)
AS/NZS	Australian standard/New Zealand standard
CAMBA	China–Australia Migratory Bird Agreement
CHMP	cultural heritage management plan
CORVEG	Queensland Herbarium's site-based floristic data set containing field survey data
CSG	coal seam gas
DEHP	Department of Environment and Heritage Protection (formerly part of DERM)
DERM	The former Department of Environment and Resource Management, Queensland
DNRM	Department of Natural Resources and Mines, Queensland
EA	environmental authority
EIS	environmental impact statement
EMF	electric and magnetic fields
EMP	environmental management plan
EP Act	*Environmental Protection Act 1994* (Qld)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cwlth)
EPP	environmental protection policy (water, air, waste, noise)
ERA	environmentally relevant activity
ha	hectare
HERBECS	Queensland Herbarium Plant Specimen Database – State – Computer Science
JAMBA	Japan–Australia Migratory Bird Agreement
km	kilometre
LGA	local government area
MCU	material change of use
MDL	mining development licence
Ml	megalitres
ML	mining lease
MLA	mining lease application
MNES	matters of national environmental significance (under the EPBC Act)
Mtpa	million tonnes per annum
NC Act	*Nature Conservation Act 1992* (Qld)
NGA	National Greenhouse Accounts
NT agreement	native title agreement
RE	Regional Ecosystem
REDD	Regional Ecosystem Description Database

Acronym/ abbreviation	Definition
ROKAMBA	Republic of Korea–Australia Migratory Bird Agreement
ROM	run-of-mine
SBICSDA	Surat Basin Infrastructure Corridor State Development Area
SCL	strategic cropping land or potential strategic cropping land
SCL Act	*Strategic Cropping Land Act 2011* (Qld)
SDPWO Act	*State Development and Public Works Organisation Act 1971* (Qld)
SIA	social impact assessment
SIMP	social impact management plan
SPA	*Sustainable Planning Act 2009* (Qld)
The proponent	Cockatoo Coal Limited
TOR	terms of reference
TORUM Act	*Transport Operations (Road Use Management) Act 1995* (Qld)
VM Act	*Vegetation Management Act 1999* (Qld)
WMP	workforce management plan
WSSR Act	*Water Supply (Safety and Reliability) Act 2008* (Qld)

Glossary

Term	Description
afflux	A flow to or toward an area.
aquifer	A water bearing stratum of permeable rock, sand, or gravel, able to transmit substantial quantities of water.
assessable vegetation	Vegetation in which clearing is assessable development under Schedule 3, Part 1, Table 4, Item 1 of the SPA.
benthic substrate	Pertaining to the bottom of a body of water.
biodiversity	Biodiversity is short for 'biological diversity'. It describes the natural diversity of native wildlife, together with the environmental conditions necessary for their survival and includes: a) regional diversity, that is, the diversity of the landscape components of a region, and the functional relationships that affect environmental conditions within ecosystems b) ecosystem diversity, that is, the diversity of the different types of communities formed by living organisms and the relations between them c) species diversity, that is, the diversity of species d) genetic diversity, that is, the diversity of genes within each species.
bunding	An artificial created boundary, usually in the form of an embankment used to prevent sediment and substances from entering a water steam or storage facility.
cathodic protection	Method of protection for iron and steel against electrochemical corrosion
community	An assemblage of interdependent populations of different species (plants and animals) interacting with one another, and living in a particular area.
controlled action	An action that a person proposes to take is a controlled action if the taking of the action by the person without approval under Part 9 of the EPBC Act, for the purposes of a controlling provision of Part 3, would be prohibited by the provision. Controlling provisions include World Heritage, National Heritage, wetlands of international importance, listed threatened species and communities, listed migratory species, nuclear actions and marine environment.
CORVEG	Queensland Herbarium's site based floristic data set containing field survey data
downstream	In the direction of flow of a stream or river, i.e. away from the source.
ecosystem	A biophysical environment containing a community of organisms.
effluent	Outflow of treated wastewater
ephemeral	Transitory, short lived
endangered	A species is endangered if: • there have not been thorough searches conducted for the wildlife and the wildlife has not been seen in the wild over a period that is appropriate for the life cycle or form of the wildlife; or • the habitat or distribution of the wildlife has been reduced to an extent that the wildlife may be in danger of extinction; or • the population size of the wildlife has declined, or is likely to decline, to an extent that the wildlife may be in danger of extinction; or • the survival of the wildlife in the wild is unlikely if a threatening process continues.

Term	Description
endemism	The ecological state of being unique to a defined geographic location, such as an island, nation or other defined zone, or habitat type.
erosion	The process by which rocks are loosened, worn away and removed from parts of the earth's surface.
evaporation	The process that changes a liquid or a solid into a gas. In the tropical hydrological cycle, this involves the conversion to water vapour and the return to the atmosphere of the precipitation (rainfall) that has reached the earth's surface.
fauna	The collective animals of a given region.
feral	An introduced or domestic animal living in the wild.
flood plain	That portion of a river valley that is covered during periods of high flood water.
flora	The collective plants growing in a geographic area (see definition for 'plants').
fluvial	Of, relating to, or inhabiting a river or stream.
geomorphorlogical	The form or shape of the landscape and the processes that modify or change it.
groundwater	Water found underground in porous rock or soil strata.
habitat	The biophysical medium or media occupied (continuously, periodically or occasionally) by an organism or group of organisms.
Habitat corridor	A strip of habitat that facilitates fauna movement between otherwise isolated patches of habitat.
Ionic species	A special name for each part or form in which a chemical exists when it is dissolved in solution
lacustrine environments	A lake or lake-like environment. Wetlands and deepwater habitats with all of the following characteristics: (1) situated in a topographic depression or dammed river channel; (2) lacking trees, shrubs, persistent emergent plants, mosses, or lichens with greater than 30% areal coverage; and (3) total area exceeds 8 ha (20 acres).
listed species	A plant or animal included in a schedule of vulnerable, rare or endangered biota, such as the schedules in the EPBC Act or the Nature Conservation (Wildlife) Regulation 2004 (Qld).
mitigation	The effort to eliminate or reduce impacts.
morphology	Form and structure of organisms without consideration of function.
native species	A species that is indigenous to Australia or an external territory, or periodically or occasionally visits.
native wildlife	Any taxon or species of wildlife indigenous to Australia.
natural environment	The complex of atmospheric, geological, and biological characteristics found in an area in the absence of artefacts or influences of a well-developed technological human culture.
palaeontologic	The study of fossils to determine the structure and evolution of extinct animals and plants.
permeability	The capacity of a material (rock) to transmit fluids (groundwater).
plant	A member, alive or dead, of the plant kingdom or of the fungus kingdom, and includes a part of a plant reproductive material.
population	Occurrence of a species or ecological community in a particular area.
porosity	That fraction of total rock volume which is filled with water, gas, or oil.

Term	Description
project	The design, construction and operation of the North Surat – Taroom Coal mine and associated infrastructure, as described in Section 3 of the North Surat – Taroom Coal Project Initial Advice Statement dated 9 February 2012 and described in Part A, Section 1 of this terms of reference.
project area	As defined in Section 3 and Figures 3-1 and 3-4 of the North Surat – Taroom Coal Project Initial Advice Statement dated 9 February 2012.
regional ecosystems	Regional ecosystems were defined by Sattler and Williams (1999) as vegetation communities in a bioregion that are consistently associated with a particular combination of geology, landform and soil.
regrowth	A young, usually even-aged forest stand that has regenerated after disturbance.
rehabilitation	Making the land useful again after a disturbance. It involves the recovery of ecosystem functions and processes in a degraded habitat.
remnant vegetation	Small remaining areas of naturally occurring vegetation in a landscape that has been altered by human activity such as agriculture. These remnants were once part of a continuously vegetated landscape.
riparian	Pertaining to, or situated on the bank of, a body of water, especially a watercourse such as a river.
riparian zone	Located alongside a watercourse.
run-off	The amount of rainfall which actually ends up as stream flow, also known as rainfall excess.
sediment	Any usually finely divided organic and/or mineral matter deposited by air or water in non-turbulent areas.
sensitive receptor	sensitive receptors are those locations or areas where dwelling units or other fixed, developed sites of frequent human use occur.
sodic soil	A sodic soil is defined as one in which more than 10–15 per cent of the clay's negative charge is balanced by sodium ions.
stratigraphy	Rock strata, especially the distribution, deposition, and age of sedimentary rocks
terrestrial	Pertaining to land, the continents, and/or dry ground. Contrasts to aquatic.
under stress	aquifier water level conditions as defined by DEHP
visual absorption capacity	The landscape's ability to absorb physical changes without transformation in its visual character and quality. The intrinsic capacity of a landscape unit to dissimulate the industrial structures of a specific project without compromising its unique character.
water asset	Water, or the rights or other claims to water, which the water report entity either holds, or for which the water report entity has management responsibilities, and from which an individual or organisation that is a water report entity, or a group of stakeholders of a physical water report entity, derives future benefits (as defined in Exposure Draft of Australian Water Accounting Standard 1 (2010) - Water Accounting Standards Board)
weed	A plant that is considered undesirable because it threatens the persistence of native plants.

References

Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand 2000, *The Australian and New Zealand Guidelines for Fresh and Marine Water Quality*, Australian Water Association (Artarmon) and NZ Water and Wastes Association (Auckland), viewed 25June 2012, <http://www.daff.gov.au/oldmincos/publications/australian_and_new_zealand_guidelines_for_fresh_and_marine_water_quality>.

Christensen, S and Rodgers, C 2005, Central Queensland Strategy for Sustainability: 2004 and Beyond, Fitzroy Basin Association, Rockhampton, viewed 25 June 2012, <http://www.fba.org.au/investments/regionalplan.html>.

Coalfields Geology Council of New South Wales and the Queensland Mining Council 2004, *Australian Guidelines for the Estimating and Reporting of Inventory Coal, Coal Resources and Coal Reserves*, Joint Ore Reserves Committee, viewed 25 June 2012, <http://www.jorc.org/pdf/coalguidelines.pdf>.

Commonwealth of Australia 1992, *National Strategy for Ecologically Sustainable Development*, Ecologically Sustainable Development Steering Committee, Canberra, viewed 25 June 2012, <http://www.environment.gov.au/about/esd/publications/strategy/index.html>.

——2007, *Draft Policy Statement: Use of Environmental Offsets under the Environment Protection and Biodiversity Conservation Act 1999*, Department of the Environment and Water Resources, viewed 25 June 2012, <www.environment.gov.au/epbc/publications/pubs/draft-environmental-offsets.pdf>.

——2009, *Matters of National Environmental Significance: Significant impact guidelines 1.1, Environment Protection and Biodiversity Conservation Act 1999*, Department of Environment, Water Heritage and the Arts, Canberra, viewed 25 June 2012, <http://www.environment.gov.au/epbc/publications/nes-guidelines.html>.

——2010c, *National Greenhouse Accounts (NGA) Factors*, Department of Climate Change and Energy Efficiency, Canberra, viewed 25 June 2012, <http://www.climatechange.gov.au/~/media/publications/greenhouse-acctg/national-greenhouse-factors-july-2010-pdf.pdf>.

——2011a, *Australian Drinking Water Guidelines 6, 2011*, National Health and Medical Research Council and National Resource Management Ministerial Council, Canberra, viewed 25 June 2012, <http://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/eh52_aust_drinking_water_guidelines_update_120430.pdf>.

——2011b, *EPBC Act Environmental Offsets Policy Consultation Draft August 2011*, Department of Sustainability, Environment, Water, Populations and Communities, Canberra, viewed 25 June 2012, <http://www.environment.gov.au/epbc/publications/pubs/consultation-draft-environmental-offsets-policy.pdf>

——2012, *An agreement between the Commonwealth and the State of Queensland under Section 45 of the Environment Protection and Biodiversity Conservation Act 1999 relating to Environmental Assessment*, viewed 25 June 2012, <http://www.environment.gov.au/epbc/assessments/bilateral/pubs/qld-bilateral-agreement-june-2012.pdf>.

Department of Education, Training and the Arts 2008, Queensland Skills Plan, Department of Education, Training and the Arts, Brisbane, viewed 25 June 2012, <http://training.qld.gov.au/resources/information/pdf/skills-plan-2008.pdf>.

Department of Employment, Economic Development and Innovation 2008a, Indigenous Employment Policy for Queensland Government: Building and civil construction projects, Department of Employment, Economic Development and Innovation, Brisbane, viewed 25 June 2012, <http://www.employment.qld.gov.au/pdf/eii/iep-policy-building-&-civil-construction-projects.pdf>.

——2010, Local Industry Policy, Department of Employment, Economic Development and Innovation, Brisbane, viewed 25 June 2012, <http://www.industry.qld.gov.au/documents/AdvancedManufacturing/local-industry-policy.pdf>.

——2011a, *Local Industry Policy Guidelines*, Department of Employment, Economic Development and Innovation, Brisbane, viewed 25 June 2012, <http://www.industry.qld.gov.au/documents/AdvancedManufacturing/LIP-guidelines.pdf>.

——2011b, Major resource projects housing policy, Department of Employment, Economic Development and Innovation, Brisbane, viewed 25 June 2012 <http://www.deedi.qld.gov.au/cg/major-project-resource-housing-policy.html>.

——2011c, Surat Basin Infrastructure Corridor State Development Scheme, Department of Employment, Economic Development and Innovation, Brisbane, viewed 25 June 2012, <http://www.deedi.qld.gov.au/cg/surat-basin-infrastructure-corridor.html>.

Department of Environment 1998, *Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland, Department of Environment, Brisbane*, viewed 24 February 2012, <http://www.derm.qld.gov.au/register/p00090aa.pdf>.

Department of Environment and Resource Management 2009, *Queensland Water Quality Guidelines, Version 3*, Department of Environment and Resource Management, Brisbane, viewed 25 June 2012, <http://www.derm.qld.gov.au/environmental_management/water/queensland_water_quality_guidelines/queensland_water_quality_guidelines_2009.html>.

——2010, Offsets for Net Gain of Koala Habitat in South East Queensland Policy, Department of Environment and Resource Management, Brisbane, viewed 25 June 2012, <http://www.derm.qld.gov.au/wildlife-ecosystems/wildlife/koalas/strategy/pdf/offset-netgain.pdf>.

——2011a, *Ecological Equivalence Methodology Guidelines* (version 1), Department of Environment and Resource Management, Brisbane, viewed 25 June 2012, <http://www.derm.qld.gov.au/environmental_management/environmental-offsets/pdf/ecological-equivilance-methodology.pdf>.

——2011b, Policy for Vegetation Management Offsets, version 3, Department of Environment and Resource Management, Brisbane, viewed 25 June 2012, <http://www.derm.qld.gov.au/environmental_management/environmental-offsets/pdf/policy-for-vegetation-management-offsets.pdf>.

——2011c, Queensland Biodiversity Offset Policy (version 1), Department of Environment and Resource Management, Brisbane, viewed 25 June 2012, <http://derm.qld.gov.au/environmental_management/environmental-offsets/pdf/biodiversity-offset-policy.pdf>.

——2012, State Planning Policy 1/12: Protection of Queensland's Strategic Cropping Land, Department of Environment and Resource Management, Brisbane, viewed 25 June 2012 <http://www.derm.qld.gov.au/land/planning/strategic-cropping/legislation-planning.html>.

Department of Infrastructure and Planning 2009, South East Queensland Regional Plan 2009–2031, Department of Infrastructure and Planning, Brisbane, viewed 25 June 2012, <http://dlgp.qld.gov.au/regional-planning/south-east-queensland-regional-plan-2009-2031.html>.

—— 2010a, *Guide for development in a railway environment*, Growth Management Queensland, Brisbane, viewed 25 June 2012, <http://www.dlgp.qld.gov.au/resources/guideline/tod/rail-guideline.pdf>.

——2010b, *Social impact assessment: Guideline to preparing a social impact management plan*, Department of Infrastructure and Planning, Brisbane, viewed 25 June 2012, <http://www.deedi.qld.gov.au/cg/resources/guideline/simp-guideline.pdf>.

Department of Local Government and Planning 2002, Central Queensland Regional Plan, Central Queensland Regional Planning Advisory Committee, Department of Local Government and Planning, Brisbane, viewed 25 June 2012, <http://www.dlgp.qld.gov.au/regional-planning/central-queensland-regional-plan.html>.

——2011a, Queensland Infrastructure Plan – Central Queensland, viewed 25 June 2012, <http://dlgp.qld.gov.au/resources/plan/qip/qip-central-queensland.pdf>.

——2011b, Surat Basin Regional Planning Framework, Department of Local Government and Planning, Brisbane, viewed 25 June 2012, <http://www.dlgp.qld.gov.au/regional-planning/surat-basin-regional-planning-framework.html>.

——2011c, Surat Basin Resource Town Housing Affordability Strategy, Growth Management Queensland, Department of Local Government and Planning, Brisbane, viewed 25 June 2012, <http://www.dlgp.qld.gov.au/regional-planning/surat-basin-resource-town-housing-affordability-strategy.html>.

Department of Local Government and Planning and Department of Emergency Services 2003, State Planning Policy 1/03: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide, Brisbane, viewed 25 June 2012, <http://www.emergency.qld.gov.au/publications/spp/pdf/spp.pdf>.

Department of Main Roads 2006, *Guidelines for Assessment of Road Impacts of Development*, Department of Main Roads, Brisbane, viewed 25 June 2012, <http://www.tmr.qld.gov.au/~/media/ace67ef2-b6c3-46a3-91a7-39f790c309fe/garid_guidelines_200406.pdf>.

Department of Main Roads 2008, *Road Traffic Noise Management: Code of Practice*, Department of Main Roads, Brisbane, viewed 25 June 2012, <http://www.tmr.qld.gov.au/Business-industry/Technical-standards-publications/Road-traffic-noise-management-code-of-practice.aspx>.

Department of Mines and Energy 2007a, State Planning Policy 2/07: Protection of Extractive Resources, viewed 25 June 2012, <http://mines.industry.qld.gov.au/assets/land-tenure-pdf/dme_stateplan_policy_1.pdf>.

Department of Mines and Energy 2007b, *State Planning Policy 2/07 Guideline: Protection of Extractive Resources*, Department of Mines and Energy, Brisbane, viewed 25 June 2012, <http://mines.industry.qld.gov.au/assets/land-tenure-pdf/dme_stateplan_guideline.pdf>.

Department of Planning (NSW) 2008, *Hazardous Industry Planning Advisory Paper No. 4: Risk Criteria for Land Use Safety Planning*, consultation draft, Sydney, viewed 25 June 2012, <http://www.planning.nsw.gov.au/plansforaction/pdf/hazards/haz_hipap4_rev2008.pdf>.

Department of Primary Industries 1990, *Guidelines for agricultural land evaluation in Queensland*, Land Resources Branch, Department of Primary Industries, Brisbane.

Department of Primary Industries 2002, Fish Habitat Management Operational Policy FHMOP 005: Mitigation and Compensation for Works or Activities Causing Marine Fish Habitat Loss, Department of Primary Industries, Brisbane, viewed 25 June 2012, <http://www.dpi.qld.gov.au/documents/Fisheries_Habitats/FHMOP005-Fish-Hab-Manage.pdf>

Department of Primary Industries and Department of Housing, Local Government and Planning 1992, State Planning Policy 1/92: Development and the Conservation of Agricultural Land, viewed 25 June 2012, <http://dlgp.qld.gov.au/resources/policy/spp1-92.pdf>.

Department of Primary Industries and Department of Housing, Local Government and Planning 1993, *Planning guidelines: The identification of good quality agricultural land*, viewed 25 June 2012, <http://dlgp.qld.gov.au/resources/policy/plng-guide-identif-ag-land.pdf>.

Department of Transport and Main Roads 2010, *Maritime Safety Queensland Guidelines for Major Development Proposals*, Department of Transport and Main Roads, Brisbane, viewed 25 June 2012, <http://www.msq.qld.gov.au/~/media/71b5bd33-2949-429e-9323-2040c4922b85/pdf_guidelines_major_development_proposals.pdf>.

Environmental Protection Agency 2000, *Noise Measurement Manual*, 3rd edn, Department of Environment and Resource Management, Brisbane, viewed 25 June 2012, <http://www.derm.qld.gov.au/register/p00367aa.pdf>.

——2004, *Guideline: Planning for Noise Control*, Environmental Protection Agency, Brisbane, viewed 25 June 2012, <http://www.derm.qld.gov.au/register/p01369aa.pdf>.

——2006, *Guideline: Noise and vibration from blasting*, Environment Protection Agency, Brisbane, viewed 25 June 2012, <http://www.derm.qld.gov.au/register/p01382aa.pdf>.

——2008a, *Guideline: EPA Best Practice Urban Stormwater Management – Erosion and Sediment Control*, Environmental Protection Agency, viewed 25 June 2012, <http://www.derm.qld.gov.au/register/p02301aa.pdf>.

——2008b, Queensland Government Environmental Offsets Policy, Environmental Protection Agency, Brisbane, viewed 3 August 2011, <http://www.derm.qld.gov.au/register/p02501aa.pdf>.

Eyre, TJ, Kelly, AL, Neldner, VJ, Wilson, BA, Ferguson, DJ, Laidlaw, MJ and Franks, AJ 2011, *BioCondition: A Condition Assessment Framework for Terrestrial Biodiversity in Queensland: Assessment Manual*, version 2.1, Department of Environment and Resource Management, Biodiversity and Ecosystem Sciences, Brisbane, viewed 25 June 2012, <http://www.derm.qld.gov.au/wildlife-ecosystems/biodiversity/pdf/biocondition_manual.pdf>.

Institution of Engineers Australia 1996, *Soil Erosion and Sediment Control – Engineering Guidelines for Queensland Construction Sites*, Institution of Engineers Australia Queensland Division, Brisbane.

Isbell, RF and CSIRO 2002, *The Australian soil classification*, CSIRO Publishing, Collingwood, Victoria.

Joint Ore Reserves Committee of The Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia 2004, *Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore reserves*, Joint Ore Reserves Committee, viewed 25 June 2012, <http://www.jorc.org/main.php>.

McKenzie, NJ et al. 2008, *Guidelines for Surveying Soil and Land Resources*, 2nd edn, CSIRO Publishing, Melbourne.

Minerals Council of Australia 2012, *Water Accounting Framework for the Minerals Industry version 1.2,* Minerals Council of Australia, Canberra, viewed 23 June 2012, <http://www.minerals.org.au/focus/sustainable_development/water_accounting>.

National Committee on Soil and Terrain 2009, *Australian soil and land survey field handbook*, 3rd edn, CSIRO Publishing, Collingwood.

Queensland Rail 2012, *Code of Practice – Railway Noise Management*, Queensland Rail, Brisbane, viewed 25 June 2012, <http://www.queenslandrail.com.au/AboutUs/ReleaseOfInformation/Documents/EMS-STD-46-004.pdf>.

Skills Queensland 2008, Government Building and Construction Contracts Structured Training Policy, Skills Queensland, Brisbane, viewed 25 June 2012, <http://www.skills.qld.gov.au/DownloadAttachment.ashx?AttachmentId=136298>.

——2012a, Surat Basin Workforce Development Plan, Skills Queensland, Brisbane, viewed 9 March 2012, <http://www.skills.qld.gov.au/suratworkforceplan.aspx>.

——2012b, Work for Queensland: Resources Skills and Employment Plan, Skills Queensland, Brisbane, viewed 25 June 2012, <http://www.skills.qld.gov.au/DownloadAttachment.ashx?AttachmentId=136956>.

Standards Australia 2006a, *A Practitioners Guide to Business Continuity Management* (HB 292-2006), Standards Australia, Sydney.

——2006b, *Executive Guide to Business Continuity Management* (HB 293-2006), Standards Australia, Sydney.

——2012, Managing environmental-related risk (HB203:2012), Standards Australia, Sydney.

Standards Australia and Standards New Zealand 2004, *Business Continuity Management* (HB 221:2004), Standards Australia (Sydney) and Standards New Zealand (Wellington).

——2006, *Handbook: Security Risk Management* (HB 167:2006)*,* Standards Australia (Sydney) and Standards New Zealand (Wellington).

——2009, *Risk Management—Principles and guidelines* (AS/NZS ISO 31000:2009), Standards Australia (Sydney) and Standards New Zealand (Wellington).

Water Accounting Standards Board 2010, *Exposure Draft of Australian Water Accounting Standard 1* viewed 27 June 2012, <http://www.bom.gov.au/water/standards/documents/ed_awas1_v1.0.pdf>

PO Box 15517
City East Qld 4002 Australia

Tel. 13 25 23 or +61 7 3404 6999
www.projects.industry.qld.gov.au

Queensland Government