Terms of reference for an environmental impact statement

Cross River Rail project

August 2010

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

Toward Q
Tomorrow's Queensland

Queensland Government

Terms of reference

Contents

Synopsis

The Cross River Rail (CRR) project would involve works between Salisbury and the Mayne Rail Yards that would enable significant improvements to the whole of the Brisbane rail network. The project includes:

- a new underground north–south rail crossing of the Brisbane River, connecting the existing southern rail network south of Fairfield with the existing northern rail network through the central business district (CBD) via the Exhibition loop
- additional above ground tracks and infrastructure to remove junction conflicts and allow for increased frequency of passenger and freight movements.

The new rail line will have new underground stations at the Boggo Road precinct, Woolloongabba, southern Albert Street and Roma Street and major upgrades to surface stations at Bowen Hills and Park Road

On 26 March 2010, the Coordinator-General declared the CRR project to be a significant project for which an environmental impact statement (EIS) is required under section 26(1)(a) of the *State Development and Public Works Organisation Act 1971* (SDPWO Act). On 28 July 2010, the delegate of the Commonwealth Minister for the Environment, Heritage and the Arts determined that the project is not a 'controlled action' pursuant to *Environment Protection and Biodiversity Conservation Act 1999, and subject to 'particular manner' conditions relating to spoil placement and distance from Commonwealth heritage buildings*.

The declaration of the project as a significant project does not indicate support for, nor approval of, the project by the Coordinator-General or the Queensland Government. Rather it is a requirement for the project to undergo a statutory environmental impact assessment process.

The EIS process is being coordinated by the Department of Infrastructure and Planning on behalf of the Coordinator-General.

On 10 April 2010, the Coordinator-General issued a request for comment on the draft terms of reference (TOR) for the EIS for the project. Advertisements inviting comment were made in relevant newspapers. Public submissions on the document were invited until 17 May 2010.

DIP received 47 submissions, 38 from local businesses and members of the community, and nine from state government agencies. Copies of submissions were provided to the proponent. All submissions have been carefully considered and amendments suggested in submissions have been incorporated into the final version of this TOR where relevant and appropriate.

The TOR are divided into two parts:

- Part A—general information and administrative procedures
- Part B—specific requirements and structure of the EIS.

This final TOR has been issued to the proponent and is available for download at:

http://www.dip.qld.gov.au/projects/transport/rail/cross-river-rail.html

Abbreviations

The following abbreviations have been used in this document:

ACH Act	*Aboriginal Cultural Heritage Act 2003* (Qld)
AHD	Australian Height Datum
BCC	Brisbane City Council
CHMP	Cultural heritage management plan
CBD	Central business district
CLR	Contaminated land register
CRR	Cross River Rail
DERM	Queensland Department of Environment and Resource Management
DIP	Queensland Department of Infrastructure and Planning
TMR	Queensland Department of Transport and Main Roads
EIS	Environmental impact statement
EMP	Environmental management plan
EMR	Environmental management register
EP Act	*Environmental Protection Act 1994* (Qld)
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Cwlth)
EPP (Air)	*Environmental Protection (Air) Policy 2008*
EPP (Noise)	*Environmental Protection (Noise) Policy 2008*
EPP (Waste)	*Environmental Protection (Waste Management) Policy 2000*
EPP (Water)	*Environmental Protection (Water) Policy 2009*
NEPC	National Environmental Protection Council
NGA	National greenhouse accounts
NT	Native title
QASSMAC	Queensland Acid Sulfate Soils Management Advisory Committee
QASSIT	Queensland Acid Sulfate Soils Investigation Team
REDD	Regional ecosystem description database of the Department of Environment and Resource Management

SDPWO Act	*State Development and Public Works Organisation Act 1971* (Qld)
SEQ Regional Plan	South East Queensland Regional Plan 2009 - 2031
SIA	Social impact assessment
SISTO	'security-identified surface transport sensitive operation' as defined under section 9 of the *Transport Security (Counter-Terrorism) Act 2008*
SPA	*Sustainable Planning Act 2009* (Qld)
The proponent	Queensland Department of Transport and Main Roads
TMR	Queensland Department of Transport and Main Roads
TOR	Terms of reference for the EIS under PART 4 of the SDPWO Act
UDA	Urban Development Area under the *Urban Land Development Authority Act 2007 (Qld)*.

Part A: General information and administrative procedures

1. Project summary

The Cross River Rail (CRR) project would involve works between Salisbury on the Beenleigh Line and the Mayne Rail Yards that would enable significant improvements to the whole of the Brisbane rail network. It would create a new north–south passenger rail service through Brisbane's inner city that includes a new river crossing and inner city train stations. From the existing southern rail network south of Fairfield, it will pass under the central business district (CBD) of Brisbane and connect with the existing northern rail network just north of Bowen Hills via the Exhibition line. The project will include a tunnel under the Brisbane River and new and upgraded train stations. These improvements to the rail network will be required by 2016 to meet anticipated demand.

South of the river, CRR will be constructed in tunnel commencing at a location still to be determined north of Moorooka station and generally follow the existing rail corridor to Park Road station, before passing beneath Woolloongabba. The project will then follow a north-west alignment under the Brisbane River and the CBD in tunnels, and then emerge onto the existing Exhibition rail loop.

There will be new underground train stations at Park Road (beneath the developing Boggo Road precinct), Woolloongabba (beneath the Woolloongabba Urban Development Area (UDA), the southern end of Albert Street in the CBD and Roma Street (beneath the existing Transit Centre). The project will also provide for the upgrade of the Exhibition and Bowen Hills train stations and integration with other transport services at Park Road, Woolloongabba and Roma Street.

The project may include additional tracks within the Mayne Rail yards before connecting with the North Coast line before Breakfast Creek. The existing Exhibition rail loop will be widened to accommodate a further two tracks to support CRR, passenger and other North Coast line freight services. Additional surface tracks will also be provided from the southern portal to Salisbury.

The project will be further refined through the project development process before the release of the EIS.

2. Project proponent

The Queensland Department of Transport and Main Roads (TMR), is the proponent for the CRR project. Contact details for TMR are:

Project Director, Cross River Rail:

Office address:	Postal Address:	Phone, fax and e-mail:
Level 6, Transport House	GPO Box 213	Tel 1800 462 730
230 Brunswick Street	Brisbane QLD 4001	Fax 3253 4639
Fortitude Valley QLD 4006		info@crossriverrail.qld.gov.au

3. Legislative framework

On 26 March 2010, the Coordinator-General declared the Cross River Rail project to be a 'significant project' for which an environmental impact statement (EIS) is required under Section 26(1)(a) of the *Queensland State Development and Public Works Organisation Act 1971* (SDPWO Act). This declaration initiates the statutory environmental impact assessment process of Part 4 of the SDPWO Act.

On 28 July 2010, the delegate of the Commonwealth Minister for the Environment, Heritage and the Arts determined that the project is not a 'controlled action' pursuant to *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The delegate's decision was contingent upon the manner in which the action is undertaken including:

- the placement of tunnel spoil at a site at Swanbank nominated in referral information on 7 April 2010, and
- tunnel works not encroaching within a certain distance of Commonwealth lands.

TMR has subsequently sought a reconsideration of the delegate's decision with respect to the 'particular manner' with which the action is undertaken to clarify that the tunnel alignment will be no closer than 200 metres from the boundary of four Commonwealth Heritage listed buildings.

The Department of Infrastructure and Planning (DIP) is managing the EIS process on behalf of the Coordinator-General. DIP has invited relevant Australian, state and local government representatives, and other relevant authorities, to participate in the process as advisory agencies.

The first step in the impact assessment process is the development of terms of reference (TOR) for an EIS for the project. On 10 April 2010, the Coordinator-General issued a request for comment on the draft TOR. Advertisements inviting comment were made in *The Australian*, *The Courier Mail* and relevant Quest newspapers. Public submissions on the document were invited until 17 May 2010.

DIP received 47 submissions, 38 from local businesses and members of the community, and nine from state government agencies. Copies of submissions were provided to the proponent. All submissions have been carefully considered and amendments suggested in submissions have been incorporated into the final version of this TOR where relevant and appropriate.

The proponent must prepare an EIS to address the TOR. Once the EIS has been prepared to the satisfaction of the Coordinator-General, a public notice will be advertised in relevant newspapers circulating in the region. The notice will state where copies of the EIS can be viewed or purchased, the submission period, and where submissions should be sent. The proponent may also be required to prepare a supplementary report to the EIS to address specific matters raised during the EIS submission period.

At the completion of the EIS phase, the Coordinator-General will prepare a report (Coordinator-General's report) evaluating the EIS and other relevant material pursuant to section 35 of the SDPWO Act. The Coordinator-General's report will include an evaluation of and conclusion about the environmental effects of the project and any associated mitigation measures. Material that will be considered by the Coordinator-General will include:

- the EIS
- properly made submissions and other submissions accepted by the Coordinator-General

- any other material the Coordinator-General considers relevant to the project such as:
  - a supplementary EIS
  - comments and advice from advisory agencies and other entities
  - technical reports
  - legal advice.

The Coordinator-General's report will be publicly notified by placing it on the relevant website at the time. The DIP webpage for the CRR project is currently:

http://www.dip.qld.gov.au/projects/transport/rail/cross-river-rail.html

The Coordinator-General's report will also be presented to:

- the proponent
- the assessment manager for any approvals required under *Sustainable Planning Act 2009* (SPA)
- the person required under any other Act to issue approvals for the project, and each nominated entity for any Coordinator-General's imposed conditions for the project.

If the project involves development requiring an application for a development approval under SPA, the Coordinator-General's report may, under section 39 of the SDPWO Act, state for the assessment manager one or more of the following:

- the conditions that must attach to the development approval
- that the development approval must be for part only of the development
- that the approval must be preliminary approval only.

Alternatively the Coordinator-General's report must state for the assessment manager that:

- there are no conditions or requirements for the project or
- the application for development approval be refused.

4. EIS objectives

The objective of the EIS is to ensure that all potential environmental, social and economic impacts of the project are identified and assessed and that adverse impacts are avoided or mitigated. Direct, indirect and cumulative impacts must be fully examined and addressed. The project should be based on sound environmental protection and management criteria.

The EIS should provide information for the following persons and groups, as the project stakeholders:

- **for interested bodies and persons**—a basis for understanding the project, prudent and feasible alternatives, affected environmental values, impacts that may occur, and the measures to be taken to mitigate adverse impacts
- **for affected persons**—that is, groups or persons with rights or interests in land, as defined under s38 of the *Environmental Protection Act 1999* (Qld)—an outline of the effects of the proposed project
- **for government agencies and referral bodies**—a framework for decision-makers to assess the environmental aspects of the proposed project with respect to legislative and policy provisions, and based on that information, to make an informed decision on whether the project should proceed or not, and if so, subject to what conditions, if any

- **for the proponent**—a mechanism by which the potential environmental impacts of the project are identified and understood, including information to support the development of management measures, such as an environmental management plan, to mitigate potential adverse environmental impacts of the development.

The proponent is required to address the TOR to the satisfaction of the Coordinator-General before the EIS is made publicly available.

5. EIS guidelines

The EIS should be a self-contained and comprehensive document that provides sufficient information for an informed decision on the potential impacts of the project and the management measures employed to mitigate adverse impacts. The main EIS report needs to be supported by appendices containing relevant data, technical reports and other sources of the EIS analysis. In preparing the EIS, the approach to be adopted requires that:

- scientific and/or specialist studies are used to predict environmental impacts and details of their methodology, reliability, and any relevant assumptions or specialist judgements are indicated
- the EIS is to present all technical data, sources or authority and other information used to assess impacts
- proposed measures to mitigate and manage identified issues are described and evaluated
- residual impacts that are not quantifiable are described qualitatively, in as much detail as reasonably practicable
- a discussion is included of the assessment criteria in assessing the proposed project and its impacts, such as compliance with relevant legislation, policies, standards, community acceptance
- the level of investigation of potential impacts is proportionate to both the severity and the likelihood of those events occurring
- issues that may emerge during the investigations and preparation of the EIS are adequately addressed and the necessary studies are undertaken and reported
- all relevant matters concerning environmental values, impacts and proposed mitigation measures are addressed in the main text of the EIS and not only in an appendix or the draft environmental management plan.

Where possible, information provided in the EIS should be clear, logical, objective and concise, so that non-technical people may easily understand it. Where appropriate, text should be supported by maps, remotely sensed images—for example, aerial photographs—and diagrams. Factual information in the document should be referenced.

The terms ‘describe’, ‘detail’ and ‘discuss’ should be taken to include both quantitative and qualitative matters as practical and meaningful.

Should the proponent require any information in the EIS to remain confidential, this should be clearly indicated, and separate information should be prepared on these matters.

6. Stakeholder consultation

The proponent should undertake a comprehensive and inclusive consultation program with the stakeholders identified in [Part A—section 4]. Consultation with advisory agencies should be the principal forum for identifying legislation, regulations, policies and guidelines relevant to the project and EIS process.

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

- the types of consultation and communication activities to be undertaken
- timing
- stakeholder or community representatives
- measures taken to integrate the program with other EIS activities and the project development process
- consultation responsibilities
- communication protocols
- types of reporting and feedback arrangements including web site updates.

7. General EIS format and copy numbers

The EIS should be written in a format matching the TOR and/or include a guideline (preferably as an appendix) describing how the EIS meets the requirements of each part of the TOR. There should be clear demarcation in the EIS between different materials that refer to any separate project components to allow readers to differentiate between those components.

The EIS should contain (possibly as part of the executive summary) a brief guide to where each category of information is located in the report. This should particularly highlight where particular subjects are presented in a number of places in the EIS.

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

Sufficient copies of the EIS should be produced on A4 size paper capable of being photocopied, with maps and diagrams of A4 or A3 size.

The EIS should be produced in a format suitable for publishing on the proponent's web site and an executive summary, no larger than 10 megabytes (MB) in size, should be provided for placement on the DIP website. Both sites should include hyperlinks to each other.

Consideration should be given to publishing the EIS as a website in HTML for the main body of the report with supporting material as PDF files. If the EIS is published on a website in HTML, it must meet the *W3C web content accessibility guidelines* (WCAG) as outlined at www.w3.org.

Alternatively the EIS may be produced completely as PDF documents which must be no larger than 10 MB each in size. Documents can be provided in sections to meet this size requirement. Text size and graphics files included in each PDF document should be of sufficient resolution to facilitate reading and enable legible printing. PDF documents must be accessible and it is recommended they are produced in accordance with Adobe's PDF accessibility best practice guides available at: www.adobe.com/accessibility/products/acrobat/training.html.

PDF documents must, at a minimum, meet the following accessibility requirements:

- document structure tags and proper read order
- searchable text
- alternative text descriptions
- security that does not interfere with assistive technology.

The EIS should also be produced on CD-ROM, DVD, USB-drive or other electronic memory device in Adobe®PDF format. All compression must be down-sampled to 72 dpi (or ppi).

The final nature and number of EIS copies required to be submitted and made available, should be discussed and agreed with the DIP in the early stages of the EIS process.

8. DIP contact details

For further inquiries about the EIS process for this project, please contact:

EIS project manager—Cross River Rail
Significant Projects Coordination
Department of Infrastructure and Planning
PO Box 15009
City East Qld 4002
tel 3225 8347
fax 3225 8282
crr@dip.qld.gov.au
www.dip.qld.gov.au

Part B: Contents of the EIS

While the EIS should follow the format and content outlined in these TOR, minor changes to the structure can be discussed with DIP. The Coordinator-General may agree to other information formats or, in accordance with section 35(2) of the SDPWO Act, require information additional to these TOR.

Executive summary

The executive summary should convey the most important aspects and options relating to the project to the reader in a concise and readable form. It should use plain English and avoid the use of jargon. It should be written as a stand-alone document and be structured to follow the EIS. It should be able to be reproduced on request and distributed to interested parties who may not wish to read or purchase the EIS as a whole.

The executive summary should include:

- the title of the project
- name and contact details of the proponent and a discussion of previous projects undertaken by the proponent, if applicable, and its commitment to effective environmental management
- the statutory planning scheme(s) and approvals framework within which the project sits
- a concise statement of the aims and objectives of the project
- an outline of the background and need for the project, including the consequences of not proceeding with the project
- an outline of the alternatives to the project and the proposed alignment options considered and reasons for the selection of the proposed development option
- a brief description of the project (project development, construction and operational activities and decommissioning) and the existing environment, utilising visual aids where appropriate
- an outline of the principal environmental impacts predicted and the proposed environmental management strategies and measures recommended 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 project location and any other critical figures should also be included.

Glossary of terms

A glossary of technical terms, acronyms, abbreviations and references should be provided in the EIS or as an appendix.

1. Introduction

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

1.1 Project proponent

This section should describe the experience of the project proponent, including the nature and extent of business activities, experience and qualifications, and the environmental record, including the proponent's environmental, health, safety and community policies.

1.2 Project description

A brief description of the key elements of the project should be provided with illustrations or maps. Any major associated infrastructure requirements should also be summarised. Detailed descriptions of the project should follow in section 2.

1.3 Project rationale

The specific objectives and justification for the project should be described including its strategic, economic, environmental and social implications, technical feasibility and commercial drivers. The status of the project should be discussed in a regional, state and national context. The project's compatibility with relevant policy, planning and regulatory frameworks should also be mentioned.

1.4 Relationship to other projects

This section should describe how the project relates to any other infrastructure projects, of which the proponent should reasonably be aware, that have been or are being taken or that have been approved in the area affected by the project.

As a result of this assessment, opportunities may exist for co-location of existing or proposed infrastructure enabling efficiency gains and the mitigation of environmental and property impacts. Where co-location may be likely, the EIS should outline opportunities to coordinate or enhance impact mitigation strategies. Opportunities should be discussed in sufficient detail to enable an understanding of the reasons for preferring certain options or courses of action and rejecting others.

1.5 Alternatives to the project

This section should describe feasible alternatives, including conceptual, technological and locality alternatives to the proposed project, as well as discussion of the consequences of not proceeding with the project.

Alternatives should be discussed in sufficient detail to enable an understanding of the reasons for preferring certain options or courses of action and rejecting others. This should include a discussion of a surface rail corridor alternative and the 'no action' option. A discussion of the methodology adopted to discern between the feasible options should be included.

The interdependencies of the project components should be explained, particularly in regard to how each of any infrastructure requirements relate to the viability of the project.

The alternatives considered must include:

- an evaluation of a surface rail option instead of the rail tunnel and/or an option with a substantially lower rail tunnel component
- an evaluation of rail tunnel alignment options:
  - at a broad level for alignment options considered outside of the nominated study corridor during the scoping of the project
  - at a more detailed level for alignment options considered within the nominated study corridor
- an analysis of alternative portal locations at each end of the tunnel, with particular attention to the relative construction impacts of each alternative on surrounding property owners, residents and businesses
- for each new rail station location, an analysis of alternative station locations and entrance options, with particular attention to the relative construction impacts of each alternative on surrounding property owners, residents and businesses
- consideration of impacts to cyclists, bus users, pedestrians and general road traffic
- an analysis of the removal of tunnel spoil and the delivery of tunnel materials by rail rather than road including the cumulative effects of spoil haulage due to other large projects
- where road transport of tunnel spoil or materials is required, an analysis of the impacts of different road haulage routes
- an analysis of the comparative impacts of different spoil placement options.

Reference may be made to project alternatives previously examined in the 2008 Department of Transport Inner City Rail Capacity Study (ICRCS) and other recent studies, to the extent that these studies may addresses the requirements of this TOR.

EIS requirements with respect to individual construction and worksite alternatives considered for the reference design for the project are described in section 2.5.2 of this TOR document.

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

1.6 The environmental impact assessment process

1.6.1 Methodology of the EIS

This section should provide an outline of the environmental impact assessment process including the role of the EIS in the Coordinator-General's decision making process. It should include information on relevant stages of the 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.

1.6.2 Objectives of the EIS

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

- provide public information on the need for the project, alternatives to it and options 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 offsets if any, for residual impacts
- the role of the EIS in providing information for the formulation of the environmental management plan (EMP) for the project should be discussed.

1.6.3 Submissions

The EIS should inform the reader how to provide a properly made submission on the EIS. The reader should be informed as to how and when submissions on the EIS will be addressed and considered in the decision-making process. Where subsequent approvals will be required for elements of the project—for example, development approvals under SPA—the EIS should also describe how submitters on this EIS may be afforded subsequent rights under those later approvals processes—for example, appeals against development approvals under SPA. Staff of DIP administering the EIS process can provide some guidance on these matters.

1.7 Public consultation process

The public consultation process should provide opportunities for community involvement and education. It may include interviews with individuals, public communication activities, interest group meetings, production of regular summary information and updates (such as newsletters), and other consultation mechanisms including suitable information for persons with special needs to encourage and facilitate active public consultation. Public consultation processes (community engagement) for all parts of the EIS should be integrated.

This section should outline the methodology that will be adopted to:

- identify the stakeholders and how their involvement was facilitated
- identify the processes conducted to date and the future consultation strategies and programs including those during the operational phase of the project
- indicate how consultation involvement and outcomes were integrated into the EIS process and future site activities including opportunities for engagement and provision for feedback and action if necessary.

A list of the stakeholders consulted during the program should be provided as well as any meetings held, presentations made, and any other consultation undertaken for the EIS process. Information about the consultation process that has taken place and the results should be provided.

All property owners directly impacted by the construction and operation of the CRR project, especially those over or immediately bordering all underground project structures, must be notified by the proponent. All reasonable efforts must be made to directly consult with those landholders and body corporate entities over all underground project structures. The outcomes of this consultation must be reported to the Coordinator-General prior to the finalisation of the Coordinator-General's EIS evaluation report. This direct consultation must involve the provision of both cadastral mapping, volumetric and/or engineering information (where relevant) explaining how the CRR project would potentially impact in terms of:

- property take, if any
- constraints, if any, caused by the project on the property with respect to:
  - structures that can be built
  - access to the property during both the construction and operation of the project
  - any significant disruption to the provision of water, waste, telecommunications, electricity or other energy services to the property.

While the outcomes of each of land owner and body corporate entity consultation should not be reported individually in the EIS, this information should be available in confidence to the Coordinator-General upon request. A summary of the progress of these consultations to date, which protects the confidentiality of individuals, should be presented in an appendix to the EIS.

All reasonable efforts should also be made by the proponent to consult with residential and business tenants and strata title owners potentially impacted directly by the construction and operation of the project and any measures proposed to avoid, minimise, mitigate and/or offset those impacts.

Aspects of the community engagement and consultation processes that provide information about the social impacts of the project should be presented in more detail in line with the requirements of section 4.2 of these TOR.

1.8 Project approvals

1.8.1 Relevant legislation and approvals

This section must describe and list Commonwealth, state and local legislation and policies relevant to the planning, approval, construction and operation of the project. The EIS should identify approvals, permits, licences and authorities that will need to be obtained for the proposed project. Triggers for the application of each of these should be outlined and relevant approval requirements identified.

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

- *Aboriginal and Torres Strait Islander Heritage Protection Act 1994*
- EPBC Act
- *Native Title Act 1993.*

Relevant Commonwealth obligations, such as memberships of relevant international conventions (e.g. RAMSAR wetlands) should also be outlined and identified.

Reference must also be made, where relevant, to applicable Queensland legislation including but not limited to:

- *Aboriginal Cultural Heritage Act 2003*
- *Coastal Protection and Management Act 1995*
- *Dangerous Goods Safety Management Act 2001*
- *Environmental Protection Act 1994*
- *Fisheries Act 1994*
- *Forestry Act 1995*
- *Land Act 1994*

- *Nature Conservation Act 1992*
- *Queensland Heritage Act 1992*
- *Sustainable Planning Act 2009*
- *Transport Infrastructure Act 1994*
- *Vegetation Management Act 1999*
- *Water Act 2000.*

1.8.2 Planning instruments and frameworks

This section should outline the project's consistency with the existing national, state, regional and local planning frameworks that applies to the project location. This should include reference to all relevant statutory and non-statutory plans, planning policies, guidelines, strategies and agreements.

1.8.3 Environmentally relevant activities

A brief description is required for each environmentally relevant activity (ERA) and associated activities which are to be carried out in connection with the project. More detailed descriptions of each ERA should be presented in section 3—environmental values and management of impacts—in which potential impacts on land, water, air, noise and any other relevant environmental values must be identified.

The above information will allow for informed decisions to be made with respect to the project, consistent with the provisions of the EP Act.

2. Description of the project

The objective of this section is to describe the project through its lifetime of construction, operation and potentially 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.

2.1 Overview of the project

The EIS should provide an overview of the project. This section should include:

- leasing arrangements, role and responsibilities of the project proponent and railway manager
- a rationale explaining the selection of the preferred operating scenario for the project, 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 should be presented
- the expected cost, timing, and overall duration of construction and operation of the project, including any staging of the development and delivery of the project.

2.2 Location

This section should describe, through maps at suitable scales, the regional and local context of the project and associated infrastructure. Maps should show the precise location of the study corridor and areas affected by the project, in particular the location:

- and boundaries of current or proposed land tenures that will be affected by the project, including details of land ownership, easement widths and access requirements
- of any proposed buffers surrounding the working areas (for construction and operation)
- of infrastructure relevant to or provided for the project—for example, electricity substations or transformers, access roads or paths, ventilation structures, water and waste management structures
- of natural features such as waterways—for example rivers, streams, creeks, other water bodies
- of any proposed construction compounds, materials storage areas, site offices, worker parking and operational control rooms or buildings.

2.3 Project Development

The development of the project should be described including key steps in the design process. The key steps should be discussed in sufficient detail to enable an understanding of the criteria for the selection of the preferred option in terms of technical, commercial, social and/or environmental aspects.

Relevant illustrations, maps, diagrams and drawings that show the location and context of the assessed options should be provided.

The proposed land acquisition process or processes for all surface and subsurface components of the project should be described.

2.4 Design

The description of the project should include written and schematic identification of:

- the design criteria applied to the route including tunnels, portals and railway infrastructure
- the design criteria for new underground stations and improvements to existing at-surface stations including platforms, vertical access to underground platforms, access for pedestrians and cyclists and interchanges with private vehicles and other public transport modes
- the extent to which design criteria have incorporated:
  - sub tropical design principles as outlined in the *South East Queensland Regional Plan 2009–2031*
  - interface with the urban fabric
  - transit orientated development principles associated with new stations
- the range of potential rolling stock that were considered in the design process
- for the corridor within which the tunnels and surface railway elements will be located, maps and diagrams describing:
  - indicative sections within tunnel, on typical embankments and bridged sections;
  - tunnel lighting
  - in-tunnel operational management
  - ventilation and drainage works and outlets
  - interaction with other key transport assets other than rail assets
  - works within and outside of the existing rail corridor, including ancillary works such as for pedestrian, cycle movements and general road traffic
  - measures required for emergency access, and retrieval of immobile and derailed trains
  - locations and areas of other activities, works and temporary or permanent infrastructure
  - design parameters including horizontal and vertical alignment (including relationships to existing and proposed structures adjacent to or in close proximity to the project), representative rail and tunnel cross-sections
- assumed train volumes and train capacity of the project
- anticipated design life of project structures
- rail corridor configuration including indicative widths and access requirements along the alignment including the use of existing areas of disturbance for machinery access and future maintenance
- proposed tunnel management and control apparatus, including signalling, monitoring of trains and air quality, monitoring of groundwater seepage into tunnels, and monitoring and control of surface water flow (quantity and quality) into tunnels and around project structures
- proposals for redevelopment of construction worksites
- proposed tenure arrangements for all land parcels occupied by the project, including those land parcels required for construction but not operation of the project

- any structures associated with longer term retention and management of spoil from all excavations.

This section should detail, where relevant, how the project addresses Brisbane City Council's planning scheme policy Crime Prevention through Environmental Design Principles in its design features.

2.5 Construction

The following information should be provided on the pre-construction, construction and commissioning of the project including detailed plans where appropriate.

2.5.1 Pre-construction activities

This section should set out a description of all the pre-construction activities to be undertaken in order to prepare the project for construction, including:

- any approvals required for this stage
- any land acquisitions required, be it in full or as easements, leases etc. and the acquisition processes to be followed
- nature, scale and timing for vegetation clearing
- site access
- earthworks
- interference with watercourses and floodplain areas
- site establishment requirements for construction facilities, including workforce access, restriction and control measures, services (water, sewage, communication, power, recreation), safety requirements and project related public utility works
- temporary works
- upgrade, relocation, realignment, closure or deviation of or restricted access to roads and other infrastructure.

While the broad measures proposed to mitigate the negative impacts of pre-construction activities may be summarised here, details of these mitigation measures must be described within the relevant part of section 3 of the EIS.

2.5.2 Construction

For all major worksite alternatives considered for the construction of the project, this section should set out a description of all the construction elements of the project, including:

- any expected individual property impacts
- any expected property access impacts and how access is to be managed
- a preliminary predictive program of activities including the anticipated construction timetable, expected commissioning and start-up dates and the proposed construction hours of operation
- options for potential construction and equipment storage areas and transport management (including parking arrangements for the construction workforce)
- rail and road traffic management plans (including passenger transport infrastructure) for construction-related activities and the approval process for these plans

- active transport management plans for construction-related activities including documentation of consultation undertaken with relevant stakeholders
- spoil management arrangements including:
  - anticipated quantities
  - re-use options
  - spoil placement site options
  - transport (number, types of vehicles, composition, trip timing and routes)
  - storage and placement location options, including any additional infrastructure required
  - potential haulage routes (including rail options) for transport of spoil to possible placement locations.
  - the influence of other large spoil-producing infrastructure projects likely to be under construction at the same time in the southeast Queensland region
  - management of spoil placement activities and spoil placement sites to avoid unacceptable environmental impacts
  - consideration of the minimisation of environmental and transport impacts, and maximisation of opportunities for beneficial reuse of the material
- the likely types of vehicles or alternative arrangements to be used for spoil transportation, including numbers of vehicle trips and frequency of trips for each haulage option and route
- likely scenarios for origin and destination of inputs/supply source and likely transport routes in the vicinity of construction sites
- diversion of watercourses, watercourse crossings and arrangements for draining or directing or capturing overland flow during construction.

In relation to the above parameters, the EIS should demonstrate that the likely total negative impacts of the preferred major worksites and spoil placement locations for the reference design are less than for the alternative major worksite and spoil placement locations considered for the project. Where comparison of the different major worksite and spoil placement locations reasonably requires analysis of specific impacts on the particular environmental values listed in Section 3 of this TOR document—for example, land use and tenure, water resources, air quality, noise and vibration—then the relevant detail identified in section 3 of the these TOR may be cross-referenced. Where engineering or other practical constraints dictate that worksite alternatives are not reasonably available, then a more detailed analysis is not required, as long as the alternatives considered and the key practical constraints are listed.

Unless already dealt with under road and rail traffic management plans, the EIS should also describe the impact, if any, that construction of the project would have on other transport modes, especially on the urban rail network and passenger rail and freight services, and how such impacts would be managed.

Instructions for the description of matters related to the decommissioning and rehabilitation of construction and spoil placement sites are provided in section 2.8 of this TOR document,

2.5.3 Commissioning

A description of the commissioning process including the associated environmental impacts should be provided.

2.6 Operation

This section should provide details of the operation for all elements of the project, including:

- the operational scenario selected for the purpose of determining potential impacts
- nature and description of all key operational activities
- description of the buildings, structures, plant and equipment to be employed
- the capacity of the project equipment and operations, including the frequency of train movements through the corridor
- operation of new and upgraded train stations
- interaction with surrounding road network and infrastructure, such as ‘kiss and ride’ facilities, if required
- pedestrian and cycle facilities and connectivity at stations
- interchanges with other public transport modes at or near stations including any changes to the operation of such infrastructure and services changes to local road networks, if required, around surface infrastructure and surface stations.

2.7 Associated infrastructure

The section should detail, with concept and layout plans, the existing and any planned utility services that may be affected by the project, and requirements for the upgrading/relocating of existing infrastructure to service the construction and/or operation of the project.

Infrastructure to be considered includes transportation, water supply, energy supply, telecommunications, stormwater, waste disposal and sewerage. Owners of existing or proposed utilities should be identified, together with significant or critical users of the utilities—for example, health care facilities.

2.8 Construction decommissioning and rehabilitation

This section must present the strategies for progressive staging and consequent rehabilitation of the environment disturbed during construction. Final rehabilitation of the construction sites and management of the spoil placement sites must be discussed in terms of future land use suitability, potential redevelopment, urban design outcomes, management of any residual contaminated land and any other land management issues. A description of how the spoil placement sites and rehabilitation of construction sites will be monitored and maintained must also be provided.

The description of decommissioning and rehabilitation must include:

- a strategy to minimise the amount of land disturbed at any one time
- the final land form of any disturbed surface work site areas and waste areas shown on maps at a suitable scale
- potential options for surplus land use for community and recreational purposes at key locations.

Detail of the impacts of the preferred rehabilitation strategy should be discussed in the appropriate subsections of section 3.

Reference should also be made to the project construction infrastructure that is not intended to be decommissioned. In this situation the entity, to which the infrastructure is intended to be transferred, should be described with the proposed environmental management regimes.

3. Environmental values and management of impacts

This section should 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 where prevention is not possible, minimise environmental harm and maximise environmental benefits of the project. Preferred measures should be identified and described in more detail than other alternatives.

The objectives of subsequent sections are to:

- describe the existing environmental values of the study area that may be affected by the project, using background information and/or new studies to support this description, including 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 adverse impacts and maximise beneficial impacts
- describe any cumulative impacts on environmental values caused by the project, either caused by this project or by combination with other known existing or planned projects, where cumulative impacts may occur over one or several locations over one or several periods of time
- present objectives, standards and measurable indicators that can be used to help protect the identified environmental values
- examine viable alternative strategies for managing impacts, with these alternatives presented and compared 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, proposals to offset impacts should be presented that are not inconsistent with the *Queensland Government Environmental Offset Policy* (2008).

The mitigation measures, monitoring programs etc., identified in this section of the EIS should be used to develop the EMP for the project (see section 8—Environmental management plan).

3.1 Transport

The transport assessment is to be presented for each mode affected by the project as appropriate. These assessments should provide sufficient information to allow an independent assessment of how existing and planned transport infrastructure will be affected by project transport at the local and regional level.

3.1.1 Description of existing transport network

The existing transport network and operations relevant to the project should be described (at a level of detail appropriate for the impact of the project), in terms of:

- the regional rail network (passenger and freight) and rail infrastructure including:
  - rail operations
  - patronage (peak and daily)
  - rail capacity and levels of service
  - stations and facilities associated with the project
- the regional, arterial and local road network, to the extent relevant to the project, including:
  - road traffic composition and movement patterns
  - road capacity, degree of saturation and levels of service
  - freight traffic volumes, composition and existing designated freight routes
- other public transport services (bus and ferry) and their interactions with the rail network, and relevant information on passenger numbers and infrastructure
- bicycle and pedestrian movements and their interactions with the rail network, and relevant information on movement numbers and infrastructure.

3.1.2 Transport network performance

The performance of the relevant existing regional bus, ferry and rail network (passenger and freight) should be described in terms of:

- capacity and constraints to capacity
- current operations—service plans, travel speeds (peak, daily and composition), levels of service
- connectivity with other public transport and active transport.

The performance of the existing road network, relevant to the project, should be described in terms of:

- traffic demands (through, local and regional context)
- traffic flows, speeds and travel times—peak, daily, composition
- cycle and pedestrian network
- interaction with public transport
- vehicle access, parking and loading in the study corridor and adjacent areas.

3.1.3 Patronage forecasting methodology

The methodology used for rail patronage and wider road traffic network, pedestrian and cycle forecasting should be described in regard to:

- broad land use patterns—a description of the population, employment and demographic forecasts used and assumed generation rates and an explanation of the rationale for the assumptions applied
- the scope and validity of the transport models used

- the provision of forecasts for relevant opening year and design years
- an analysis of trends in household travel behaviour
- network improvements—which planned or proposed rail, other public transport, pedestrian, cyclist and road upgrades have been included in the modelling for each time period
- an explanation of how and what alternative future scenarios were considered
- effects of the project on other public transport services (locally and regionally).

3.1.4 Future base rail transport conditions (no project)

Future conditions on the rail network of relevance to the project should be outlined from appropriate models for relevant design years such as the anticipated opening year, and relevant design years, without the project in place, in terms of:

- description of the rail network
- future demand for all transport modes, including forecast rail movement volumes and speeds
- operational and access requirements
- network performance for all transport modes within the local and regional network
- other public passenger transport service options (including levels of service and utilisation of bus passenger transport capacity)
- alternative rail operational configurations or network upgrades (e.g. longer trains, upgraded signalling, improved rolling stock) and the extent to which these alternatives may support or delay the need for CRR.

3.1.5 Effects of the operating project

The effects of the proposed works on the rail network should be investigated for future model years, including rail passenger sensitivity demands and comparison with the future base rail transport conditions (no project), as follows:

- changes to rail passenger capacity, operations and levels of service in the anticipated opening year and other relevant design years
- impacts on rail freight operations
- changes to patronage of existing rail stations and interchanging with other public transport modes
- impacts to rail maintenance operations.

The effects of the project on other transport modes and precinct plans should also be identified including:

- impacts to traffic (including vehicle access, parking, operations, maintenance and increase demand on road-related infrastructure) on the road network, including the local road network that interact with the project as well as the regional road network
- impacts to patronage of other public transport modes (bus and ferries)
- changes to pedestrian and cycle movements that interact with the project (particularly around rail stations).

A Road Impact Assessment (RIA) report should be undertaken for the operation of the project in general accordance with TMR's *Guidelines for Assessment of Road Impacts of Development* (2006). Traffic assessments must include details of the number, composition, trip timing and routes used. All assertions made should be supported by calculations, maps at appropriate scale and/or consultation undertaken with relevant stakeholders.

3.1.6 Construction transport impacts

The transport implications for both impacts and mitigation measures of construction activities should be described with respect to:

- existing rail services (passenger and freight), use of rail stations and railway maintenance regime
- any pre-construction demolitions
- construction site traffic generation, operational service requirements and access
- local and regional traffic flows from temporary and permanent road traffic changes, including road and lane closures at construction sites and the specific measures proposed to mitigate these impacts
- an assessment of the likely impacts of construction on other public transport modes, road network, cycle and pedestrian networks potentially affected by the project, including travel time delays
- arrangements to ensure safety and operational integrity of the rail and adjacent road network, pedestrian and cycle accessibility and mobility, and access to public transport infrastructure during construction including for individuals with a disability
- access for police and other emergency services
- the provision of adequate access to businesses, public facilities, schools, major community facilities, churches, parks and private residences by private vehicle, public transport, bicycle and foot impacted by the project
- construction workforce parking and other existing public parking
- effects of construction traffic (including the transport of spoil from the project and materials to the project—number, types of vehicles, composition, trip timing and routes) on the road network or public transport systems if appropriate.

An RIA should be undertaken for the construction of the project in general accordance with TMR's *Guidelines for Assessment of Road Impacts of Development* (2006).

3.2 Climate, natural hazards and climate change

This section should 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. A risk assessment and management plan detailing these potential threats to the construction, and operation of the project should be provided.

The most recent information on potential impacts of climatic factors should be addressed in the appropriate sections of the EIS.

An assessment of climate change risks and possible adaptation strategies should be included, as well as 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 undertaking, where practicable, a cooperative approach with government, other industry and other sectors to address adaptation to climate change.

3.3 Land

This section should detail the existing land environment values for all areas associated with the project. This section should also describe the potential for the construction and operation of the project to change existing and potential land uses of the project sites and adjacent areas.

3.3.1 Topography, geomorphology, geology and soils

3.3.1.1 Description of environmental values

This section should provide details, including maps, of:

- the location of the project, including all major worksites, in local contexts
- the topography of the study corridor, with contours shown at suitable increments, shown relative to the Australian Height Datum (AHD)
- significant geological and geomorphological features
- the geological properties of the project area and sites affected by the project that may influence ground stability, occupational health and safety, or the quality of stormwater leaving any area disturbed by the project must be described
- in locations where the age and type of geology is such that significant fossil specimens may be uncovered during construction/operations, the EIS must address the potential for significant finds
- the geology and soils of the sites affected by the project, with particular reference to the physical and chemical properties of surface and sub-surface materials and geological structures likely to be intercepted during construction, including the geotechnical analysis and survey information which supports the proposed tunnelling methodology
- hazards such as geological faults, unstable areas, erosive soils and potential and actual acid sulfate soils.

Soil types in areas likely to be affected by surface works should be described, with reference to the *Australian Soil and Land Survey Field Handbook* (McDonald et al 1990) and *Australian Soil Classification* (Isbell 1996), including the influence on erosion potential, storm water run-off quality and rehabilitation of the land. Information must also be provided on soil stability and suitability for construction of associated project facilities.

An assessment of the potential for acid sulfate soils should be conducted in accordance with Queensland Acid Sulfate Soils Management Advisory Committee (QASSMAC) guidelines and the *State Planning Policy* 2/02: *Planning and Managing Development Involving Acid Sulfate Soils* and its accompanying *Guideline 2/02.*

All sources of geological and geotechnical information must be documented including a map of all geological surveys and core sampling undertaken specifically for the CRR project feasibility investigations. The adequacy of geological and geotechnical information must be

clearly described and the rationale for the location and number of new field geotechnical surveys undertaken must be explained. An estimate must be provided of the probability of encountering ground conditions significantly different to those forecast for each section of proposed tunnel construction. In this context, 'significantly different' is defined as different to the extent that ground conditions would cause the route of the tunnels, the construction methodology or the impact on surrounding properties of the construction or operation of the tunnels to be substantially altered.

3.3.1.2 Potential impacts and mitigation measures

This section should provide details of any potential impacts on the topography or geomorphology associated with the project and proposed mitigation measures, including:

- a discussion of the project in the context of major geological and geomorphological features and any measures taken to avoid or minimise impacts on or arising from such features—for example, major fault lines or intrusion of rock with weak structure
- the objectives to be used for the project in any re-contouring or consolidation, rehabilitation, landscaping, and fencing.

Assessment of the potential impacts from soils including erosion risk, settlement risk, rehabilitation potential, acid sulfate soils and contaminated land is required along with avoidance strategies or mitigation measures where necessary or as defined below.

Erosion risk

Identify, for all permanent and temporary landforms affected by project works, the possible soil erosion rate and provide a description of the techniques used to manage any likely impact. Identify all soil types and outline the erosion potential (both wind and water) and erosion management techniques to be used. An erosion-monitoring program, including rehabilitation measures for erosion problems identified during construction, must also be outlined and acceptable mitigation strategies provided.

The report must include an assessment of likely erosion effects, especially those resulting from the removal of vegetation, and construction of retaining walls both on-site and off-site for all disturbed areas.

Summarise methods proposed to prevent or control erosion with regard to:

- the *Best Practice Erosion and Sediment Control*—(International Erosion Control Association) ICA Australasia, Nov 2008.
- the *Soil Erosion and Sediment Control—Engineering Guidelines for Queensland Construction Sites* (Institute of Engineers Australia (Qld Division) 1996)
- the EPA Guideline—*EPA Best Practice Urban Stormwater Management: Erosion and Sediment Contro*l
- preventing soil loss in order to maintain land capability/suitability
- preventing degradation of local waterways.

Settlement risk

Assessment of the potential risk of settlement impacts of land above or adjacent to the tunnel, due to tunnel construction and for collapse or slope failure of cuts on approaches should be undertaken. The mitigation measures and contingency plans for settlement risks must also be described

Acid sulfate soils

The potential for acid generation by disturbance of acid sulfate soils during earthworks and construction, including excavation, filling, or extracting groundwater, should be discussed and measures for management of soils and mitigation of impacts should be proposed for all site earthworks and construction activities.

Should action criteria be triggered by acid generating potential as a result of testing, management measures are to be outlined in an acid sulfate soils management plan prepared in accordance with Queensland Acid Sulfate Soils Investigation Team (QASSIT) guidelines and the requirements of State Planning Policy 2/02: *Planning and Managing Development Involving Acid Sulfate Soils* and its accompanying *Guideline 2/02*.

Given the limited areas of acid sulfate soils likely to be disturbed by this project and the intrusive nature of the full QASSIT field sampling program, it is acceptable to address acid sulfate soils for the 'reference design' by desktop review, as long as the EIS accurately describes both the locations where potential acid sulfate soils may occur and acid sulfate soils field procedures that would be adopted for such locations (with reference to the EMP) prior to the completion of detailed design of the project.

3.3.2 Land contamination

3.3.2.1 Description of environmental values

The following information for the study corridor and areas affected by the project must be presented in the EIS:

- 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 which may be impacted by the project
- a description of the nature and extent of contamination at each site.

3.3.2.2 Potential impacts and mitigation measures

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

This section should 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.

Proposals for the future management of any contaminated lands impacted by the project after completion of construction must be described.

3.3.3 Land use and tenure

3.3.3.1 Description of environmental situation

This section should describe and identify, with the aid of maps:

- land tenure, including reserves
- places of special interest such as protected areas—for example, 'heritage precincts' and places of historic heritage significance

- tenures or easements for existing, preserved or proposed infrastructure (including those identified in a planning scheme or local area plans) for gas, water, electricity, telecommunications, road, rail, bus, cycle or pedestrian transport corridors or facilities
- land uses and facilities within the areas surrounding the project
- the study corridor in the context of the regional pattern of development identified in the *South East Queensland Regional Plan 2009–2031*
- likely future land use by reference to the *South East Queensland Regional Plan 2009–2031* and other relevant local and regional planning documents
- proximity of the project to residences, businesses and recreational areas
- the presence of any environmentally sensitive areas in the vicinity of the project
- requirements of any State Planning Polices (SPPs) of relevance to the project
- land use designations within and adjacent to the study corridor as per Brisbane City Council's City Plan including local plans, Urban Development Areas and/or Master Plan Areas
- areas within the study corridor covered by applications for native title claims or determinations for each relevant native title representative body, including the identification of areas where tenure history would indicate that native title either exists or has been extinguished.

3.3.3.2 Potential impacts and mitigation measures

This section should identify and discuss potential positive and negative impacts of the project on existing and likely future land use including:

- the potential to change future land uses, including the development of Roma Street precinct, Boggo Road Urban Village, the Woolloongabba and Bowen Hills Urban Development Areas (UDAs), CBD, Fortitude Valley and Spring Hill, particularly around proposed new and upgraded rail stations
- achieving the desired intent of the SEQ Regional Plan, Brisbane City Council's City Plan, special area designations, transit oriented development, urban renewal or future land use changes identified in other current neighbourhood planning processes.

The EIS should address direct project impacts including rail tunnel portals on all existing residential, commercial and industrial properties and uses, open space and sensitive places in the study corridor. This assessment should include:

- consideration of necessary land requirements (surface and volumetric), proposed tenure (such as rail corridors, easements and leases) and land use implications
- identification of any specific post-construction land use restoration proposals for lands occupied by construction activities
- arrangements for property access and associated street closures or widening, particularly around proposed new and upgraded rail stations and other key project construction sites
- potential indirect land use, property or amenity impacts arising from project mitigation measures—for example, the construction of noise barriers creating shading, reducing air circulation or restricting the outlook from certain properties or sensitive places
- impacts on surrounding land uses and human activities and strategies for the minimisation of such impacts, including Key Resource Areas (refer to *State Planning Policy 2/07: Protection of Extractive Resources and Guideline*) if present, and residential and industrial uses
- constraints to potential developments and possibilities of rezoning adjacent to the development area

- opportunities for future development due to changed public transport accessibility
- potential issues involved in proximity and/or co-location of other current or proposed infrastructure services
- constraints caused by the project on future building heights, basement dimensions or locations and building foundation configurations or types over the tunnel and/or adjacent to project structures
- the identification of the potential native title rights and interests likely to be impacted by the project and the potential for management of those impacts by an Indigenous Land Use Agreement or other processes
- identification of any land parcels requiring unique management measures.

The EIS should provide maps showing cadastral boundaries that enable all landholders to see how all land parcels will be directly impacted by the construction and operation of the project.

All property acquisition or easement proposal need to be detailed.

This section (or an appendix to this section) should also describe how property impacts of the project differ from property impacts outlined in the October 2008 ICRCS Pre-Feasibility Report published on TMR's website.

3.3.4 Visual amenity and lighting

3.3.4.1 Description of environmental values

This section should describe in general terms the existing character of the urban landscape and visual amenity of the study corridor.

The EIS must:

- identify the existing urban landscape and visual context of the study corridor
- describe the urban design characteristics of the study corridor in terms of the key elements, focal points, landmarks, waterways and other features contributing to the visual quality, variety and legibility of the study area
- describe the visual elements and values of the existing built and natural environment including major views, view sheds, outlooks, and features contributing to the amenity of the area, including assessment from outside private residences, particularly in key locations likely to be affected by permanent surface works
- describe the urban landscape characteristics, features, panoramas and views that have, or could be expected to have, value to the local, district or regional community.

Maps and photographs, highlighting any significant visual features and/or landscape values should be provided to support the descriptions.

3.3.4.2 Potential impacts and mitigation measures

Describe the potential beneficial and adverse impacts of the project on landscape character and visual qualities of the project area. Details should be provided of measures to be undertaken to mitigate or avoid the identified impacts.

Mitigation measures for any potential adverse urban landscape and visual impacts must be described, including the:

- development of urban landscape and visual concepts, designs and guidelines for portals and entrances to underground stations, reflecting predicted changes to land use, public amenity, public access and sustainability and place making principles
- assessment of likely visual impacts of the proposed works on the landscape and changes to the landscape including the urban form and structures of significance.

The mitigation measures should relate to the urban landscape and visual goals, objectives and design measures for the project. This should consider a range of treatments on visual elements and urban design opportunities, including station design, surface landscaping, portal design, location and design of surface structures, including noise and air quality mitigation structures.

Where practicable, consideration of visual elements should also consider design enhancements to improve shade creation, accident prevention and crime prevention.

3.3.4.3 Lighting

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

- the visual impact at night
- night operations/maintenance and effects of lighting on fauna and residents
- the potential headlight impact of increased vehicular traffic
- changed habitat conditions for nocturnal fauna, if any.

3.4 Nature conservation

This section should detail the existing nature conservation values that may be affected by the project. The environmental values should be described in terms of:

- sensitive environmental areas or ecological processes
- aquatic and terrestrial ecosystems
- conservation of resources
- habitats of any rare or threatened species
- integrity of any natural landscapes if present.

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

Key flora and fauna indicators should be identified for future ongoing monitoring, where appropriate.

3.4.1 Sensitive environmental areas

3.4.1.1 Description of environmental values

The EIS should 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. Reference should be made to both Queensland and Australian Government legislation and policies on threatened species and ecological communities, where appropriate.

Areas of special sensitivity include the marine environment and wetlands in and around Moreton Bay or waterways draining to Moreton Bay, wildlife breeding or roosting areas, any significant habitat or relevant bird flight paths for migratory species, bat roosting and breeding caves including existing structures such as adits and shafts, and habitat of threatened plants, animals and communities.

3.4.1.2 Potential impacts and mitigation measures

This section should discuss the impact of the project on species, communities and habitats of local, regional or national significance in sensitive environmental areas as identified above.

The EIS should demonstrate how the project would comply with the following hierarchy:

- avoiding impact on areas of remnant vegetation and other areas of conservation value
- mitigation of impacts through rehabilitation and restoration including, where relevant, a discussion of any relevant previous experience or trials of the proposed rehabilitation
- measures to be taken to replace or offset the loss of conservation values where avoidance and mitigation of impacts cannot be achieved.

The boundaries of the areas impacted by the project within or adjacent to an ecological community, including details of footprint width should be described. Where the project alignment or location of a particular project element would impact upon a threatened community, discussion should include reasons for the preferred alignment or location and the viability of alternatives, unless nature conservation consequences of such alternatives have already been discussed under section 1.5, Part B of these TOR (alternatives to the project).

The EIS should address any actions of the project or likely impacts that require an authority under the *Nature Conservation Act 1992*, and/or would be assessable development for the purposes of the *Vegetation Management Act 1999*.

Any measures required to mitigate project impacts on sensitive environmental areas should be outlined in the draft EMP for the project.

Where relevant, this section should discuss environmental offset requirements in accordance with the *Queensland Government Environmental Offsets Policy* and taking into account the applicable specific-issue offset policies, as follows:

- *Policy for Vegetation Management Offsets* (NRW, 2007)
- *Mitigation and Compensation for Works or Activities Causing Marine Fish Habitat Loss* (DPI&F, 2002)
- draft *Policy for Biodiversity Offsets* (consultation draft, EPA, 2008).

Any departure from no net loss of ecological values should be described.

3.4.2 Flora

3.4.2.1 Description of environmental values

Relevant vegetation mapping should be provided for all relevant project sites. Areas surrounding the main study corridor should also be mapped 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.

Sensitive area, flora and fauna maps may be combined where it is efficient do so and this does not significantly compromise map readability.

The vegetation communities within the affected areas should be described at an appropriate scale with any mapping produced from remote sensing data supported by ground-truthing, showing the following:

- location and extent of vegetation types using the regional ecosystem type descriptions in accordance with the DERM's regional ecosystem description database (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* and subsequent amendments, as well as areas subject to the *Vegetation Management Act 1999*
- 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 1991*.)
- any plant communities of cultural, commercial or recreational significance should be identified, including any areas containing abundant native aquatic plants species
- location and abundance of any significant areas of exotic or weed species.

Sensitive or important vegetation types should be highlighted, including any marine littoral and subtidal zone and 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
- the minimum site size should be 10 by 50 metres
- a complete list of species present at each site should be recorded
- the surveys should include species structure, assemblage, diversity and abundance
- the relative abundance of plant species present should be recorded
- any plant species of conservation, cultural, commercial or recreational significance should be identified.

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. Methodology used for flora surveys should be specified in the appendices to the report.

3.4.2.2 Potential impacts and mitigation measures

The potential for environmental harm to the ecological values of the area arising from the construction and operation of the project, and decommissioning of project construction works and infrastructure including clearing, salvaging or removal of vegetation should be described, and the indirect effects on remaining vegetation should be discussed. Short-term and long-term effects should be considered with comment on whether the impacts are reversible or irreversible.

With regard to all components of the project, this section should include:

- any management actions to minimise vegetation disturbance and clearance
- a discussion of the ability of identified vegetation to withstand any increased pressure resulting from the project and any measures proposed to mitigate potential impacts
- a description of the methods to ensure rapid rehabilitation of disturbed areas following construction, including the species chosen for revegetation which should be consistent with the surrounding associations
- details of any post construction monitoring programs
- a discussion of the potential environmental harm on flora due to any alterations to the local surface and ground water environment with specific reference to impacts on riparian vegetation or other sensitive vegetation communities.

This section should outline how these measures will be implemented in the overall EMP for the project. Weed management strategies are required for containing any significant areas of existing weed species or declared plants and ensuring no new declared plants are introduced to the area. Reference should be made to the local government authority's pest management plan (including the relevant local authorities of spoil placement sites) and any strategies and plans recommended for the project area by Biosecurity Queensland. The strategies should be discussed in accordance with provisions of the *Land Protection (Pest and Stock Route Management) Act 2002*, where relevant, in the main body of the EIS and in the pest management plan within the EMP for the project.

3.4.3 Fauna

3.4.3.1 Description of environmental values

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

- species diversity—that is, a species list—and abundance of animals of recognised significance
- any rare or threatened species
- habitat requirements and sensitivity to changes; including movement corridors and barriers to movement
- the existence of populations of feral or introduced animals that are of regional economic or conservation significance
- for any species or communities of conservation significance in the study area, a contextual discussion of range, habitat, breeding, recruitment feeding and movement requirements, and current level of protection—for example, any requirements of protected area management plans or threatened species recovery plans—if any of these aspects are likely to be affected by the project
- an estimate of commonness or rarity for the listed or otherwise significant species
- use of the area by migratory fauna.

The EIS should indicate how well any affected communities are represented and protected elsewhere in the bio-region where the project occurs. The methodology used for fauna surveys should be specified. Relevant site data should be provided to the DERM in a format compatible with the WildNet database for listed threatened species.

The description of the fauna present or likely to be present in areas potentially affected by the project should include:

- fish species, mammals, reptiles, amphibians, crustaceans and aquatic invertebrates occurring in the waterways
- description of the habitat requirements and the sensitivity of aquatic species to changes in flow regime, water levels and water quality
- habitat downstream of the project or potentially impacted (including in marine environments)
- aquatic substrate and stream type, including extent of tidal influence and common levels such as highest astronomical tide and mean high water springs.

3.4.3.2 Potential impacts and mitigation measures

The assessment of potential impact should consider impacts the project may have on fauna, relevant wildlife habitat and other fauna conservation values, including:

- impacts due to loss of range/habitat, food supply, nest sites, breeding/recruiting potential or movement corridors or as a result of hydrological change
- impacts on species of conservation significance
- cumulative effects of direct and indirect impacts
- threatening processes leading to progressive loss
- details of any proposed stream diversions, causeway construction and crossing facilities, stockpiled material and other impediments that would restrict free movement of fauna
- measures to avoid fish spawning periods, such as seasonal construction of waterway crossings and measures to facilitate fish movements through water crossings
- details of alternatives to waterway crossings where possible
- offsets proposed for unavoidable, permanent loss of fisheries habitat
- a description of methods to minimise the potential for the introduction and/or spread of weed species or plant disease
- monitoring of aquatic biology health, productivity and biodiversity in areas that may be subject to any direct discharge from project sites.

The EIS should address any actions of the project or likely impacts that require an authority under the *Nature Conservation Act 1992*. With respect to mitigation strategies the following should be provided:

- 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 injuries to 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

This section should outline how these measures will be implemented in the overall EMP for the project.

Feral animal management strategies and practices should be addressed, where relevant. This should include reference to any Brisbane City Council pest management plans, and any strategies and plans recommended for the project area by Biosecurity Queensland.

3.5 Water resources

3.5.1 Groundwater

3.5.1.1 Description of environmental values

The EIS should describe the quality, quantity and significance of groundwater in the study corridor and adjacent areas, together with groundwater use that may be affected by the project. The description of the existing environment for hydrogeology resources that may be affected by the project and the possible significance of the project to groundwater depletion or recharge, or potential saltwater intrusion of existing aquifers should be made in the context of environmental values as defined in such documents as the *Environmental Protection (Water) Policy 2009* (EPP (Water)).

This section should provide a description of groundwater resources in the study corridor and adjacent areas in terms of:

- geology/stratigraphy
- aquifer type—such as confined or unconfined
- depth to and thickness of the aquifer
- seasonal changes in levels
- groundwater flow directions (defined from water level contours)
- interaction with surface water
- possible sources of recharge
- basic water quality of the aquifer
- potential exposure to pollution
- the location, type, number of ground water users and the quantities of water attached to existing groundwater licence holders.

The groundwater assessment should be consistent with relevant guidelines for the assessment of ASS, using existing information (supplemented by project-specific spatial and temporal monitoring where existing information is insufficient) to accurately characterise baseline groundwater characteristics within or near the study corridor.

3.5.1.2 Potential impacts and mitigation measures

This section should include an assessment of the potential for environmental impact caused by the project to local groundwater resources, including the potential for groundwater induced salinity.

It should define and describe the objectives and practical measures for protecting or enhancing water resource environmental values, how nominated quantitative standards and indicators may be achieved, and how the achievement of the objectives will be monitored, audited and managed. Matters to be addressed should include:

- groundwater resources proposed to be used by the project (if applicable), including a description of the quality, quantity, usage rate health standards and required location of those resources.
- potential impacts on the flow and the quality of groundwater from all phases of the project, including possible alteration of porosity and permeability of any land disturbance
- an assessment of all likely impacts on groundwater depletion or recharge regimes

- the extent of the potential area within which groundwater resources are likely to be affected, including the presence of tunnels and the availability of groundwater downstream
- the potential impacts of the project on groundwater dependent ecosystems and vegetation, and measures to prevent, mitigate and remediate such impacts
- an assessment of the potential to contaminate ground water resources and measures to prevent, mitigate and/or remediate such contamination (with cross-reference to land contamination section 3.2.2 where appropriate)
- the cumulative impacts of dewatering or other groundwater impacts during construction and operation, including the potential for localised ground subsidence associated with any groundwater depletion caused by the project

Monitoring programs, which will assess the effectiveness of management strategies for protecting groundwater resources during the construction and operation of the project and how these strategies are incorporated into appropriate sections of the EMP, must be described.

3.5.2 Surface water

3.5.2.1 Description of environmental values

This section should describe the existing environment for water quality that may be affected by any component of the project in the context of environmental values as defined in local, state or national guidelines. The discussion should detail the watercourses and surface waters affected by the project and the significance of these waters to the catchment to which they contribute.

The environmental values of the waters of the affected area should be described in the context of the of environmental values defined in documents such as the EP Act, *Environmental Protection (Water) Policy 2009* (EPP (Water)), *Australia and New Zealand Guidelines for Fresh and Marine Water Quality 2000, Fisheries Act 1994* and the *EPA Queensland Water Quality Guidelines 2009,* Water Resource Plans, *South East Queensland Regional Water Quality Management Strategy*, land and water management plans including the Brisbane River Management Plan and other local authority stream management initiatives relevant to the catchment, to the extent any of the above are relevant.

Existing surface water quality should be described in terms of physical, chemical and biological characteristics within the watercourses and surface waters affected by the project.

Where known or specified, the water quality objectives for local catchments and watercourses should be described.

This section should:

- provide a map of waterways or water features, including drainage channels, flood-prone or low lying land within or adjacent to the study corridor, with the position of the study corridor and the waterways crossed shown
- describe the existing surface drainage patterns, and flows in major streams in the study corridor and adjacent areas.

3.5.2.2 Potential impacts and mitigation measures

This section should assess the potential impacts of the project (including spoil placement) on surface water quality outline strategies for protecting surface water quality, describe how nominated quantitative standards and indicators may be achieved, and detail how the potential impacts may be monitored, audited and managed. Matters to be addressed should include:

- the potential impacts on the flow and quality of surface waters from all phases of the project, including the effects of drainage or dewatering works, excavation, placement of fill, clearing or any other alterations to existing topography and landform on the hydrology of works sites including any alteration to drainage patterns and the water table
- if levee banks or stream diversion constructions are proposed, the effects on neighbouring landholders
- potential impacts of surface water flow on existing infrastructure
- proposed drainage structures for all aspects of the project, including supporting facilities such as access roads
- any potential implications of climate change —for example, sea-level rises, increased frequency and/or intensity of storm events—as determined in section 3.2—Climate, natural hazards and climate change, on surface water management for the project
- any tunnel or underground train station flood mitigation structures which could potentially interfere with overland flows
- the potential impacts on other downstream receiving environments, if it is proposed to discharge water to a riverine system
- the likely quality of water leaving the project areas (controlled and uncontrolled discharges) during construction and operation, and the impact of releases of water characterised in terms of their location and any likely contaminants, such as sediment, acidity, salinity and other emissions of a hazardous or toxic nature to human health, flora or fauna, taking into account the management and mitigation measures proposed
- an assessment of the hydrological impacts of the project on surface water and water courses, particularly with regard to stream diversions, scouring and erosion.
- an assessment on any water to be reused on site (including effluent from onsite sewerage treatment plants and rain water captured within tanks), complies with the Australian Guideline for Water Recycling by NEPC.

Where potentially significant impacts are identified, measures for their avoidance or mitigation must be identified. Water management measures to address surface water quality, quantity, drainage patterns and sediment movements should be outlined. Such measures may include:

- measures to avoid or minimise uncontrolled releases, including but not limited to source reduction and water recycling
- maintenance of sufficient quantity, quality and values of surface waters to protect existing beneficial downstream uses of those waters.

3.5.3 Flood management

3.5.3.1 Description of environmental values

A comprehensive flood study of the project corridor, with particular attention given to the vicinity of tunnel portals and underground stations, should be included in the EIS. The flood study should:

- discuss the likelihood of flooding, history of flooding including extent, levels and frequency
- include flood modelling (at a range of annual exceedance probabilities) conducted to the points at which no significant impact occurs.

3.5.3.2 Potential impacts and mitigation measures

This section should assess the potential impacts of the project with respect to flood management outline strategies for protecting against flood impacts (especially around entrances to underground structures such as stations and tunnel portals, and detail how the potential impacts may be monitored, avoided and mitigated. Matters to be addressed should include:

- a description of the influence on flooding of the effects of drainage or dewatering works, excavation, placement of fill, clearing or any other alterations to existing topography and landform within the study corridor and works sites
- a quantification of flood impacts on properties in and surrounding the study corridor, supported by modelling of flood afflux and illustrated with maps
- identify the likely changes in flood levels, flow velocities or time of flood events as a result of the construction (including spoil placement) and operation of the project
- an assessment of the potential for tunnel and station flooding and a description of mitigation measures (including early warning systems for individual flood events) developed if required based on design flood events, with reference to the implementation of these systems and measures in EMPs
- reference to an appendix containing details of all calculations along with descriptions of base data and assumptions in terrain modelling software and any relevant studies undertaken by BCC on flooding that includes the project area
- the requirements of the City Plan and the *South East Queensland Regional Plan 2009–2031* for flood affected areas.

3.6 Air quality

3.6.1 Description of existing environment

This section must 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).

A discussion of the existing regional and local air shed should be provided, including:

- background levels and sources of particulates, gaseous and odorous compounds and any major constituent pollutants including greenhouse gases influencing air quality in the study corridor and areas affected by the project
- a summary of data on local meteorology (at least air temperature, wind speed and direction, atmospheric stability, mixing depth) and ambient levels of pollutants to provide a baseline data for later studies or for the potential modelling of air quality.

3.6.2 Potential impacts and mitigation measures—construction

Environmental air quality impacts, such as gases, particulates and odours, from construction activities, including those produced by any industrial processes, and mitigation measures should be described, including:

- an inventory of air emissions (including 'worst case' emission events) and project construction activities likely to emit pollutants, such as excavation, site compounds, stockpiles and spoil transport and placement
- where 'worst case' emissions are predicted to be significantly higher than those for normal operations, an evaluation of the worst-case impact as a separate exercise to determine whether the distance between project sites and neighbouring sensitive receptors will be adequate
- identification of any sites that could be sensitive to the effects of likely emissions, especially around proposed work sites and stations
- vehicle emissions and dust generation by heavy construction vehicles and along major haulage routes both internal and external to the project site
- an assessment of human health risks, if any, associated with emissions from any of the projects sites during construction
- identification of appropriate locations to monitor air quality (with consideration of meteorological conditions and sensitive receptors, including dust emissions, from all construction sites or associated work sites with the potential to create a dust nuisance.
- identification how the results of the air quality monitoring will be made publicly available (e.g. through publication on the proponent's internet site)
- a discussion on how the legislative and regulatory requirements relating to emission of pollutants during construction, including, but not limited to, relevant construction air quality goals outlined in EPP (Air)
- the identification of trigger levels for dust management response.

Potential air quality impacts from emissions must be discussed with reference to the National Environmental Protection Measures (NEPM) for ambient air quality and the EPP (Air).

3.6.2 Potential impacts and mitigation measures—operation

This section should identify and assess the potential changes to regional transport emissions to the regional air shed due to the operation of the project. This should include consideration of predicted changes to distance travelled by road as well as changes to road transport emission profiles.

Likely impacts to regional air quality should be identified.

Mechanisms to maintain air quality within stations and tunnels should be identified, and any resulting impacts within the project infrastructure and on the surface in the surrounding environment should be assessed.

3.7 Greenhouse gas emissions

3.7.1 Description of potential impacts

This section should provide an inventory of the projected annual emissions for each relevant greenhouse gas for the construction and operational phases of the project, 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
- 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.

The methods by which estimates are made must be briefly described.

Estimates should include and clearly identify an assessment of the change in projected future greenhouse gas emissions from road transport in the region due to the operation of this project.

The Department of Climate Change *National Greenhouse Accounts (NGA) Factors* may be used as a reference source for emission estimates and supplemented by other sources where practicable and appropriate.

3.7.2 Proposed mitigation measures

This section should discuss the potential for greenhouse gas abatement measures, including:

- a description of the proposed measures (alternatives and preferred) to avoid and/or minimise direct greenhouse gas emissions
- an assessment of how the preferred measures minimise emissions and achieve energy efficiency
- a description of any proposals to further offset greenhouse gas emissions through indirect means (e.g. sequestration or carbon trading).

3.8 Noise and vibration

3.8.1 Description of environmental values

This section should describe the existing noise and vibration environment that may be affected by the project in the context of environmental values as defined by the *Environmental Protection (Noise) Policy 2008* (EPP (Noise). DERM's *Noise Measurement Manual* should be considered and references should be made to *DERM's EcoAccess Guidelines Noise and Vibration from Blasting and Planning for Noise Control*, as appropriate.

Likely sensitive noise receptors adjacent to more significant project components—for example, proposed station and major worksite locations—should be identified and typical background noise and vibration levels estimated based on surveys at representative sites. The potential sensitivity of such receptors should be discussed and performance indicators and standards nominated.

3.8.2 Potential impacts and mitigation measures—construction

The EIS should describe the impacts of noise and vibration generated during the construction phase of the project, especially associated with major worksites. Noise and vibration impact analysis should include:

- an hierarchical impact mitigation methodology
- the levels of noise and vibration generated, including noise and vibration generated by tunnelling works, equipment, surface construction sites spoil haulage management, placement and management, construction vehicle movements and ancillary activities, with noise contours, assessed against current typical background levels, using modelling where appropriate
- the impact of noise, including low frequency noise (noise with components below 200Hz) and vibration at all potentially sensitive receivers within and around the study corridor, including low frequency re-radiated noise within sensitive premises due to tunnel construction compared with the performance indicators and standards nominated above
- potential effects of ground vibration on nearby surface buildings structural
- identification of properties at significant risk of noise and vibration impacts for pre-construction building conditions
- vibration impacts on transport-related infrastructure
- proposals to minimise or eliminate these effects, including details of any screening, lining, enclosing or bunding of facilities, alternative construction methods or timing schedules for construction and operations that would minimise environmental harm and environmental nuisance from noise and vibration.

This assessment is to be inclusive of noise and vibration impacts to or on critical or sensitive places and determine the ground vibration effects on equipment within health care facilities.

3.8.3 Potential impacts and mitigation measures—operation

The EIS should describe the impacts of noise and vibration generated during the operational phase of the project. Noise and vibration impact analysis should include:

- the levels of noise and vibration generated, including noise and vibration generated by underground and surface rail operations (including tunnel ventilations shafts at surface locations), with noise contours, assessed against current typical background levels, using modelling where appropriate
- the impact of noise, including low frequency noise (noise with components below 200Hz) and vibration at all potentially sensitive receivers and transport related infrastructure within and around the study corridor compared with the performance indicators and standards nominated above
- 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
- develop likely operational noise and vibration management measures for sensitive places and options if unable to achieve a satisfactory internal noise level.
- an analysis of acoustic noise levels from proposed rail traffic against the criteria stated in the QR Code of Practice for Rail Noise Management.

3.9 Waste

3.9.1 Waste generation

The EIS should identify and describe all sources, likely volumes and quality (where applicable) of waste associated with construction and operation of all aspects of the project. This section should describe:

- waste generated by delivery of materials to construction and operational work sites
- 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 including construction spoil
- hazardous materials to be stored and/or used on-site, including environmental toxicity data and biodegradability.

3.9.2 Waste management

The EIS should provide details of waste management strategies (including reduction, reuse, recycling, storage, transport and disposal/placement of waste) which demonstrate that waste minimisation and cleaner production techniques and designs have been implemented through the selection of processes, equipment and facilities to prevent or minimise environmental impacts.

Information should also be provided on the variability, composition and generation rates of all waste produced at each construction work site and each operating train station or other operational facility.

Having regard to the *Environmental Protection (Waste) Policy 2000* and the *Environmental Protection (Waste) Regulation 2000*, this section should assess the potential impact of all wastes generated during construction and operation and provide details of each waste in terms of:

- the origin, quality and quantity of solid wastes and wastewater and any immiscible liquid waste originating from the project, including the capacity of liquid wastes to generate acid, and saline or sodic wastewater
- the options available for avoidance/minimisation
- operational handling and fate of all wastes including storage
- on-site treatment methods proposed for any wastes
- assessment of extracted soil and rock materials in terms of suitability for use as construction material and a description of approvals for different land tenures required to sell spoil as quarry materials
- methods of disposal (including the need to transport wastes off-site for disposal/placement) proposed to be used for any trade wastes, excavated and demolition wastes, solid wastes and liquid wastes (including waste water)
- identification and description of the proposed location and characteristics (site suitability, dimensions and capacity) of off-site excavated waste (construction spoil and subsoil) disposal/placement sites. The location of the off-site excavated waste disposal/placement sites should be shown on a map relative to topography and other natural features of the area

- identification and description of the proposed location and characteristics (site suitability, dimensions and capacity) of off-site trade and solid waste (other than excavated waste) disposal/placement sites
- the potential level of impact on environmental values
- measures to ensure stability of the waste storage areas and impoundments
- methods to prevent, seepage and contamination of groundwater from stockpiles and/or storage areas
- rainfall directly onto disturbed surface areas
- run-off from roads, plant and industrial areas, chemical storage areas
- drainage—that is, run-off plus any seepage or leakage
- measures to minimise attraction of vermin, insects and pests
- options available for using recycled materials
- market demand for recyclable waste (where appropriate)
- decommissioning of construction work areas.

3.10 Indigenous cultural heritage

3.10.1 Description of existing indigenous cultural heritage values

This section should describe the existing Indigenous cultural heritage objects and areas that may be affected by the project.

The section should also describe how, in conjunction with the appropriate Indigenous people and their confidentiality requirements, the cultural heritage objects and areas were ascertained, including for example the results of any Aboriginal cultural heritage surveys undertaken; the DERM Aboriginal Cultural Heritage Register and Database; any approved Native Title or Indigenous Land Use Agreements (ILUAs) if they include cultural heritage components) and existing literature relating to Indigenous cultural heritage in the study corridor.

3.10.2 Potential impacts and mitigation measures

This section should describe the objectives and practical measures for protecting or enhancing Indigenous cultural heritage objects and areas, and describe how the achievement of the objectives will be monitored, assessed and managed.

To the greatest extent practicable, significant Aboriginal objects should be avoided by the project. The EIS should provide an assessment of likely effects on Aboriginal cultural heritage, including but not limited to the following:

- description of the significance of objects and areas likely to be affected by the project and their significance at a local, regional and national level
- recommended means of mitigating any negative impact on Aboriginal cultural heritage and enhancing any positive impacts.

A Native Title Agreement, as that term is defined under the *Aboriginal Cultural Heritage Act 2003* (ACH Act), that includes management and protection strategies for Indigenous cultural heritage (NT Agreement) or a Cultural Heritage Management Plan (CHMP) under the ACH Act should be developed for the project in the form required by Part 7 of the ACH Act.

If a NT Agreement or CHMP for the project is negotiated between the proponent and the appropriate Native Title/ Indigenous parties, then notification must be provided to the Coordinator-General in the EIS.

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

- subject to any confidentiality restrictions, an outline of the proposed management and protection strategies for Aboriginal cultural heritage outlining the position of the relevant parties and the status of negotiations
- details of the proposed steps and timeframes for finalising the CHMP or NT Agreement.

3.11 Non-Indigenous cultural heritage

3.11.1 Description of existing non-indigenous cultural heritage values

The EIS should include a cultural heritage study 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 must include:

- 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—for example, local historical societies—concerning places of non-Indigenous cultural heritage significance
- locations of culturally and historically significant sites, shown on maps, that occur within the vicinity of the project
- a constraints analysis of the proposed study corridor and areas affected by the project to identify and record non-Indigenous cultural heritage places.

3.11.2 Potential impacts and mitigation measures

The proponent must provide an assessment of any likely effects on sites of non-Indigenous cultural heritage values, including but not limited to:

- a 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 also of community interests and concerns.

As a minimum, investigation, consultation, impact assessment, management and protection strategies should satisfy statutory responsibilities and duties of care, including those under the *Queensland Heritage Act 1992* and the EPBC Act, where applicable.

4. Social values and management of impacts

4.1. Description of existing social environment

This section should provide an assessment of the existing social values and characteristics of the communities potentially affected by the project.

The description of the social environment should define the area of influence of the project, which must include at least the suburbs intersected by and adjacent to the study corridor, and in these contexts where relevant, identify the:

- level of sensitivity of communities in this area to social and cultural impacts that might be caused by a large transport infrastructure project
- the location and nature of other relevant large proposals or projects
- location and types of social infrastructure
- social values that might be affected by the project—for example, including integrity of social conditions and liveability, social harmony and wellbeing, and sense of community.

4.1.1 Social baseline study

A targeted baseline study of the people residing in the study area is required to identify the social issues which provide an essential contextual understanding of the project. 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.

The social baseline study should describe and analyse a range of demographic and social statistics determined relevant to the project's study corridor and suburbs intersected by and adjacent to the study corridor, or otherwise likely to be effected by the project, including:

- demographic characteristics
- major population trends or changes that are occurring
- estimates of population growth and population forecasts
- any other indicators determined through the community engagement process as relevant.

The social baseline study should describe:

- current social infrastructure and civic facilities, services and networks servicing the community and any perceived deficiencies in this infrastructure amongst the community (for definition see *South East Queensland Plan 2005–2026 Implementation Guideline No.5*:

  www.dip.qld.gov.au/resources/guideline/Implementationguideline5.pdf)
- the availability of affordable housing
- programs and plans announced by government that might be expected to alter the existing social character of the project study area—for example, transport oriented development planned for Woolloongabba and Yeerongpilly

- the profile of the available local workforce in Brisbane to service to the project workforce needs and the likely competition from other major projects in Brisbane for project workers
- the identity, values, lifestyles, vitality, characteristics and aspirations of the communities including Indigenous communities, special needs and health services
- the extent to which land use patterns influence the social character of each part of the study area, including:
  - the relative proportions of open space or recreational land uses, residential, commercial and/or industrial properties
  - the relative density of land uses—for example, detached housing versus medium to high density apartments
  - for predominantly residential areas, the patterns of home ownership—for example, proportion owned versus rented
  - local pedestrian connectivity.

The EIS should present this information separately for any distinctly different parts of the study area—for example, the southern urban area, the CBD—inner urban area, and the northern area. Parts of the study area likely to be more heavily impacted by project surface works—for example, around major project worksites—may warrant more attention than those parts of the study area predominantly impacted only by underground works.

4.2 Potential impacts

This Social Impact Assessment (SIA) should assess and describe the type, level and significance of the project's social impacts (both beneficial and adverse) on the local area. This section should:

- include sufficient data to assist local and state authorities to make informed decisions about the impact of the project on their agency's program of delivery of social services and provision of social infrastructure in the project's study corridor and suburbs intersected by and adjacent to the study corridor
- address direct and indirect impacts from any existing projects and the proposed project including an assessment of the size, significance and likelihood of these impacts at the local level, including:
  - key population/demographic shifts and effects to existing lifestyles, the health and social wellbeing of families and communities
  - the needs of vulnerable groups including those that are socially disadvantaged, the aged and people with a disability
  - local and regional labour markets, with regard to the source of the workforce, and any proposed employment strategies targeted at disadvantaged groups in the study area.
  - proposed new skills and training related to the project including the occupational skill groups required and potential skill shortages anticipated
  - the extent to which labour, services and supplies for the project are likely to be sourced from the Brisbane City local government area, the surrounding local government areas of South East Queensland, or outside of South East Queensland.

The SIA should include an evaluation of the potential cumulative social impacts resulting from the project and surrounding projects, including an estimation of the overall size, significance and likelihood of those impacts. Cumulative impacts in this context are defined as the additional impacts on population, workforce, 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 DIP, if they overlap the proposed project in the same time frame as its construction period.

Where particular locations or communities in the study area have been subject to a number of large scale construction projects in recent years—for example, Dutton Park and Bowen Hills—then the concept of longitudinal cumulative impacts or 'project fatigue' is also relevant. This section of the EIS should identify the locations where there is a likelihood of this kind of cumulative impact and any special strategies that might be deployed by the proponent during the construction and operation of the project to mitigate this impact.

4.2.1. Community engagement

The proponent should engage at the earliest practical stage with likely affected parties to discuss and explain the project, and to identify and respond to issues and concerns regarding potential social impacts.

This section of the SIA should detail the community engagement processes used to conduct open and transparent dialogue with stakeholders. This dialogue should include the project's planning and design stages and future operations. Engagement processes will involve consideration of social and cultural factors, customs and values, and relevant consideration of linkages between environmental, economic, and social impact issues.

The outcomes of the community engagement with respect to the interpretation of the social impacts of the project and the community's suggestions on those matters must be reported.

Description of the community engagement process need not unnecessarily duplicate the full reporting of the public consultation process required under section 1.7 of this TOR.

4.2.2 Workforce profile

The SIA should include a profile of the workforce which describes the:

- number of personnel to be employed including, the skills base of the required workforce and the likely sources (local, regional or overseas) for the workforce during the construction and operational phases of the project
- estimated number of people to be employed during construction and operation, and arrangements for their transport to and from the project sites and facilities.

The workforce profile should provide estimates according to occupational groupings and variations in the workforce numbers for the duration of the project and show anticipated peaks in worker numbers during the construction period.

The SIA should provide an outline of recruitment schedules and policies for recruitment of workers, addressing recruitment of local and non-local workers and any proposed strategies to recruit from socially disadvantaged groups.

4.2.3 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
- demographic changes in the profile of the study corridor and suburbs intersected by and adjacent to the study corridor, and the associated sufficiency of current social infrastructure, particularly health and welfare, education, policing and emergency services.

This section should also describe:

- any consultation about acceptance of proposed mitigation measures that address project impacts
- the extent to which mitigation measures suggested by the community would be adopted
- how practical management and monitoring regimes are proposed to be implemented.

5. Economic values and impacts

5.1 Description of the affected local and regional economies

This section should briefly describe the existing economy of the area in which the project is located and those aspects of the local or regional economy that may be materially impacted by the project. It should include:

- a map illustrating the local and regional economies that could be potentially affected by the project
- gross regional product or other appropriate measure of annual economic production
- population
- labour force statistics
- economic indicators
- the regional economy's key industries and their contribution to regional economic income
- the key regional markets relevant to the project:
  - labour market
  - housing and land markets
  - construction services and building products 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 by type of use along each part of the study corridor.

5.2 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
- commercial land use
- changes in vehicle operation costs, travel times, congestion and accident rates and indirect benefits.
- industry output
- employment
- the use of extractive resources in the region during construction, and any economic consequences of that demand for the region
- wider economic consequences of the project due to any impacts on labour productivity

- macro-economic effects of the project including employment impacts (number of jobs generated) and overall contribution to the Queensland economy (uplift in Gross State Product).
- any foreseeable indirect impacts likely to flow to other industries and parts of the economy from the development of the project, including opportunities created by the project for future development
- any distributional effects of the project, including proposals to mitigate any potential negative impact on disadvantaged groups if these are identified.

All assumptions underpinning the analysis are to be outlined explicitly and the sensitivities of the analyses to key parameters are to be established. Summary measures used in the analysis should include benefit-cost ratio, net present value with per dollar invested and internal rate of return. The analysis of economic impacts may also be undertaken using computable general equilibrium (GCE) analysis, and provide an estimate of contribution to the gross state product.

Care should be taken to ensure that benefits accounted for are the most appropriate and relevant to the objectives and scope of the project and that double counting does not occur. The analysis should also adhere generally to the economic assessment requirements contained in the Queensland Treasury Project Evaluation Guidelines.

5.2.1 Strategies for local participation

The assessment of economic impacts should outline strategies for local South East Queensland regional participation, including:

- strategies for assessing the cost effectiveness of sourcing inputs from regional suppliers during the construction, operation and rehabilitation of the project
- 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 policy)
  - Indigenous employment opportunities, with regard to the Indigenous Employment Policy for Queensland Government Building and Civil Construction Projects (the 20 per cent policy)
  - the use of locally sourced goods and services, with regard to the Local Industry Policy (Department of Employment, Economic Development and Innovation, 2008).

5.2.2 Likely impacts on adjacent properties

This section should address the likely economic impacts of the project on surrounding property and business owners arising from predictable changes to land use—for example, due to changes in vehicle or pedestrian traffic around project elements such as train stations—and/or building constraints caused by projects structures—for example, above or immediately adjacent to tunnels of other underground structures— during both construction and operation. It should mention the:

- likely scale of impact of the project on residential, commercial and industrial land uses and property values
- any measures proposed to mitigate real and potential disruptions to residential, commercial and industrial property uses.

6. Hazard and risk

6.1 Hazard and risk assessment

This section should 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:

- identification of potential hazards, accidents, spillages and abnormal events—for example, tunnel collapse or sudden subsidence during construction or a train accident during operation—which may occur during all stages of the project, including possible frequency of occurrence
- identification of all hazardous substances to be used, stored, processed, transported, processed or produced and the rate of usage
- potential wildlife hazards, natural events and implications related to climate change
- identification of asbestos for government controlled buildings and the Built Environment Materials Information Register (BEMIR).

A preliminary risk assessment for all components of the project shall be undertaken as part of the EIS process in accordance with *Australia/New Zealand AS/NZS ISO 31000:2009 Risk Management.* With respect to risk assessment:

- the EIS should deal comprehensively with external and on-site risks including transport risks
- the study should assess risks during the construction and operational phases of the project
- analysis of the consequences of each hazard on safety in the study corridor and areas affected by the project should be conducted, examining the likelihood of both individual and collective consequences, involving injuries and fatalities to workers and to the public
- quantitative levels of risks should be presented from the above analysis where possible.

Details should be provided on the safeguards that would reduce the likelihood and severity of hazards, consequences and risks to persons, within and adjacent to the study corridor and areas affected by the project.

A comparison of assessed and mitigated risks with acceptable risk criteria for land uses in and adjacent to the study corridor and areas affected by the project should be presented.

A risk management plan should be presented. Risks associated with the construction of and operation within a tunnel and underground rail stations, should be included as part of the assessment.

6.1.1 Protection from terrorism

The CRR project would be defined as both a ‘security-identified surface transport sensitive operation’ (SISTO) under section 9 of the *Transport Security (Counter-Terrorism) Act 2008* and ‘critical infrastructure’ under the Cabinet endorsed *Queensland Plan for the Protection of Critical Infrastructure from Terrorism*. Consequently, the EIS must provide information on the design and operation of proposed safety and contingency systems for the project to address Queensland’s counter-terrorism and critical infrastructure protection policies and arrangements and an operational security plan. This information may be presented in confidence to the Coordinator-General separate to the main EIS document.

The preparation of information on safety and contingency systems and the security plan must be consistent with:

- *Queensland Counter-Terrorism Strategy 2008–2010*
- *Queensland Infrastructure Protection and Resilience Framework*
- *National Counter-Terrorism Plan*
- *Critical Infrastructure Protection National Strategy*
- *Critical Infrastructure Emergency Risk Management and Assurance Handbook*
- *AS/NZS 4360:2004 Risk Management*
- *HB 167:2006 Security Risk Management*
- *HB 221:2004 Business Continuity Management.*

6.2 Health and safety

6.2.1 Description of public health and safety community values

This section should summarise 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 vibration.

6.2.2 Potential Impact and mitigation measures

This section should define and describe the objectives and practical measures for protecting or enhancing health and safety values of the community, 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.

The EIS should assess the cumulative effects on public health values as well as occupational health and safety impacts on the community and workforce from project operations and emissions. Practical monitoring regimes should be recommended in this section.

6.2.3 Emergency management plan

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

An outline of the proposed integrated emergency management planning procedures is to be provided (including evacuation plans, if required) for the range of situations identified in the risk assessment developed in this section, including strategies to deal with natural disasters during construction and operation.

7. Cumulative impacts

The purpose of this section is to provide a summary of the cumulative impacts from the project and to provide a description of these cumulative impacts both in isolation and in combination with those of existing or proposed project(s) publicly known or advised by DIP to be in the region, to the greatest extent practicable. Cumulative impacts should be assessed with respect to both geographic location and environmental values. The methodology used to determine the cumulative impacts of the project should be presented, detailing the range of variables considered, including where applicable, relevant baseline or other criteria upon which the incremental aspects of the project have been assessed.

8. Environmental management plan

This section should detail the draft environmental management plans (EMPs) for both the construction and operation phases of the project. The EMPs should be developed from, and be consistent with, the information in the EIS. The EMPs must address discrete project elements and provide life-of-proposal control strategies. The EMPs must be capable of being read as a stand-alone document without reference to other parts of the EIS.

The EMPs 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 EMPs is:

Element/issue	Aspect of construction or operation to be managed (as it affects environmental values).
Operational policy	The operational policy or management objective that applies to the element.
Performance criteria	Measurable performance criteria (outcomes) for each element of the operation.
Implementation strategy	The strategies, tasks or action program (to nominated operational design standards) that would be implemented to achieve the performance criteria.
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).

Through the EMPs, the EIS commitments to environmental performance can be used as regulatory controls via conditions to comply with those commitments. Therefore, the EMPs are relevant documents for project approvals, environmental authorities and permits, and may be referenced by them.

9. Conclusions and recommendations

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

The EIS should provide an overview of how the project conforms to the objectives for 'sustainable development'—see the *National Strategy for Ecologically Sustainable Development* (1992), available from the Commonwealth Government Publishing Service.

This analysis should consider the overall 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.

10. References

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

11. Appendices

11.1 Final Terms of Reference for this EIS

A copy of this final Terms of Reference document should be included as an appendix to the EIS.

11.2 TOR cross-reference table

A cross reference table should be provided 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.

11.3 Project approvals

A list of the project approvals required by the project should be presented.

11.4 Consultation report

The report should include the methodology used in the public consultation plan including

- criteria for identifying stakeholders and the communication methods used (the consultation plan)
- a list of stakeholders identified, including the Commonwealth, Queensland and local government agencies, and/or the affected parties, which must include all directly impacted property owners and owners of properties contiguous with all parts of the project
- evidence of direct consultation with each directly impacted property owner and each owner of properties contiguous with all parts of the project about how the reference design for he project will impact upon those properties
- a summary of the issues raised by stakeholders and the means by which the issues have been addressed
- plans for ongoing consultation to be outlined and included in the EMPs.

11.5 Study team

The relevant qualifications and experience of the key study team members and specialist sub-consultants should be provided.

11.6 Glossary of terms

A glossary of technical terms and should be provided.

11.7 Specialist studies

All reports generated on specialist studies undertaken as part of the EIS are to be included as appendices. These may include, but are not limited to:

- air quality, noise and vibration
- groundwater and surface water hydrology
- geology and geomorphology
- economic studies and/or cost-benefit analyses
- transport studies
- cultural heritage
- hazard and risk studies
- land use and land capability studies.

11.8 Corporate environmental policy

The proponent should attach a copy of its corporate environmental policy and planning framework document.

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