Appendix C Draft Terms of Reference for EIS

MORANBAH AND NEBO POWER STATION PROJECT

TERMS OF REFERENCE
FOR AN
ENVIRONMENTAL IMPACT STATEMENT

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

March 2006

Preamble

Project Proponent

Transfield Services Limited (TSL) is a leading provider of operations, maintenance and asset management services. It operates in Australia, New Zealand, South East Asia and the Gulf Region.

Operations result from more than 130 contracts across 11 diverse industries, including mining and process, hydrocarbons, roads, rail and public transport, water, power, telecommunications, facilities management and defence. Clients of TSL include major national and international companies, as well as all levels of government.

TSL is publicly listed in Australia and is included in the S&P/ASX 200. The company has more than 13,000 employees and has a turnover in excess of A$1.5 billion (2004/05). TSL has a proven track record delivering large projects.

TSL has extensive infrastructure development expertise in the power industry owning, operating and maintaining both the Townsville and Collinsville Power Stations in Queensland and at Kemerton in Western Australia.

Project Summary

The proposal involves the establishment of power generation facilities at Moranbah and Nebo in North Queensland. These power stations will be use fuel from the Enertrade natural gas pipeline and will require the construction of a gas pipeline linking the two sites. The power stations will be linked with overhead electricity feeder lines to nearby substations.

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

Administrative Details for the EIS Process

TSL has prepared an Initial Advice Statement (IAS) that provides further detail relating to the Project.

The Moranbah and Nebo Power Station Project has been declared by the Queensland Coordinator-General (CoG) to be a significant project for which an Environmental Impact Statement (EIS) is required, pursuant to Section 26 of the Queensland *State Development and Public Works Organisation Act 1971* (SDPWOA) and this declaration requires TSL to prepare an EIS under that Act.

This Terms of Reference (TOR) document for the EIS has been complied pursuant to the SDPOA.

The TOR provides information in two broad categories:

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

The abbreviation 'EIS' used in this TOR refers to the document(s) lodged in order to satisfy the impact assessment requirements of all relevant State and Commonwealth statutes for this Project.

The CoG is the authority responsible for coordinating the assessment of the EIS for this Project.

State and Local Government Agencies and appropriate authorities have been invited to participate in the EIS process. When TSL has prepared the EIS to the satisfaction of the CoG, it will be made available for public review and comment. The CoG will coordinate the consultation process between TLS, Advisory Agencies and the public. The CoG will collate and review all comments received on the EIS.

At the conclusion of this process, the CoG will prepare an EIS evaluation report.

With respect to any development application required by the Project under the *Integrated Planning Act 1997* (IPA), the EIS process under the SPDPWO:

- Replaces the information and referral stage and the notification stage under the Integrated Development Assessment System (IDAS) of the IPA (i.e. there are no concurrence agencies);
- Means that the CoG's evaluation report is taken to be the concurrence agency's response under IDAS; and
- Provides that submissions received in relation to the EIS are taken to 'properly made submissions' under the IPA.

The CoG evaluation report may state for the assessment manger one or more of the following:

- The conditions that must be attached to any development approval;
- That the development approval must be for part only of the development; and
- That the approval must be a preliminary approval only.

Alternatively the report must state for the assessment manger:

- The there are no conditions or requirements for the Project; or
- That the application for the development approval must be refused.

Where another act requires the preparation of an EIS, or similar statement to address the environmental effects for the Project, this EIS can be taken as a statement satisfying those requirements. Where approval is required under another Act, the CoG's Report may recommend (with reasons) to the person who will consider an approval required for the Project that:

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

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

The CoG contact for coordination of the EIS evaluation process will be:

Project Manager – EIS Moranbah and Nebo Power Station Project
Project Delivery Branch
Department of State Development and Innovation
PO Box 15185
BRISBANE CITY EAST QLD 4002
Tel: (07) 3224 8554 Fax: (07) 3225 8282

Alternatively, the TSL contact for the Moranbah and Nebo Power Station Project will be:

Mr XX
Project Manager – Moranbah and Nebo Power Station Project
Project Delivery

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PART A – Information and Advice on the preparation of the EIS

1. INTRODUCTION

This Terms of Reference (TOR) for an Environmental Impact Statement (EIS) for the Moranbah and Nebo Power Station Project has been developed in accordance with the requirements of Sections 29 30 and 31 of the *State Development & Public Works Organisation Act 1971* (SDPWOA).

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

Any feasible alternatives should be discussed and reasons for selection of the preferred option should be clearly identified. The nature and level of investigations should be relative to the likely extent and severity of impacts. The State Governments, from which the Project Proponent requires approval, may request additional information on any matter not adequately dealt with in the report.

In order to clarify the nature and level of investigations that are envisaged in the TOR, the Proponent may contact relevant Government agencies (known as Advisory Agencies), peak community interest organisations and relevant individuals and groups as necessary. However the Coordinator-General (CoG) reserves the final decision on interpretation of the requirements of the TOR.

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

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

The EIS documentation and reports are to be cross-referenced to the TOR via a table of references. In addition, a quality control document sheet that includes revision/checking history, distribution, organisational details, title and author/s is to be included before the table of contents

2. EIS OBJECTIVES

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

- For interested bodies and persons: a basis for understanding the Project, alternatives and preferred solutions, the existing environment that would be affected, both on and off the site, the impacts that may occur, and the measures to be taken to mitigate all adverse impacts.

- For groups or persons with rights or interests in land: an outline of the effects of the proposed Project on that land including access arrangements and the measures to be taken to mitigate all adverse impacts.
- For the CoG and other Government decision makers: a framework against which decision-makers are able to consider the environmental aspects of the proposed Project in view of legislative and policy provisions and decide whether the Project can proceed or not; as appropriate, set conditions for approval to ensure environmentally sound development and, where required by legislation, recommend an environmental management and monitoring program.
- For the Proponent: a definitive statement of measures or actions to be undertaken to minimise any adverse impacts during and following the implementation of the proposed Project. A draft Environmental Management Plan (EMP) that describes acceptable impacts and environmental management strategies to agreed performance criteria is the recommended means of achieving this objective.

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

3. GENERAL EIS GUIDELINES

The key principle is that there should be sufficient detail presented in the EIS to enable readers to judge the impact of the Project on the natural, social, economic and built environment (including existing infrastructure). It should be acknowledged that readers are likely to include representatives of Commonwealth, State and Local Governments, special interest groups and the general public.

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

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

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

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

The terms “describe”, “detail” and “discuss” should be taken to include both quantitative and qualitative matters as practicable and meaningful. Similarly, adverse and beneficial effects should be presented in quantitative and/or qualitative terms as appropriate. Should TSL require any information in the EIS to

remain confidential, this should be clearly indicated, and separate information should be prepared on these matters.

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

A listing of all Advisory Agencies for the EIS process should be provided in the EIS.

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

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

4. STAKEHOLDER CONSULTATION

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

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

5. GENERAL EIS FORMAT

The EIS should be written in a format matching the TOR or include guidelines (preferably as an appendix) describing how the EIS responds to the TOR.

The main text of the EIS is to include appendices containing:

- A copy of the final TOR.
- A list of persons and agencies consulted during the EIS.
- A list of Advisory Agencies with an appropriate contact.
- The names of, and work done by, all personnel involved in the preparation of the EIS.

- The detailed specialist studies that support the main EIS document.

Maps, diagrams and other illustrative material should be included in the EIS.

The EIS should be produced on A4 size paper capable of being photocopied, with maps and diagrams on A4 or A3 size. The EIS should also be produced on CD ROM. CD ROM copies should be in ADOBE® *.pdf format for placement on the internet. All compression must be down-sampled to 72 dpi (or ppi). PDF documents should be no larger than 500 kB in file size. The executive summary should be supplied in HTML 3.2 format with *.jpg graphics files. Text size and graphics files included in the PDF document should be of sufficient resolution to facilitate reading and enable legible printing, but should be such as to keep within the 500kB file size.

TOR GLOSSARY

The following abbreviations have been used in this document:

AHD	Australian Height Datum
ANZECC	Australia and New Zealand Environment and Conservation Council
CHMP	Cultural Heritage Management Plan
CoG	the Coordinator-General of the State of Queensland.
DLGP	Department of Local Government and Planning
DMR	Department of Main Roads
DNRM	Department of Natural Resources and Mines
DPI&F	Department of Primary Industries & Fisheries
DSDI	Department of State Development and Innovation
EIS	Environnemental Impact Statement
EMP	Environmental Management Plan
EP Act	*Environmental Protection Act 1994*
EPA	Environmental Protection Agency
ERA	Environmentally Relevant Activity
ESD	Ecologically Sustainable Development
IAS	Initial Advice Statement as defined by part 4 of the *State Development & Public Works Organisation Act 1971*
NTRB	Native Title Representative Bodies
ROW	Right-of-Way
SDPWOA	*State Development & Public Works Organisation Act 1971*
TOR	Terms of Reference as defined by part 4 of the *State Development & Public Works Organisation Act 1971*
TSL	Transfield Services Limited

PART A – Specific Requirements – Contents of the EIS

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

TITLE OF PROPOSED DEVELOPMENT

NAMES AND ADDRESSES OF PROPONENTS

EXECUTIVE SUMMARY

The Executive Summary should be written as a stand-alone document, able to be reproduced on request for interested parties who may not wish to read or purchase the EIS as a whole. The structure of the executive summary should follow that of the EIS, though focused strongly on the key issues allowing the reader to obtain a clear understanding of the proposed Project, its environmental and socio economic implications and management objectives. The summary should include:

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

GLOSSARY OF TERMS

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

1. INTRODUCTION

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

1.1 The Proponent

This section describes the Proponent (i.e. TSL) in terms that are relevant to the proposed works. The section should outline the experience of the proponent, including the nature and extent of business activates and the Proponent's environmental record and Environmental Policy.

1.2 Purpose of the EIS

Summarise the role and purpose of the EIS document including compliance with regulatory requirements reference to the TOR and any complementary or subsequent document (i.e. technical background papers).

1.3 The Environmental Impact Statement Process

Provide an explanation of the legislative process under which the EIS is being produced, including timing and decisions to be made for relevant stages of the Project.

The explanation should include a description of the approval process as a significant project pursuant to the SDPWOA. The linkages between relevant State and Commonwealth legislation should be identified.

This section should also outline mechanisms in the process for public input, the public release of the EIS and the responses to stakeholder submissions. Readers should be informed as to how submissions on the EIS will be addressed.

1.4 Public Consultation Process

An appropriate public consultation program, developed in accordance with the requirements under the SDPWO Act is essential to the full conduct of the impact assessment.

The aims of the public consultation process are to:

- Consider stakeholder views on the proposed project with a view to achieving the most acceptable outcomes;
- Identify and manage issues that are highlighted by community stakeholders and which may impact upon the Gateway Upgrade Project; and
- Keep the community, key stakeholders and appropriate agencies informed of project progress.

Based on best practice principles, consultation processes should:

- Be undertaken as early as possible in the environmental impact assessment process, underpin each phase, including feedback to participants about outcomes; and
- Be designed in two stages; (1) identifying broad issues on concern and providing information to the community and specific interest groups; and (ii) providing for focussed, detailed consultation to consider issues, resolve conflicts, and to develop mitigation or monitoring strategies with the input of interested parties.

This section should outline the methodology that will be adopted to identify and mitigate socio-economic impacts that may arise for the project.

Information about the consultation that has already taken place and the results of such consultation should be provided. A list of affected persons and interested stakeholders as well as information on consultation with these persons is to be provided.

The public consultation program should provide ongoing opportunities for community involvement and education. It may include public meetings, interest group meetings, production of regular summary information and updates and other consultation mechanisms as required that would encourage and facilitate active public consultation.

It is recommended that a Table of Consultation Findings be provided in the EIS, either as an appendix to, or included in, the EIS. The table should identify all the groups, agencies, and people who have been consulted, the issues they raised and the strategies put into place to resolve these concerns and or enhance particular positive impacts.

1.5 Project Approvals

1.5.1 Relevant Legislation and Policy Requirements

This section should identify the principal development approvals for the project, and specify the legislation and policies controlling the approvals process. Reference should be made to the *Environmental Protection Act 1994, State Development and Public Works Organisation Act 1971, Transport Infrastructure Act 1994, Integrated Planning Act 1997* and other relevant Queensland laws. A description of the Environmentally Relevant Activities (ERAs) necessary for each aspect of the project should be given.

2. PROJECT SUBSTANTIATION

This section is to provide the justification for the project, with particular reference made to economic and social benefits, including employment and spin-off business development. This section should also describe feasible alternatives, including conceptual, technological and locality alternatives to the Project and include discussion of the consequences of not proceeding with the project.

2.1 Background

The background leading to the project proposal should be provided. It should include the political and government context as well as some general information about the Project in the local and regional context.

2.2 Need for the Project

This section should provide a broad statement of the objectives which have led to the development of the Project and a brief outline of the events leading up to the Project's formulation, including alternatives, envisaged time scale for implementation and project life, anticipated establishment costs and actions already undertaken within the Project area.

This should also provide a statement of the objectives of the EIS. The structure of the EIS can be outlined as an explanation of how the EIS will meet its objectives.

The EIS should address the specific objectives and justification for the Project. Issues to be addressed include:

- The strategic, economic and environmental implications of the Project;
- The need for the project based on studies including modeling of existing and projected traffic volumes;
- The short-term and long-term strategic implications of the Project in terms of the local and regional road network and the demands on infrastructure arising from new proposals; and
- The Project's compatibility with National guidelines and standards.

2.3 Relationship to other Projects

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

2.4 Costs and Benefits of the Project to the Wider Community

This section is to discuss the following:

- The economic costs and benefits to industry and the wider community; and
- The regional social impacts including employment and skills development (training) required directly for the Project and indirectly for any ancillary works to the Project.

  Employment and Skills Development Impact Statement (ESDIS) guidelines are available from the Department of Employment and Training. The ESDIS guidelines state that any projects with direct expenditure of more than $100m should include Office of Economic and Statistical Research modelling of the economic/employment impacts of the project.

2.5 Alternatives

This section should describe feasible alternatives within the proposed Project, including the option of taking no action i.e. of not building power stations.

Alternatives should be discussed in sufficient detail to enable an understanding of reasons for preferring certain options and courses of action and rejecting others. Reasons for selecting preferred options should be delineated in terms of technical, commercial, social and natural environment aspects. In particular, discussion of reasonably practicable alternatives to the Project should include:

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

3. DESCRIPTION OF THE PROJECT

The objective of this section is to describe the Project through its lifetime. This information is required to allow assessment of all aspects of the life of the Project including all phases of the Project from planning, construction decommissioning of the construction site and long-term operation.

3.1 Power Station and Pipeline Works

A detailed description of the Moranbah and Nebo Power Station Project is to be provided including:

- A preliminary predictive program of activities relating to design, delivery and operational activities. The description should also state the design life and the expected operating life of the project;
- Potential construction lay-down areas and assembly areas;
- Design parameters including proposed earth works at each power station site, trenching specifications, methods for trenching and rehabilitating across creeks, and design life;
- Estimates of material quantities and likely sources for this material.;
- Details of the design criteria for flood immunity of power station sites;
- The preferred alignment, with the aid of maps and diagrams, including works within and outside of the reserve;
- Criteria to be used to locate access for machinery, transport, etc. in the vicinity of a waterway or wetland (e.g. construction of causeways, bridges, culvert crossings, etc) and any permanent access points, roads or sidetracks for maintenance purposes, in particular where they are adjacent to waterways or wetlands; recreation and sport facilities and parkland. Describe the nature of any permanent access points; and
- Easement widths and access requirements along the alignment including the use of existing areas of disturbance for machinery access and future maintenance.

3.2 Other Infrastructure Requirements

3.2.1 Transport

The EIS should clearly and fully describe all transport requirements for construction and operational phases. This should include:

- The likely types of vehicles to be used;
- Likely scenarios for origin and destination of inputs/supply source and likely transport routes;
- An assessment of the likely impacts on the adjacent road network;
- Hazardous or dangerous material that maybe transported to or from the site both during construction and operation; and
- Potential access requirements.

3.2.2 Workforce and other Infrastructure

The EIS should provide information on the likely size of the workforce required during construction and any infrastructure required to accommodate this workforce. The information should show anticipated periods of peak construction activity and downtimes with corresponding workforce numbers.

3.3 Waste Management

Having regard for best practice waste management strategies and the Environmental Protection (Waste) Policy 2000, details of application of the principles of waste avoidance, reuse, recycling, treatment and disposal should be described for construction, operation and maintenance phases of the Project.

3.4 Permits, Licences and Environmental Authorities

This section should discuss the permits, licences and environmental authorities relevant to the Project. The section should identify the legislative act under which the permit, licence and/or authority is required, together with the administrating authority, the trigger mechanism and the party expected to be responsible for obtaining the permit, licence and/or environmental authority. All relevant international conventions, Commonwealth and State legislation should be considered, additional sources should also be investigation.

3.5 Rehabilitation of Construction Site

This section should present the strategies and methods for progressive and final rehabilitation of the environment disturbed during construction. Final rehabilitation of the construction site should be discussed in terms of ongoing land use suitability, management of and residual contaminated land and any other management issues.

4. ENVIRONMENTAL VALUES AND MANAGEMENT OF IMPACTS

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

Detailed descriptions of the existing environment should be provided following by an assessment of the potential impacts on this environment during the construction and operational phases. The formulation of high-level environmental protection measures to mitigate adverse impacts is also required. Baseline information from other relevant studies should be used and referenced where appropriate.

The functions of this section of the EIS are:

- To describe existing environmental values of the area that may be affected by the proposal. Environmental values should be described by reference to background information and studies, which may be included as appendices to the EIS;
- To describe potential adverse and beneficial impacts of the proposal on the identified environmental values. Any likely environmental harm on the environmental values should be described. Analysis of any cumulative impacts on environmental values caused by the Project should also be included; and
- To present high-level environmental protection measures to mitigate identified impacts. Environmental protection measures may be derived from legislative and planning requirements that apply to the Project including Commonwealth strategy, State Planning Policies, Local Authority Strategic Plans, Environmental Protection Polices under the *Environmental Protection Act 1994,* and any catchment management plans. Special attention should be given to those mitigation strategies designed to protect the values of any sensitive areas including any identified ecosystems of high conservation value.

Environmental protection strategies and measures identified as necessary, in this section should be cross-referenced to Section 5 (Environmental Management Plan) to ensure that such measures have been appropriately addressed.

This section should address all the elements of the environment (such as geology, soils, water, air, waste, noise, cultural heritage, social and community) in a way that is comprehensive and clear. To achieve this, the following issues should be considered for each environmental element relevant to the Project (complete list of environmental elements to address is provided in Sections 4.1 to 4.19):

- Description of existing environment: describe the existing environment values of the study area to be affected including values and areas that may be affected by any cumulative impacts;

- Potential impacts: describe the actual and potential direct and indirect impacts of the proposed works on the identified environmental values. The cumulative impacts of the project must also be considered; and

- Mitigation measures: describe the mitigation measures to be implemented to ameliorate identified impacts. These measures are to be best practice and should include proposed indicators to monitor the success or failure of

the mitigation measure. The measurable indicators and standards can be determined from legislation, support policies, government policies, published literature as well as the predicted performance of the control strategies as determined by a suitably qualified assessor. Details are required to assure the reader that the expected performance is achievable and realistic.

Potential impacts and mitigation measures for each environmental element may be discussed in the EIS in one section (as listed below) or in separate sections. It is preferred however to discuss the existing environment, potential impacts and mitigation measures for each environmental element in the same chapter (rather than cross-referencing different chapters in the EIS).

4.1 Land Use and Planning

4.1.1 Description of Land Use and Infrastructure

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

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

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

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

4.1.2 Potential Impacts and Mitigation Measures

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

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

4.2 Topography/Geomorphology/Geology

4.2.1 Description of Topography/Geomorphology/Geology

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

4.2.2 Potential Impacts and Mitigation Measures

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

4.3 Soils

4.3.1 Description of Soils

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

4.3.2 Potential Impacts and Mitigation Measures

For all permanent and temporary landforms, possible erosion rates and management techniques should be described. For each soil type identified, erosion potential (wind and water) and erosion management techniques should be outlined. Methods proposed to prevent or control erosion should be specified and should be developed to prevent soil loss in order to maintain land

capability/suitability, and to prevent significant degradation of local waterways by suspended solids.

4.4 Climate

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

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

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

4.5 Water Resources

4.5.1 Description of Water Resources

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

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

4.5.2 Potential Impacts and Mitigation Measures

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

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

4.6 Nature Conservation

4.6.1 Description of Nature Conservation Values

This section should detail the existing nature conservation values of the Project area. The EIS should identify any actions of the project that require an authority under the *Nature Conservation Act 1992*, and/or would be assessable development for the purposes of the *Vegetation Management Act 1999.*

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

Reference should be made to both State and Commonwealth legislation and policies on threatened species and ecological communities.

All surveys undertaken should be in accordance with best practice advice from the EPA and should include consideration of seasonality, potential for occurrence of

significant species, rarity of species and the sensitivity of the species to disturbance.

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

4.6.2 Description of Terrestrial Flora

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

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

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

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

The occurrence of pest plants (weeds), particularly declared plants under the *Land Protection (Land and Stock Route Management) Act 2002* should be shown on a map at an appropriate scale.

4.6.3 Potential Impacts and Mitigation Measures

- Discuss the ability of identified stands of vegetation to withstand any increased pressure resulting from the proposal and identify measures proposed to mitigate impacts.

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

4.6.4 Description of Terrestrial Fauna

The terrestrial and riparian fauna occurring in the areas affected by the Project should be described, noting the broad distribution patterns in relation to vegetation, topography and substrate. Wildlife corridors and refugees along the proposed route should be identified and mapped.

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

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

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

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

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

4.6.5 Potential Impacts and Mitigation Measures

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

4.6.6 Description of Aquatic Biology

The aquatic flora and fauna occurring in the areas affected by the Project should be described noting the patterns and distribution in the waterways.

A description of the habitat requirements and the sensitivity of aquatic flora species to changes in flow regime, water levels and water quality in the Project areas should be described.

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

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

4.6.7 Potential Impacts and Mitigation Measures

- Discuss the potential for and mitigation measures to prevent the creation of new mosquito and biting midge breeding sites during construction (e.g. in quarries and borrow pits).
- Discuss any proposed stream diversions, causeway construction and crossing facilities, stockpiled material and other impediments (temporary or permanent) required for construction or maintenance purposes that will restrict free movement of fish (short or long term). Also include if seasonal construction of waterway crossings can avoid fish spawning periods.

4.7 Historic and Cultural Heritage

4.7.1 Description of Historic and Cultural Heritage

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

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

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

As a minimum, investigations and consultation should be undertaken in such manner and detail to satisfy statutory responsibilities and duties of care, including those under the *Queensland Heritage Act 1992*, the *Aboriginal Cultural Heritage*

Act 2003 and the *Commonwealth Aboriginal and Torres Strait Islander Heritage Protection Act 1984*, to protect areas and objects of cultural heritage significance.

4.7.2 Potential Impacts and Mitigation Measures

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

- Describing the significance of artefacts, items or places of conservation or cultural heritage value likely to be affected by the proposal and their values at a local, regional and national level.
- Recommended means of mitigating any negative impacts on cultural heritage values and enhancing any positive impacts.

The management of cultural heritage impacts should be detailed in a Cultural Heritage Management Plan (CHMP) that is developed specifically for the proposed Project. The CHMP should provide a process for the management of identified cultural heritage places and values within the proposed areas of works. The CHMP should be based on information contained in the cultural heritage study report and/or information from Indigenous community/communities. The CHMP should include the following:

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

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

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

4.8 Social and Economic Environment

4.8.1 Description of Social and Economic Environment

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

- Structure of potentially affected communities in the study area.
- Community profile, providing information on the following characteristics:
    - Rural properties, farms, croplands and grazing areas.

  - Demography and family structure.
  - Health status and sensitive groups.
  - Workforce characteristics, including types of skills or occupations and availability during both construction and operational stages.
  - Accommodation type, quantity and availability (as it relates to the need for accommodation of the Project construction and operation workforce).
  - Public health and education facilities.
  - Local government and public services.
  - Other community services and facilities.
- Socio-demographic characteristics, including employment and unemployment rates.
- Economic base and economic activity.

4.8.2 Potential Impacts and Mitigation Measures

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

- Restrictions to public access and recreational use during construction and operational phases, and after decommissioning.
- Strategies to minimise access requirements for operation and maintenance activities.
- The potential and mechanisms for local communities and businesses to meet contracts for services and supplies for the construction, rehabilitation and operation phases of the Project.
- Employment strategies for local residents including members of indigenous communities interested in employment opportunities, which would identify skills required for the Project and initiate appropriate recruitment and training programs.
- Describe the impact of the project on public health and safety of adjacent communities, including such impacts as noise, dust, waste, transport, and other hazards.
- Discuss the impact of accommodation requirements, such as construction camps or other staff and family housing arrangements during the construction and operation stages, on communities along the corridor..
- Any impacts (positive or negative) on the local and regional housing construction sector should be identified, with regard to the supply of dwellings for the construction workforce.
- Impact of the Project workforce on local human services (e.g. housing, education and health facilities), and local community social and recreational environments.
- Strategies responding to Government Policy relating to:
  - The level of training provided for construction contracts on Queensland Government building and construction contracts. (The State Government Building and Construction Contracts Structured Training Policy (the 10% Policy)).

  - Indigenous employment opportunities. (Indigenous Employment Policy for Queensland government building and Civil Construction projects (the 20% Policy)).
  - The use of locally sourced goods and services (making use of DSDI Local Industry Policy).
- Strategies to foster cross-cultural awareness for the project and its participants
- Direct and indirect impact of the Project on the regional, state and national economies in terms of direct and indirect effects on employment, income and production.

4.8.3 Impact upon Property Management

This section should address the current and future management processes for properties which are impacted by the pipeline easement, by virtue of the fact that the corridor may intersect these properties, or separate adjoining properties, and there is potential for current farming or grazing and cropping practices to be affected in some material way. Mention should be made of the following:

- The impact of the Project on existing agricultural and grazing and cropping land uses and management practices – e.g. disruption to stockyards, fences, water points, sowing or harvesting of crops, movement of livestock, agricultural machinery and any loss of agricultural land.
- Describe the range of measures required to mitigate real & potential disruptions to rural practices and management of properties (both within properties and with adjoining landholdings).
- Identification of economic impacts resulting from fragmentation of rural lots, costs of alternative property management practices, or losses of agricultural land or productivity, and outline measures & processes to manage these impacts.
- The impact on affected landowners and communities– e.g. impact on property values and local authority rates.

4.9 Air Environment

4.9.1 Description of Air Quality

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

4.9.2 Potential Impacts and Mitigation Measures

The following air quality issues should be considered:

- Impacts of dust generation from construction activities, especially in areas where the corridor follows existing road networks or passes in close proximity to residences.
- Identification of climatic patterns that could affect dust generation and movement.
- Predicted changes to existing air quality from access tracks and storage locations of construction materials, including ballast.

- Potential for impacts on air quality from operation of the power stations and impact on local and regional air quality.
- Potential impacts on greenhouse gas targets and policies.
- Propose any amelioration or mitigation measures for each identified impact relating to power station, vehicle, and equipment emissions, dust generation, and gaseous emissions.

4.10 Noise and Vibration

4.10.1 Description of Noise and Vibration

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

4.10.2 Potential Impacts and Mitigation Measures

The following analysis of noise impacts should be assembled:

- The levels of noise generated during construction of the pipeline and power stations (e.g. access roads, camp sites) should be assessed against current typical background levels.
- The potential environmental harm of noise at all potentially sensitive places, in particular, any places of work, residence, should be quantified and compared with objectives, standards to be achieved and measurable indicators.
- Proposals to minimise or eliminate these effects should be provided, including details of any screening, lining, enclosing or mounding, or timing schedules for construction and operations that would minimise environmental harm and environmental nuisance from noise and vibration.
- Assessment should be made of the potential emission of low-frequency noise (noise with components below 200Hz) from the power stations. If necessary, measures should be described for reducing the intensity of these components.
- Where relevant, noise impact on nearby noise sensitive receptors should be assessed for maximum noise events, and for a time weighted average daily record. The impact of train movements on any nearby noise sensitive receptors should be indicated.

4.11 Waste

4.11.1 Waste Generation

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

- Chemical and mechanical processes conducted on the construction sites/camps (e.g. chemical storage, sewage treatment, power generation, fuel burning, mechanical workshop, fuel storage).

- The amount and characteristics of solid and liquid waste produced on-site by the Project.
- Any waste treatment process involved, including site drainage and erosion controls.
- Selection criteria, and show on the map likely run off/stormwater discharge points.
- Hazardous materials to be stored and/or used on-site, provide their Material Safety Data Sheets and environmental toxicity data and biodegradability for raw materials and final products.

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

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

The EIS should provide details of any waste water output[1] including:

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

4.11.2 Waste Management

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

4.12 Traffic, Transport and Access Arrangements

This section should analyse transport impacts in terms of (a) the transport task during construction, and (b) operation.

4.12.1 Construction Transport Methods and Routes

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

- Volumes, tonnage, and composition of construction inputs.
- Hazardous or dangerous material that may be transported.

[1] Potential impacts to any aquifers, underground water flows and surface waters to be traversed by construction of the proposed works should be discussed in Section 4.3.2

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

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

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

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

4.12.2 Potential Construction Transport Impacts and Mitigation Measures

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

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

- Environmental issues relating to transport (e.g. weed management, dust control and erosion protection) are adequately assessed and ways to ameliorate any adverse impacts are outlined.
- The impacts of construction with regard to seasonal considerations such as potential for road impacts during wet weather.

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

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

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

4.12.3 Operational Transport Impacts and Mitigation Measures

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

- Safety principles for operations.
- Impact management strategies contained in EMP for train operations.
- Full details of where the pipeline corridor crosses road or rail reserves.
- Assessment of road and rail crossings and proposed methods employed.
- Impacts associated with identified direct road transport tasks.

4.13 Hazard and Risk

4.13.1 Risk Assessment

- The Proponent shall carry out a Risk Assessment in accordance with appropriate parts of *AS/NZS Risk Management Standard 4360:1999*..
- The study shall assess risks during the construction, operational and decommissioning phases. Where possible these risks are to be assessed in quantitative terms.
- Indicate possible hazards, accidents, and abnormal events that may arise for the project, both during construction and in operation. This would be expected to include accidents involving gas leaks, explosions and fires associated with such incidents, and interfaces with other infrastructure.
- Details are to be provided of the safeguards which will be employed or installed to reduce the likelihood and severity of hazards, consequences and risks to persons, and fauna along the corridor. Where possible indicate the reduced level of risk which would be experienced with these safeguards in place.

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

4.13.2 Emergency Management Plan

An outline of the proposed emergency management procedures is to be provided for the range of situations identified in the above risk assessment as providing measurable risks.

The following should also be presented:

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

5. ENVIRONMENTAL MANAGEMENT PLANS

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

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

6. CONCLUSION AND RECOMMENDATIONS

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

7. REFERENCES AND APPENDICES

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

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