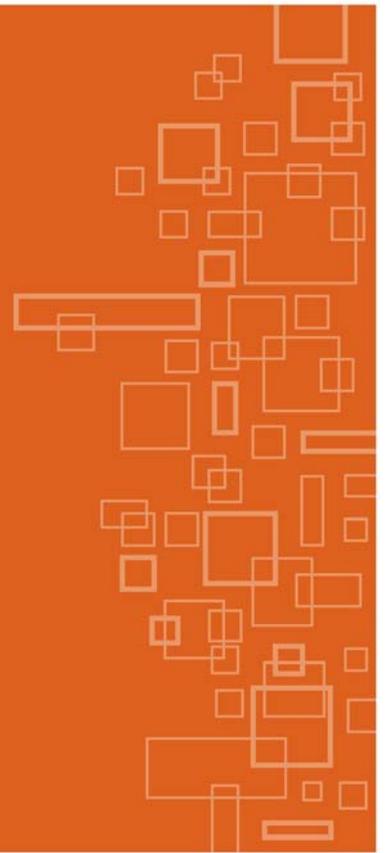




The Coordinator-General



# Terms of reference for an environmental impact statement

## Tropical Paradise Resort project

Prepared under part 4 of the Queensland  
*State Development and Public Works  
Organisation Act 1971*

The Coordinator-General  
May 2010



# Terms of Reference

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# Synopsis

Tropical Resort Developments Pty Ltd (TRD) proposes to establish a themed entertainment and tourist area, known as Tropical Paradise Resort, at Edmonton, 18 kilometres south of Cairns. The proposal will incorporate a range of elements including:

- a major United States (US) theme park and film studio
- a water park
- resort hotels and a mix of short stay accommodation
- village centre and themed retail
- golf driving range
- extreme sports complex
- other themed entertainment

On 23 October 2009 the Coordinator-General declared the Tropical Paradise Resort project to be a significant project requiring an environmental impact statement (EIS) under section 26(1)(a) of the *State Development and Public Works Organisation Act 1971*.

On 23 December 2009 the Commonwealth Department of the Environment, Water, Heritage and the Arts (DEWHA) determined that the project constitutes a controlled action pursuant to the *Environment Protection and Biodiversity Conservation Act 1999*.

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

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

On 25 February 2010 the Coordinator-General issued a request for submissions on the draft terms of reference (TOR). Advertisements inviting comment were made in the *Cairns Post*, *The Courier Mail* and *The Australian* on 27 February 2010. The closing date for submissions was 29 March 2010.

DIP received 16 submissions, being seven from members of the community and nine from government agencies. Submissions were considered and incorporated into this final version of the TOR where appropriate. Copies of submissions were provided to the proponent for their information.

This final TOR will be issued to the proponent as matters to be addressed in the preparation of the EIS.

The TOR are divided into two parts:

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



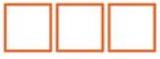
# Abbreviations

The following abbreviations have been used in this document:

|              |   |
|--------------|---|
| ACH Act      | <i>Aboriginal Cultural Heritage Act 2003</i>                                |
| AHD          | Australian height datum   |
| ANZECC       | Australian and New Zealand Environment Conservation Council                 |
| AS/NZS       | Australian standard/New Zealand standard                                    |
| CAMBA        | China-Australia migratory bird agreement                                    |
| CHMP         | cultural heritage management plan   |
| Cmwth        | Commonwealth  |
| CORVEG       | database containing site-based floristic data in Queensland                 |
| CLR          | contaminated land register  |
| DERM         | Queensland Department of Environment and Resource Management                |
| DEWHA        | Department of the Environment, Water, Heritage and the Arts (Commonwealth)  |
| DIP          | Queensland Department of Infrastructure and Planning                        |
| DTMR         | Queensland Department of Transport and Main Roads                           |
| EIS          | environmental impact statement  |
| EMP          | environmental management plan   |
| EP Act       | <i>Environmental Protection Act 1994 (Qld)</i>                              |
| EPA          | (former) Queensland Environmental Protection Agency                         |
| EPBC Act     | <i>Environment Protection and Biodiversity Conservation Act 1999 (Cwth)</i> |
| EPP          | Environmental Protection Policy (water, air, waste, noise)                  |
| FNQ          | Far North Queensland  |
| FTE          | full-time equivalent  |
| GBRWHA       | Great Barrier Reef World Heritage Area                                      |
| GQAL         | good quality agricultural land  |
| HERBECS      | database of extinct, endangered, vulnerable and near-threatened species     |
| IAS          | initial advice statement  |
| JAMBA        | Japan-Australia Migratory Bird Agreement                                    |
| kW           | kilowatt  |
| mW           | megawatt  |
| NC Act       | <i>Nature Conservation Act 1992</i>   |
| NC Reg       | <i>Nature Conservation (Wildlife) Regulation 1994</i>                       |
| NEPM         | National Environmental Protection Measures                                  |
| NES          | matters of national environmental significance (under the EPBC Act)         |
| NGA          | national greenhouse accounts  |
| NT Agreement | native title agreement  |



|           |   |
|-----------|---|
| QASSMAC   | Queensland Acid Sulfate Soils Management Advisory Committee           |
| QASSIT    | Queensland Acid Sulfate Soils Investigation Team                      |
| QLD       | Queensland  |
| REDD      | regional ecosystem description database                               |
| RIA       | road impact assessment (report)                                       |
| ROKAMBA   | Republic of Korea-Australia Migratory Bird Agreement                  |
| ROP       | Resource operations plan  |
| SDPWO Act | <i>State Development and Public Works Organisation Act 1971</i> (Qld) |
| SIA       | social impact assessment  |
| SP Act    | <i>Sustainable Planning Act 2009</i> (Qld)                            |
| SPP       | State planning policy   |
| TOR       | terms of reference  |
| TRD       | Tropical Resort Developments Pty Ltd (the proponent)                  |
| US        | United States   |
| VM Act    | <i>Vegetation Management Act 1999</i>                                 |
| WRP       | water resource plan   |
| WTQWHA    | Wet Tropics of Queensland World Heritage Area                         |



# Part A: General information and administrative procedures

## 1. Project summary

Tropical Resort Developments Pty Ltd (TRD) proposes to establish a themed entertainment and tourist area, known as Tropical Paradise Resort, at Edmonton, 18 kilometres south of Cairns (see Figure 1). The site comprises a number of freehold lots:

- lot 157 on CP NR4860
- lot 139 on CP NR4684
- lots, 1, 2 and 3 on SP198009
- lot 4 on SP118077
- lots 1, 2, 3 and 4 on RP708877
- lot 5 on SP108479
- lot 4 on RP867032
- lots 1 and 2 on RP732374
- lots 1 and 2 on SP139713
- lot 4 on RP897525.

The proposed \$2.5-3.5 billion development will incorporate a range of elements including:

- a major US theme park and film studio
- a water park
- resort hotels and a mix of short stay accommodation
- village centre and themed retail
- golf driving range
- extreme sports complex
- other themed entertainment.

The project is expected to be developed in three stages over 10-15 years, with precinct 1 being the first stage developed. The proponent has advised the project would deliver the following key economic benefits:

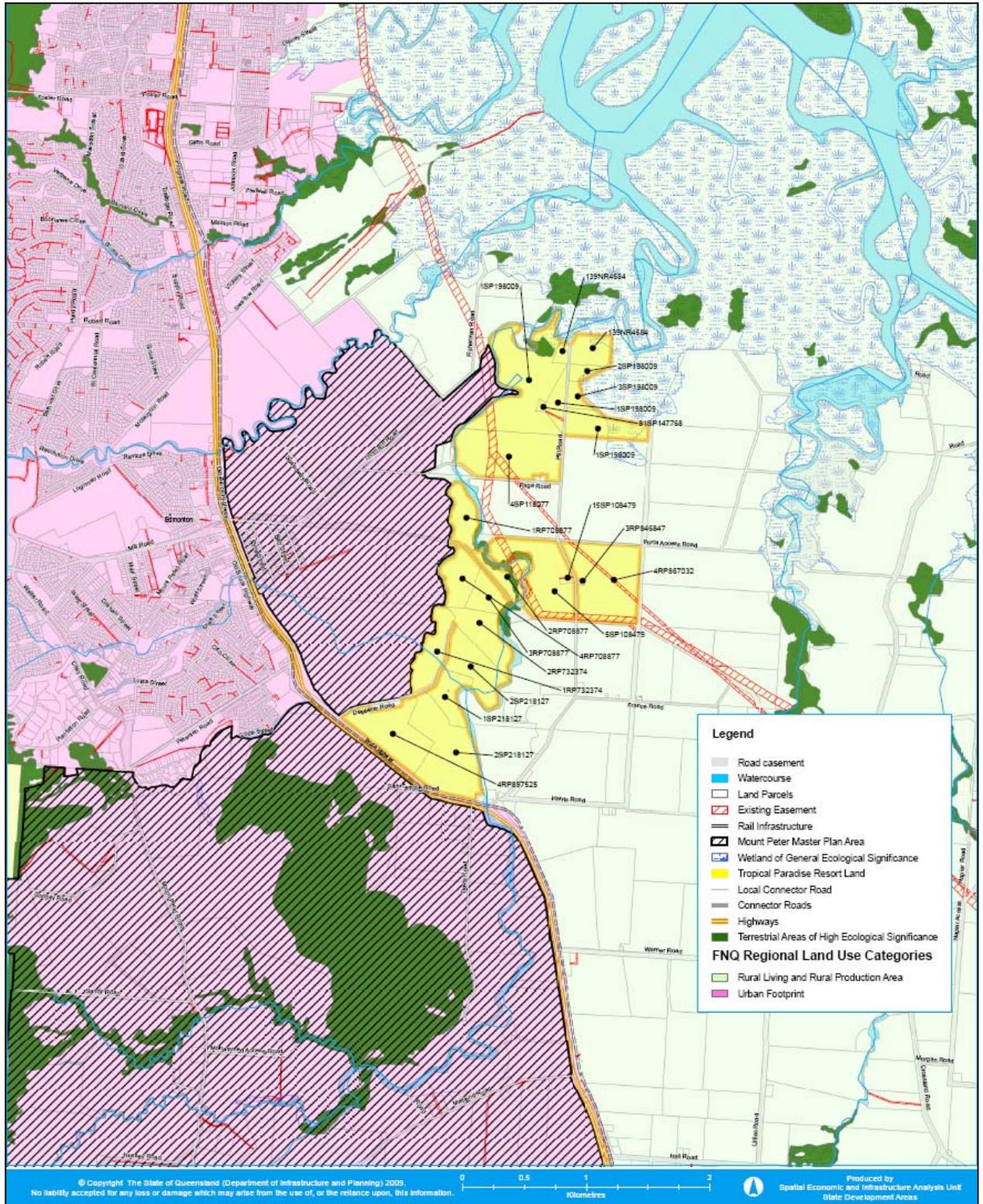
- the proposal could create up to 12,000 jobs for the Cairns region once the three stages of the Tropical Paradise Resort are fully operational<sup>1</sup>.
- an anticipated increase of two nights to the length of stay for regional tourism.

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<sup>1</sup> information update provided to DIP by the proponent subsequent to the release of the IAS.



**Figure 1: Location of Tropical Paradise Resort**





The project was modified from the initial IAS provided to DIP, after concern was raised with the initial incorporation of a permanent residential component. This part of the proposal has since been removed from the master plan.

Table 1 and Figure 2 outline the proposed uses that may be located within each precinct of the development:

**Table 1**

| <b>Precinct 1</b>  | <b>Precinct 2</b>   | <b>Precinct 3</b>  |
|--|---|--|
| US branded theme park  | Water park  | Living aquarium  |
| Film studio and backlot  | 'Xtreme' sports complex   | Multiplex cinema complex   |
| Entertainment urban centre   | Golf—3 tiered driving and putting range   | 'City Walk'—themed restaurants, shops and clubs                            |
| Themed retail and restaurants  | Themed hotel  | Themed hotel and spa complex   |
| Themed hotel   | Short stay living village—apartments/flats/timeshare accommodation/villas/units | Themed discount outlet mall complex  |
| Parking  | Themed retail and community centre  | Lake and themed entertainment and shopping pier area                       |
| Site infrastructure—power generation and water capture and treatment areas | Leisure lake  | Village—short stay apartments/flats/timeshare accommodation/villas/units   |
|  | Parking   | Commercial themed estate   |
|  | Site infrastructure—power generation and water capture and treatment areas      | Parking  |
|  |   | Site infrastructure—power generation and water capture and treatment areas |

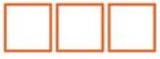
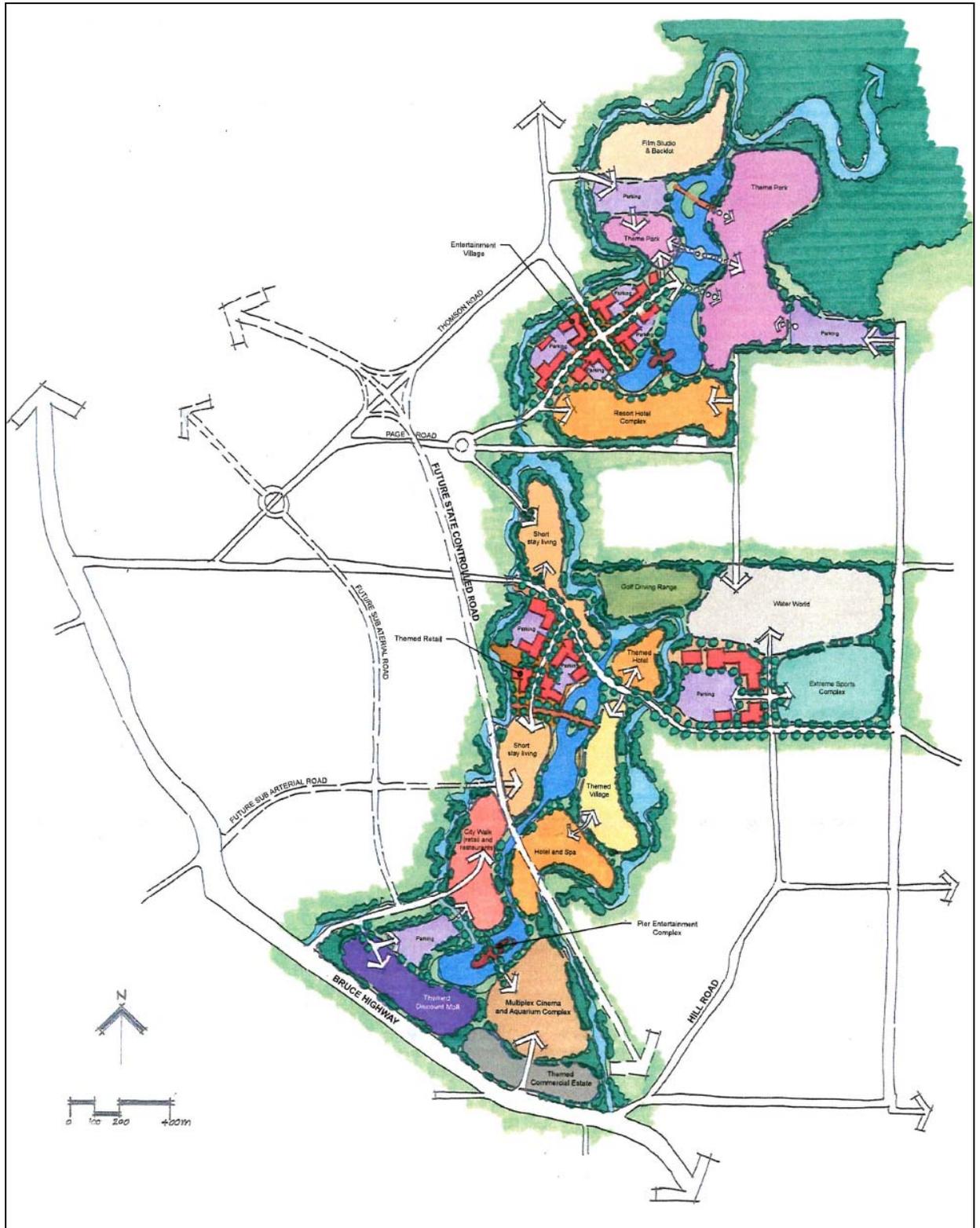


Figure 2: Tropical Paradise Resort Concept Plan





The site is currently accessed via local roads, such as Hill Road and Deppeler Road. Regional access is provided through the Bruce Highway, which runs directly past the southern end of the site. The nearest passenger train station is located at Gordonvale, approximately eight kilometres to the south of the site. Cairns International Airport is located 22 kilometres to the north of the site.

According to the IAS, the site is located on 293 hectares of sugar cane farming land. The land is gently undulating alluvial floodplain, located between the MacAlister and Murray-Prior Ranges. The site contains some small creeks and comprises part of the floodplain for Trinity Inlet.

There is some endangered regional ecosystem located on the site, as well as potential cassowary habitat (both as defined under the *Vegetation Management Act 1999*). The site is also adjacent to the Management B Zone of the Trinity Inlet Fish Habitat Area (as defined under the *Fisheries Act 1994*).

It should also be noted that part of the site is located under a flight path for the Cairns International Airport, and under the *State Planning Policy 1/02 Development in the vicinity of certain airports and aviation facilities*. It is therefore constrained by operational airspace contours.

The site is adjacent to the declared Mount Peter master planned area, a key future growth corridor for the Cairns area.

### **The entertainment district (including theme park and movie studios)**

The IAS provides that within the three entertainment precincts, the following venues will be developed: theme park and studio, water-park, urban entertainment complex, living tropical aquarium, 'Xtreme' sports facility, megaplex cinema centre, hotel, concert amphitheatre, themed retail, nightclubs, affordable family and backpacker short stay accommodation, themed hotels and spas, tiered golf academy and driving range. The proponent has advised that the eventual mix and choice of facilities will be subject to feasibility studies.

Complementing the entertainment venues will be themed retail, food and beverage areas and a themed discount outlet mall, designed to attract crowds day and night.

### **The village centre**

Within this nucleus the following may be developed: retail, apartments, offices, boutique hotel, cinemas, entertainment, restaurants, boardwalk and amusements. The IAS provides that there will be activities for all ages with pavilions, exhibitions, a fun fair, and a variety of restaurants and cafes all set in landscaped surroundings.

### **Community facilities and services**

The IAS further states that community planning will provide for numerous facilities to support short stay residents including multiple educational facilities along a central utility compound that will be the hub for all infrastructure services. Aged and child-care facilities, convenience retail stores, postal and banking services, as well as places of worship will all be designed to provide the full spectrum of basic amenities to the developments living and working community.

### **The lake**

There will be a network of lakes that provide private jetties for many of the entertainment and community districts. Bridges will connect areas to the overall area. The lakes will form part of the overall water management for the development. Electric power boats or hand and foot paddle boats only will be allowed. Water taxis may also be for hire to commute between all the districts and venues. Numerous, sandy, public, family swimming, and picnic beaches will be dotted around the lakes. Water quality management for the range of intended uses will be a key aspect of sustainably managing development.



As part of the lake system there will be wetlands and estuaries to facilitate the re-introduction to the area of native birds, fish and animals.

### **Resort, conference hotels and spas**

A health and fitness complex designed to open with 500 rooms, with the ability to expand to 1200 rooms, is proposed. Occupancy will be supported by two primary markets: tourists visiting the entertainment and themed retail areas, and business conferences and meetings during the regular holiday shoulder seasons.

The hotel's dedicated conference and meeting areas will be capable of handling 500 to 600 person group meetings. Amenities will include an indoor/outdoor swimming pool, tennis, health club, jogging and bike trails and a 50 acre lake. The site also will include a 600 space caravan park and 30 acre campground.

### **Short stay, timeshare and accommodation development**

The IAS provides that some of the living environment concepts include:

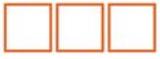
- Paradise Island: apartments and villas ranging from 350 m<sup>2</sup> to 450 m<sup>2</sup>, each incorporating the latest technological devices for the ultimate in luxury.
- Lagoon Keys: apartment and double-storied villas of five to seven rooms. These have built-up areas ranging between 250 m<sup>2</sup> and 350 m<sup>2</sup>, each surrounded by a garden.
- Paradise Lakes: will comprise products to suit a range of accommodation needs including detached and semi-detached villas, townhouses and apartments, all set within carefully designed and integrated 'neighbourhoods' separated by water, green areas and parks. Paradise Lakes will include, walkways, cycling paths, a community park, tree-lined streets and neighbourhood parks.
- Tropical Park: this will be the Central Park of Tropical Paradise Resort. Upscale downtown apartments will be set within lush tropical parklands. Nearby will be a Convention Hotel.

As previously discussed, the project has been modified since its preliminary presentation to DIP which initially proposed inclusion of a permanent residential component. This has since been removed from the project's scope, therefore the EIS will not address long-term residency impacts.

### **Infrastructure requirements**

The IAS provides that development of the site requires access to various transport and service infrastructure including:

- general road access: via the Bruce Highway, Deppeler Road, Hill Road and other local roads
- electricity: the project proposes to produce solar power and include a biomass waste-plant, generating a total of 45 megawatts (mW). The project's generated power may be supplemented with a connection to the Ergon power grid
- telecommunications: access to the local landline and mobile network, and pay television
- water: the site will be connected to the local reticulated water system, but will also collect rainwater and use water-saving devices and technology
- sewerage: the project will include the development of a on-site waste water treatment plant capable of supporting maximum visitors to site with spare capacity. The treatment plant system will also link to the biomass plant, using treated waste-water for toilet flushing, water features and site irrigation.



## 2. Project proponent

Tropical Paradise Resort Developments Pty Ltd (TRD) will take the role of proponent on behalf of TRD Consortium Holdings Trust Pty Ltd, whose members include Paul Davies Film and Television Enterprises, Housing Industry Promotions and Mr Tom Blair.

The proponent's principal contact is:

Mr Allan Carlsson  
Project Manager  
**Tropical Resort Developments Pty Ltd**  
11/41 Sabre Drive  
Port Melbourne Victoria 3207  
**Ph** (03) 8696 6500  
**Fax** (03) 8696 6555  
allan.carlsson@tropicalresortdevelopments.com.au

## 3. Legislative framework

On 23 October 2009, the Coordinator-General declared the Tropical Paradise Resort project to be a 'significant project' 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 procedure of part 4 of the SDPWO Act, which requires the proponents to prepare an EIS for the project.

DIP is managing the EIS process on behalf of the Coordinator-General. DIP has invited relevant Commonwealth, 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 TOR for an EIS for the project. The process involves the formulation of draft TOR that are made available for public and advisory agency comment. The Coordinator-General has regard to all properly made submissions received on the draft TOR in finalising the TOR which is then presented to the proponent.

The proponent then prepares an EIS to address the TOR. Once the EIS has been prepared to the satisfaction of the Coordinator-General, a public notice is advertised in relevant newspapers circulating in the region and nationally. This notice states where copies of the EIS can be viewed or purchased, the submission period, and where written 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.

On completion of the EIS phase, pursuant to section 35 of the SDPWO Act, the Coordinator-General prepares a report evaluating the EIS and other relevant materials. The report includes an assessment and conclusion about the environmental effects of the project and any associated mitigation measures. Materials that are assessed include: the EIS; properly made submissions and other submissions accepted by the Coordinator-General; and 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 and legal advice.

The Coordinator-General's report will be made available on the DIP website at [www.dip.qld.gov.au](http://www.dip.qld.gov.au). The report will also be presented to the proponent, the *Sustainable Planning Act 2009* (SP Act) assessment manager and the Commonwealth Minister for the Environment, Heritage and the Arts.

If the project involves development requiring an application for a development approval under the SP Act, 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
- the development approval must be for part only of the development
- 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.

On 23 December 2009, the Commonwealth Minister for the Environment, Heritage and the Arts determined the project a 'controlled action' under the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) (EPBC Act) due to the likely potential impacts on matters of national environmental significance. The controlling provisions under the EPBC Act are:

- World Heritage properties (sections 12 and 15A)
- National Heritage places (sections 15B and 15C)
- Listed threatened species and communities (sections 18 and 18A)
- Commonwealth land (sections 26 and 27A).

Consequently, the project requires assessment and approval under the EPBC Act. The Commonwealth Government has accredited the EIS process, to be conducted under the SDPWO Act, under a bilateral agreement between the Commonwealth and state governments. This enables the EIS to meet the impact assessment requirements under both Commonwealth and state legislation. The project will require approval from the responsible Commonwealth Minister under part 9 of the EPBC Act before it can proceed.

As the project is 'controlled action' under the EPBC Act, the Coordinator-General's report will also be provided to the Commonwealth Minister responsible for administering part 9 of the EPBC Act.

## 4. EIS objectives

The EIS aims 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 document 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 all adverse impacts
- **for affected persons:** that is, groups or persons with rights or interests in land, as defined under section 38 of the *Environmental Protection Act 1994* or water as defined under the *Water Act 2000*, 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 the effects of 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 studies are used to predict environmental impacts and details of their methodology, reliability, and any relevant assumptions or scientific 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 of the criteria adopted in assessing the proposed project and its impacts, for instance: compliance with relevant legislation, policies, standards, community acceptance is included
- the level of investigation of potential/uncertain impacts on the environment 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 for the first time in the main text of the EIS and not in an appendix or the draft environmental management plan
- adverse and beneficial effects should be presented in quantitative and/or qualitative terms as appropriate.

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 and diagrams and factual information in the document should be referenced. Where applicable, aerial photography and/or digital information (e.g. of the project site, etc) should be presented.

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 plan with the stakeholders identified in part A—section 4 of this document. Consultation with advisory agencies should be the principal forum for identifying legislation, regulations, policies and guidelines relevant to the project and EIS process.

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

- types of consultation and communication activities to be undertaken
- timing
- how it will target stakeholder/community representatives/target audiences
- integration with other EIS activities and the project development process
- consultation responsibilities
- communication protocols
- reporting and feedback arrangements.

## 7. General EIS format

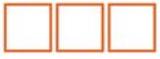
The EIS should be produced on A4 size paper capable of being photocopied, with maps and diagrams on A4 or A3 size. The EIS document should not contain watermarks across the body of the text. The EIS should also be produced on CD-ROM/DVD.

Two separate CD-ROM/DVD copies should be provided:

1. CD-ROM/DVD—resolution equivalent to the printed document for distribution to the stakeholders.
2. CD-ROM/DVD—for placement on the internet. Copies should be in Adobe® PDF format. All compression must be down-sampled to 72 dpi. PDF documents should be no larger than one MB 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 one MB file size.

In addition, the EIS could be designed as a website incorporating all text and sufficient maps, diagrams and images as to convey the EIS effectively, or include links to high resolution graphics. The website may present information differently from the EIS, for example, in themes, readership, multilevel information, locality etc, but contain the full EIS information.

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:

Ms Sonya Booth  
EIS Project Manager  
Significant Projects Coordination  
**Department of Infrastructure and Planning**  
PO Box 15009  
City East Queensland 4002  
**tel** (07) 3224 2414  
**fax** (07) 3225 8282  
TPResort@dip.qld.gov.au



## Part B: Contents of the EIS

The EIS should follow the format and content outlined in the TOR, however proposed changes to the structure can be discussed with DIP.

### Executive summary

The function of the executive summary is to 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. The executive summary 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 free of charge who may not wish to read or purchase the EIS as a whole.

The executive summary should include:

- project title
- name and contact details of TRD and a discussion of previous projects undertaken by TRD, if applicable, and their commitment to effective environmental management
- a concise statement of the aims and objectives of the project
- the legal framework, decision-making authorities and advisory agencies
- an outline of the background and need for the project, including the consequences of not proceeding with the project
- an outline of the alternative options considered and reasons for the selection of the proposed development option. This should include a discussion of the 'no action' option
- a brief description of the project (pre-construction, construction, 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 commitments to minimise the significance of these impacts
- a discussion of the cumulative impacts in relation to social, economic and environmental factors of associated infrastructure projects proposed within the region.

Detailed maps of the proposed project location and any other critical figures should also be included.

### Glossary of terms

A glossary of technical terms, acronyms, abbreviations 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 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 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, commercial feasibility and 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. The rationale for each of the project elements, planned staging of the project and associated timeframes should be discussed.

## 1.4 Relationship to other projects

This section should also describe how the project relates to any other major development and infrastructure projects and studies 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 the 'no action' option. A discussion of the methodology adopted to discern between the feasible options should be included.

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



As a project declared as a controlled action under the bilateral agreement, compliance with the EPBC Act regulations listed in section 2.01(g) of schedule 4 is required.

## 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 for any 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 properly make submissions and what form the submissions should take and by what date they should be received. It should also be noted that submissions can be lodged in several different formats, including by regular mail and via email. The reader should be informed as to how and when properly made public submissions on the EIS will be addressed and taken into account in the decision-making process. The EIS should also indicate any implications for submissions in the event of any appeal processes.

## 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 (i.e. newsletters), and other consultation mechanisms to encourage and facilitate active public consultation. The public consultation processes (community engagement) for all parts of the EIS should be integrated.



The process should be inclusive of a broad range of stakeholders and there should be provisions made for adequate and realistic opportunities for the involvement of all sections of the community, including seniors, culturally and linguistically diverse groups, youth, disadvantaged and socially isolated communities and groups, and people with a disability.

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 findings should be provided.

## 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 all 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 Australian Government legislation may include, but is not limited to:

- *Environment Protection and Biodiversity Conservation Act 1999*
- *Native Title Act 1993*
- *Aboriginal and Torres Strait Islander Heritage Protection Act 1994.*

Relevant Commonwealth obligations such as protection of World Heritage values, migratory animals (CAMBA, JAMBA, ROKAMBA and Bonn Convention), biodiversity, climate and wetlands of international importance (Ramsar) should also be outlined and identified.

Reference must also be made, where relevant, to applicable Queensland legislation, not limited to the following legislation and their supporting regulations:

- *Environmental Protection Act 1994*
- *Fisheries Act 1994*
- *Sustainable Planning Act 2009*
- *Land Act 1994*
- *Aboriginal Cultural Heritage Act 2003*
- *Torres Strait Islander Cultural Heritage Act 2003*
- *Nature Conservation Act 1994*
- *Queensland Heritage Act 1992*



- *Transport Infrastructure Act 1994*
- *Vegetation Management Act 1999*
- *Water Act 2000.*

Relevant plans the project must address are described in section 3 of the TOR.

## **1.8.2 Accredited process for controlled actions under Commonwealth legislation**

As mentioned, the project is a controlled action under the EPBC Act and a significant project under the SDPWO Act. The EIS will be developed pursuant to the bilateral agreement between the Commonwealth and Queensland governments for the purposes of the Commonwealth Government's assessment under part 8 of the EPBC Act. The EIS must address potential impacts on the matters of national environmental significance (NES) that were identified when the project was determined to be a controlled action.

The nominated 'controlling provisions' for the proposed action are:

- World Heritage properties (sections 12 and 15A)
  - National Heritage places (sections 15B and 15C)
  - listed threatened species and communities (sections 18 and 18A)
  - Commonwealth land (sections 26 and 27A).
- 
- A stand-alone report must be provided as part of the EIS that exclusively and fully addresses the issues relevant to the controlling provisions. It should follow this outline:

- 1. Introduction**
- 2. Description of proposed action (as it would impact on matters of NES and Commonwealth land)**
- 3. Description of the affected environment relevant to the controlling provisions.**

(i.e. describe the features of the environment that are matters of NES protected under the EPBC Act and Commonwealth land)

For listed threatened and migratory species (sections 18, 18A, 20 and 20A of the EPBC Act), the description of the environment should include:

- the current species distribution
- relevant information about the ecology of the species (habitat, feeding and breeding behaviour etc.)
- information about any populations of the species or habitat for the species in the area affected by the proposed proposal
- current pressures on the species, especially those in the area to be affected by the proposal
- relevant controls or planning regimes already in place.

For World Heritage properties (sections 12 and 15A of the EPBC Act) and National Heritage places (sections 15B and 15C), the description should include:



- the identification of World Heritage values of the Great Barrier Reef World Heritage Area and the Wet Tropics of Queensland World Heritage Area
- the identification of the National Heritage values of the Great Barrier Reef National Heritage place and the Wet Tropics of Queensland National Heritage place
- current pressures on the values and relevant planning controls and planning regimes already in place.

#### **4. Assessment of impacts on matters of NES and mitigation measures**

The discussion of impacts to the relevant matters protected should address all relevant impacts, and provide sufficient justification for all conclusions reached on specific impacts.

In some cases impacts may be relevant to more than one matter protected, for example, when the species is listed as both a migratory and threatened species under the EPBC Act. In such cases the impacts may be addressed together, clearly stating the relevance of the impact to the different matters protected.

The likelihood of the proposal having a significant impact upon matters of NES should be assessed against the relevant criteria contained within the *Environment Protection and Biodiversity Conservation Act 1999 Policy Statement 1.1—Significant Impact Guidelines*. In relation to Commonwealth land, the proposal should be assessed against the relevant criteria contained within the *EPBC Policy Statement 1.2—Significant Impact Guidelines for actions involving Commonwealth land*.

The assessment should have regard to any Recovery Plans which may be in place for listed threatened species.

#### **5. Proposed safeguards and mitigation measures, including proposed environmental offsets**

The assessment should have regard to proposed safeguards and mitigation measures and make reference to the *Use of Environmental Offsets Policy Statement and Discussion Paper* under the EPBC Act.

When effective mitigation measures are not available, the discussion should be broadened to include compensatory measures to offset unavoidable residual impacts.

#### **6. Discussion on secondary (consequential) impacts on the relevant matters of NES**

Refer to s.527E of the EPBC Act.

#### **7. Outline of environmental management plan**

This sets out the framework for continuing management, mitigation and monitoring for the relevant impacts of the action and the name of the agency responsible for endorsing or approving each mitigation measure or monitoring programme.

#### **8. Other approvals and conditions**

For example include permits for vegetation clearing, local, state planning schemes or plan or policy and a description of any approval that has been obtained from a state or Commonwealth agency or authority.

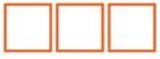
#### **9. Environmental record of person proposing to take the action (proponent):**



Include details of any proceedings against the proponent under a Commonwealth, state or territory law for the protection of the environment or the conservation and sustainable use of natural resources and for an action for which the person has applied for a permit; if the proponent is a corporation, include details of the corporation.

**10. Conclusions**

**11. References and linkages to relevant sections of the main EIS**



## 2 Description of the project

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

This section should describe, through text and maps at suitable scales, the regional and local context of the project and all associated infrastructure. Real property descriptions of the project should be provided. Maps should show the precise location of the project area, in particular:

- the location and boundaries of current or proposed land tenures, that the project area is or will be subject to, as well as details of the ownership of that land
- a description and location of surrounding land-uses
- the location and boundaries of the project footprint, including easement widths and access requirements
- the location of any proposed buffers surrounding the working areas (for construction) and of the site for operations
- the location of infrastructure such as roads, railways and railway level crossings services (including telecommunications, power, water (treatment, capture and storage), waste (including treatment, transport and disposal), built waterways, shorelines and marine infrastructure as relevant. For railway infrastructure, details as to whether these are open level crossings or occupational crossings, and level of protection—whether stop signed, flashing lights or boom gates should be detailed
- the location of any proposed site offices and workforce accommodation sites
- the location of any significant environmental or landscape features, including waterways, wetland areas and vegetation
- views to and from the site.

### 2.2 Overview of the project

The EIS should provide an overview of the project to put it into context. This section should include:

- a rationale explaining the selection of the preferred operating scenario, including details such as cost, environmental impacts, and the operational efficiencies of the preferred project option
- a description of the key components of the project including the use of text and design plans where applicable
- the expected cost, timing, and overall duration of the project, including details of, and justification for, any staging of the development
- a summary of any environmental design features of the project

A description of the overall concept and development plans must be provided, including details of the following matters, with appropriate illustrations:



- a concept/structure plan outlining issues such as, but not limited to: land-use areas; interaction with surrounding landscape, properties and infrastructure; movement patterns; open space, landscaping and visual amenity themes; areas to be avoided/protected
- the proposed master plan layout described in words and plans, illustrating all project components including access, service and parking areas
- a text description of each precinct and associated urban design requirements and planning codes
- a description of how the master plan will adhere to 'crime prevention through urban design' principles
- a description of the sustainable development principles to be applied to the master plan
- proposed land tenure and management arrangements for commercial, retail and entertainment areas, including hotels and short stay accommodation
- the indicative location and footprint of temporary buildings for construction, and permanent buildings for operation
- accessibility and transportation systems and networks, including roads, railways and railway level crossings, public transport routes, footpaths, cycle paths, buggy paths, water transport, haul routes and public walking tracks
- a description of all access points into the project area including all proposed new crossings of the North Coast rail line.
- landscaping and reinstatement of disturbed areas
- the capacity of any commercial, retail or entertainment areas, including floor areas, building or function room capacity, hotel room numbers and their human capacity, and numbers of short stay villas and their human capacity
- natural hazard design parameters, for example, flood design
- car parking ratios required for each precinct and land-use type
- public parks and any connectivity of these throughout the precincts
- the location of appropriate car parking for each precinct and land-use type
- provisions for visual, hearing and mobility impaired people
- construction and staging schedule
- expected visitor population including day visitors and overnight stays
- estimates of operations staff (permanent, temporary and dependants), contractors, movements, travel arrangements, composition, expected sources and local availability of employees.

## 2.3 Construction

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

### 2.3.1 Pre-construction activities

This section should set out a description of all the pre-construction activities, including:

- any approvals required for this stage



- any land acquisitions required, be it in full or as easements, leases etc and the process and timing for acquisition
- nature, scale and timings for any proposed vegetation clearing
- site access
- earthworks
- interference with watercourses and floodplain areas, including wetlands
- upgrade, relocation, realignment, deviation of, or impediment of access to roads and other infrastructure
- site establishment requirements for construction facilities, including access restriction measures, expected size, source and control of any construction workforce accommodation, services (water, sewage, communication, power, recreation) and safety requirements
- temporary works
- estimated numbers and roles of persons to be employed during the pre-construction phase of the project.

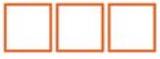
### **2.3.2 Construction phase**

This section should set out a description of all the construction elements of the project, including:

- an indicative construction timetable, including expected commissioning and start-up dates and hours of operation
- description of major work programs for the construction phase, including an outline of construction methodologies
- provide a detailed discussion of alternative construction methodologies, justified in terms of minimising adverse impacts on water quality, marine and terrestrial biodiversity and the local community
- construction inputs, handling and storage including an outline of potential locations for source of construction materials
- estimates of the quantity of freshwater and recycled water required for construction purposes and the sources from which this water will be obtained
- hazardous materials to be transported, stored, used on-site and disposed of, including environmental toxicity data and biodegradability
- clean up and restoration of areas used during construction, including camp site(s) and storage areas
- estimated numbers and roles of persons to be employed during the construction phase of the project

### **2.3.3 Commissioning**

A description of the commissioning process for each element of the project and detailing the associated environmental impacts should be provided.



## 2.4 Operation

This section should provide, to a sufficient level to identify environmental impacts, details of the operation for all elements of the project, including:

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

## 2.5 Associated infrastructure

This section should detail, with concept and layout plans, requirements for new infrastructure, or the upgrading/relocating of existing infrastructure to service the project. Matters to be considered should include such infrastructure as transportation, water supply, energy supply, telecommunications, stormwater, waste disposal and sewerage.

A summary should be provided regarding any requirement for 'bring forward' of works for the Bruce Highway and/or upgrades to existing rail crossings or provision of new crossings.

A discussion of infrastructure alternatives, justified in terms of ecological sustainable development, should be provided. Energy and water conservation and the reduction, reuse, recycling and recovery of waste must be briefly described in the context of relevant Commonwealth, state and local government policies.

Potential impacts of the required infrastructure should be addressed within the relevant technical chapter identified under section 3: Environmental values and management of impacts, of this TOR.

### 2.5.1 Road transport

Provide information on road transportation requirements on public roads (both state and local) for both construction and operations phases, including:

- any proposed new roads to provide access to, or within, the Tropical Paradise Resort
- existing traffic levels including vehicle types and numbers and trip lengths
- construction traffic (including vehicle types and number of vehicles likely to be used)
- operational traffic (including vehicle types and number of vehicles likely to be used), across various stages of development
- anticipated times at which movements may occur
- proposed transport routes (including any waterway crossings)
- need for increased road (and waterway crossing) maintenance and upgrading
- need for increased road maintenance
- communication of these issues to the public.



More detailed information regarding transport infrastructure will be required in accordance with section 3.10 (Transport) of this TOR. Suggest the EIS be cross-referenced accordingly.

### **2.5.2 Rail transport**

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

- any proposed new railway or light rail to provide access to, or within, the Tropical Paradise Resort
- provide analysis and design plans for any interface with the North Coast Rail Line (in consultation with TMR and QR)
- existing rail traffic numbers, times and train types
- proposed transport routes of all project related transport movements associated with rail (including associated infrastructure e.g. railway crossings)
- need for increased rail crossing maintenance and upgrading (in consultation with TMR and QR)
- all rail infrastructure required to be constructed, upgraded, relocated, commissioned or decommissioned for the construction and/or operation of the project should be described, including the design and construction standards to be met. Rail crossings should be designed to meet QR Limited requirements.

More detailed information regarding transport infrastructure will be required in accordance with section 3.10 (Transport) of this TOR. Suggest the EIS be cross-referenced accordingly.

### **2.5.3 Energy**

Describe all energy requirements, including electricity, natural gas, and/or solid and liquid fuel requirements for the construction and operation of the project. The location, design and capacity of power generation and transmission infrastructure for construction and ongoing use should be detailed. The locations of any easements must be shown on the infrastructure plan.

### **2.5.4 Water supply and storage**

Provide information on the proposed water usage by the project, including details on:

- water supply design
- the ultimate supply required to meet the demand for full occupancy of the development
- the quality and quantity of all water supplied to the site during the construction and operational phases based on minimum yield scenarios for water reuse, rainwater reuse and bore water volumes
- a water balance analysis
- timing of demands precinct by precinct and within precincts
- description of how the development will be impacted by the moratorium on the Wet Tropics Resource Operations Plan which states no new extractions until 2012
- water storage details (stormwater)
- fire fighting flows required
- a site plan outlining actions to be taken in the event of failure of the main water supply



- any recycling of treated waste water.

Describe proposed sources of water supply given the implication of any approvals required under the *Water Act 2000*. Emphasis must be placed on demand and supply variability to demonstrate self-sufficiency of the project (e.g. during all stages of development and ongoing use, including reasonable predicted low rainfall).

Estimated rates of supply from each source (average and maximum rates) must be given and proposed water conservation and management measures must be described.

Determination of potable water demand must be made for the project, including the temporary demands during the construction period. Include details of any existing town water supply to meet such requirements. Detail should also be provided to describe any proposed on site water storage and treatment for use by the site workforce during construction and operational phases.

Provide detailed designs for all infrastructure utilised in the treatment of onsite water including how any onsite water supplies are to be treated, contaminated water is to be disposed of and any decommissioning requirements and timing of temporary water supply/ treatment infrastructure is to occur.

Describe how the development will impact or alter the FNQ Regional Water Supply Strategy and Trunk Infrastructure Policy.

Describe how the development will manage operation of the water supply system in circumstances of disaster or disruption to power supplies.

#### **2.5.4.1 Water Infrastructure Master Plan**

Provide a master plan of the water reticulation system including hydraulic network analysis, design drawings, alignments, location and sizing of pump stations, location and sizing of water storages and staging. Demonstrate that the design will comply with the FNQROC development manual.

Assess and identify any trunk infrastructure, existing or proposed, that would be impacted by the development and describe any upgrading that may be required to cater for the development.

Identify all proposed connection points to council's networks.

Describe the typical service corridors or clearances for water supply and reticulation mains in relation to other services.

### **2.5.5 Stormwater drainage**

Describe the proposed stormwater drainage system, and the proposed disposal arrangements, including any off site services.

The EIS must detail the sources of stormwater and the quantity, quality and location of discharge to watercourses (Stony Creek, Collinson Creek, Wrights Creek) including the Great Barrier Reef Marine Park. Provide details on the standard of proposed stormwater treatment systems, including examples of quality improvement devices (sediment removal, gross pollutant traps) and potential discharge points (spread of flow and scour protection).



## 2.5.6 Waste

The proposed management of solid and liquid wastes must be detailed with consideration given to the suitability of available waste disposal options. Particular attention must be given to the capacity of wastes to generate acidic, saline or sodic conditions.

### 2.5.6.1 Liquid Waste

Describe the sewerage infrastructure required by the project, including:

- options assessed for wastewater treatment
- the treatment measures/precautions of any wastewater generated on the site whether temporarily or not that will be discharged to council sewerage infrastructure so that the sewage will not adversely impact on treatment processes at council's waste water treatment plants
- effluent irrigation modelling (Model for Effluent Disposal using Land Irrigation (MEDLI) or equivalent)
- timing of demands: precinct by precinct and within precincts
- measures required to mitigate any risks to the environment from discharges and overflows
- buffers between disposal and irrigation areas and public use areas
- peak design capacity evaluation of the wastewater treatment system and associated infrastructure using equivalent persons
- the proposed disposal and/or reuse of the treated effluent and the management of such use. An irrigation plan should be provided detailing where the use of treated effluent is likely. Details of the likely impacts of treated effluent on groundwater quality should also be provided
- the siting and maintenance regime for the system.
- how the development will manage operation of the waste water treatment and disposal system in circumstances of disaster or disruption to power supplies, including determination of the potential emergency effluent storage that would be required in an extended rain event (1 in 50 and 1 in 100 year) wet weather storage accounting for climate change).

### 2.5.6.2 Waste Water Infrastructure Master Plan

Provide a master plan of the sewerage collection system i.e. sewerage reticulation and its transfer to treatment facility including, hydraulic analysis, detailed design drawings and long-sections, alignments, location and sizing of pump stations and staging. Demonstrate that the design will comply with the FNQROC development manual.

Describe how the development will impact or alter the FNQ Regional Water Supply Strategy and Trunk Infrastructure Policy.

Assess and identify any trunk infrastructure, existing or proposed, that would be impacted by the development and describe any upgrading that may be required to cater for the development.

Identify all proposed connection points to council's networks.

Describe the typical service corridors or clearances for sewerage and recycled water mains in relation to other services.



### 2.5.6.3 Refuse and Liquid Waste

Provide information on refuse and waste disposal including the following:

- quantity and types of refuse likely to be generated from the development
- how and where the refuse will be stored
- details of any recycling or processing of waste onsite
- quantities and nature of the waste intended to be handled by council's waste services and how council's waste collection requirements will be met
- environmental protection and public health safeguards.

Provide information liquid waste disposal including the following:

- how and where the refuse will be stored
- details of any pre-treatment of waste onsite
- quantities and nature of the waste intended to be handled by council's waste services and how council's waste collection requirements will be met
- environmental protection and public health safeguards
- demonstrate how the development will meet the requirements of council's water and wastes trade waste environmental management plan (TWEMP).

### 2.5.7 Other infrastructure

All other infrastructure required to be constructed, upgraded, relocated, commissioned or decommissioned for the construction and/or operation of the project should be described including the design and construction standards to be met (e.g. waterway crossings should be designed to meet the requirements of the *Fisheries Act 1994* and in consultation with the Department of Employment, Economic Development and Innovation).

Alternative approaches or the opportunity of obtaining materials from alternative sources should be discussed.



## 3 Planning and land use

### 3.1 Planning

This section should describe the project's consistency with the existing national, state, regional and local planning framework that applies to the project location. Description of the project's relationship with proposed development in the area and the planning scheme is to be provided. It 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.

#### 3.1.1 Relevant plans

This should include reference to all relevant statutory and non-statutory plans, planning policies, guidelines, strategies and agreements, in particular (but not limited to), the following:

- *Far North Queensland Regional Plan 2009-2031*
- *Far North Queensland Regional Plan 2009-2031: State Planning Regulatory Provision*
- *Mount Peter Master Planned Area Structure Plan*
- *Mount Peter Strategic Assessment Agreement under the EPBC Act*
- *CairnsPlan (2009) Cairns Regional Council*
- *Far North Queensland Regional Organisation of Councils (FNQROC) Development Manual*
- *Sustaining the Wet Tropics—a Regional Plan for Natural Resource Management 2004-2008*
- *SPP 1/02: Development in the Vicinity of Certain Airports and Aviation Facilities*
- *SPP 2/02: Planning and Managing Development Involving Acid Sulfate Soils*
- *SPP 1/03: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide*
- *SPP 1/92: Development and the Conservation of Agricultural Land.*

##### 3.1.1.1 Potential impacts and mitigation measures

The interdependencies of the project components and sequencing should be explained, particularly with regard to how each of the infrastructure requirements and precincts relate to the viability of the project. Implications of timing of the project's delivery for future development in the vicinity, including Mount Peter, is to be addressed.

A staging plan should be provided to ensure the stages are of sufficient size and scale to function as stand-alone units should all precincts not be delivered. The staging plan should detail the interim and transitional uses.

Consideration of the possible effect of the project on town planning objectives and controls, including local government rezoning and strategic plans, including the *Mount Peter Master Planned Area Structure Plan*, is to be provided.

Constraints to potential developments and possibilities of land rezonings adjacent to the development area are to be discussed.

Consideration should be given to providing an assessment against the probable planning areas which the uses may eventually fall under (e.g. tourist and residential planning area code, sport and recreation area code, etc.).



Assess the proposal against the desired environmental outcomes of the *CairnsPlan 2009*. Consideration must be made to other council policies and local laws as relevant.

Discuss how any future planning application would be structured given the site's current planning scheme designation.

Trunk infrastructure as outlined in the *Trunk Infrastructure Contributions Planning Scheme Policy, CairnsPlan 2009* (e.g. public parks and community land trunk infrastructure) is to be addressed. Provide information on how the desired planning standards and design standards of service will be met to achieve community outcomes. Discussion should consider how this will be achieved for the defined community within the development (i.e. visitors to the site).

## 3.2 Land

This section should detail the existing land environment values for all areas associated with, and potentially affected by the project.

### 3.2.1 Land use and tenure

#### 3.2.1.1 Description of the environment

The EIS should identify, with the aid of maps:

- land tenure, including reserves, tenure of special interest such as protected areas and forest reserves, identification of existing and proposed gas, water pipelines, power lines and transport corridors, including local roads, state-controlled roads and rail corridors (including cane rail and sidings)
- existing land uses and facilities in the vicinity, including recreational uses, and fishing and tourist activities in Trinity Inlet
- cane rail transport systems in the area and frequency of usage
- areas identified as Commonwealth land
- areas covered by applications for native title claims or native title determinations, providing boundary descriptions of native title representative body(ies). The proponent should also identify in the EIS whether there are any necessary notifications required to the representative body(ies) or evidence that native title does not exist
- areas of contamination on or adjacent to the site
- distance of the project from existing and planned residential and recreational areas
- declared water storage catchments
- location of the project in relation to environmentally sensitive areas.

#### 3.2.1.2 Potential impacts and mitigation measures

The potential for the construction and operation of the project to change existing and potential land uses of the project site and adjacent areas should be detailed.

A description of the following should be included:

- impacts on surrounding and downstream land uses and human activities and strategies for minimisation, including:
  - good quality agricultural (GQAL) and
  - residential, recreational, agricultural and industrial uses

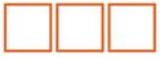


- the environment of Commonwealth land areas.

The discussion of impacts is to include consideration of *SPP 1/92: Development and the Conservation of Agricultural Land*

Existing sugar industry operations adjacent to the project in areas designated for the Mount Peter master planned area that will continue to operate until the land is required, are to be considered for the operations period impacted by the project works

- management of the immediate environs of the project including construction buffer zones
- adverse impacts to the proposed development from the existing powerlines that transect the site should be addressed. In particular, the impact of the transmission lines upon the proposed accommodation within the development should be considered
- provide commentary on potential reverse amenity issues arising from surrounding land uses including agriculture, any extractive industries, the speedway and motor cross track on Thompson Road and residential land uses. Commentary should have regard, but not be limited to such things as chemical spray, dust, smoke, noise etc. and resulting impacts on the proposal
- the ability of the project to create open and accessible public spaces for free use by the community
- the identification of the potential native title rights and interests likely to be impacted upon by the project and the potential for management of those impacts by an Indigenous land use agreement or other native title compliance outcomes
- proposed land use changes in any areas of high conservation value and information on how easement widths and vegetation clearance in sensitive environmental areas will be minimised
- potential issues involved in proximity and/or co-location of other current or proposed infrastructure services
- potential impacts on cane rail transport systems
- potential impacts on future road upgrades
- identification of any land units requiring specific management measures.



## 4 Environmental values and management of impacts

The objectives of subsequent sections are to:

- describe the existing environmental values of the area that may be affected by the project, using background information and/or new studies to support. This shall include reference to all definitions of environmental values set out in relevant legislation, policies and plans
- describe the values associated with the relevant matters of national environmental significance (NES) for the action under the EPBC Act, including a description of the potential adverse and beneficial impacts of the proposal on the identified NES values and Commonwealth land
- describe the potential adverse and beneficial impacts of the project on the identified environmental values
- describe the measures taken to avoid, minimise and/or mitigate those impacts
- describe any cumulative impacts on environmental values caused by the project, either in isolation or by combination with other known existing or planned projects
- present environmental protection objectives, standards and measurable indicators to be achieved
- examine viable alternative strategies for managing impacts. These alternatives should be 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.

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. In accordance with the *Queensland Government Environmental Offset Policy (2008)*, proposals to offset impacts should be presented.

The EIS should follow the format and content outlined in these TOR however changes to the structure can be discussed with the DIP. 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).

### 4.1 Climate, natural hazards and climate change

#### 4.1.1 Description of environmental values

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, rises in sea level, 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.

#### 4.1.1.1 Trinity Inlet floodplain

This should outline the site that could be affected by the Trinity Inlet floodplain. Details should include a description of existing surface drainage patterns, flows in major streams and wetlands. Also provide details of the likelihood of flooding, history of flooding including extent, levels and frequency, and a description of present and potential water uses downstream of the areas affected by the project.

Describe how SPP 1/03: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide would be addressed in the context of managing flood impacts.

### 4.1.2 Potential impacts and mitigation measures

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, including offsetting and reduction strategies that may be utilised by the proponent to address carbon emissions produced due to construction/operation of the project.

#### 4.1.2.1 Flood plain management

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

- quantification of flood impacts on properties surrounding and external to the project site from redirection or concentration of flows, considered under a range of flood scenarios
- identification of likely increased flood levels, increased flow velocities or increased time of flood inundation as a result of the development, along with potential impacts due to flooding

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

For any future proposed development in the area, such as the Bruce Highway upgrade, possible North Coast Railway relocation, the Cairns Transit Network and upgraded Council roads, the proponent is to consider the project's hydrological impacts in relation to any flood modelling undertaken by the responsible entities for these works.



## 4.1.3 Scenic amenity

### 4.1.3.1 Description of environmental values

This section should describe in general terms the existing character of the landscape and the general impression that would be obtained while travelling through and around it. This section should describe existing landscape features, panoramas and views that have, or could be expected to have, value to the community. Information in the form of maps and photographs should be used, particularly where addressing the following issues:

- major views, view sheds, outlooks, and features contributing to the amenity of the area, including assessment from private residences
- focal points, landmarks, waterways and other features contributing to the visual quality of the area and the project site(s)
- character of the local and surrounding areas including vegetation and land use.

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

The EIS should detail the scenic and landscape values of the area focusing on the visual absorption capacity of the site and including the relevant world heritage and national heritage values of the area.

Provide details as to the likely height of buildings, rides, structures etc. across the entire site.

Sketches, diagrams, computer imaging/simulation and photos are to be utilised where possible to portray the near views and far views of the completed structures and their surroundings from visually sensitive locations. Depict and describe if the development will be buffered from surrounding areas with, for example, landscaping. Provide details of any proposed landscaped buffer areas between roads, adjacent properties and waterways. Views/simulations of the site are to be provided from various key aspects, including Bruce Highway, Hill Road, Thompson Road and Trinity Inlet.

The EIS should discuss the visual impact of the construction and operation of the project as it relates to the surrounding landscape. The assessment should address the local and broader visual impacts of the project buildings and other structures. This should include views from places of residence, work, and recreation, from road, cycle and walkways, from the air and other known vantage points day and night, during all stages of the project as it relates to the surrounding landscape.

### 4.1.3.2 Potential impacts and mitigation measures

Describe the potential beneficial and adverse impacts of the project on landscape character and visual qualities of the site and the surrounding area. Particular attention should be paid to those elements of the theme park, extreme sports park and water park, which may be able to be viewed from far away. Details should be provided of measures to be undertaken to mitigate or avoid the identified impacts.

## 4.1.4 Lighting

### 4.1.4.1 Description of environmental values

This section should identify and locate the existing light sources in and around the project site. These should include street and any significant private lighting sources e.g. sporting grounds, night-time industrial operations.



The project's proposed lighting strategy, for the construction and operations phases, should be described.

#### 4.1.4.2 Potential impacts and mitigation measures

An assessment of all potential impacts of lighting of the project, during all stages, is to 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, residents and aviation flight paths
- the potential impact of increased vehicular traffic
- changed habitat conditions for nocturnal fauna and associated impacts.

### 4.1.5 Topography, geology and soils

#### 4.1.5.1 Description of environmental values

Maps should be provided locating the project in state, regional and local contexts. The topography should be detailed with contours at suitable increments, shown with respect to Australian height datum (AHD). Significant features of the landscape and topography should be included and commented on in the maps.

The EIS must provide a description, map and a series of cross-sections of the geology of the project area relevant to the project components. Geological properties 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.

A soil survey of the sites affected by the project must be conducted at a suitable scale, with particular reference to the physical and chemical properties of the materials that will influence erosion potential, storm water run-off quality, rehabilitation and agricultural productivity of the land. Information must also be provided on soil stability and suitability for construction of 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 (SPP) 2/02: *Planning and Managing Development Involving Acid Sulfate Soils* and its accompanying *Guideline 2/02*.

#### 4.1.5.2 Potential impacts and mitigation measures

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

- a discussion of the project in the context of major topographic features and any measures taken to avoid or minimise impact to such, if required
- the objectives to be used for the project in any re-contouring or consolidation, rehabilitation, landscaping, and fencing.

Identify for all permanent and temporary landforms the possible soil erosion rate and provide a description of the techniques used to manage the 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:

- (a) the *Soil Erosion and Sediment Control - Engineering Guidelines for Queensland Construction Sites* (Institute of Engineers Australia (Qld Division) 1996)
- (b) the EPA Guideline—*EPA Best Practice Urban Stormwater Management: Erosion and Sediment Control*
- (c) the Far North Queensland (FNQ) Regional Organisation of Councils Development Manual (1/09)
- (d) preventing soil loss in order to maintain land capability/suitability
- (e) preventing degradation of local waterways.

The potential for acid generation by disturbance of acid sulfate soils during earthworks and construction should be discussed and measures for management of soils and mitigation of impacts should be proposed for all site earthworks and construction activities. Given the project's delivery will be sequenced, implications of this for managing ASS is to be discussed.

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 SPP 2/02: *Planning and Managing Development Involving Acid Sulfate Soils* and its accompanying *Guideline 2/02*.

## 4.2 Nature conservation

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

- integrity of ecological processes, including habitats of rare and threatened species
- conservation of resources
- biological diversity, including habitats of rare and threatened species
- integrity of landscapes and places including wilderness and similar natural places
- aquatic (freshwater and marine), coastal and terrestrial ecosystems.

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

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

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.



## 4.2.1 Sensitive environmental areas

### 4.2.1.1 Description of environmental values

The EIS should identify areas that are environmentally sensitive in proximity to and downstream of 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.

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

- important habitats of species listed under the *Nature Conservation Act 1992* (NC Act) and/or Commonwealth EPBC Act as presumed extinct, endangered, vulnerable or rare
- regional ecosystems listed as 'endangered' or 'of concern' under state legislation, and/or ecosystems listed as presumed extinct, endangered or vulnerable under the EPBC Act
- good representative examples of remnant regional ecosystems or regional ecosystems which are described as having 'medium' or 'low' representation in the protected area estate as defined in the Regional Ecosystem Description Database (REDD) available at the Department of Environment and Resource Management (DERM) website [www.derm.qld.gov.au](http://www.derm.qld.gov.au)
- sites listed under international treaties such as Ramsar wetlands, World Heritage areas, National Heritage places and Commonwealth lands, including significant values of these sites.
- sites containing near threatened or bio-regionally significant species or essential, viable habitat for near threatened or bio-regionally significant species
- sites in, or adjacent to, a Fish Habitat Area which has been declared under the *Fisheries Act 1994*
- sites containing waterways or wetland systems which contribute to fisheries productivity and values including those that are of importance to Indigenous, recreational or commercial fishers
- sites in, or adjacent to, areas containing important resting, feeding or breeding sites for migratory species of conservation concern listed under the Convention of Migratory Species of Wild Animals, and/or bilateral agreements between Australia and Japan (JAMBA) and between Australia and China (CAMBA)
- sites containing common species which represent a distributional limit and are of scientific value or which contains feeding, breeding, resting areas for populations of, for example, wallabies, cassowary, echidna, koala, platypus and other species of special cultural significance
- sites containing high biodiversity that are of a suitable size or with connectivity to corridors/protected areas to ensure survival in the longer term. Such land may contain:
  - natural vegetation in good condition or other habitat in good condition (e.g. wetlands)
  - degraded vegetation or other habitats that still supports high levels of biodiversity or acts as an important corridor for maintaining high levels of biodiversity in the area



- a site containing other special ecological values, for example, high habitat diversity and areas of high endemism
- ecosystems which provide important ecological functions such as: wetlands of national, state and regional significance; coral reefs; riparian vegetation; important buffer to a protected area or important habitat corridor between areas
- sites of palaeontologic significance such as fossil sites
- sites of geomorphological significance, such as remnant dune ridges or cheniers.
- protected areas which have been proclaimed under the NC Act and *Marine Parks Act 1982* or are under consideration for proclamation
- areas of major interest, or critical habitat declared under the NC Act or high nature conservation value areas or areas vulnerable to land degradation under the *Vegetation Management Act 1999* (VM Act).

Areas of special sensitivity include the marine environment and wetlands, 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.

#### 4.2.1.2 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. Also include human impacts and the control of any domestic animals introduced to the area.

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
- explanation of why measures above would not apply in areas where loss would occur.

The boundaries of the areas impacted by the project within or adjacent to an endangered ecological community, including details of footprint width should be discussed. Where the project area would impact upon a threatened community, the discussion should include reasons for the preferred alignment and the viability of alternatives.

The EIS should address any actions of the project or likely impacts that require an authority under the NC Act, and/or would be assessable development for the purposes of the VM Act.

Outline how these measures will be implemented in the overall EMP for the project.

Discuss how the project will accord with requirements of the *Temporary State Planning Policy: Protecting Wetlands of High Ecological Significance in Great Barrier Reef Catchments* (2010)

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* (DERM, 2009)



- *Mitigation and Compensation for Works or Activities Causing Marine Fish Habitat Loss* (DPI&F, 2002)
- draft *Policy for Biodiversity Offsets* (consultation draft, EPA, 2009).

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

## 4.2.2 Terrestrial flora

### 4.2.2.1 Description of environmental values

Vegetation mapping should provide vegetation mapping for all relevant project sites. Adjacent areas 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.

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

- location and extent of vegetation types using the regional ecosystem type descriptions in accordance with the REDD
- location of vegetation types of conservation significance based on regional ecosystem types and occurrence of species listed as protected plants under the *Nature Conservation (Wildlife) Regulation 1994* (NC Reg) and subsequent amendments, as well as areas subject to the VM Act
- the current extent (bioregional and catchment) of protected vegetation types of conservation significance within the protected area estate (national parks, conservation parks, resource reserves, nature refuges and conservation reserves under the *Land Act 1991*)
- location and extent of any marine plants as defined and protected under the *Fisheries Act 1994*
- any plant communities of cultural, commercial or recreational significance should be identified
- the location of any horticultural crops in the vicinity of the project area
- location and abundance of any exotic or weed species.

Sensitive or important vegetation types should be highlighted, including any marine littoral and subtidal zones 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
- specimens of species listed as protected plants under the NC Reg, other than common species, are to be submitted to the Queensland Herbarium for identification.

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.

#### 4.2.2.2 Potential impacts and mitigation measures

The potential environmental harm to the ecological values of the area arising from the construction, operation and decommissioning of the project including clearing, salvaging or 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.

Outline how these measures will be implemented in the overall EMP for the project. Weed management strategies are required for containing existing weed species (e.g. parthenium and other declared plants) and ensuring no new declared plants are introduced to the area. Reference should be made to the local government authority's pest management plan 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* in the main body of the EIS and in the pest management plan within the EMP for the project.

If vegetation is to be removed details of an achievable offset is to be presented and provided to the Coordinator-General prior to finalising the EIS.

### 4.2.3 Terrestrial fauna

#### 4.2.3.1 Description of environmental values

The terrestrial and riparian fauna occurring in the areas affected by the proposal 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 (i.e. a species list) and abundance of animals of recognised significance
- any species that are poorly known but suspected of being rare or threatened
- habitat requirements and sensitivity to changes, including movement corridors and barriers to movement
- the existence of feral or introduced animals including those of economic or conservation significance
- existence (actual or likely) of any species/communities of conservation significance in the study area, including discussion of range, habitat, breeding, recruitment feeding and movement requirements, and current level of protection (e.g. any requirements of protected area management plans or threatened species recovery plans)
- habitat requirements and sensitivity to changes, including movement corridors and barriers to movement
- an estimate of commonness or rarity for the listed or otherwise significant species
- use of the area by migratory fauna.

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 occurrence of feral species in the project area should be described.

#### 4.2.3.2 Potential impacts and mitigation measures

The assessment of potential impact should consider impacts the project may have on terrestrial 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.

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

- strategies for complying with the objectives and management practices of relevant recovery plans
- 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 livestock and native fauna as a result of the project's construction and operational works, and if accidental injuries should occur the methodologies to assess and handle injuries.

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

A crocodile management plan is to be prepared detailing current populations of estuarine crocodiles on the site and methods proposed to relocate them and prevent them from entering the site once the land is developed.



Consideration needs to be given regarding displacement of species as a result of the proposal. In particular, management, relocation and removal of agile wallabies from the site is required to be addressed. A macropod management plan is to be prepared.

Feral animal management strategies and practices should be addressed. The study should develop strategies to ensure that the project does not contribute to increased encroachment of a feral animal species. Reference should be made to the local government authority's pest management plan 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* in the main body of the EIS and in the pest management plan within the EMP for the project.

## 4.2.4 Aquatic ecology

### 4.2.4.1 Description of environmental values

#### Aquatic environment

The aquatic flora and fauna occurring in the areas affected by the proposal should be described, noting the patterns and distribution in the waterways and any associated wetlands. The description of the fauna and flora present or likely to be present in the area should include:

- fish species, mammals, reptiles, amphibians, crustaceans and aquatic invertebrates occurring in the waterways within the affected area and any associated wetlands
- fish passage requirements of fish species present
- any rare or threatened marine or freshwater species
- description of the habitat requirements and the sensitivity of aquatic species to changes in flow regime, water levels and water quality in the project areas
- aquatic plants including native and exotic/weed species
- aquatic and benthic substrate
- habitat downstream of the project or potentially impacted due to currents in associated lacustrine and marine environments
- aquatic substrate and stream type, including extent of tidal influence and common levels such as highest astronomical tide (HAT) and mean high water springs (MHWS).

Wetlands listed by DERM as areas of national, state or regional significance should be described and their values and importance for aquatic flora and fauna species.

Estuarine and marine environments should be described at a level of detail commensurate to the risks (including cumulative risks) the project poses to those environments.

Any discharges into the aquatic environment should be described, including discussion of compliance with the ANZECC/NEPC guideline values regarding discharges should these be made. An assessment of environmental and health impacts of discharges and the potential for any chemicals/toxins to accumulate in the aquatic environment (flora and fauna) is to be provided.

#### Fish Habitat

Describe the nature and extent of fish habitats that have the potential to be impacted. The location and density of marine plants should be mapped at an appropriate scale.



Show the location of any declared Fish Habitat Areas proximal to the proposed development site.

### **Benthic macroinvertebrates**

Benthic macroinvertebrate communities likely to be directly or indirectly impacted by the project should be characterised for the assessment of the potential impacts of proposed capital works. The effect of ongoing maintenance activities including dredging on benthic fauna should also be considered.

### **Flora**

Define the nature and extent of existing marine features such as littoral and sub-littoral lands, waterways, affected tidal and sub-tidal lands, corals and marine vegetation (e.g. salt couch, seagrass and mangroves) within the proposed area of development and in the areas adjacent to the project.

Field assessments should be conducted for plant species, preferably in both pre- and post-wet season conditions, as follows:

- site data should be recorded in a form compatible with the Queensland Herbarium CORVEG database
- a complete list of species present at each site should be recorded, including those defined and protected under the *Fisheries Act 1994*
- the relative abundance of plant species present should be recorded
- any plant species of conservation, cultural, commercial or recreational significance should be identified
- specimens of species listed as protected plants under the NC Reg, other than common species, are to be submitted to the Queensland Herbarium for identification and entry into the HERBRECS database.

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

This section should provide a discussion of the potential impacts of the project on the aquatic ecosystems and a description of proposed mitigation actions, including:

- details of proposed stream diversions, causeway construction and crossing facilities, stockpiled material and other impediments that would restrict free movement of aquatic 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, including marine pests
- monitoring of aquatic biology health, productivity and biodiversity in areas subject to direct discharge

The EIS should address any actions of the project or likely impacts that require an authority under the relevant legislation including the NC Act and/or the *Fisheries Act 1994*. Outline how these measures will be implemented in the overall EMP for the project.



This section should provide a description of proposed mitigation measures and/or offsets to address potential aquatic biology impacts, including:

- 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
- measures to prevent direct impacts on marine fauna by any dredging works including:
  - operational constraints and monitoring systems to minimise risks to threatened species
  - monitoring and reporting of harm and subsequent review of operations
- 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 subject to direct discharge.

The EIS should address any actions of the project or likely impacts that require an authority under the relevant legislation including the NC Act and/or the *Fisheries Act 1994*. Outline how these measures will be implemented in the overall EMP for the project.

## 4.3 Water resources

### 4.3.1 Description of environmental values

This section of the EIS should provide a description of the existing water resources that may be affected by the project in the context of environmental values as defined in such documents as the EP Act, *Environmental Protection (Water) Policy 2009* [EPP (Water)], *Australia and New Zealand Guidelines for Fresh and Marine Water Quality 2000* and the *DERM Queensland Water Quality Guidelines 2009*.

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

- existing surface and groundwater in terms of physical, chemical and biological characteristics
- existing surface drainage patterns, flows, history of flooding including extent, levels and frequency and present water uses.

The environmental values of the surface waterways and groundwater of the affected area should be described in terms of:

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



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

- geology/stratigraphy
- aquifer type—such as confined, unconfined
- depth to and thickness of the aquifers
- depth to water level and seasonal changes in levels
- groundwater flow directions (defined from water level contours)
- interaction with surface water
- possible sources of recharge
- potential exposure to pollution
- current access to groundwater resources in the form of bores, springs, ponds, including quantitative yield of water and locations of access.

The groundwater assessment should also be consistent with relevant guidelines for the assessment of acid sulphate soils including spatial and temporal monitoring to accurately characterise baseline groundwater characteristics.

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

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

- location
- pumping parameters
- draw down and recharge at normal pumping rates
- seasonal variations (if records exist) of groundwater levels.

A network of observation points which would satisfactorily monitor groundwater resources both before and after commencement of operations should be developed.

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

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

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

- potential impacts on the flow and the quality of surface and ground waters from all phases of the project, with reference to their suitability for the current and potential downstream uses and discharge licences
- an assessment of all likely impacts on groundwater depletion or recharge regimes



- potential impacts of surface water flow on existing infrastructure, with reference to the EPP (Water) and the *Water Act 2000*
- chemical and physical properties of any waste water including stormwater at the point of discharge into natural surface waters, including the toxicity of effluent to flora and fauna. Having regard to the requirements of the Environmental Protection (Water) Policy, the EIS must present the methods to avoid stormwater contamination and the means of containing, recycling, reusing, treating and disposing of stormwater
- potential impacts on other downstream receiving environments (including wetlands), if it is proposed to discharge water to a riverine system or if associated groundwater hydrology will be potentially affected
- the results of a risk assessment for uncontrolled releases to water due to system or catastrophic failure, implications of such emissions for human health and natural ecosystems, and list strategies to prevent, minimise and contain impacts
- an assessment of the potential to contaminate surface and ground water resources and measures to prevent, mitigate and remediate such contamination.

Management strategies should be adequately detailed to demonstrate best practice management and that environmental values of receiving waters will be maintained to nominated water quality objectives. Monitoring programs, which will assess the effectiveness of management strategies for protecting water resources during the construction, operation and decommissioning of the project, should be described. Outline how these strategies are incorporated into appropriate sections of the EMP.

#### 4.3.2.1 Surface water and water courses

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

The need or otherwise for licensing of any dams (including referable dams) or creek diversions, under the *Water Act 2000* should be discussed. Water allocation and water sources, including impacts on existing water entitlements, including water harvesting, should be established in consultation with DERM and discussed.

#### 4.3.2.2 Wastewater treatment

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

In relation to water supply and usage, and wastewater disposal, the EIS should discuss anticipated flows of water to and from the proposal area. Where dams, weirs or ponds are proposed, the EIS should investigate the effects of predictable climatic extremes (storm events, floods and droughts) on: the capacity of the water storages (dams, weirs, ponds), the ability of these storages to retain contaminants; the structural integrity of the containing walls; relevant operating regime and the quality of water contained, and flows and quality of water discharged. The design of all water storage facilities should follow the technical guidelines on site water management.

Options for mitigation and the effectiveness of mitigation measures should be discussed with particular reference to sediment, acidity, salinity and other emissions of a hazardous or toxic nature to human health, flora or fauna.



#### 4.3.2.3 Groundwater

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

The response of the groundwater resource to the progression and finally cessation of the proposal should be described.

An assessment should be undertaken of the impact of the project on the local ground water regime caused by the altered porosity and permeability of any land disturbance.

Any potential for the project to impact on groundwater-dependent vegetation should be assessed and described. Avoidance and mitigation measures should be described.

## 4.4 Coastal environment

The function of this section is to describe the existing coastal environment, which may be affected by the project in the context of coastal values identified in the *Queensland State of the Environment Reports* and environmental values as defined by the EP Act and environmental protection policies.

This section should also identify actions associated with the project that are assessable development within the coastal zone and will require assessment under the provisions of the *Coastal Protection and Management Act 1995*.

The EIS should assess the project's consistency with the relevant policies of the *State Coastal Management Plan*, the *Wet Tropical Coast Regional Coastal Management Plan* and the *Trinity Inlet Marine Park Zoning Plan*.

### 4.4.1 Hydrodynamics and sedimentation

#### 4.4.1.1 Description of environmental values

Describe the physical processes of the coastal environment related to the project including waves, currents, tides, storm surges/tides, freshwater flows and the key influencing factors of cyclones and other severe weather events and their interaction in relation to the assimilation and transport of pollutants entering marine waters from, or adjacent to, the project area. Describe the environmental values of the coastal resources of the affected area in terms of the physical integrity and morphology of landforms created or modified by coastal processes.

Describe the tidal hydrodynamics of the project area and the adjoining tidal waterways in terms of water levels and current velocities and directions at different tidal states. Provide details of water levels and flows associated with historical and predicted storm surges.

Predict the likely changes to hydrodynamics (including water levels and freshwater flows) in the project area due to climate change.

#### 4.4.1.2 Potential impacts and mitigation measures

Describe the potential changes to the hydrodynamic processes and local sedimentation due to the proposed works. This should include:

- impacts on tidal flows and water levels
- changes to sediment transport patterns including the potential of the proposal to impact on bank erosion and/or bed degradation within adjacent waterways
- an assessment of the erosive effects of vessel wash associated with boat traffic generated by the proposal. This would be supported by a vessel traffic impact



assessment to determine the increase of vessels (size and number) that can be expected as a result of the project relative to the existing situation.

This assessment should also provide a discussion of the potential impacts associated with extreme events such as storm tide flooding. This must include an assessment of the vulnerability of the project to storm tide flooding and the potential of the project to affect vulnerability to storm tide flooding on adjacent properties. The assessment must include effects of potential climate change and sea level rise.

## 4.4.2 Water quality

### 4.4.2.1 Description of environmental values

Provide baseline information on water quality of coastal waters. This information should include, but not be limited to, general physical chemical water quality parameters such as dissolved oxygen, pH, heavy metals, nutrients, temperature, salinity, oil in water and turbidity. For coastal areas potentially affected by sediment run-off or dredging, suspended solids concentration and Secchi depth should also be included. Discuss the interaction of freshwater flows with coastal waters and the significance of this in relation to marine flora and fauna adjacent to the project area.

Describe the environmental values of coastal waters in the affected area in terms of:

- variability associated with the local wind climate, seasonal factors, freshwater flows and extreme events
- values identified in the *Environmental Protection (Water) Policy* and the *State Coastal Management Plan*.

### 4.4.2.2 Potential Impacts and mitigation measures

The water quality objectives and practical measures for protecting, mitigating or enhancing coastal environmental values are to be defined and described, including how nominated quantitative standards and indicators may be achieved, and how the achievement of the water quality objectives will be monitored, audited and managed.

The potential environmental harm caused by the project on coastal resources and processes shall be described in the context of controlling such effects. State Planning Policy 2/02: *Planning and Managing Development Involving Acid Sulfate Soils* should be addressed as should the State Coastal Management Plan, and QPI&F *Guidelines for Marine Areas*.

Issues to be addressed:

- describing the water quality objectives used (including how they were developed), and how predicted activities will meet these objectives (refer DERM *Queensland Water Quality Guidelines* and ANZECC *Guidelines for Fresh and Marine Water Quality* (2000))
- potential threats to the water quality and sediment quality of the coastal environment within the project footprint, specifically associated with the construction and operation of the facilities.

This assessment shall consider, at minimum:

- dredging and dredge material disposal, including disturbance of fine grained sediments and contaminated material
- potential accidental discharges of contaminants during construction and operation
- release of contaminants, including potential for the introduction of pests
- stormwater run-off from the marine precinct facilities and associated infrastructure



- flooding of relevant river systems and other extreme events.

Strategies for protecting Ramsar wetlands should be described, and any obligations imposed by state or Australian legislation or policy or international treaty obligations (i.e. JAMBA and CAMBA) should be discussed.

## 4.5 Air quality

### 4.5.1 Description of environmental values

This section of the EIS should 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*.

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

- background levels and sources of particulates, gaseous and odorous compounds and any major constituents
- pollutants including greenhouse gases which may be affected by the project
- baseline monitoring results, sensitive receptors
- data on local meteorology and ambient levels of pollutants should be gathered to provide a baseline for later studies or for the modelling of air quality environmental harms.

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

### 4.5.2 Potential impacts and mitigation measures

The following air quality issues and their mitigation should be considered:

- an inventory of air emissions from the project expected during construction and operational activities
- identify 'worst case' emissions that may occur during operation. If these emissions are significantly higher than those for normal operations, it will be necessary to evaluate the worst case impact as a separate exercise to determine whether the planned buffer distance between the facility and neighbouring sensitive receptors will be adequate
- ground level predictions should be made at any residential, industrial and agricultural developments believed to be sensitive to the effects of predicted emissions
- dust generation from construction activities especially in areas where construction activities are adjacent existing road networks or are in close proximity to sensitive receivers
- climatic patterns that could affect dust generation and movement
- vehicle emissions and dust generation along major haulage routes both internal and external to the project site
- human health risk associated with emissions from the facility of all hazardous or toxic pollutants should be assessed
- impacts on terrestrial flora and fauna.



Potential air quality impacts from emissions must be discussed with reference to the *National Environmental Protection Measures (NEPM) for ambient air quality (2003)* and the *Environmental Protection (Air) Policy 2008*.

## 4.6 Greenhouse gas emissions

### 4.6.1 Description of environmental situation

Describe existing greenhouse gas emissions (GGE) of the site compared to the project's GGE profile (scaled by precincts). An inventory is to be provided of projected annual emissions for each relevant greenhouse gas, with total emissions expressed in 'CO<sub>2</sub> equivalent' terms for the following categories:

- Scope 1 emissions, where '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, where 'Scope 2 emissions' means emissions of greenhouse gases from the production of electricity, heat or steam that the facility will consume, but that are physically produced by another facility
- briefly describe method(s) by which estimates were made.

The *National Greenhouse Accounts (NGA) Factors* (Department of Climate Change) can be used as a reference source for emission estimates and supplemented by other sources where practicable and appropriate. As a requirement of the NGA factors, estimates should include the loss of carbon sink capacity of vegetation due to clearing and impoundment.

### 4.6.2 Potential impacts and mitigation measures

This section of the EIS should discuss the potential for greenhouse gas abatement measures. This may include:

- 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 opportunities for further offsetting greenhouse gas emissions through indirect means including sequestration and carbon trading.

## 4.7 Noise and vibration

### 4.7.1 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*. The DERM's *Noise Measurement Manual* should be considered and references should be made to DERM's *Guideline for Noise and Vibration from Blasting*.

Sensitive noise receptors adjacent to all project components 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.



## 4.7.2 Potential impacts and mitigation measures

The EIS should describe the impacts of noise and vibration generated during the construction and operational phases of the project. An analysis of noise and vibration impacts should include:

- the levels of noise and vibration generated, including noise contours, assessed against current typical background levels, using modelling where appropriate
- impact of noise, including low frequency noise (noise with components below 200Hz) and vibration at all potentially sensitive receivers compared with the performance indicators and standards nominated above. Particular attention should be paid to potential noise impacts from different types of mechanical equipment used within the theme park, extreme sports park and water park areas
- impact on terrestrial and aquatic fauna
- proposals to minimise or eliminate these effects, including details of any screening, lining, enclosing or bunding of facilities, or timing schedules for construction and operations that would minimise environmental harm and environmental nuisance from noise and vibration.

## 4.8 Waste

### 4.8.1 Description of environmental values

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

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

### 4.8.2 Potential impacts and mitigation measures

Having regard for best practice waste management strategies and 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:

- options available for avoidance/minimisation
- operational handling and fate of all wastes including storage
- on-site treatment methods proposed for any wastes
- methods of disposal (including the need to transport wastes off-site for disposal) proposed to be used for any trade wastes, liquid wastes and solid wastes
- 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 and impoundments
- measures to minimize attraction of vermin, insects and pests
- options available for using recycled materials
- market demand for recyclable waste (where appropriate)
- decommissioning of the construction site.

## 4.9 Transport

### 4.9.1 Existing infrastructure

The transport assessment is to be presented in separate reports for each project-affected mode (e.g. road, all rail, air and water) as appropriate. These assessment reports should provide sufficient information to allow an independent assessment of how existing transport infrastructure will be affected by project transport at the local and regional level. They should also include all base data assumptions, including current condition of the affected network and its performance.

Note that in all sections, both the construction and operations phases are to be addressed. Note that 'transport' in following sections is to address all project-affected modes.

### 4.9.2 Transport tasks and routes

This section should describe:

- expected volumes of project inputs and outputs of transported raw materials, wastes, hazardous goods, finished products for all phases of the project
- how identified project inputs and outputs will be moved through the transport network (volume, composition, trip timing and routes)
- a conceptual road layout & hierarchy detailing how the road network proposed will link in with existing and proposed roads and upgrades
- traffic generated by workforce personnel and visitors (volume, composition, timing and routes)
- likely heavy and oversize/indivisible loads (volume, composition, timing and routes) highlighting any vulnerable bridges and structures along proposed routes
- provision of infrastructure for pedestrians and cyclists.

### 4.9.3 Potential impacts and mitigation measures

Impact assessment reports should include:

- details of the adopted assessment methodology (for impacts on roads: The road impact assessment report (RIA) in general accordance with DTMR *Guidelines for Assessment of Road Impacts of Development 2006*)
- description of input data and assumptions
- a summary of consultation undertaken with transport authorities regarding scope of impact assessment and methodology.



The EIS should assess project impacts on:

- the onsite and downstream receiving environment, either directly or indirectly from transportation activities, with a description of impacts on residences and businesses in the vicinity
- capacity, safety, efficiency and condition of transport operations, services and assets (from either transport or project operations). Impacts to emergency access and road use including police, fire and ambulance services and to use of roads by slow moving farming vehicles is to be addressed
- possible interruptions to transport operations, including public transport and school bus operations
- the natural environment within the jurisdiction of an affected transport authority (for example road and rail corridors)
- the nature and likelihood of product-spill during transport if relevant
- all proposed transport infrastructure improvements, including the Bruce Highway upgrade, possible North Coast Railway relocation, Cairns Transit Network and upgraded Council roads
- any existing or proposed strategies for public passenger transport and active transport and address, where relevant, requirements of Part 2A of the *Transport Planning and Coordination Act 1994*
- accessibility to transport for people with a disability
- when assessing the capacity, safety, efficiency and condition of transport assets, such as rail infrastructure, the proponent should include assessment of the impacts on rail level crossings. For impacts on rail level crossings consideration is to include: *The Australian Level Crossing Assessment Model (ALCAM)*

This assessment should include, but not be limited to:

- vehicular capacity of rail level crossings proposed to be used by project traffic details of vehicular counts utilising rail level crossings for all stages of the project
- proposed mitigation measures required to maintain open level crossing safety.

Assessment and proposed mitigation measures should consider transport traffic generation for all stages from construction until a minimum of 10 years after the final stage is completed.

The assessment should include but not be limited to:

- buses, taxis, trucks, pedestrians, cyclists, boats, helicopters, and light rail
- all traffic generation of project related transport, such as staff, guests, visitors/patrons, maintenance, and service deliveries movements.

#### 4.9.4 Infrastructure alterations

The EIS should detail:

- any proposed alterations or new transport-related infrastructure and services required by the project (as distinct from impact mitigation works). Drainage and lighting infrastructure requirements must also be considered as part of the transport task
- construction of any project-related plant and utilities, within or impacting on the jurisdiction of any transport authority
- for any proposed opening of a road over a railway where there is no existing road crossing, relevant provisions including Chapter seven 'Rail transport infrastructure



and other matters' of the *Transport Infrastructure Act 1994* (TIA) including section 253 'road openings over a rail corridor' are to be considered

- a parking and traffic study which details the likely parking demand and ability of the proposal to cater for the whole demand
- any impacts on:
  - the Bruce Highway (e.g. any 'bring forward' works)
  - the North Coast Railway (e.g. necessary upgrades to existing rail crossings or provision of new crossings)
  - on public transport services (e.g. new routes)
  - consideration of TMR's Cairns Transit Network Study and Cairns Bruce Highway Upgrade Study is to be made
  - cane train infrastructure.

### 4.9.5 Transport management strategies

The proponent is to discuss and recommend how identified impacts will be mitigated so as to maintain safety, efficiency and condition of each mode. These mitigation strategies are to be prepared by the proponent in close consultation with relevant transport authorities and include consideration of those authorities' works program and forward planning.

For any impact on existing property access, traffic safety, roadway and intersection capacity, appropriate recommendations must be made regarding mitigation of impacts ensure an appropriate level of service is maintained. Conceptual designs of these measures should be provided.

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

For road use by emergency services, consideration of matters such as designing sufficient width of roads to provide unobstructed access by vehicles (for example, fire trucks) is required.

Identification of the responsible entities for the management and funding of level crossings should be discussed. The *Memorandum of Understanding between the Local Government Association of Queensland, QR Limited and the Department of Transport and Main Roads with respect to the Management and Funding Responsibility for Level Crossing Safety* (2010) provides guidance on this requirement.

Detail of how people will be conveyed to the site via public transport is to be provided. Different transport modes should be investigated as a means of conveying people and should include rail, buses and pedestrian/cycle links.

## 4.10 Indigenous cultural heritage

### 4.10.1 Description of existing Indigenous cultural heritage values

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

The section should also describe how in conjunction with the appropriate Indigenous people the cultural heritage values were ascertained including for example the results of any



Aboriginal cultural heritage survey undertaken; the DERM Aboriginal Cultural Heritage register and database; any existing literature relating to Indigenous cultural heritage in the project area.

#### 4.10.2 Potential impacts and mitigation measures

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

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

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

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

A native title agreement (NT agreement) as defined under the *Aboriginal Cultural Heritage Act 2003* (ACH Act) which includes management and protection strategies for Aboriginal cultural heritage or a cultural heritage management plan under the ACH Act (CHMP) should be initiated during the EIS process. An NT agreement or an approved CHMP in a form which complies with Part 7 of the ACH Act will ensure that the project meets the Indigenous cultural heritage duty of care imposed by the ACH Act.

If an NT agreement is not finalised or, a CHMP has not been approved by the time of submission of the EIS to the Coordinator-General, then the following should be provided:

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

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

- a process for including Aboriginal people associated with the development areas in protection and management of Aboriginal cultural heritage
- processes for mitigation, management and protection of identified cultural heritage sites and objects in the project areas, including associated infrastructure developments, during both the construction and operational phases of the project
- provisions for the management of the accidental discovery of cultural material, including burials
- a clear recording process to be developed to assist initial management and recording of accidental discoveries
- a cultural heritage induction for project staff
- the development of a cultural heritage awareness program to be incorporated into the contractor/employee manual as well as induction manual. This is to be in the form of



a plain language, short document which is easy for contractors and staff 'on the ground' to understand

- a conflict resolution process.

## 4.11 Non-Indigenous cultural heritage

### 4.11.1 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 should include the following:

- consultation with:
  - 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
- consideration of The Burra Charter: The Australian ICOMOS Charter for Places of Cultural Significance (1999)
- liaison with relevant community groups/organisations (e.g. local historical societies) concerning:
  - places of non-Indigenous cultural heritage significance
  - opinion regarding significance of any cultural heritage places located or identified
- locations of culturally and historically significant sites, shown on maps, that are likely to be impacted by the project
- a constraints' analysis of the proposed development area to identify and record non-Indigenous cultural heritage places.

### 4.11.2 Potential impacts and mitigation measures

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

- description of the significance of artefacts, items or places of conservation or non-indigenous cultural heritage value likely to be affected by the project and their values at a local, regional, state and national level
- recommended means of mitigating any negative impacts on non-Indigenous cultural heritage values and enhancing any positive impacts
- strategies to manage places of historic heritage significance, taking account 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 EPBC Act and *Queensland Heritage Act 1992*.



## 5 Social values and management of impacts

### 5.1 Description of existing social values

The Social Impact Assessment (SIA) should be conducted in consultation with the DIP Social Impact Assessment Unit. Matters to be considered include the social and cultural area, community engagement, a social baseline study, a workforce profile, potential impacts and mitigation measures and management strategies.

#### 5.1.1 Social and cultural area

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

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

#### 5.1.2 Community engagement

Consistent with national and international good practice, 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 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 including affected local and state authorities. 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.

#### 5.1.3 Social baseline study

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

The social baseline study should describe and analyse a range of demographic and social statistics determined relevant to the project's social and cultural area including:

- major population trends/changes that may be occurring irrespective of the project



- total population (the total enumerated population for the social and cultural area and the full time equivalent (FTE) transient population), 18 years and older
- estimates of population growth and population forecasts resulting from the proposal
- family structures
- age and gender distributions
- education, including schooling levels
- health and wellbeing measures
- cultural and ethnic characteristics
- the Indigenous population including age and gender
- income including personal and household
- labour force by occupation and industry
- housing costs (monthly housing repayments (percent of dwellings in each category), and weekly rent (percent dwellings in each category), housing tenure type and landlord type, household and family type
- housing availability and affordability: the rental market (size, vacancy rate, seasonal variations, weekly rent by percentage dwellings in each category); the availability and typical costs of housing for purchase, monthly housing repayments by percentage dwellings in each category; and the availability of social housing
- disability prevalence
- the social and economic index for areas, index of disadvantage—score and relative ranking
- crime, including domestic violence
- any other indicators determined through the community engagement process as relevant.

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

- the social infrastructure including community and civic facilities, services and networks (for definition see *South East Queensland Plan 2005-2026 Implementation Guidelines No. 5*: [www.dip.qld.gov.au/resources/guideline/Implementationguideline5.pdf](http://www.dip.qld.gov.au/resources/guideline/Implementationguideline5.pdf))
- settlement patterns including the names, locations, size, history and cultural aspects of settlement in the social and cultural area
- the identity, values, lifestyles, vitality, characteristics and aspirations of communities in the social and cultural area, including Indigenous communities.
- land use and land ownership patterns including:
  - rural properties, farms, croplands and grazing areas including on-farm activities near the proposed activities
  - the number of properties directly affected by the project
  - the number of families directly and indirectly affected by the project including Indigenous traditional owners and their families, property owners, and families of workers either living on the property or workers where the property is their primary employment.
- use of the social and cultural area for forestry, fishing, recreation, business and industry, tourism, aquaculture, and Indigenous cultural use of flora and fauna.



### 5.1.4 Workforce profile

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

- the number of personnel to be employed, the skills base of the required workforce and the likely sources (i.e. local, regional or overseas) for the workforce during the construction and operational phases for each component of the project
- the estimated number of people to be employed during construction and operation, and arrangements for their transport to and from the project areas, including proposed use of regional or charter air services
- estimates should be provided 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 including Indigenous workers and people with a disability

If re-locatable camp sites are to be used to accommodate the workforce, details on the number, size, location (shown on a map), management, proximity to the construction site, and typical facilities for these sites should be provided. Information should outline any local government or other regulatory approvals required for establishment and operation of such camps, including building, health and safety, water and waste disposal purposes. Camps in proximity to the project site should be identified as sensitive receptors for the purpose of the EIS.

The section should provide information in relation to the location of other major projects or proposals under study within the social and cultural area together with workforce numbers.

## 5.2 Potential impacts

This section of the SIA should assess and describe the type, level and significance of project's social impacts (both beneficial and adverse) on the local and cultural area, based on outcomes of community engagement processes and the social baseline study. Further, it should:

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



information is required as to whether the proponent, and/or contractors, is likely to employ locally or through other means and whether there are initiatives for local employment business opportunities

- description of how service/facility needs (including housing) of construction workers will impact on existing services
- proposed new skills and training related to the project including the occupational skill groups required and potential skill shortages anticipated. Potential use of local TAFE services for training requirements should be discussed
- comment on how much service revenue and work from the project would be likely to flow to the project's social and cultural area
- impacts of construction and operational workforces, their families, and associated contractors on housing and accommodation availability and affordability, land use and land availability, including with consideration of the Mount Peter master planned area. The capability of the existing housing and rental accommodation, to meet any additional demands created by the project is to be discussed including direct impacts on Indigenous people.

The SIA will include an evaluation of the potential cumulative social impacts resulting from the project including an estimation of the overall size, significance and likelihood of those impacts. Cumulative impacts in this context is defined as the additional impacts on population, workforce, accommodation, housing, and use of community infrastructure and services, from the project, and other proposals for resource 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.

### **5.2.1 Mitigation measures and management strategies**

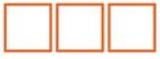
For identified social impacts, social impact mitigation strategies and measures should be presented to address:

- the recruitment and training of the construction and operational workforces and the social and cultural implications this may have for the host community, including if any part of the workforce is sourced from outside the social and cultural area
- housing and accommodation issues, in consultation with relevant local authorities and state government agencies, with proposals for accommodating the project workforce and their families that avoid, mitigate or offset any short- and medium-term adverse effects on housing affordability and availability, including the rental market, in the social and cultural area
- the demographic changes in the profile of the region and the associated sufficiency of current social infrastructure, particularly health and welfare, education, policing and emergency services
- the adequate provision of education, training and employment for women, people with a disability, and Indigenous peoples.

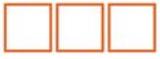
The proponent should describe any consultation with stakeholders about acceptance of proposed mitigation strategies and how practical management and monitoring regimes are proposed to be implemented.

A draft social impact management plan should be presented that promotes an active and ongoing role for impacted communities and local authorities through the project life cycle. The draft plan should cover:

- assignment of accountability and resources



- updates on activities and commitments
- mechanisms to respond to public enquiries and complaints
- mechanisms to resolve disputes with stakeholders
- periodic evaluation of the effectiveness of community engagement processes
- practical mechanisms to monitor and adjust mitigation strategies and action plans
- action plans to implement mitigation strategies and measures.



## 6 Economies and management of impacts

### 6.1 Economy

#### 6.1.1 Description of affected local and regional economies

This section should describe the existing economy in which the project is located and the economies materially impacted by the project, including future industrial/commercial/retail activities likely to establish in the Edmonton-Gordonvale corridor.

It should include:

- 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
- the regional tourism market
- construction services and building inputs market
- regional competitive advantage and expected future growth.

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

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

#### 6.1.2 Potential Impacts and mitigation measures

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

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

- property values
- tourism—including an overview on the project's relationship to the overall tourism infrastructure offered in the Far North Queensland region and how the project fits with the overall tourism development strategy, the *Far North Queensland Opportunity Plan* (2010)
- investment (additional capital stock), employment, industry output, wages, skills creation (e.g. apprenticeships) and research and development



- additional or upgraded infrastructure provided by the project
- the contribution to local, regional and state government's economic vision and aspirations, objectives, strategies, plans and policies for the area or industry sector (including investment, industry, employment, skills plans and policies)
- the potential, if any, for direct equity investment in the project by local businesses or communities
- stimulus (flow on/second order effects) for industry, small business, employment, incomes and innovation
- the indirect impacts likely to flow to other existing industries and economies from the development of the project, including effects on local businesses due to the retail component of the project, and on tourism businesses (including attractions, accommodation and other tourism related businesses)
- cumulative effects of the project in relation to other economic development opportunities e.g. other complementary projects that may capitalise on the project or contribution of the project to reaching a critical mass in a locality/region
- catalytic effect of the project on other business and industry in the region e.g. benefits arising from provision of common user infrastructure; and opportunities for supporting/complementary businesses/industries to establish
- implications for future development in the locality (including constraints on surrounding land uses and existing industry)
- future capacity for co-location of common user infrastructure in easements/corridors
- net cost of additional infrastructure (e.g. water, energy, transport, sewerage, school places, hospital beds etc)
- the distributional effects of the proposal including proposals to mitigate any negative impact on disadvantaged groups
- the effect of the proposal on the viability of sugar industry operations in the vicinity
- the effect of the proposal on the viability of other businesses in the vicinity.

Existing sugar industry operations adjacent to the project in areas designated for the Mount Peter master planned area that will continue to operate until the land is required, are to be considered for the operations period impacted by the project works.

A commercial impact and need report should be prepared to address the effect of the proposed retail component on the economic viability of existing centres.

#### **6.1.2.1 Impact upon property management**

This section should also address the current and future management processes for adjacent properties which are likely to be impacted by the project during construction and/or operation. Mention should be made of the:

- impact of the project on existing agricultural land uses and management practices e.g. disruption to stockyards, fences, water points, sowing or harvesting of crops, movement of livestock, products, agricultural machinery and any loss of agricultural land
- range of measures required to mitigate real and potential disruptions to rural practices and management of properties. Detail of scheduling of the precincts relative to the staged de-commissioning of agricultural activities is to be discussed.

#### **6.1.2.2 Strategies for local participation**



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

- strategies for assessing the cost effectiveness of sourcing local inputs from the regional economy during the construction, operation and rehabilitation of the project
- employment strategies for local residents including members of Indigenous communities and people with a disability, including a skills assessment and recruitment and training programs to be offered
- strategies responding to relevant government policy, relating to:
  - the level of training provided for construction contracts on Queensland Government building and construction contracts, with regard to the *Queensland Government Building and Construction Contracts Structured Training Policy* (the 10 percent policy)
  - Indigenous employment opportunities, with regard to the *Indigenous Employment Policy for Queensland Government Building and Civil Construction Projects* (the 20 percent policy)
  - the use of locally sourced goods and services, with regard to the *Local Industry Policy* (Department of State Development, 1999).

## 6.2 Sustainable development

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

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

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



## 7 Hazard and risk

### 7.1 Hazard and risk assessment

This section of the EIS 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 which may occur during all stages of the project, including possible frequency of occurrence
- identification of all hazardous substances to be used, stored, processed or produced and the rate of usage
- potential hazards to site visitors due to operations (e.g. agriculture) or environments adjacent, or in the vicinity to, the proposed development
- potential wildlife hazards, natural events and implications related to climate change.

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 Standard*. 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, operational and decommissioning phases of the project
- analysis of the consequences of each hazard on safety in the project area 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
- the EIS should refer to the Cairns Emergency Response Plan where applicable.

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 project area.

A comparison of assessed and mitigated risks with acceptable risk criteria for land uses in and adjacent to the project area should be presented.

The EIS should discuss the results of early consultation with Queensland Fire and Rescue Service (QFRS), Queensland Ambulance Service (QAS) and Emergency Management Queensland (EMQ) on the site's risk classification to determine future emergency services delivery and resources capability. In addition, the outcome of discussions with these groups regarding possible requirement for onsite emergency services facilities is to be addressed.

A risk management plan should be developed in consultation with QFRS and QAS and provided in the EIS.

A hazard identification study should be conducted in order to identify the nature and scale of hazards which might occur during the construction and operation of the project. This would be expected to include hazards involving:

- construction accidents
- pipeline, processing unit or storage vessel rupture or loss of containment, and explosions and fires associated with such incidents
- release to the environment of liquid gaseous or particulate pollutants or any other hazardous material used, produced or stored on the site



- marine collision if relevant
- site incursion by fauna (e.g. crocodiles)
- spills of materials during loading, unloading and transport
- natural events such as cyclones, earthquakes, bushfires or local flooding.

A set of representative incident scenarios should be selected. This set should include credible event scenarios (e.g. a catastrophic failure of a processing unit and the consequential explosion zone). This will require an evaluation of the likelihood of each scenario occurring in order to calculate the level of risk in surrounding areas due to the presence of the facility.

The risk analysis should include fatality and serious injury consequences, and present individual fatality risk contours at 0.5, 1, 5, 10, and  $50 \times 10^{-6}$  per year and injury risk contours at 10 and  $50 \times 10^{-6}$  per year. Risk contours should be presented on a suitably scaled location map.

In addition, detailed risk assessment of the plant and associated operational activities should be undertaken to identify risks and mitigation measures to ensure containment within the site boundaries, so as not to impact on future industrial development on adjacent industrial land. Any identified impact on the project should also be extended to determine the resultant impact on the surrounding areas and community.

The acceptability of the risk on-site and to surrounding land uses should be assessed by referring to nationally-adopted risk criteria presented in the New South Wales Department of Urban Affairs and Planning's *Hazardous Industry Planning Advisory Paper No. 4 'Risk Criteria for Land Use Safety Planning'*. Details of the methodology and results of each step described above should be presented in the EIS.

## 7.2 Cumulative risk

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

Any changes to operating or storage procedures that would reduce the possibility of these events occurring, or reduce the severity of the events should they occur, are to be identified and adopted where appropriate. Draft risk management plans are to be presented for construction and operational phases of the project.

## 7.3 Emergency management plan

Preliminary information should be presented on the design and operation of proposed safety/contingency systems to address significant emergency issues delineated in the risk assessment, together with at least the following areas of emergency:

- terrorist attack
- marine collision minimisation if relevant
- fire prevention/protection
- leak detection/minimisation
- release of contaminants



- defence explosives/ammunitions
- natural disasters
- emergency shutdown systems and procedures.

In addition, an assessment of businesses that may be affected in the event of an emergency should be undertaken, including strategies to mitigate the impact on these businesses.

In regard to fires, the EIS should outline strategies to manage the provision of:

- fire management systems to ensure the retention on site of fire water or other fire suppressants used to combat emergency incidents
- building fire safety measures for any construction or permanent accommodation
- details of any emergency response plans and bushfire mitigation plans under the SPP 1/03
- on-site fire fighting equipment provided and the level of training of staff who will be tasked with emergency management activities
- detailed maps showing the plant outline, potential hazardous material stores, incident control points, fire fighting equipment, etc.
- an outline of any dangerous goods stores associated with the plant operations, including fuel storage and emergency response plans.

The EIS should present outlines of emergency planning and response strategies (including evacuation plans, if required) to deal with relevant incidents above, which have been determined in consultation with state and regional emergency service providers.

The EIS should present plans for emergency medical response and transport and first aid matters with involvement of the relevant state agencies (such as the Queensland Ambulance Service, Queensland Fire and Rescue Service and Emergency Management Queensland).

## 7.4 Health and Safety

### 7.4.1 Description of public health and safety community values

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

### 7.4.2 Potential Impact and mitigation measures

This section should define and describe the objectives and practical measures for protecting or enhancing health and safety community values, describe how nominated quantitative standards and indicators may be achieved for social impacts management, and how the achievement of the objectives will be monitored, audited and managed. Practical management and monitoring regimes should be recommended in this section.

The EIS should assess the direct effects on community health values, for example, discussion on specific precinct components and their potential health and safety issues. Cumulative effects on public health values as well as occupational health and safety impacts on the community and workforce from project operations and emissions should also be discussed. The impact on regional health services and management strategies, including early consultation with the regional health management district, are to be addressed.

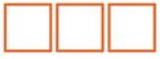


The EIS is to describe how the Queensland Police Service's crime prevention through environmental design (CPTED) principles will be addressed in the creation and maintaining of a safe environment for site visitors. Consideration of allowing for permanent policing facilities onsite and closed circuit television (CCTV) linked to police networks should be discussed.

A description is to be provided regarding how compliance with requirements of the Australian Guidelines for Water Recycling—managing health and environmental risks (2006) and Australian Water Drinking Guidelines will be ensured. Information on how water will be tested, treated, transported, stored, protected from contamination, reticulated and monitored to ensure no dangers to human health is required.

A Vector (mosquito) Management/Control Plan for the site is required given the close proximity of the site to Trinity Inlet and the intention to pond large volumes of water. Reference should be made to Queensland Health's *Guidelines to minimising mosquito and biting midge problems in new development areas*.

Potential health impacts from the operation of the cogeneration plant and the collection and storage of waste waters used to power the proposed biomass plant are to be assessed. The assessment must also include identification of mitigation measures to ensure that human health is not adversely affected.



## 8 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.



## 9 Environmental management plan

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

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

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

The recommended structure of each element of the EMP is:

|                         |   |
|-------------------------|---|
| 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 (i.e. specified limits to pre-selected indicators of change).   |
| Auditing                | The auditing requirements to demonstrate implementation of agreed construction and operation environmental management strategies and compliance with agreed performance criteria. |
| Reporting               | Format, timing and responsibility for reporting and auditing of   |



|                   |   |
|-------------------|---|
|                   | monitoring results.   |
| Corrective action | The action (options) to be implemented in case a performance requirement is not reached and the person(s) responsible for action (including staff authority and responsibility management structure). |

Through the EMP, the EIS's commitments to environmental performance can be used as regulatory controls via conditions to comply with those commitments. Therefore, the EMP is a relevant document for project approvals, environmental authorities and permits, and may be referenced by them.



# 10 Matters of national environmental significance

The controlling provisions under the EPBC Act have been determined as:

- World Heritage properties (sections 12 and 15A)
- National Heritage places (sections 15B and 15C)
- listed threatened species and communities (sections 18 and 18A)
- Commonwealth land (sections 26 and 27A).

This section should bring together assessments of impacts on matters of national environmental significance in other chapters (e.g. water resources, flora and fauna, cultural heritage and cumulative impacts etc.) and produce a stand-alone assessment in a format suited for assessment under the EPBC Act.

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

Predictions of the extent of threat (risk), impact and the benefits of any mitigation measures proposed, should be based on sound science and quantified where possible. All sources of information relied upon should be referenced and an estimate of the reliability of predictions provided. Any positive impacts should also be identified and evaluated.

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

## 10.1 Impacts on world heritage areas and national heritage places

The EIS should identify and describe the listed values of the Great Barrier Reef World Heritage Area (GBRWHA) and National Heritage place, and the Wet Tropics of Queensland World Heritage Area (WTQWHA) and National Heritage place, potentially impacted by the project. Values include but are not restricted to, species of conservation significance and their habitats (including the Southern Cassowary), erosion and deposition processes along the coastline, marine flora and fauna communities, including coral and benthic communities, saltmarsh, seagrass, and mangroves, species of conservation significance and the significant regional habitat for listed threatened and migratory species. Particular reference should also be made to impacts upon Trinity Inlet and Cairns Harbour relevant to World Heritage and National Heritage values.

The EIS should describe the potential direct, indirect and consequential impacts on each area, place, site or reserve, resulting from:

- modification, destruction, fragmentation, isolation or disturbance of an important or substantial area of habitat, including cassowary habitat and wetlands
- any change in the hydrological regime of waters entering the GBRWHA or adjacent wetlands, for example a substantial change to the volume, timing, duration and/or frequency of ground and surface water flows



- any significant change in the water quality of the GBRWHA or adjacent wetlands, for example in the level of salinity, pollutants, pesticides or nutrients including through disturbance of acid sulphate soils
- persistent organic chemicals, heavy metals, or other potentially harmful chemicals accumulating in the marine environment such that values may be adversely affected
- loss or modification of in stream or wetland habitat important for the maintenance of the values of the GBRWHA (including their fragmentation, altered land use, fire regimes, altered nutrient cycle, altered hydrological cycles etc.)
- disturbance to species of conservation significance through noise and increased land and water activity and transport
- potential visual impacts, including those associated with the MacAlister Range and Murray-Prior Ranges.

The EIS should discuss the extent to which potential impacts on World and National Heritage values can be forecasted or predicted, the mitigation and management measures proposed to address potential impacts and the effectiveness of these measures.

## 10.2 Impact on a listed threatened species and ecological communities

A description of the listed threatened species and ecological communities likely to be impacted by the proposed development (including EPBC Act status, distribution, life history, habitats etc.).

The EIS should consider and assess the impacts to the EPBC Act listed threatened species and ecological communities that are found to be or may potentially be present in areas that may be impacted by the project. This should include, but not be limited to, the listed endangered Southern Cassowary (*Casuarius casuarius johnsonii*), and frog species Common Mistfrog (*Litoria rheocola*), Lace-eyed Tree Frog (*Nyctimystes dayi*), Waterfall Frog (*Litoria nannotis*), and Mountain Mistfrog (*Litoria nyakalensis*).

Details of surveys undertaken, including a description of survey methodologies and relevant maps and diagrams, should be provided.

The likelihood of the proposal having a significant impact upon matters of NES should be assessed against the relevant criteria contained within the *Environment Protection and Biodiversity Conservation Act 1999 Policy Statement 1.1 – Significant Impact guidelines*.

The EIS should identify which component of the project is of relevance to each species or community or if the threat of impact relates to consequential actions, resulting in:

- decrease in the size of a population or a long-term adverse affect on an ecological community
- reduction in the area of occupancy of the species or extent of occurrence of the ecological community
- fragmentation an existing population or ecological community
- disturbance or destruction of habitat critical to the survival of the species or ecological community
- disruption of the breeding cycle of a population
- modification, destruction, removal, isolate or reduction of the availability or quality of habitat to the extent that the species is likely to decline



- modification or destruction of abiotic (non-living) factors (such as water, nutrients or soil) necessary for the ecological community's survival
- the introduction of invasive species that are harmful to the species or ecological community becoming established
- interference with the recovery of the species or ecological community
- action which may be inconsistent with a recovery plan.

In relation to Commonwealth land, the proposal should be assessed against the relevant criteria contained within the *EPBC Policy Statement 1.2—Significant Impact Guidelines for actions involving Commonwealth land*.

Any positive impacts should also be identified and evaluated.

A description of any mitigation measures proposed to reduce the impact on the listed threatened species and ecological communities and the anticipated benefit of proposed mitigation measures should be discussed within the EIS.

## 10.3 Impacts on Commonwealth land

The proposal is located in close proximity to the Queerah Magazine which is Commonwealth land. A significant part of the Commonwealth land is included within the boundary of the Cairns Tidal Wetland, a place in the Register of the National Estate. Part of the Commonwealth land is also within the Port of Cairns and Trinity Inlet, an area listed in the Directory of Important Wetlands in Australia, which is similar in extent to the Cairns Tidal Wetland.

The EIS should assess the possible direct and/or indirect impacts of the development on the environment of Commonwealth land and Australian Defence Force activities at the Queerah Magazine, including any mitigation measures proposed to manage or reduce these impacts. Consideration will need to be given to the potential impacts on the values identified for the Cairns Tidal Wetland, and the environment of the Port of Cairns and Trinity Inlet.



# 11 Conclusions and recommendations

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

# 12 References

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

# 13 Appendices

## 13.1 Final TOR for the EIS

A copy of the final TOR should be included in the EIS.

## 13.2 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 to indicate where those requirements have been addressed.

## 13.3 Project approvals

A list of all the project approvals required by the project should be presented in table format.

## 13.4 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 Australian, Queensland and local government agencies, and/or the affected parties (as defined by the EP Act) should be provided. A summary of the issues raised by stakeholders and the means by which the issues have been addressed, should be provided. Plans for ongoing consultation should be outlined and included in the EMP.

## 13.5 Study team

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

## 13.6 Glossary of terms

A glossary of technical terms and should be provided.



## 13.7 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 pollution, noise and vibration
- groundwater and surface water hydrology
- geology and geomorphology
- economic studies and/or cost-benefit analyses
- cultural heritage
- hazard and risk studies
- land use and land capability studies
- flora and fauna studies, including matters of national environmental significance.

## 13.8 Corporate environmental policy

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

## 13.9 List of proponent commitments

A list of all commitments made by the proponent in the EIS is to be provided together with a reference to the relevant section in the report.



**Department of Infrastructure and Planning**  
PO Box 15009 City East Qld 4002 Australia  
**tel** +61 7 3227 8548  
**fax** +61 7 3224 4683  
info@dip.qld.gov.au

[www.dip.qld.gov.au](http://www.dip.qld.gov.au)