Ella Bay Integrated Resort Project

Terms of Reference
for an
Environmental Impact Statement

The Coordinator-General
December 2005

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PREFACE

The Project was declared to be a "significant project" under Section 26 of the Queensland *State Development and Public Works Organisation Act 1971* (*SDPWOA*) by the Coordinator-General (CG) on 15 September 2005. Matters considered by the CG in making this declaration included information in an Initial Advice Statement prepared by the Proponents, the level of investment necessary for the Project, employment opportunities provided by the Project, potential impact on the environment, potential effects on relevant infrastructure and the significance of the Project to the region and State. The declaration initiates the statutory environmental impact assessment procedure of Part 4 of this Act, which requires the Proponents to prepare an Environmental Impact Statement (EIS) for the Project.

The Coordinator-General's office (CGO) is responsible for managing the environmental impact assessment process on behalf of the CG. CGO has invited relevant State and Local Government representatives and authorities to participate in the process as Advisory Agencies.

The first step in the impact assessment procedure is the development of Terms of Reference (ToR) for the preparation of an EIS. The process involves the formulation of draft ToR which are made available for public and government agency comment. The CG has regard to all comments received on the Draft ToR in finalising the ToR, which will be presented to the Proponents. This document represents the Draft ToR for public comment.

The statutory impact assessment process under the *SDPWOA* is also the subject of a bilateral agreement between the Queensland and the Commonwealth Governments in relation to environmental assessment under the *Environment Protection and Biodiversity Conservation Act 1999* (*EPBC Act).* The Proponents have referred the Proposal to the Commonwealth Minister for the Environment and Heritage in accordance with the provisions of the *EPBC Act*. The Commonwealth Minister decided, on 4 July 2005, that the Proposal did constitute a controlled action under Section 75 of the *EPBC Act*, with the controlling provisions being World Heritage (sections 12 and 15A) and Listed threatened species and communities (section 18 and 18A).

However, it should be noted that the Commonwealth Minister will undertake a separate approval process following release of the Coordinator-General's Report. The Minister will then grant, or withhold, approval for the controlled action under section 133 of the EPBC Act. The Minister may attach conditions to the approval, in addition to those set by the Coordinator-General, to mitigate impacts on matters of National Environmental Significance (NES).

The Proponents will prepare a draft EIS to address the ToR. Once the EIS has been prepared to the satisfaction of the CG, a public notice is advertised in relevant newspapers circulating in the district and the State. The notice will state: where copies of the EIS are available for inspection and how it can be purchased; that submissions may be made to the CG about the EIS; and the submission period. The Proponents may be required to prepare a Supplementary Report to the EIS to address specific matters raised in submissions on the EIS.

At the completion of the EIS phase, the CG will prepare a report evaluating the EIS and other related material, pursuant to Section 35 of *SDPWOA*. The CG Report will include an evaluation of the environmental effects of the proposed Project and any related matters. The Report will reach a conclusion about the environmental effects and any associated mitigation measures, taking into account all of the relevant material including: the EIS; all properly made submissions and other submissions accepted by the CG; and any other material the CG considers is relevant to the Project, such as a Supplementary Report to the EIS, comments and advice from Advisory Agencies, technical reports on specific components of the Project and legal advice.

The Project involves development that would require an application for development approval for material change of use and/or impact assessment under the *Integrated Planning Act 1997* (*IPA*). Consequently, the CG Report may, under s.39 of *SDPWOA*, state for the assessment manager one or more of the following:

- the conditions that must attach to the development approval;

- that the development approval must be for part only of the development;
- that the approval must be preliminary approval only.

Alternatively the Report must state for the assessment manager –

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

Further, the Report must:

- give reasons for the statements (above); and
- be given to the assessment manager for the application by the CG.

Further to the above *IPA* approvals, other approvals under a range of legislation including, but not limited to, the *Coastal Protection and Management Act 1995, Integrated Planning Act 1997, Environmental Protection Act 1994, Vegetation Management Act 1999* are likely to be required.

These ToR provides information in two broad categories:

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

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

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**** The term environment refers to:***
(a) ecosystems and their constituent parts, including people and communities;
(b) all natural and physical resources;
(c) the qualities and characteristics of locations, places and areas, regardless of size, that stimulate biological diversity and integrity, intrinsic or attributed scientific value or interest, amenity, harmony and sense of community;
(d) the social, economic, aesthetic and cultural conditions which influence, or are affected by, the entities and attributes mentioned in paragraphs (a) to (c); and
(e) the local, regional, Queensland and Australian populations and labour markets.

PART A - INFORMATION AND ADVICE ON THE PREPARATION OF THE EIS

Project Proponent

P3 Prestige Property Partnership (P3) is a joint venture between John Holland Services and Mr Warren Witt (sole owner of Oasis Developments Pty Ltd). P3 is and has been involved in projects on the Sunshine Coast and in the Johnstone Shire.

Project Description

P3 is proposing to construct an integrated tourism and residential community at Ella Bay, located in the Johnstone Shire, 9 km north of Innisfail.

P3 proposes to redevelop a 450 hectare operating cattle station into a master planned community over a ten year period. The development will incorporate 800 residences with direct golf course access, ocean or lagoon views, four five-star resorts with ocean frontage and beach access, two retail precincts, two 'signature' championship 18-hole golf courses and associated public infrastructure, including a public swimming lagoon.

The site is held in freehold title and P3 has a conditional contract to purchase the site subject to achieving planning approval.

The site shares a common boundary of approximately 1 km with freehold land to the south described as Lot 337 on NR 53 which has received Johnstone Shire Council approval to development a small eco-tourism resort. P3 is scheduled to commence construction on this site in early 2006.

Purpose of the Terms of Reference

These ToR essentially outline the issues that should be considered in preparing the EIS. Furthermore, the ToR provides the framework for the EIS, including information on the purpose and role of the EIS and the factors considered to be most significant for the proposal. It indicates the types of studies and the data that should be provided in the EIS. All potentially significant impacts of the proposed development on the environment are to be investigated, and requirements for the mitigation of any adverse impacts are to be detailed in the EIS. Any prudent and feasible alternatives should be discussed and treated in sufficient detail. The reasons for selection of the preferred option should be clearly identified. The nature and level of investigations should be relative to the likely extent and gravity of impacts. These guidelines should, however, not be interpreted as excluding from consideration any matters which are currently unforeseen, which may arise during ongoing scientific studies or which may arise from any changes in the nature of the proposal during the preparation of the Draft EIS, the community consultation process and associated documentation.

The EIS should address at least the requirements as set out in these ToR.

EIS Guidelines

The objective of the EIS is to identify potential environmental impacts and to ensure that those impacts are avoided where possible. Where unavoidable, impacts must be examined fully and addressed so that the development is based on sound environmental protection and management criteria.

The EIS process followed will be as specified in the *State Development and Public Works Organisation Act 1971* and meet Commonwealth regulations as specified in the *Environment Protection and Biodiversity Conservation Act 1999.*

An EIS should provide:

- a description of the relevant aspects of the existing social, economic, natural and built environment;
- a description of the development proposal and means of achieving the development objectives;

- definition and analysis of the likely impacts of the development on the environment;
- a framework against which Government decision-makers can consider the environmental aspects of the proposal and set conditions for approval to ensure environmentally sound development;
- a definition of all significant impacts and measures proposed to mitigate adverse effects; and
- recommendations on the need for and contents of any environmental management plans and/or operational plans to mitigate adverse effects.

EIS Objectives and Key Issues

Objectives

The objectives of the EIS are as follows:

- to provide information on the proposal and development process to the community and decision makers;
- to comprehensively identify and evaluate all relevant issues associated with the proposal;
- to identify all potential environmental, cultural, social, transport and land use planning impacts of the preferred concept, and recommend infrastructure and facilities needs together with other design and operational measures required to minimise or compensate for adverse impacts and enhanced benefits;
- to consult with the community and relevant stakeholders in the process of identifying, assessing and responding to the impacts of the proposal;
- to identify all necessary licences, planning and environmental approvals including approval requirements pursuant to the *Environment Protection and Biodiversity Conservation Act 1999, Coastal Protection and Management Act 1995, Integrated Planning Act 1997, Environmental Protection Act 1994, Vegetation Management Act 1999, Wet Tropics Management Plan 1998* and other legislation; and
- to provide an input to the decision-making process, assisting with the determination of whether to accept or modify the proposal, approve it with conditions or carry out further studies.

Key Issues

The issues to be addressed as part of the EIS can be divided into the following categories:

- detailed project description;
- project justification and alternatives;
- impacts on the terrestrial environment;
- impacts on the coastal environment;
- impacts on aquatic areas (including freshwater) and fisheries
- impacts on water quality and water related resources;
- impacts on areas of cultural heritage value or indigenous significance;
- air emissions and impacts;
- impacts of noise and vibration;
- impacts on surrounding land uses and land use planning;
- impacts on natural heritage values including the Wet Tropics Heritage Area;
- economic issues (including impacts on local and regional businesses);
- impacts on the social environment;

- safety and emergency issues; and
- waste management.

The EIS will be required to consider in detail relevant issues under each of these categories and all other impacts on the physical and social environment. The information required is described in the following sections.

Any other environmental issues that emerge through the study period of the EIS, which are not included in the ToR, should also be included in the report.

Public Consultation on Terms of Reference

The Draft ToR was publicly advertised in *The Courier Mail* and *The Innisfail Advocate* and *The Australian* newspapers on Saturday 5 November 2005, inviting comment on the Draft ToR for the Project. The Draft ToR was also available for viewing and download from http://www.sdi.qld.gov.au/eis.

Relevant comments received from Government Agencies, the public and interest groups have been incorporated into this document.

PART B - CONTENT OF THE EIS

It is strongly recommended that the environmental impact statement (EIS) follow the heading structure of these terms of reference (ToR) to facilitate cross-referencing. This structure has been found through long experience to be the best option.

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 and esoteric terms. The structure of the executive summary should follow that of the EIS, and focus strongly on the key issues and conclusions.

Glossary of Terms

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

1 Introduction

The function of the introduction is to explain why the EIS has been prepared and what it sets out to achieve. In particular, the introduction should address the level of detail of information required to meet the level of approval being sought (for example, whether the proponent is seeking only a preliminary approval through the Integrated Development Assessment System (IDAS) or a full approval with all permits). It should also define the audience to whom it is directed, and contain an overview of the structure of the document. Throughout the EIS, factual information contained in the document should be referenced.

1.1 Project proponent

Provide details of the project proponents, including details of any joint venture partners.

1.2 Project description

A brief description of the key elements of the project should be provided and illustrated. Any major associated infrastructure requirements should also be summarised. Detailed descriptions of the project should follow in Section 3.

A brief description should be provided of studies or surveys that have been undertaken for the purposes of developing the project and preparing the EIS. This should include reference to relevant baseline studies or investigations undertaken previously.

1.3 Project objectives and scope

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

Describe the current status of the project and outline the relationship of the project to other developments or actions that may relate whether or not they have been approved. The consequences of not proceeding with the project should also be discussed.

1.4 The environmental impact statement (EIS) process

The purpose of this section is to make clear the methodology and objectives of the environmental impact statement under the relevant legislation.

1.4.1 Methodology of the EIS

This section should provide a description of the EIS process steps, timing and decisions to be made for relevant stages of the project. This section should also indicate how the consultation process (which will

be described in detail in section 1.5) would integrate with the other components of the impact assessment, including the stages, timing and mechanisms for public input and participation. The information in this section is required to ensure:

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

1.4.2 Objectives of the EIS

Having described the methodology of the EIS, a succinct statement should be made of the EIS objectives. The structure of the EIS can then be outlined as an explanation of how the EIS will meet its objectives. The reader should be able to distinguish the EIS as the key environmental document providing advice to decision makers considering approvals for the project.

While the ToR provide guidance on the scope of the EIS studies, they should not be seen as exhaustive or limiting. It is important for proponents and their consultants to recognise that there cannot be perfect knowledge in advance of undertaking an EIS of what the EIS studies may find.

If it transpires during the preparation of the EIS that previously unforeseen matters not addressed in the ToR are found to be relevant to the assessment of impacts of the proposal, those matters should be included in the EIS.

In addition, it is essential that the main text of the EIS should address all relevant matters concerning environmental values, impacts on those values and proposed mitigation measures. No relevant matter should be raised for the first time in an appendix or the draft EM Plan.

When considering whether an impact is or is not significant, the proponent should take account of both the intensity of the impact and the context in which it would occur.

The EIS is a public document. Its purpose is not only to provide information to regulatory agencies, but also to inform the public of the scope, impacts and mitigation measures of the proposal. As such the main text should be written in plain English avoiding jargon as much as possible. Additional technical detail may be provided in appendices. The main text should not assume that a reader would have a prior knowledge of the project site. It should not be necessary for the reader to have visited the site to understand the issues involved in the proposal.

In brief, the EIS objectives should be to provide public information on the need for and likely effects of the project, to set out acceptable standards and levels of impacts (both beneficial and adverse) on environmental values, and demonstrate how environmental impacts can be managed through the protection and enhancement of the environmental values. Discussion of options and alternatives and their likely relative environmental management outcomes is a key aspect of the EIS.

The role of the EIS in providing the project's draft environmental management plan (EM Plan) should also be discussed, with particular reference to the EM Plan's role in providing management measures that can be carried over into conditions that would attach to any approval(s), environmental authorities and permits for the project.

1.4.3 Submissions

The reader should be informed as to how and when public submissions on the draft EIS will be addressed and taken into account in the decision-making process.

1.5 Public consultation process

To facilitate the assessment process, the Proponent must regularly consult with Advisory Agencies and other appropriate stakeholders throughout the EIS process, particularly during finalisation of the ToR and EIS preparation and review stages.

It is the responsibility of the Proponent, in consultation with Advisory Agencies, to identify legislation, policies and methodologies relevant to the EIS process, and to determine appropriate parts of the community which should be consulted during the EIS preparation stage. It is recommended that an open community consultation process be carried out in addition to the legislated environmental impact

assessment process. Copies of the draft EIS will be provided to all Advisory Agencies and on request to relevant individuals and peak groups with an interest in the Project.

The public consultation program should provide opportunities for community involvement and education. It may include interviews with individuals, public meetings, interest group meetings, production of regular summary information and updates, and other consultation mechanisms to encourage and facilitate active public consultation. Consultation should commence as early as possible. Feedback should be provided to participants about outcomes.

The public consultation process should identify broad issues of concern and provide information to local community and specific interest groups. Focussed consultation should consider issues, resolve conflicts, and develop mitigation and monitoring strategies with the relevant parties. It should continue from project planning through to operations.

Details of the public consultation process and the major issues emerging from that process should be clearly addressed in the EIS.

1.5.1 Relevant legislation and policy requirements

This section should explain the legislation and policies controlling the approvals process. Reference should be made to the *State Development and Public Works Organisation 1971*, *Environmental Protection Act 1994, Integrated Planning Act 1997, Wet Tropics Management Plan 1998, Fisheries Act 1994* and other relevant Queensland laws. Any requirements of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* should also be included.

Local Government planning controls, local laws and policies applying to the development should be described, and a list provided of the approvals required for the project and the expected program for approval of applications.

This information is required to assess how the legislation applies to the proposal, which agencies have jurisdiction, and whether the proposed impact assessment process is appropriate.

1.5.2 Planning processes and standards

This section should discuss the project's consistency with existing land uses or long-term policy framework for the area (e.g. as reflected in local and regional plans), and with legislation, standards, codes or guidelines available to monitor and control operations on site. This section should refer to all relevant State and regional planning policies, in particular the Far North Queensland Regional Plan. This information is required to demonstrate how the proposal conforms with State, regional and local plans for the area.

1.6 Accredited process for controlled actions under Commonwealth legislation

Projects that are undergoing an EIS under a State statutory process may also be controlled actions under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC). In which case, the Commonwealth may accredit the State's EIS process for the purposes of the Commonwealth's assessment under Part 8 of the EPBC.

When a State EIS process has been accredited, as in the case of this proposal, it will be necessary for the ToR to address potential impacts on the matters of National Environmental Significance (NES) that were identified in the 'controlling provisions' when the project was declared a controlled action. The nominated controlling provisions for this proposal are sections 12 and 15A (World Heritage) and sections 18 and 18A (Listed threatened species and communities).

As a minimum requirement, the ToR and the EIS should provide separate discussions under sub-headings in the relevant sections that describe the values and address the potential impacts on NES matters. The locations of those sub-headings should be readily identifiable from the Table of Contents. For example, if one of the controlling provisions was 'Listed threatened species and communities', then subsections, headed 'Matters of National Environmental Significance', should be placed in Section 4.7 (Nature conservation) under both the Description of environmental values and Potential impacts and mitigation measures headings. Those subsections should address exclusively and fully the issues relevant to the controlling provisions.

Alternatively, a stand-alone report could be provided as an appendix to the EIS that exclusively and fully addresses the issues relevant to the controlling provisions. In which case, it should follow the following template outline:

1. Introduction
2. Description of Proposed Action (as it would impact on NES matters)
3. Description of the Affected Environment Relevant to the Controlling Provisions (i.e. describe the features of the environment that are NES matters protected under the EPBC)
4. Assessment of Impacts on NES Matters and Mitigation Measures
5. Conclusions
6. References

Whichever structure is adopted in the EIS, the document will need to thoroughly address the potential impacts of the proposal on listed threatened species and communities, and World Heritage.

With regard to threatened species and communities listed under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999,* the EIS will need to address:

- the presence of any listed species or community and its associated habitat;
- the potential direct and indirect impacts of the proposal;
- and mitigation measures proposed.

The relevant listed species and communities include, but not are not limited to:

Casuarius casuarius johnsonii Southern Cassowary (Australian)	Endangered
Erythrotriorchis radiatus Red Goshawk	Vulnerable
Rostratula australis Australian Painted Snipe	Vulnerable
Litoria nannotis Waterfall Frog, Torrent Tree Frog	Endangered
Litoria rheocola Common Mistfrog	Endangered
Nyctimystes dayi Lace-eyed Tree Frog, Australian Lacelid	Endangered
Balaenoptera musculus Blue Whale	Endangered
Dasyurus hallucatus Northern Quoll	Endangered
Hipposideros semoni Semon's Leaf-nosed Bat, Greater Wart-nosed Horseshoe-bat	Endangered
Megaptera novaeangliae Humpback Whale	Vulnerable
Pteropus conspicillatus Spectacled Flying-fox	Vulnerable
Rhinolophus philippinensis (large form) Greater Large-eared Horseshoe Bat	Endangered

Saccolaimus saccolaimus nudicluniatus Bare-rumped Sheathtail Bat	Critically Endangered
Caretta caretta Loggerhead Turtle	Endangered
Chelonia mydas Green Turtle	Vulnerable
Dermochelys coriacea Leathery Turtle, Leatherback Turtle, Luth	Vulnerable
Eretmochelys imbricata Hawksbill Turtle	Vulnerable
Lepidochelys olivacea Pacific Ridley, Olive Ridley	Endangered
Natator depressus Flatback Turtle	Vulnerable
Rhincodon typus Whale Shark	Vulnerable
Arenga australasica Australian Arenga Palm	Vulnerable
Carronia pedicellata	Endangered
Dendrobium mirbelianum dendrobium orchid	Endangered
Dendrobium superbiens	Vulnerable
Eleocharis retroflexa	Vulnerable
Fimbristylis adjuncta	Endangered
Hodgkinsonia frutescens Atherton Turkey Bush	Vulnerable
Huperzia phlegmarioides Layered Tassel-fern	Vulnerable
Huperzia prolifera Square Tassel-fern	Vulnerable
Polyscias bellendenkerensis #	Vulnerable

The EIS should include comprehensive flora and fauna surveys of the development site and neighbouring areas potentially impacted by the proposed development.

For the southern cassowary in particular, the potential impacts on the local population need to be fully analysed. The local population would include all cassowary that inhabit or pass through the project site or adjacent, nearby areas. Scientific studies on potential impacts will need to be conducted by suitably qualified experts and they should include:

- Surveys of the key habitats to be impacted (by both direct and indirect impacts) and interviews with locals and local authorities to determine presence/absence of Cassowaries, abundance, age classes and breeding potential. (Local authorities should include relevantly qualified staff from Wet Tropics Management Authority, EPA, QPWS and Local Government.)
- Maps of Cassowary habitat types following EPA 2004 that have been ground truthed with vegetation surveys.
- Identification of any sites that are part of a conservation initiative endorsed by the Recovery Plan (QPWS 2001). This will require checking with local authorities as above.

- For each of the different areas to be impacted, an analysis of its values, and the expected impact on these values, in terms of: population density (e.g. does it have high population density that is considered important); level of protection (tenure); its role in connectivity, including the importance of the areas being connected; provision of known, likely or supplementary resources for food, water, breeding and shelter; use as a refugial area; likely genetic importance; any other values that are identified. Some of these will require checking with local authorities as above.
- Consideration of all potential impacts - direct and indirect impacts, on and off site – which may include but are not limited to habitat loss, fragmentation, roads and traffic, dogs, human interaction, disease and habitat degradation.
- An analysis of possible mitigation measures that could be used and those proposed to be used.
- PVA at the local population level. This should include a clear indication of the sources and reliability of the relevant life history parameters used. Where possible, the parameters should include data that has been researched from the local population. It should include a discussion of the limitations of the results.

With regard to World Heritage, the EIS needs to provide a thorough description of:
- the values of the Great Barrier Reef World Heritage Area and the Wet Tropics World Heritage Area;
- the potential impacts of the proposal on these values; and
- any mitigation measures proposed to minimise the potential impacts.

The document will need to include consideration of the potential of changes to surface water flows and groundwater hydrology and the consequent impacts on the Wet Tropics World Heritage Area. It will also need to address the discharge of chemicals, nutrients and sediment from the development site, and the potential impact of such discharges on the Great Barrier Reef World Heritage Area. These discharges should be considered in the context of the goals of the Australian Government and Queensland Government's *Reef Water Quality Protection Plan* (October 2003).

The EIS must also address all matters mentioned in Division 5.2 and Schedule 4 of the Environment Protection and Biodiversity Conversation Act Regulations 2000. This is a requirement of under the assessment bilateral agreement between the Commonwealth and Queensland Governments.

2 Project need and alternatives

2.1 Project justification

The justification for the project should be described, with particular reference made to the economic and social benefits, including employment and spin-off business development, which the project may provide. The status of the project should be discussed in a regional, State and National context.

A detailed assessment of the need/demand for the proposed Residential/Tourist Precinct and Commercial Precinct is required with regard to the following matters:

- the justification for the scale of residential and tourist development proposed within the local and regional context;
- the justification for the amount of retail and commercial floor space proposed within the local and regional context;
- the suitability for the location proposed; and
- the impact of the proposed Commercial Precinct on existing retail centres in the Shire.

2.2 Alternatives to the Project

This section should describe feasible alternatives, including conceptual, technological and locality alternatives to the project, and 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 and courses of action and rejecting others. Comparative environmental impacts of each alternative should be summarised.

The interdependencies of the proposal components should be explained, particularly in regard to how each of any industrial developments, or various combinations of industrial developments, and any infrastructure requirements relate to the viability of the proposal. Should water supply, power, transport and/or storage infrastructure be included as an element of the proposal, this section should include a description of and rationale for such infrastructure.

Alternative vehicular access routes and arrangements to and from the subject land should be canvassed and the reasons for the proposed choice outlined (cross-reference to Section 4.1.2.7).

Reasons for selecting the preferred options should include technical, commercial, social and natural environment aspects. In particular, the principals of ESD and sustainable development should be included. The relationship of options chosen for waste management and any emissions produced should be detailed.

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

3 Description of the project

The objective of this section is to describe the project through its lifetime of construction and operation. This information is required to allow assessment of all aspects of a proposal including all phases of the proposal from planning, construction and operation. It also allows further assessment of which approvals may be required and how they may be managed through the life of the proposal.

The various elements of the project should be described in the text and illustrated with maps, diagrams, architectural plans (at a suitable scale) and artist's impressions, as required. Issues to be addressed should include, but may not be limited to:

- layout, size and number of residential lots;
- layout of both golf courses and associated club houses;
- location of and extent of all waterways (including lakes, watercourses, lagoons, estuaries and drainage paths detailing water runoff and management);
- location of public infrastructure such as swimming facilities;
- extent of vegetation areas and buffers zones in and surrounding the development and wildlife corridors;
- location and layout of retail and commercial precinct;
- location, size and likely footprint and layout of the proposed resorts;
- location and details of infrastructure and service provision for the development;
- details of the location and extent of vehicular access and traffic and car parking impacts associated with the development; and
- location, depth, volume and ground-level-AHD of all significant excavations.

Concept and layout plans should provide details and illustrations of proposed:
- buildings and structures in relation to existing natural features to be retained; and
- excavations.

Explain the relationship (including connectivity issues) between the Ella Bay proposal and the approved development on Lot 337.

Details of the Concept Master Plan for the development, the staging of the development and the planning and infrastructure required to facilitate development and design details of all elements of the project which must take account of ultimate population and traffic thresholds associated with the project.

3.1 Location

3.1.1 Regional context

The regional context of the proposal should be described and illustrated on maps at suitable scales.

3.1.2 Local context

The local context of the proposal should be described and illustrated on maps at suitable scales. Real property descriptions of the project site should be provided.

3.2 Construction

If it is proposed that the development will be developed in stages based on a Concept Masterplan and various precincts, details of the likely staging of the development and timing of the staging are required to identify the infrastructure sequencing and the cumulative impact on both the site and surrounding locality (including Flying Fish Point and the Coconuts).

A plan showing the likely sequencing of the development stages for the project should be incorporated and indicate the natural features to be retained during the stages and what management measures will be in place to maintain those natural features during these stages.

The extent and nature of the project's construction phase should be described. The description should include the type and methods of construction, the construction equipment to be used and transported to

the construction site and details of all significant excavations. The staging of the project should be described and illustrated showing site boundaries, development sequencing and timeframes. The estimated numbers of people to be employed in the project construction phase should also be provided (together with assumptions behind the estimate). The information should include an estimate of the anticipated number of workers who will be accompanied by dependants, as well as those who will be unaccompanied. A brief description of where workers will be sourced from and where they will be accommodated (on-site, off-site, within Johnstone Shire and elsewhere) and/or how they will be transported to the site and likely routes is required. The capacity of off-site areas to handle the demand for construction worker accommodation. In addition, the estimated number of residents, employees and tourist to be accommodated at each stage of the development is required.

An analysis is required of the consequential impacts and mitigation measures of increased demand for, and uptake of affordable accommodation, particularly rental accommodation, in Johnstone Shire, including the reduction in available 'affordable housing' in the Shire, and the potential displacement of existing residents who may no longer be able to afford accommodation.

Service/ facility needs of construction workers, particularly in Johnstone Shire need to be identified, as well as impacts and mitigation measures.

Information is to be provided outlining the proposed timeframes for staged construction of the site, in particular the nature, extent and scheduling of proposed earthworks. As part of the information, the proponent should provide a schedule for construction and development to occur outside periods of high rainfall, therefore limiting the potential impacts associated with runoff.

In relation to emergency management during construction, provide:

- details of emergency management plans to be put in place during construction, including procedures and notifications;
- details of fire safety measures for treatment of hazardous material spills, building fires safety in construction offices (fitted with fire extinguishes and there'll be a construction management plan –as per john Holland protocol – comprehensive set of project management plans, all included for during construction), etc.;
- details of bushfire management plan, fire control points, including fire fighting water supplies (tank on site – sire fighting apperatas as required by regulator authorities - temporary);
- emergency access provisions;
- details of access if a single access route is proposed (cross-reference to Section 4.12); and
- details as to any permanent and/or temporary road closures or vehicle limitations to existing public road access.

3.3 Operations

The location and nature of the processes to be used should be described in the text and illustrated with maps, diagrams and artist's impressions as required. Operational issues to be addressed should include, but may not be limited to:

- a description of plant and equipment to be employed;
- the capacity of plant and equipment;
- chemicals to be used (e.g. agricultural chemicals and fertilisers at golf courses);
- water quality; runoff from lagoons and golf course;
- management of open water bodies in relation to vector control;
- details of a bush fire management plan, fire control points, including fire fighting water supplies; and
- details of emergency access provisions.

Concept and layout plans should be provided highlighting proposed buildings, structures and plant and equipment. The nature, sources, location and quantities of all materials to be handled, including the storage and stockpiling of raw materials, should be described.

3.4 Land Tenure

Maps at suitable scales should be provided showing the precise location of the project area, and in particular:

- the location and boundaries of land tenures, in place or proposed, to which the project area is or will be subject, including adjoining land tenure and/or legislative boundaries such as the Wet Tropics World Heritage Area boundary, State Marine Park boundary and the Great Barrier Reef Marine Park boundary;
- the location and boundaries of the project footprint showing all key aspects including excavations, stockpiles, areas of fill, crossings and built structures within waterways including all services infrastructure, plant locations, water storages, buildings, bridges, culverts, hardstands, car parks, etc;
- the location of any proposed buffers surrounding the working areas; and
- lands identified for mitigation, either through retention in their current natural state or to be rehabilitated.

Consideration should be given to providing a rectified air photo enlargement to illustrate components of the project in relation to the land tenures and natural and built features of the area.

Details of the final tenure of the land following development including details of future reconfigurations, Community Title, Body Corporate Management and Conservation Covenants/Agreements, Reserves or Nature Refuges over the land and including a supporting plan, for the entire site. Such details should include:

- The nature and structure of any future reconfigurations or the tiered body corporate arrangements to be established for the various components of the development, including the private road system;
- Further information concerning proposed legal arrangements for the governance of the site and the ability of a body corporate or other managing entity to:
    - manage the staging of the development;
    - prohibit domestic animals and dumping of garden waste;
    - set standards and control the design and finish of structures and roads;
    - manage traffic;
    - manage the production of interpretative material and signage;
    - control and condition access to manage visitor impacts; and
    - prevent future vegetation destruction, pollution and pest incursion into waterways.
- The general terms to form part of the Body Corporate structure for the protection and maintenance of the private open space areas, and in particular, the areas to be retained under native vegetation;
- A statement clearly defining the responsibility (if any) of Council or any other State Agency in on-going maintenance of either infrastructure established within the subject site or open space areas within the site.

3.5 Infrastructure Requirements

This section should provide descriptions, with concept and layout plans, of requirements for constructing, upgrading or relocating all infrastructure in the vicinity of the project area. The matters to be considered include such infrastructure as roads, rail, bridges, jetties, maritime infrastructure, ferries, tracks and pedestrian and cycle pathways, dams and weirs, bore fields, power lines and other cables, wireless technology (e.g. microwave telecommunications), and pipelines for any services (whether underground or above).

The potential for demands for off-site water, if on-site shortfalls occur, should be considered, along with any subsequent impacts on existing off-site water infrastructure.

Proposals for maritime infrastructure such as boat ramps and dedicated access to the beach should be disclosed, together with an analysis of potential impacts on coastal resources and their values, as pertaining to the State Coastal Management Plan – Queensland Coastal Policy (2001) and the Wet Tropical Coast Regional Coastal Management Plan (2003).

Where infrastructure development occurs offsite, the EIS should provide a description of current land uses, including Native Title issues. If Native Title exists, a description of the strategy and progress in relation to making native title agreements, where applicable, discussions with Native Title Representative Bodies, consultant selection, traditional owner involvement and related statutory processes.

3.5.1 Transport

Describe:

- arrangements for the transport of plant, equipment, products, wastes and personnel during both the construction phase and operational phases of the project. The description should address the use of existing facilities and all requirements for the construction, upgrading or relocation of any transport related infrastructure;
- existing pedestrian or cycle paths within 10 kilometres of the site boundaries;
- existing public passenger transport services within 10 kilometres of the site boundaries, including school bus, schedules bus, taxi and ferry; and provide details of timetables, contract areas, patronage, and associated infrastructure;
- existing marine usage within 10 kilometres of the site boundaries, including both recreational and commercial boating;
- usage patterns of existing marine infrastructure within 10 kilometres of the site boundaries, including details of peak use periods (hours/days/seasons);
- existing rail infrastructure within 10 kilometres of the site boundaries, including usage patterns for freight traffic, passenger traffic, and railway level crossings; and
- existing aviation facilities and services within 10 kilometres of the site boundaries, including civilian airport, navigational aids and communication facilities; and their usage patterns.

Information should be provided on road transportation requirements on public roads for both construction and operations phases, including:

- proposed road access to the site;
- the volume, composition (types and quantities), origin and destination of goods to be moved including construction materials, plant, raw materials, wastes, hazardous materials;
- the volume of traffic generated by workforce personnel, visitors and service vehicles;
- method of movement (including vehicle types and number of vehicles likely to be used);
- anticipated times at which movements may occur;
- details of vehicle traffic and transport of heavy and oversize indivisible loads (including types and composition);
- the proposed transport routes (including waterway crossings);
- need for increased road (and waterway crossing) maintenance and upgrading;
- proposed methods and procedures to maintain acceptable EPA and community standards in relation to dust and exhaust emissions; and
- communication of these issues to the public.

A proposal would also need to consider public transport requirements and links to, or development of pedestrian and cycle networks. These modes of transport:

- reduce dependency on cars (more transport choices);

- reduce emissions and therefore improve air quality; and
- provide opportunities for recreation and contribute to social and community wellbeing.

3.5.2 Energy

The EIS should describe all energy requirements, including electricity, natural gas, and/or solid and liquid fuel requirements for the construction and operation of the proposal. The locations of any easements for future powerlines should be shown on the infrastructure plan. Energy conservation should be briefly described in the context of any Commonwealth, State and local government policies.

3.5.3 Water supply and storage

The EIS should provide information on water usage by the project, including the quality and quantity of all water to be supplied to and discharged from the site from the various sources and the reliability of these sources. In particular, the proposed and optional sources of water supply should be described (eg. bores, any surface storages such as dams and weirs, municipal water supply pipelines). If groundwater sources are required, the EIS should provide base groundwater levels and any impacts on groundwater levels extraction may have on groundwater and associated surface water flows. Details of environmental flows to maintain seasonal instream values are to be provided.

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

Determination of potable water demand should be made for the project, including the temporary demands during the construction period. Details should be provided of any existing town water supply to meet such requirements. If water storage and treatment is proposed on site, for use by the site workforce, then this should be described.

Given the self-sufficiency aim of the proposal in regard to water supply, particular emphasis should be placed on demand and supply variability to match these two factors, e.g. during initial stages of development or during low rainfall times.

3.5.4 Stormwater drainage

A description should be provided of the proposed stormwater drainage system and the proposed disposal arrangements, including any off-site services. A Stormwater Management Plan should be prepared for the site.

The EIS should indicate the sources of drainage water, i.e. lake, golf course and potential quality and location of discharge to watercourses. The EIS should provide data on the impact of concentrating drainage flows into water courses in terms of both hydrological and ecological implications on the aquatic and fisheries resources. Details of stormwater treatment prior to release should be documented.

3.5.5 Sewerage

This section should describe, in general terms, the sewerage infrastructure required by the project.

Information is required on the on site treatment if grey water including ownership, maintenance safeguards to be used, how discharge standards are to be met, details of proposed wet weather storage (locations and capacities proposed) and any emergency discharges into or sewerage crossings of waterways or major drainage paths.

If a treatment system is proposed for the development, further information is required on:

- the options proposed for wastewater treatment;
- the peak design capacity evaluation of the wastewater treatment system and associated infrastructure using equivalent persons;
- determination of the potential emergency effluent storage that would be required in an extended rain event (50 and 100 year ARIs);
- the siting and maintenance regime for the system; and
- treated effluent quality, particularly nutrient content; and treated effluent flow rates and volume available at different development stages.

3.5.6 Telecommunications

The EIS should describe the telecommunication requirements of the proposal, where telecommunications sites will be developed and the proposed tenure.

Describe any impacts on existing telecommunications infrastructure (such as optical cables, microwave towers, etc.) and identify the owners of that infrastructure.

3.6 Waste management

3.6.1 Character and quantities of waste materials

Provide an inventory of all wastes to be generated by the proposal during the construction and operational phases of the project. In addition to the expected total volumes of each waste produced, include an inventory of the following per unit volume of product produced:

- the tonnage of raw materials processed;
- the amount of resulting wastes; and
- the volume and tonnage of any re-usable by-products.

Having regard for best practice waste management strategies and the Environmental Protection (Waste) Policy, the proposals for waste avoidance, reuse, recycling, treatment and disposal should be described in the appropriate sub-section below. Information should also be provided on the variability, composition and generation rates of all waste produced at the site.

3.6.1.1 Air emissions

Describe in detail the quantity and quality of all air emissions (including particulates and odours) from the project during construction and operation. Particulate emissions include those that would be disturbed by wind action equipment during construction (e.g. trucks by passage on unsealed roads).

The methods to be employed in the mitigation of impacts from air emissions should be described in section 4.5.

3.6.1.2 Solid waste disposal

The proposed location, site suitability, dimensions and volume of any landfill requirements for solid wastes generated by the project.

Methods to be employed to prevent leachate from sites where solid waste has been deposited need to be identified and documented. These should include physical, impermeable barriers that are established as part of any waste disposal site.

3.6.1.3 Liquid waste

A description should be presented of the origin, quality and quantity of wastewater originating from the project.

The EIS may need to consider the following effects:

- groundwater from excavations;
- rainfall directly onto disturbed surface areas;
- run-off from hard surfaces (e.g. roads, development footprint, plant and chemical storage areas);
- drainage (i.e. run-off plus any seepage or leakage);
- seepage from other waste storages;
- water usage for:
  - dust suppression, and
  - domestic purposes.
- evaporation;

- domestic sewage treatment - disposal of liquid effluent and sludge;
- water supply treatment plant - disposal of wastes; and
- aquatic recreation facilities (e.g. backwash from proposed lagoon swimming pool).

The EIS should provide information on the management of water from any lake or waterbody in relation to quality such as nutrient levels, pH of water, weeds and algal blooms etc., and how that will be managed or discharged.

4 Environmental values and management of impacts

The functions of this section are:

- To describe the existing environmental and World Heritage values of the area which may be affected by the proposal. Environmental values are defined in section 9 of the *Environmental Protection Act 1994*, environmental protection policies and other documents such as the ANZECC 2000 guidelines and South East Queensland Regional Water Quality Management Strategy. Environmental values may also be derived following recognised procedures, such as described in the ANZECC 2000 guidelines. Environmental values should be described by reference to background information and studies, which should be included as appendices to the EIS.
- To describe the potential adverse and beneficial impacts of the proposal on the identified environmental and World Heritage values. Any likely environmental harm on the environmental values should be described.
- To describe any cumulative impacts on environmental values caused by the proposal, either in isolation or by combination with other known existing or planned sources of contamination and the effects of clearing, fragmentation, edge effects, weed infestations and pest animal invasions. The cumulative impacts that influence fisheries resources such as species habitat requirements, migration, or spawning should be described. These influences could be related to seasonal flow requirements, water quality or waterway barrier works.
- To present environmental protection objectives and the standards and measurable indicators to be achieved.
- To 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. Available techniques, including best practice, to control and manage impacts to the nominated objectives should be discussed. This section should detail the environmental protection measures incorporated in the planning, construction, operations, decommissioning, rehabilitation and associated works for the proposal. Measures should minimise environmental harm and maximise socio-economic and environmental benefits of the proposal. Preferred measures should be identified and described in more detail than other alternatives.

Environmental protection objectives may be derived from legislative and planning requirements which apply to the proposal including Commonwealth strategies, State planning policies, local authority strategic plans, environmental protection policies under the *Environmental Protection Act 1994*, *Water Act 2000* and any catchment management plans prepared by local water boards or land care groups. Special attention should be given to those mitigation strategies designed to protect and maintain the values of any sensitive areas and any identified ecosystems of high conservation value within and adjacent to the area of possible proposal impact in the long term.

This section should address all elements of the environment, such as land, water, coast, air, waste, noise, nature conservation, cultural heritage, social and community, health and safety, economy, hazards and risk, in a way that is comprehensive and clear. To achieve this, the following issues should be considered for each environmental value relevant to the project:

- Environmental values affected: describe the existing environmental values of the area to be affected including values and areas that may be affected by any cumulative impacts (refer to any background studies in Appendices - note such studies may be required over several seasons). It should be explained how the environmental values were derived (e.g. by citing published documents or by following a recognised procedure to derive the values).
- Impact on environmental values: describe quantitatively the likely impact of the proposal on the identified environmental values of the area. The cumulative impacts of the proposal must be considered over time or in combination with other (all) impacts in the dimensions of scale, intensity, duration or frequency of the impacts. In particular, any requirements and recommendations of the Great Barrier Reef Marine Park Authority, Wet Tropics Management Authority, relevant State planning policies, environmental protection policies, national environmental protection measures and integrated catchment management plans should be addressed.

- Cumulative impacts on the environmental values of land, air and water and cumulative impacts on social environment, public health and the health of terrestrial, aquatic and marine ecosystems must be discussed in the relevant sections. This assessment may include air and water sheds affected by the proposal and other proposals competing for use of the local air and water sheds.
- Where impacts from the proposal will not be felt in isolation to other sources of impact, it is recommended that the proponent develop consultative arrangements with other industries in the proposal's area to undertake cooperative monitoring and/or management of environmental parameters. Such arrangements should be described in the EIS.
- Environmental protection objectives: describe qualitatively and quantitatively the proposed objectives for enhancing or protecting each environmental value. Include proposed indicators to be monitored to demonstrate the extent of achievement of the objective as well as the numerical standard that defines the achievement of the objective (this standard must be auditable). The measurable indicators and standards can be determined from legislation, support policies and government policies as well as the expected performance of control strategies. Objectives for progressive and final rehabilitation and management of contaminated or otherwise disturbed land should be included.
- Control strategies to achieve the objectives: describe the control principals, proposed actions and technologies to be implemented that are likely to achieve the environmental protection objectives; include designs, relevant performance specifications of plant. Details are required to show that the expected performance is achievable and realistic.
- Monitoring programs: describe the monitoring parameters, monitoring points, frequency, data interpretation and reporting proposals.
- Auditing programs: describe how progress towards achievement of the objectives will be measured, reported and whether external auditors will be employed. Include scope, methods and frequency of auditing proposed.
- Management strategies: describe the strategies to be used to ensure the environmental protection objectives are achieved and control strategies implemented eg. continuous improvement framework including details of corrective action options, reporting (including any public reporting), monitoring, staff training, management responsibility pathway, and any environmental management systems and how they are relevant to each element of the environment.
- Information quality: information given under each element should also state the sources of the information, how recent the information is, how any background studies were undertaken (eg intensity of field work sampling), how the reliability of the information was tested, and what uncertainties (if any) are in the information.

It is recommended that the final TOR and the EIS follow the heading structure shown below. The mitigation measures, monitoring programs, etc., identified in this section of the EIS should be used to develop the environmental monitoring program for the project (see section 5).

4.1 Land

4.1.1 Description of environmental values

This section describes the existing environment values of the land area that may be affected by the proposal. It should also define and describe the objectives and practical measures for protecting or enhancing land-based environmental values, describe how nominated quantitative standards and indicators may be achieved, and how the achievement of the objectives will be monitored, audited and managed.

4.1.1.1 Topography/geomorphology

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

4.1.1.2 Geology

The EIS should provide a description, map and a series of cross-sections of the geology of the proposal area, with particular reference to the physical and chemical properties of surface and sub-surface materials and geological structures within the proposed areas of disturbance. Geological properties that may influence ground stability (including seismic activity, if relevant), occupational health and safety, rehabilitation programs, or the quality of wastewater leaving any area disturbed by the proposal should be described. In locations where the age and type of geology is such that significant fossil specimens (such as of dinosaurs or their tracks) may be uncovered during construction/operations, the EIS should address the potential for significant finds.

4.1.1.3 Soils

A soil survey of the sites affected by the proposal should be conducted at a suitable scale, with particular reference to the physical and chemical properties of the materials that will influence erosion potential and storm water run-off quality. Information should also be provided on soil stability and suitability for construction of proposal facilities and the impact of soil type on sub-surface water and nutrient movement.

An acid sulfate soil investigation, carried out according to QASSIT guidelines, should be undertaken. The State Planning Policy 2/02 Planning and Managing Development involving Acid Sulfate Soils should also be addressed (e.g. identification and management and format of environmental management plans).

Soil profiles should be mapped at a suitable scale and described according to the Australian Soil and Land Survey Field Handbook (McDonald et al, 1990) and Australian Soil Classification (Isbell, 1996). An appraisal of the depth and quality of useable soil should be undertaken. Information should be presented according to the standards required in the Planning Guidelines: the Identification of Good Quality Agricultural Land (DPI, DHLGP, 1993), and the State Planning Policy 1/92: Development and the Conservation of Agricultural Land.

4.1.1.4 Land use

The EIS should provide a description of past and current land tenures and land uses of the site and surrounding areas, including current applications and approvals and native title issues, with particular mention of land with special purposes. The location and owner/custodians of native title in the area and details of native title claims should be shown.

Maps at suitable scales showing existing land uses and tenures, and the proposal footprint, should be provided for the entire proposal area and surrounding land that could be affected by the development. The maps should identify areas of conservation value and marine areas in any locality that may be impacted by the proposal. The location of existing dwellings, and the zoning of all affected lands according to any existing town or strategic plan should be included.

Provide a land suitability map of the proposed and adjacent area, and setting out land suitability and current land uses, e.g. for grazing of native and improved pastures and horticulture. Land classified as Good Quality Agricultural Land in the Department of Natural Resources and Mines' land classification system is to be shown in accordance with the planning guideline, The Identification of Good Quality Agricultural Land, which supports State Planning Policy 1/92.

Provide an assessment of the development in regard to the Wet Tropical Coast Regional Management Plan.

4.1.1.5 Infrastructure

The location and owner/custodians of all tenures, reserves, roads and road reserves, railways and rail reserves, stock routes and the like, marine infrastructure covering the affected and adjacent land should be shown on maps of a suitable scale. Indicate locations of gas and water pipelines, power lines and any other easements. Describe the environmental values affected by this infrastructure. In particular, with respect to the coastal access route, any adverse impacts associated with vegetation clearing for vehicular access and services requirements should be identified. If the inland road assess route is still under consideration, adverse impacts to species including the southern cassowary from vegetation clearing, edge effects and vehicle-wildlife collisions should be identified.

4.1.1.6 Sensitive environmental areas

The EIS should identify whether areas that are environmentally sensitive could be affected, directly and indirectly or consequently, by the proposal. Areas sensitive to environmental harm caused by the proposal can be determined through site-specific environmental impact assessment.

In particular, the EIS should indicate if the land affected by the proposal is, or is likely, to become part of the protected area estate, or is subject to any treaty. Consideration should be given to national parks, conservation parks, declared fish habitat areas, wilderness areas, aquatic reserves, heritage/historic areas or items, national estates, world heritage listings and sites covered by international treaties or agreements (e.g. Ramsar, JAMBA, CAMBA), areas of cultural significance and scientific reserves (see section 4.7 for further guidance on sensitive areas).

The EIS should address any disturbance to marine plants or disturbance to tidal lands, freshwater habitats, other wetlands or declared fish habitat areas. These need to be identified and mapped to indicate their proximity to the development footprint.

Copies of plans of declared fish habitat areas can be downloaded from the Department of Primary Industries and Fisheries website or from the Call Center on 13 25 23.

The proximity of the proposal elements to any of these areas should be identified.

4.1.1.7 Landscape character

This section should describe in general terms the existing character of the landscape that will be affected by the proposal. It should comment on any changes that have already been made to the natural landscape since European settlement. It should 'set the scene' for the description of particular scenic values in the following section on visual amenity. The difference being that this section describes the general impression of the landscape that would be obtained while travelling through and around it, while the visual amenity section addresses particular panoramas and views (e.g. from constructed lookouts, designated scenic routes, etc.) that have amenity value.

The landscape character of the property and its surrounds should be described in the context of landscape ecology and incorporate the concepts of patch-corridor-matrix in describing the pattern of existing vegetation. In addition, the character of the landscape with respect to physical landform patterns and elements and to the characteristics of the land surface should be described using the Australian standard definitions and concepts espoused in the *"Australian Soil and Survey Field Handbook"* (McDonald et al 1990).

4.1.1.8 Visual amenity

This section should describe existing landscape features, panoramas and views that have, or could be expected to have, value to the community whether of local, regional, State-wide, national or international significance. Visual impacts which result from the development of supporting infrastructure required for the proposed development, particularly road/transport infrastructure should be described. Information in the form of maps, sections, elevations and photographs is to be used, particularly where addressing the following issues:

- identification of elements within the proposal and surrounding area that contribute to their image of the town/city as discussed in the any local government strategic plan - city image and townscape objectives and associated maps;
- major views, view sheds, existing viewing outlooks, ridgelines and other features contributing to the amenity of the area, including assessment from private residences in the affected area along the route;
- focal points, landmarks (built form or topography), gateways associated with project site and immediate surrounding areas, waterways, and other features contributing to the visual quality of the area and the project site;
- character of the local and surrounding areas including character of built form (scale, form, materials and colours) and vegetation (natural and cultural vegetation) directional signage and land use;
- identification of the areas of the proposal that have the capacity to absorb land use changes without detriment to the existing visual quality and landscape character;

- the value of existing vegetation as a visual screen; and
- relevant scenic amenity policies in the Wet Tropical Coast Regional Coastal Management Plan, December 2003.

The assessment is to address the visual impacts of the project and associated infrastructure, using appropriate simulation. Sketches, diagrams, computer imaging and photos are to be used where possible to portray the near views and far views of the completed development and their surroundings from visually sensitive locations.

4.1.2 Potential impacts and mitigation measures

This section defines and describes the objectives and practical measures for protecting or enhancing the land-based environmental values identified through the studies outlined in the previous section. It should describe how nominated quantitative standards and indicators may be achieved, and how the achievement of the objectives will be monitored, audited and managed.

4.1.2.1 Land use suitability

The potential for the construction and operation of the proposal to change existing and potential land uses of the proposal site and adjacent areas should be detailed. Post operations land use options should be detailed including suitability of the area to be used for agriculture, or nature conservation. The factors favouring or limiting the establishment of those options should be given in the context of land use suitability prior to the proposal and minimising potential liabilities for long-term management.

The potential environmental harm caused by the proposal on the adjacent areas currently used for nature conservation, agriculture, urban development, recreation, tourism, other business and the implications of the proposal for future developments in the impact area including constraints on surrounding land uses should be described. If the development adjoins or potentially impacts on good quality agricultural land, then an assessment of the potential for land use conflict is required, as well as the identification of any "overriding need (for the development) in terms of benefit to the community" (from State Planning Policy 1/92). Investigations should follow the procedures set out in the planning guideline, The Identification of Good Quality Agricultural Land, which supports State Planning Policy 1/92.

Provide an assessment of the development in regard to the Wet Tropical Coast Regional Coastal Management Plan.

Outline incompatible land uses, whether existing or potential, adjacent to all aspects of the project, including essential and proposed ancillary developments or activities and areas directly or indirectly affected by the construction and operation of these activities should be identified and measures to avoid unacceptable impacts defined.

4.1.2.2 Land contamination

The EIS should describe the possible contamination of land from aspects of the proposals including waste, irrigation with treated effluent, reject product, acid generation from exposed sulfidic material and spills at chemical and fuel storage areas.

The means of preventing land contamination (within the meaning of the *Queensland Environmental Protection Act 1994*) should be addressed. Methods proposed for preventing, recording, containing and remediating any contaminated land should be outlined. Intentions should be stated concerning the classification (in terms of the Queensland Contaminated Land Register) of land contamination.

A Preliminary Site Investigation (PSI) of the site consistent with the EPA's "Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland" should be undertaken to determine background contamination levels. The results of the PSI should be summarised in the EIS and provided in detail in an appendix.

If the results of the preliminary site investigation indicate potential or actual contamination, a detailed site investigation progressively managed in accordance with the stages outlined in Appendix 5 of the Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland should be undertaken.

In short, the following information may be required in the EIS:

- mapping of any areas listed on the Environmental Management Register or Contaminated Land Register under the *Environmental Protection Act 1994*;
- identification of any potentially contaminated sites not on the registers which may need remediation; and
- a description of the nature and extent of contamination at each site and a remediation plan and validation sampling.

The EIS should address management of any existing or potentially contaminated land in addition to preventing and managing land contamination resulting from project activities. The Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland can be downloaded from the EPA website at: www.epa.qld.gov.au/environment/business/contaminated). Proponents should refer study proposals to the EPA for review prior to commencement (Consult with the Contaminated Land Section in the Queensland EPA).

4.1.2.3 Soil erosion

For all permanent and temporary landforms, possible erosion rates and management techniques should be described. For each soil type identified, erosion potential (wind and water) and erosion management techniques should be outlined. An erosion-monitoring program, including rehabilitation measures for erosion problems identified during monitoring, should also be outlined. Mitigation strategies should be developed to achieve acceptable soil loss rates, levels of sediment in rainfall runoff and wind-generated dust concentrations.

The report should include an assessment of likely erosion effects, especially those resulting from the removal of vegetation, both on-site and off-site for all disturbed areas such as:

- building footprints (development precincts);
- access roads or other transport corridors;
- designated infrastructure precincts;
- recreational areas; and
- waterways.

Methods proposed to prevent or control erosion should be specified and should be developed with regard to:

- preventing soil loss in order to maintain land capability/suitability;
- preventing significant degradation of local waterways by suspended solids.

4.1.2.4 Landscape character

Describe the potential impacts of the project landscape character of the site and the surrounding area. Particular mention should be made of any changes to the broad-scale topography and vegetation character of the area, such as due to spoil dumps, excavated voids and broad-scale clearing.

Details should be provided of measures to be undertaken to mitigate or avoid the identified impacts.

4.1.2.5 Visual amenity

This section should analyse and discuss the visual impact of the proposal on particular panoramas and outlooks. It should be written in terms of the extent and significance of the changed skyline as viewed 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. The assessment is to address the visual impacts of the project structures and associated infrastructure, using appropriate simulation. Sketches, diagrams, computer imaging and photos are to be used where possible to portray the near views and far views of the completed structures and their surroundings from visually sensitive locations. Special consideration is to be given to public roads, public thoroughfares, and places of residence or work, which are within the line-of-sight of the project.

Detail should be provided of all management options to be implemented and how these will mitigate or avoid the identified impacts.

4.1.2.6 Lighting

Management of the 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 and residents;
- the potential impact of increased vehicular traffic; and
- changed habitat conditions for nocturnal fauna and associated impacts.

4.1.2.7 Transport

The EIS should provide sufficient information to make an independent assessment of how the State-controlled and local government road networks, pedestrian and cycle networks, rail infrastructure, aviation facilities and marine infrastructure will be affected. The impact on stakeholders along the whole route should be detailed and how any impacts will be managed.

Details should be provided of the impacts on environmental values of any new roads or road realignments, in particular any proposed access through the Wet Tropics World Heritage Area, either through the coast road or from the west. The EIS should include detailed analysis of probable impact of identified construction and operational traffic generated by the project with particular concern to impacts on existing residents, flora and fauna, road infrastructure, road users and road safety (in particular for local school children). Describe mitigation measures to reduce possible impacts, e.g. enforced speed limits.

Describe the possible risks of a single access road (entrance and exit) for the proposed development, e.g. access by emergency vehicles if the road is blocked as a result of a natural disaster. (Cross-reference to section 4.12.)

The EIS needs to identify impacts on the State-controlled and local government road networks, pedestrian and cycle networks, rail infrastructure, aviation facilities and marine infrastructure and to indicate clearly the corrective measures necessary to address adverse impacts and the costs involved. This will require the proponent to compare the traffic situation and road, rail, aviation and marine transport conditions with, and without, the project.

Information about the impacts and proposed measures for dealing with those impacts should be prepared by the proponent in close consultation with the Peninsula District Office of the Department of Main Roads and the Wet Tropics Management Authority and EPA.

The EIS should outline details of any potential impacts on existing or proposed transport, within 10 kilometres of the site boundaries, as follows:

- pedestrian and cycle networks;
- public passenger transport services and infrastructure, including school bus, scheduled bus, taxi and ferry;
- marine usage and infrastructure, including jetties, wharves, marinas, docks, navigational aids, recreational boating and commercial boating;
- aviation facilities and services, including civilian airports, navigational aids, and communication facilities;
- rail services or infrastructure, including freight traffic, passenger services and railway level crossings; and
- transport of agricultural produce.

4.2 Climate

This section should describe the rainfall patterns (including magnitude and seasonal variability of rainfall), air temperatures, humidity, wind (direction and speed) and any other special factors (e.g.

temperature inversions) that may affect air quality within the region of the proposal. Extremes of climate (droughts, floods, cyclones, etc) should also be discussed with particular reference to water management at the proposal site, including flooding and rainfall-shortfall affecting water supply. The vulnerability of the area to natural or induced hazards, such as landslide, floods and bushfires, should also be addressed. The relative frequency, magnitude and risk of these events should be considered.

The potential impacts due to climatic factors should be addressed in the relevant sections of the EIS. The impacts of rainfall on soil erosion should be addressed and the impacts of winds, rain, humidity and temperature inversions on air quality should also be addressed.

4.3 Water resources

4.3.1 Description of environmental values

This section describes the existing environment for water resources that may be affected by the proposal in the context of environmental values as defined in such documents as the *Environmental Protection Act 1994*, Environmental Protection (Water) Policy 1997, ANZECC 2000.

Where a licence or permit will be required under the *Water Act 2000* to take or interfere with the flow of water, or to extract quarry material excavate, place fill or destroy native vegetation within the banks of a waterway, this section of the EIS should provide sufficient information for a decision to be made on the application.

4.3.1.1 Surface waterways

A description should be given of all surface watercourses, lakes and springs and their quality and quantity in the area affected by the proposal with an outline of the significance of these waters to the river catchment system in which they occur (NB impacts on coastal water quality should be discussed in Section 4.4 (Coastal environment)). Details provided should include a description of existing surface drainage patterns, flows in and natural storages within watercourses, lakes, springs 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 proposal. Flood studies should include predicted water levels and flows through all such features for exceedence probabilities ranging from 1 year to 100 year return period. The location, extent, frequencies and durations to which the highest astronomical tides and the mean high water spring tides penetrate into surface water systems should also be described.

The EIS should provide a description, with photographic evidence, of the geomorphic condition of any watercourses and wetlands likely to be affected by disturbance or stream diversion, including a description of any likely barriers to fish and aquatic wildlife movement. The results of this description should form the basis for the planning and subsequent monitoring of rehabilitation of the watercourses during or after the operation of the proposal.

An assessment is required of existing water quality in surface waters and wetlands likely to be affected by the proposal. The basis for this assessment should be a monitoring program, with sampling stations located upstream and downstream of the proposal. Complementary stream-flow data should also be obtained from historical records (if available) to aid in interpretation.

The water quality should be described, including seasonal variations or variations with flow where applicable. A relevant range of physical, chemical and biological parameters should be measured to gauge the environmental harm on any affected creek or wetland system.

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

- values identified in the Environmental Protection (Water) Policy;
- sustainability, including both quality and quantity;
- physical integrity, fluvial processes and morphology of watercourses, including riparian zone vegetation and form; and
- any water resource plans, land, water and catchment management plans relevant to the affected catchment.

The EIS should address any proposed modifications or impacts to waterways both on and adjacent to the site, including infrastructure required for road crossings, drainage, pipelines and if any waterway barriers (both temporary and permanent) are required. Timeframes for any temporary waterway barriers should be nominated. This section should address the infrastructure associated with any lagoons and lakes.

The EIS should identify any water quality changes associated with the development arising from nutrients, chemicals, or biophysical changes such as pH, turbidity, etc.

An analysis of the hydrology of flooding should indicate whether there will be impacts on fisheries resources and habitat within surface waters both within and adjacent to the site that may affect the species present, migration, etc.

4.3.1.2 Groundwater

The EIS should review the quality, quantity and significance of groundwater in the proposal area.

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; and
- 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.

This section should include reference to:

- Nature of the aquifer/s -
  - geology/stratigraphy - such as alluvium, volcanic, metamorphic;
  - aquifer type - such as confined, unconfined; and
  - depth to and thickness of the aquifers.
- Hydrology of the aquifer/s -
  - depth to water level and seasonal changes in levels;
  - groundwater flow directions (defined from water level contours);
  - interaction with surface water;
  - interaction with sea/salt water;
  - possible sources of recharge; and
  - vulnerability to pollution.

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.

The EIS should address any historical and existing groundwater levels to establish baseline data and extrapolate future extractions on surface water flows or other groundwater dependent systems.

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

- values identified in the Environmental Protection (Water) Policy;
- sustainability, including both quality and quantity; and
- physical integrity, fluvial processes and morphology of groundwater resources.

4.3.2 Potential impacts and mitigation measures

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

The EIS should describe the relationship of surface and ground waters with the vegetation of the terrestrial wetlands of the property and the wetlands of the adjoining World heritage listed Ella Bay National Park. The EIS should describe the potential for impacts on these waters, the potential changes in hydrology and its effects on the vegetation and associated habitat values of the terrestrial wetlands of the property and the terrestrial wetlands of the adjoining World Heritage listed Ella Bay National Park.

The EIS should describe the possible environmental harm caused by the proposed proposal to environmental values for water as expressed in the Environmental Protection (Water) Policy.

Water management controls should be described, addressing surface and groundwater quality, quantity, drainage patterns and sediment movements. The beneficial (environmental, production and recreational) use of nearby marine, surface and groundwater should be discussed, along with the proposal for the diversion of affected creeks and the stabilisation of those works. Monitoring programs should be described which will assess the effectiveness of management strategies for protecting water quality during the construction and operation of the proposal.

Key water management strategy objectives include:

- protection of the integrity of the marine environment, and ultimately the Great Barrier Reef Marine Park and World Heritage Property;
- protection of the integrity of the terrestrial wetlands of the property and the terrestrial wetlands of the adjoining World Heritage listed Ella Bay National Park;
- assessment of the potential need for access to surface or groundwater resources at different stages of the development, to supplement the runoff collection that is proposed as the water supply for then development;
- protection of important local aquifers and protection of their waters;
- maintenance of sufficient quantity persistence and quality of surface waters to protect existing beneficial downstream uses of those waters (including maintenance of in-stream, riverain and lacustrine biota and the littoral zone); and
- minimisation of impacts on flooding levels and frequencies both upstream and downstream of the project.

4.3.2.1 Surface water and water courses

The potential environmental harm caused by changes in the flow and the quality of surface waters and excavations, placement of materials or destruction of vegetation within and beside waterways or extraction of quarry material from within waterways associated with all phases of the proposal should be discussed. Particular reference should be given to their to their impacts on the current and potential downstream uses, including water and sediment input requirements of any affected waterway, riverain or lacustrine area, wetland, estuary, littoral zone, and any marine, riparian and aquatic biological uses (e.g. impact on migration and breeding patterns of native terrestrial and aquatic species). The impacts of surface water and bed sediment flow on existing infrastructure should be considered. Refer to the Environmental Protection (Water) Policy 1997 and *Water Act 2000*.

The hydrological impacts of the proposal 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. Modelling of afflux should be provided and illustrated where appropriate at all individual structures within waterways and for the project as a whole. Assessment of impacts on the flow and the quality of surface waters and riverine sediments and associated effects on ecosystems should include an assessment of the likely effects on mangrove and other estuarine habitats as a result of any temporary or permanent diversion or disturbance of existing water courses. The potential environmental harm caused by water quality changes within near coastal freshwater environments due

to any changes in the interactions between the freshwater hydrological regime and/or changes to the penetration of seawater over or through coastal dunes into brackish waterways resulting from the project must also be discussed.

Consideration should be given to monitoring of seawater quality at points of outflow and water quality within any near coastal lakes and long term salt wedge intrusion impacts.

Quality characteristics discussed should be those appropriate to the downstream and upstream water uses that may be affected. Chemical and physical properties of any waste water (including concentrations of constituents) at the point of entering natural surface waters should be discussed along with toxicity of effluent constituents to flora and fauna.

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 structural integrity of the containing walls; 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.

Consider the proposed road network and design of bridges and culverts and their potential impacts as barriers or impediments to water flows and to wildlife movement or mitigations (either permanently or seasonally) and to any special habitat requirements of significant aquatic species, especially fish (e.g. for breeding purposes).

The need or otherwise for licensing and permitting of any diversions, water impoundments, extraction of quarry materials or the excavation, placement of fill or destruction of native vegetation within any watercourse, lake or spring under the *Water Act 2000* should be discussed. The location and extent of watercourses both longitudinal and lateral, water and quarry material allocations, water sources and the type and location of infrastructure associated with any crossings of or stormwater outlets into such features should be established in consultation with Department of Natural Resources and Mines. Survey plans depicting the ground levels within waterways and lines depicting the locations of the top of the high and low banks of these features for the purposes of such permits must be provided.

Having regard for the requirements of the Environmental Protection (Water) Policy, the EIS should present the methods to avoid stormwater contamination by wastes and present the means of containing, recycling, reusing, treating and disposing of stormwater.

The Australian and New Zealand Environment and Conservation Council (ANZECC, 2000) 'National Water Quality Management Strategy, Australian Water Quality Guidelines for Fresh and Marine Waters' and the Environmental Protection (Water) Policy 1997 should be used as a reference for evaluating the effects of various levels of contamination.

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.

4.3.2.2 Groundwater

The EIS should include an assessment of the potential environmental harm caused by the proposal to local groundwater resources.

The impact assessment should define the extent of the area within which groundwater resources are likely to be affected by the proposed operations and the significance of the proposal to groundwater depletion or recharge, and propose management options available to monitor and mitigate these effects.

An assessment of the potential to contaminate groundwater resources and measures to prevent, mitigate and remediate such contamination should be discussed.

4.4 Coastal environment

4.4.1 Description of environmental values

This section describes the existing coastal environment, which may be affected by the proposal in the context of coastal values identified in State of the Coastal Zone Reports and environmental values as defined by the *Environmental Protection Act 1994* and environmental protection policies. The

Environmental Protection (Water) Policy has a set of default environmental values for waterways that include aquatic ecosystem protection.

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*.

4.4.1.1 Water quality

Provide baseline information on water quality in the sea and in estuaries below the limit of tidal influence, including nutrients, suspended solids, heavy metals, acidity, turbidity and oil in water. Discuss the interaction of freshwater flows with marine waters and its significance in relation to marine flora and fauna adjacent to the proposal area.

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

- values identified in the Environmental Protection (Water) Policy;
- the State Coastal Management Plan and the Wet Tropical Coast Regional Coastal Management Plan, December 2003.

4.4.1.2 Coastal processes

Provide an assessment of physical and chemical characteristics of sediments within the littoral and marine zone adjacent to the proposal area.

Describe the physical processes of the adjacent marine environment, including currents, tides, storm surges, freshwater flows and their interaction in relation to the assimilation and transport of pollutants entering marine waters from, or adjacent to, the proposal 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.

4.4.2 Potential impacts and mitigation measures

This section defines and describes the water quality objectives and practical measures for protecting or enhancing coastal environmental values, to describe how nominated quantitative standards and indicators may be achieved, and how the achievement of the water quality objectives will be monitored, audited and managed.

Describe the water quality objectives used (including how they were developed), and how predicted activities will meet these objectives (refer to the EPA's Queensland Water Quality guidelines and the Australian and New Zealand Guidelines for Fresh and Marine Water Quality, ANZECC, 2000).

The potential environmental harm caused by the proposal on coastal resources and processes should be described in the context of controlling such effects. The State Planning Policy – Planning and Managing Development involving Acid Sulfate Soils 2002 should be addressed as should the State Coastal Management Plan 2001 and QDPI Guidelines for Marine Areas.

The role of buffer zones in sustaining fisheries resources through maintaining connectivity between coastal and riparian vegetation and estuarine and freshwater reaches of catchments should be discussed.

The potential for incremental and cumulative impacts from residents who wish to enjoy better access to and views of the beach, which may lead to illegal clearing of coastal vegetation. The EIS should demonstrate that the resort and residential developments which are adjacent to the coast, but which do not have direct access to the coast, nor sea views, are viable and that coastal vegetation will be protected.

4.5 Waste

This section should complement other sections of part 4 of the EIS by providing technical details of waste treatment and minimisation, with proposed emission, discharge and disposal criteria, while other sections describe how those emissions, discharges and disposals would impact on the relevant environmental values. The purpose of this format is to concentrate the technical information on waste management into one section in order to facilitate its transfer into the EM Plan.

4.5.1 Description of environmental values

This section describes the existing environment values that may be affected by the project's wastes (including waste to be generated from Lot 337). Refer to each of the waste streams described in section 3.6 and provide references to environmental values described in other sections of part 4 of the EIS.

4.5.2 Potential impacts and mitigation measures

This section defines and describes the objectives and practical measures for protecting or enhancing environmental values from impacts by wastes, describes how nominated quantitative standards and indicators may be achieved for waste management, and how the achievement of the objectives will be monitored, audited and managed.

This section should assess the potential impact of all wastes to be generated and provide details of each waste in terms of:

- on-site treatment methods proposed for the 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;
- the potential level of impact on environmental values;
- proposed discharge/disposal criteria for liquid and solid wastes;
- methods to prevent, seepage and contamination of groundwater from stockpiles and/or dumps should be given;
- waste minimisation techniques processes proposed; and
- expected frequency and nature of discharges into waterways from emergency sewerage outfalls or the failure of sewerage infrastructure particularly at crossings of waterways and major drainage paths.

Having regard for the Environmental Protection (Waste) Policy, the EIS should indicate the results of investigation into the feasibility of using waste minimisation and cleaner technology options during all phases of the proposal. The EPA has also released draft guidelines covering aspects of waste management under this EPP, which should be addressed.

4.6 Noise and vibration

4.6.1 Description of environmental values

This section describes the existing environment values that may be affected by noise and vibration from the proposal.

If the proposed activity (including construction and future transport) could adversely impact on the noise environment, baseline monitoring should be undertaken at a selection of sensitive sites affected by the proposal. Noise sensitive places are defined in the Environmental Protection (Noise) Policy 1997. Long-term measured background noise levels that take into account seasonal variations are required. The locations of sensitive sites should be identified on a map at a suitable scale. The results of any baseline monitoring of noise and vibration in the proposed vicinity of the proposal should be described.

Sufficient data should be gathered to provide a baseline for later studies. The daily variation of background noise levels at nearby sensitive sites should be monitored and reported in the EIS, with particular regard given to detailing variations at different periods of the night. Monitoring methods should adhere to accepted best practice methodologies, relevant Environmental Protection Agency Guidelines and Australian Standards, and any relevant requirements of the Environmental Protection (Noise) Policy 1997.

4.6.2 Potential impacts and mitigation measures

This section defines and describes the objectives and practical measures for protecting or enhancing environmental values from impacts by noise and vibration, describes how nominated quantitative standards and indicators may be achieved for noise and vibration management, and how the achievement of the objectives will be monitored, audited and managed. The assessment of noise impacts should

include matters raised in the document '*The health effects of environmental noise – other than hearing loss*' published by the enHealth Council, 2004 (or later editions), ISNB 0 642 82304 9.

The likely noise impacts upon existing residents from both construction and operation of the project should be detailed. Transport and access requirements to and from the site should be considered.

Information, including mapped noise contours from a suitable acoustic model, should be submitted based on the proposed generation of noise. The potential environmental harm of noise and vibration at all potentially sensitive places, in particular, any place of work or residence should be quantified in terms of objectives, standards and indicators to be achieved. Particular consideration should be given to emissions of low-frequency noise; that is, noise with components below 200Hz. The assessment should also include environmental impacts on terrestrial and marine animals and avifauna, particularly migratory species. Proposed measures for the minimisation or elimination of impacts should be provided, including details and illustrations of any screening, lining, enclosing or bunding. A discussion should be provided of timing schedules for construction and operations with respect to minimising environmental nuisance and harm from noise.

Information should be supplied on blasting which might cause ground vibration or fly rock on, or adjacent to, the site with particular attention given to places of work, residence, recreation, worship and general amenity. The magnitude, duration and frequency of any vibration should be discussed. A discussion should be provided of measures to prevent or minimise environmental nuisance and harm. Blasting noise and vibration limits are provided in section 6I of the Environmental Protection Regulation 1998. Reference should also be made to the EPA Guideline: *Noise and vibration from blasting*.

The assessment should also address off-site noise and vibration impacts that could arise due to increased road or rail transportation directly resulting from the project.

4.7 Nature conservation

4.7.1 Description of environmental values

This section describes the existing environmental values for nature conservation that may be affected by the proposal.

Describe the environmental values of nature conservation significance for the affected area in terms of:

- integrity of ecological processes, including habitats of rare and threatened species or geographically restricted, locally endemic or scientifically significant species or populations;
- conservation of resources;
- biological diversity, including habitats of rare and threatened species or geographically restricted, locally endemic or scientifically significant species or populations;
- integrity of landscapes and places including wilderness and similar natural places; and
- aquatic, riparian, riverain, freshwater and terrestrial ecosystems.

A discussion should be presented on the nature conservation values of the areas likely to be affected by the proposal. The flora and fauna communities which are rare or threatened, environmentally sensitive localities including the marine environment, waterways, riparian zone, and littoral zone, rainforest remnants, old growth indigenous forests, wilderness and wildlife corridors should be described. The description should include a plant species list, a vegetation map at appropriate scale and an assessment of the significance of native vegetation, from a local and regional, state and national perspective. The description should indicate any areas of state or regional significance identified in an approved biodiversity planning assessment (BPA) produced by the EPA and the Wet Tropics Management Plan.

The EIS should identify issues relevant to sensitive areas, or areas, which may have, low resilience to environmental change. 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. The capacity of the environment to assimilate discharges/emissions should be assessed. Proposal proximity to any biologically sensitive areas should be described.

Reference should be made to both State and Commonwealth endangered species legislation and the proximity of the area to the Great Barrier Reef World Heritage and Wet Tropics Properties.

The Queensland *Vegetation Management Act 1999* and the findings of any regional vegetation management plan should also be referenced.

The occurrence of pest plants and animals in the project area should be described.

Key flora and fauna indicators should be identified for future ongoing monitoring. Surveys of flora and fauna need to be conducted throughout the year to reflect seasonal variation in communities and to identify migratory species.

The EPA should be consulted on the scope of any biological studies before they are undertaken.

4.7.1.1 Terrestrial flora

For terrestrial vegetation a current map at a suitable scale should be provided, with descriptions of the units mapped. Sensitive or important vegetation types should be highlighted, including any marine littoral and subtidal zone and riparian vegetation, and their value as habitat for fauna and conservation of specific rare floral and faunal assemblages or community types. The existence of rare or threatened species should be specifically addressed. The surveys should include species structure, assemblage, diversity and abundance. 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.

The existence of important local and regional weed species should be discussed. The removal and management (short and long-term) of weeds should be discussed.

Vegetation mapping should provide vegetation mapping for all relevant project sites including new transport infrastructure, port facilities and irrigation land if relevant. Adjacent areas may also require mapping.

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

- location and extent of vegetation types using the EPA's regional ecosystem type descriptions in accordance with The Conservation Status of Queensland's Bioregional Ecosystems. (Sattler P.S. & Williams R.D. 1997 2nd edition) and the current version of the EPA's listing of the conservation status of regional ecosystems (Regional Ecosystem Description Database [REDD]);
- location of vegetation types of conservation significance based on EPA's regional ecosystem types and occurrence of species listed as Protected Plants under the Nature Conservation (Wildlife) Regulation 1994 and subsequent amendments, as well as areas subject to the *Vegetation Management Act 1999*;
- the current extent (bioregional and catchment) of protected vegetation types of conservation significance within the protected area estate (National Parks, Conservation Parks, Resource Reserves, Nature Refuges);
- any plant communities of cultural, commercial or recreational significance should be identified; and
- location and abundance of any exotic or weed species.

Within each defined (standard system) vegetation community, a minimum of three sites (numbers should be discussed with the EPA) should be surveyed for plant species, preferably in both summer and winter, as follows:

- 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 relative abundance of plant species present should be recorded;

- any plant species of conservation, cultural, commercial or recreational significance should be identified; and
- specimens of species listed as Protected Plants under the Nature Conservation (Wildlife) Regulation 1994, other than common species, are to be submitted to the Queensland Herbarium for identification and entry into the HERBRECS database.

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

4.7.1.2 Terrestrial fauna

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, including amphibians, birds, reptiles, mammals and bats;
- particular reference to the southern cassowary, infrastructural requirements of the project and potential conflict with existing cassowary/wildlife movement corridors on and adjacent to the site. Opportunities for expansion of existing or discontinuous corridors to provide for wildlife movement, particularly associated with the golf course areas should be investigated;
- carefully consideration of edge effects and the provision of appropriate buffers to ameliorate adverse impacts on adjacent World heritage Areas and national parks;
- any species that are poorly known but suspected of being rare or threatened;
- habitat requirements (including access to water resources) and sensitivity to changes; including movement corridors and barriers to movement;
- the existence of feral or exotic animals;
- existence of any rare, threatened or otherwise noteworthy species/communities in the study area, including discussion of range, habitat, breeding, recruitment, feeding and movement requirements, and current level of protection (e.g. any requirements of Protected Area Management Plans); and
- use of the area by migratory birds, nomadic birds, fish and terrestrial fauna.

The EIS should indicate how well any affected communities are represented and protected elsewhere in the province where the site of the proposal occurs.

4.7.1.3 Aquatic biology

If no biota surveys/studies have previously been conducted in and downstream of the project area, 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/or associated freshwater and marine environments. 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/or those in any associated freshwater and marine environment;
- any rare or threatened marine species, particularly the dugong and its habitat;
- aquatic plants;
- aquatic and benthic substrate; and
- habitat downstream of the project or potentially impacted due to currents in associated freshwater and marine environments.

The EIS should ensure that fish migration requirements are addressed. Habitats upstream and downstream, outside the development are likely to need consideration.

4.7.2 Potential impacts and mitigation measures

This section defines and describes the objectives and practical measures for protecting or enhancing nature conservation values, describes how nominated quantitative standards and indicators may be achieved for nature conservation management, and how the achievement of the objectives will be monitored, audited and managed.

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

The discussion should cover all likely direct and indirect environmental harm due to the project on flora and fauna particularly sensitive areas as listed below. Terrestrial and aquatic (marine and freshwater) environments should also be covered. Also include human impacts and the control of any domestic animals introduced to the area.

Strategies for protecting the Wet Tropics World Heritage Area and the Great Barrier Reef Marine Park, and any rare or threatened species should be described, and any obligations imposed by State or Commonwealth legislation or policy or international treaty obligations (i.e. JAMBA, CAMBA) should be discussed. Emphasis should be given to potential environmental harm to benthic and intertidal communities, seagrass beds and mangroves.

Strategies for collecting and preserving any significant fossils should be described.

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. Mitigation measures and/or offsets should be proposed for adverse impacts. Any departure from no net loss of ecological values should be described.

Mitigation assessment should be addressed in terms of avoidance, redesign or relocation, onsite offsets and offsite offsets. Any mitigation outcomes should address those undertaken during construction and those that will occur post-construction. Rehabilitation of degraded areas should include tidal and freshwater habitats, as appropriate. The responsibility and commitment for post-construction mitigation measures need to be clearly defined.

The potential environmental harm on flora and fauna due to any alterations to the local surface and ground water environment should be discussed with specific reference to environmental impacts on riparian vegetation or other sensitive vegetation communities. Measures to mitigate the environmental harm to habitat or the inhibition of normal movement, propagation or feeding patterns, and change to food chains should be described.

The provision of buffer zones and movement corridors, and strategies to minimise environmental harm on migratory, nomadic and aquatic animals should be discussed.

Weed management strategies aimed at containing existing weed species (e.g. Siam weed and other declared plants) and ensuring no new declared plants or environmental weeds are introduced to the area are required, and feral and domestic 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 authorities pest management plan when determining control strategies. The strategies for both flora and fauna should be discussed in the main body of the EIS and provided in a working form in a Pest Management Plan as part of the overall EM Plan for the project.

Rehabilitation of disturbed areas should incorporate, where appropriate, provision of nest hollows and ground litter.

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

- important habitats of species listed under the *Nature Conservation Act 1992* and/or Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* 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 *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*;
- good representative examples of remnant regional ecosystems or regional ecosystems which are poorly represented in protected areas;
- sites listed under international treaties such as Ramsar wetlands and World Heritage areas;
- 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, 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 adjacent to nesting beaches, feeding, resting or calving areas of species of special interest; for example, marine turtles and cetaceans;
- sites containing common species which represent a distributional limit and are of scientific value or which contains feeding, breeding, resting areas for populations of 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); and/or
  - 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 lava tubes or karst;
- protected areas which have been proclaimed under the *Nature Conservation Act 1992* and *Marine Parks Act 1982* or are under consideration for proclamation; and/ or
- areas of major interest, or critical habitat declared under the *Nature Conservation Act 1992* or high nature conservation value areas or areas vulnerable to land degradation under the *Vegetation Management Act 1999*.

4.8 Cultural heritage

4.8.1 Description of environmental values

This section describes the existing cultural heritage values that may be affected by the proposal. Describe the environmental values of the cultural landscapes of the affected area in terms of the physical and cultural integrity of the landforms.

A cultural heritage study may be required. As a minimum, investigations and consultation should be undertaken in such a manner and detail as to satisfy statutory responsibilities and duties of care, including those under the *Queensland Heritage Act 1992*, the *Aboriginal Cultural Heritage Act 2003* and the *Commonwealth Aboriginal and Torres Strait Islander Heritage Protection Act 1984*. Any study undertaken must be conducted by an appropriately qualified cultural heritage practitioner, in the case of an Aboriginal cultural heritage survey by the appropriate Aboriginal Parties and should include the following:

- liaison with relevant Aboriginal community/communities concerning:

  - places of significance to that community (including archaeological sites, natural sites, story sites etc;
  - appropriate community involvement in field surveys;
- any requirements by communities and /or informants relating to confidentiality of site data must be highlighted. Non-indigenous communities may also have relevant information;
- a systematic survey of the proposed development area to locate and record Aborignal and non-indigenous cultural heritage places;
- significant assessment of any cultural heritage sites/places located;
- the impact of the proposed development on cultural heritage values;
- a report of work done which includes background research, relevant environmental data and methodology, as well as results of field surveys, significance assessment and recommendations; and
- a permit to conduct the research and survey will be required under the provisions of the *Aboriginal Cultural Heritage Act* 2003 and/or the *Queensland Heritage Act 1992*.

4.8.2 Potential impacts and mitigation measures

This section defines and describes the objectives and practical measures for protecting or enhancing cultural heritage environmental values, describes how nominated quantitative standards and indicators may be achieved for cultural heritage management, and how the achievement of the objectives will be monitored, audited and managed.

The environmental harm to cultural heritage values in the vicinity of the project should be managed under a cultural heritage management plan (CHMP) developed specifically for the project. The CHMP will provide a process for the management of cultural heritage places both identified and sub-surface at the project sites. It is usual practice for the CHMP to be based on information contained in archaeological and/or anthropological reports on the survey area, the Aboriginal Cultural Heritage Register and Aborignial Cultural Heritage Database, the results of the cultural heritage survey and/or information from Aboriginal Parties. The CHMP should address and include the following:

- a process for including traditional owners associated with the development areas in protection and management of Aboriginal cultural heritage;
- processes for mitigation, management and protection of identified cultural heritage places and material in the project areas, including associated infrastructure developments, both during the construction and ongoing activities associated with the development;
- provisions for the management of the accidental discovery of cultural material, including burials;
- the monitoring of foundation excavations and other associated earthwork activities for possible sub-surface cultural material;
- cultural awareness training or programs for project staff; and
- a conflict resolution process.

The development of the CHMP should be negotiated with the lead agency, the Department of Natural Resources and Mines, and all stakeholder representatives, and where there is a role or responsibility identified for the Environmental Protection Agency, such as managing the EIS process under the EP Act, it should be party to the discussions. The negotiations are subject to any confidentiality specified by indigenous communities and registered Native Title applicants. The CHMP will require the approval of the Chief Executive, DNRM under s107 of the *Aboriginal Cultural Heritage Act 2003*.

Any collection of artefact material as part of a mitigation strategy will need to be done under an approved CHMP as provided by the *Aboriginal Cultural Heritage Act 2003*. The DNRM Regional Cultural Heritage Coordinator (North Region) should be consulted for the provision of general advice including the appropriate conduct of cultural heritage surveys and the development of CHMPs.

4.9 Social

4.9.1 Description of environmental values

This section describes the existing social values that may be affected by the proposal and should also include future social benefits resulting from the project.

The social amenity and use of the proposal area and adjacent areas (e.g. Flying Fish Point and The Coconuts) for rural, agricultural, forestry, fishing, recreational, industrial, educational or residential purposes should be described. Consideration should be given to:

- community infrastructure and services, access and mobility;
- population and demographics of the affected community;
- local community values, vitality and lifestyles;
- where staff will reside during construction and operation and whether additional residential pressure will be placed on the local urban area.
- recreational, cultural, leisure and sporting facilities and activities in relation to the affected area;
- health and educational facilities;
- on farm activities near the proposed activities;
- transportation of agricultural produce and machinery within the current road system;
- current property values;
- number of properties directly affected by the project; and
- number of families directly affected by the project, this should include not only property owners but also families of workers either living on the property or workers where the property is their primary employment.

Describe the social values for the affected area in terms of:

- the integrity of social conditions, including amenity and liveability, harmony and well being, sense of community, access to recreation, and access to social and community services and infrastructure; and
- public health and safety.

Social, economic and cultural values are not as easily separated as physical and ecological values. Therefore it may be necessary for some material in this section to be cross-referenced with sections 3.2 Construction, 3.5.1 Transport, 4.1.1.8 Visual Amenity, 4.1.2.7 Transport, 4.6 Noise and Vibration, 4.8 Cultural Heritage, 4.10 Health and Safety, and Section 4.11 Economy.

4.9.2 Potential impacts and mitigation measures

This section defines and describes the objectives and practical measures for protecting or enhancing social values, describes 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.

The social impact assessment of the project should consider the information gathered in the community consultation program and the analysis of the existing socio-economic environment, and describe the project's impact, both beneficial and adverse, on the local community. The impacts of the project on local and regional residents, community services and recreational activities are to be analysed and discussed for all stages of the development. The nature and extent of the community consultation program are to be described and a summary of the results incorporated in the EIS.

The social impact assessment of the project is to be carried out by a qualified professional in consultation with the Department of Communities. The assessment of impacts should describe the likely response of affected communities and identify possible beneficial and adverse impacts (both immediate and cumulative). These impacts should be considered both at the regional and local level.

Attention should be paid to:

- impacts on demographic, social, cultural and economic profiles;
- impacts on local residents, current land uses and existing lifestyles and enterprises;
- impacts on local and state labour markets, with regard to the source of the workforce (and assumptions made). This information is to be presented according to occupational groupings of the workforce.
- a baseline analysis of the existing housing market with emphasis on; the size of the private rental market in the area (including boarding houses, caravan parks, backpacker hostels, hotel and motel accommodation), vacancy rate of rental accommodation (including assessment of seasonal fluctuations, median rents for the area, the availability and median cost of housing for purchase in the area, the level of social housing in the area (including rental housing administered by community housing organisations and public housing, and constraints and opportunities for new housing construction in the area (including) the capacity of the local land development and housing construction industries to provide new housing). (The Department of Housing can supply relevant information on the housing market.)
- impacts of both construction and operational workforces and associated contractors on housing demand, community services and community cohesion is to be addressed. The capability of the existing housing stock, including rental accommodation, to meet any additional demands created by the project is to be discussed. Impacts on the housing sector should include; impacts on housing prices and rent as well as any deterioration in housing affordability by low-income groups including temporary workers, cumulative impacts on the local and regional housing market due to the presence of other existing or proposed major projects in the area, as well as cumulative impacts due to seasonal employment factors, and impact of the construction phase of the proposal on the local and regional residential development and housing construction industry.
- development of an accommodation management strategy, where necessary, in consultation with the Department of Housing;
- comment should be made on how much service revenue and work from the project (e.g. provisioning, catering and site maintenance) would be likely to flow to existing communities in the area of the project;
- impacts on local residents' values and aspirations; and
- in regard to affected indigenous and non-indigenous communities respectively, particular attention should be paid to the effects on:
  - the ability of both indigenous and non-indigenous people, to live in accordance with their own values and priorities;
  - the use of and access to culturally important areas and landscapes;
  - the access to existing human and commercial services and housing;
  - the ability to participate in regional and local employment and training opportunities; and
  - the new project workforce and their families.
- impacts on existing key services and facilities required by the construction workforce, the operational workforce, residents and tourists.

The effects of the proposal on local and regional residents, including land acquisition and relocation issues and property valuation and marketability, community services and recreational activities should be described for the construction and operations phases of the development.

The potential environmental harm on the amenity of adjacent areas used for cropping, grazing, forestry, recreation, industry, education, aesthetics, or scientific or residential purposes should be discussed. The implications of the proposal for future developments in the local area including constraints on surrounding land uses should be described.

The educational impacts of the proposed development, is to be analysed and described, particularly in regard to:

- primary, secondary and tertiary educational sectors;
- improved appreciation of conservation areas; and
- environmental education for the general public.

For identified impacts to social values, suggest mitigation and enhancement strategies and facilitate initial negotiations towards acceptance of these strategies. Practical monitoring regimes should also be recommended.

4.10 Health and safety

4.10.1 Description of environmental values

This section describes the existing community values for public health and safety that may be affected by the proposal. For projects proposing air emissions, and/or those with the potential to emit odours, nearby and other potentially affected populations should be identified and described. Particular attention should be paid to those sections of the population, such as children and the elderly, who are especially sensitive to environmental health factors.

Consideration must also be given to health and safety aspects of erosion control structures and water storages or other structures that may impact on public health and safety especially for children in and near waterways and drainage infrastructure.

4.10.2 Potential impacts and mitigation measures

This section defines and describes the objectives and practical measures for protecting or enhancing health and safety community values, describes 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.

The EIS should assess the effects on the project workforce of occupational health and safety risks and the impacts on the community in terms of health, safety, and quality of life from project operations and emissions. Any impacts on the health and safety of the community, workforce, suppliers and other stakeholders should be detailed in terms of health, safety, quality of life from factors such as air emissions, odour, dust and noise.

Map(s) should be provided showing the locations of sensitive receptors, such as, but not limited to, kindergartens, schools, hospitals, aged care facilities, residential areas, and centres of work (e.g. office buildings, factories and workshops). The EIS, illustrated by the maps, should discuss how planned discharges from the project could impact on public health in the short and long term, and should include an assessment of the cumulative impacts on public health values caused by the proposal, either in isolation or by combination with other known existing or planned sources of contamination.

The EIS should address the project's potential for providing disease vectors. Measures to control mosquito and biting midge breeding should be described. Any use of recycled water should be assessed for its potential to cause infection by the transmission of bacteria and/or viruses by contact, dispersion of aerosols, and ingestion (e.g. via use on food crops). Similarly, the use of recycled water should be assessed for its potential to cause harm to health via the food chain due to contaminants such as heavy metals and persistent organic chemicals.

Any health or safety issues associated with the feral pigs that frequent the site should be assessed, e.g. attacks, disease.

Practical monitoring regimes should also be recommended in this section.

4.11 Economy

4.11.1 Description of environmental values

This section describes the existing economic environment that may be affected by the proposal. The character and basis of the local and regional economies should be described including:

- existing housing market, particularly rental accommodation which may be available for the project workforce;
- economic viability (including economic base and economic activity, future economic opportunities, current local and regional economic trends, in particular drought and rural downturn etc); and
- historical descriptions of large-scale resource developments and their effects in the region.

The economic impact statement should include estimates of the opportunity cost of the project and the value of ecosystem services provided by natural or modified ecosystems to be disturbed or removed during development.

4.11.2 Potential impacts and mitigation measures

The function of this section is to define and describe the objectives and practical measures for protecting or enhancing economic values, to describe how nominated quantitative standards and indicators may be achieved for economic management, and how the achievement of the objectives will be monitored, audited and managed.

The effect on local and State labour markets should be discussed with regard to the source of the workforce. This information should be presented according to occupational groupings of the workforce. In relation to the source of the workforce, clarification is required as to whether the proponent, or contractors, are likely to employ locally or through other means and whether there are initiatives for local employment opportunities. The impacts of both construction and operational workforces and associated contractors on housing demand should be addressed. The capability of the existing housing stock, particularly rental accommodation, to meet any additional demands created by the project should be discussed.

Any new skills and training to be introduced in relation to the project should be identified. Adequate provision should be made for apprenticeship and worker training schemes. If possible, the occupational skill groups required and potential skill shortages anticipated should be indicated.

An economic analysis, including a cost-benefit analysis, should be presented from national, state, regional and local perspectives as appropriate to the scale of the project. The general economic benefits from the project should be described.

At a level of detail appropriate to the scale of the project, the analysis is to consider:

- the significance of this proposal on the local and regional economic context;
- the long and short-term beneficial (eg. job creation) and adverse (eg. competition with local small business) impacts that are likely to result from the development;
- the potential, if any, for direct equity investment in the project by local businesses or communities;
- the cost to all levels of government of any additional infrastructure provision;
- implications for future development in the locality (including constraints on surrounding land uses and existing industry);
- the distributional effects of the proposal including proposals to mitigate any negative impact on disadvantaged groups;
- the value of lost opportunities or gained opportunities for other economic activities anticipated in the future; and
- impacts on local property values.

Consideration of the impacts of the project in relation to energy self-sufficiency, security of supply and balance of payments benefits may be discussed. Attention should be directed to the long and short-term

effects of the project on the land-use of the surrounding area and existing industries, regional income and employment and the state economy. The scope of any studies should be referred to the government for input before undertaking the studies.

For identified impacts to economic values, suggest mitigatory and enhancement strategies and facilitate initial negotiations towards acceptance of these strategies. Practical monitoring regimes should also be recommended.

4.12 Hazard and risk

4.12.1 Description of environmental values

This section describes the potential hazards and risk that may be associated with the proposal.

Detail the environmental values likely to be affected by any hazardous materials and actions incorporated in the proposal. The degree and sensitivity of risk should be detailed.

An analysis is to be conducted into the potential impacts of both natural and induced emergency situations and counter disaster and rescue procedures as a result of the proposal on sensitive areas and resources such as forests, water reserves, State and local Government controlled roads, places of residence and work, and recreational areas.

4.12.2 Potential impacts and mitigation measures

This section defines and describes the objectives and practical measures for protecting people and places from hazards and risk, describes how nominated quantitative standards and indicators may be achieved for hazard and risk management, and how the achievement of the objectives will be monitored, audited and managed.

The proponent should develop an integrated risk management plan for the whole of the life of the project including construction and operation phases.

Identify any dangerous goods to be stored and /or handled at the resort and that such storage and/or handling will comply with the *Dangerous Goods Safety Management Act 2001* and accompanying regulation.

Describe the possible risks of a single access road (entrance and exit) for the proposed development, e.g. access by emergency vehicles if the road is blocked as a result of a natural disaster.

State Planning Policy 1/03, *Mitigating the adverse impacts of flood, bushfire and landslide*, should be addressed.

4.13 Cross-reference with the terms of reference

This section provides a cross reference of the findings of the relevant sections of the EIS, where the potential impacts and mitigation measures associated with the project are described, with the corresponding sections of the TOR.

5 Environmental management plan

The environmental management plan (EM Plan) should be developed from the mitigation measures detailed in part 4 of the EIS. Its purpose is to set out the proponents' commitments to environmental management. That is, how environmental values will be protected and enhanced.

The EM Plan is an integral part of the EIS, but should be capable of being read as a stand-alone document without reference to other parts of the EIS. The general contents of the EM Plan should comprise:

- the mechanisms for implementation of the EM Plan in association with the various phases of the development (construction etc) and the associated staging of the development of the timing of the staging, and ongoing management once the development is completed;
- the proponents' commitments to acceptable levels of environmental performance, including environmental objectives, i.e. levels of expected environmental harm, 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; and
- the means by which the above arrangements and commitments will have permanent and binding carriage (e.g. through covenants under the *Land Titles Act 1995*) after development of the property.

A complaints mechanism should be established as part of the EM Plan to address community issues. A complaints register could log details of all complaints received and action taken.

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

For further information, see the EPA guideline *Preparing environmental management plans*.

Arrangements should be in place to support the "best practice environmental management and design" components of the project so that there are no impacts on environmental protection measures should the property market fail to meet expectations.

6 Proponent's environmental record

Pursuant to the *State Development and Public Works Organisation Regulation 1999*, P3 needs to provide details of any Australian proceedings relating to an environmental law against it. Information regarding any applicants for permits under an environmental law for the project must be supplied by P3. Furthermore, details of P3's environmental policy and planning framework must be incorporated into the EIS.

7 References

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

8 Recommended appendices

A1. Final terms of reference for this EIS

A copy of the final TOR should be included in the EIS. Where it is intended to bind appendices in a separate volume from the main body of the EIS, the TOR at least should be bound with the main body of the EIS for ease of cross-referencing. A summary, cross-referencing specific items of the TOR to the relevant section of the EIS, should also be provided in Section 4.13 of the EIS. For this purpose the TOR should be line numbered.

A2. Development approvals

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

A3. Study team

The qualifications and experience of the study team and specialist sub-consultants and expert reviewers should be provided.

A4. The standard criteria

A brief summary of the proposal's compatibility with ESD policy and other relevant policy instruments such as the standard criteria as defined by the *Environmental Protection Act* (Qld) should be presented. Consideration should focus on The National Strategy for Ecologically Sustainable Development, published by the Commonwealth Government in December 1992 (available from the Australian Government Publishing Service). Each principle should be discussed and conclusions drawn as to how the proposal conforms. A life-of-project perspective should be shown.

A5. Consultation Report

The summary Consultation Report appendix for an EIS should commence by including the details of affected and interested persons, and the statement of planned consultation with those persons, originally provided with the draft terms of reference. It should describe how 'interested' and 'affected persons,' and any 'affected parties' as defined in the EPBC Act, were identified.

A further list should be provided that includes the Commonwealth, state and local government agencies consulted, and the individuals and groups of stakeholders consulted.

The Consultation Report appendix should summarise the results of the community consultation program, providing a summary of the groups and individuals consulted, the issues raised, and the means by which the issues were addressed. The discussion should include the methodology used in the community consultation program including criteria for identifying stakeholders and the communication methods used.

The Department of Communities is able to provide advice on community engagement principles, frameworks and processes. There are a number of Departmental publications which can be used to inform the development and implementation of appropriate methodologies in any community engagement process. Community engagement guides and resources can ba found on the department of Communities website: www.communities.qld.gov.au or www.getinvolved.qld.gov.au. Officers at the Department of Communities, Far North Queensland Region, are able to provide advice regarding appropriate community engagement strategies.

A6. Specialist studies

All reports generated on specialist studies undertaken as part of the EIS are to be included as appendices. These may include:

- geology;
- soil survey and land suitability studies;
- waterway hydrology;
- groundwater;

- flora and fauna studies;
- economic studies, CBA;
- social environment studies;
- hazard and risk studies;
- flood studies; and sediment studies.

A7. Research

Any proposals for researching alternative environmental management strategies or for obtaining any further necessary be outlined in an appendix.