



PART B – Guidelines

GUIDELINES FOR PREPARATION OF AN ENVIRONMENTAL IMPACT STATEMENT ON THE PROPOSED DARWIN CITY WATERFRONT REDEVELOPMENT AT THE DARWIN WHARF

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The Draft Environmental Impact Statement (EIS) should include the following sections but need not be limited to these sections or inferred structure.

1 EXECUTIVE SUMMARY

The executive summary should provide a brief outline of the project proposal and a summary of each chapter within the draft EIS. It should be written as a stand-alone document, providing the reader with a clear understanding of the proposed project, its environmental implications and management objectives, and should be able to be reproduced on request for interested parties not wishing to read or purchase the draft EIS in its entirety.

The summary should be a concise outline of the matters discussed in the main body of the document and should include:

- the title of the project;
- the name and contact details of the proponent;
- a concise statement of the aims and objectives of the project;
- a discussion of the background to and need for the project, including the consequences of not proceeding with the project;
- a description of the economic and other benefits that might arise from the proposal;
- a brief explanation of the structure and scope of the EIS and its legislative basis (including identification of decision-making authorities and other relevant advisory agencies);
- a discussion of the alternative options considered and reasons for the selection of the proposed development option;
- description of similar projects undertaken by the proponent elsewhere, demonstrating its commitment to effective environmental management;
- a brief description of the project and the existing environment, using visual aids where appropriate;
- an outline of the principal environmental impacts (both adverse and beneficial) and environmental management and innovations to overcome or minimise deleterious impacts and enhance beneficial impacts;
- an outline of proposed monitoring and reporting procedures; and
- a description of the studies, surveys and consultations done in developing the proposal and preparing the Draft EIS. (Results of studies, surveys and detailed consultations should be included as appendices).

2 INTRODUCTION

The introduction should include:

- a brief explanation of the purpose and structure of the Draft EIS;
- the title of the project;
- the net benefit (after consideration of the physical, biological, built, cultural, and socio-economic environments);
- the name and contact details of the proponent;
- proof of lease and other authorisations;
- the scope and objectives of the proposed project;
- an outline of the NT environmental assessment processes;
- reference to initial consultations, investigations, and feasibility studies done to develop the proposal and prepare the Draft EIS;
- reference to Territory, Commonwealth and International policies, legislation, and treaties relevant to the project; and
- reference to planning issues such as land tenure, zoning, timeframes, potential for additional development and the lifespan of the project.

3 OBJECTIVES AND BENEFITS OF THE PROPOSED PROJECT

This section of the Draft EIS should provide a comprehensive explanation of the objectives, benefits and justification for the project. It should identify and discuss socio-economic objectives and benefits, including:

- reference to local, regional and global interests and other economic activities in the affected area (e.g. tourism, hospitality, retail business, etc.);
- benefit to the local workforce, land users and indigenous people (e.g. training and employment); and
- commercial objectives.

The EIS should provide a brief discussion, in the context of other, similar ventures operating within Australia and the Asia-Pacific region, of factors that support the proponent's prediction that the Waterfront redevelopment will be a successful venture. An indication of the demand/niche market for a Convention and Exhibition Centre (CEC) in the Northern Territory, specifically Darwin, should be included.

The Draft EIS should also identify local, regional and global environmental objectives (e.g. reference to the proponent's environmental policies and the implications of the project with respect to the relevant NT Government Acts, *Environment Protection and Biodiversity Conservation Act 1999*, National standards and guidelines, and National Greenhouse Strategy).

Additionally, the EIS should identify how the project might complement the objectives of, and act in conjunction with, other strategies, plans and regional advisory bodies (e.g. Marine and Coastal Management Policy, Darwin Harbour Regional Plan of Management, Darwin Harbour Dredging Management Strategy).

4 ALTERNATIVES

Alternative proposals, which may still allow the objectives of the project to be met, should be discussed, detailing reasons for the selection and rejection of particular options. The selection criteria should be discussed and the short-, medium- and long-term advantages and disadvantages of preferred options and alternatives detailed. The potential beneficial and adverse impacts of the preferred and alternative options should also be described.

Alternatives to be discussed should include:

- not proceeding with the project;
- alternative locations/layouts for components of the proposal within the site (e.g. to minimise requirements for relocation or removal of heritage listed or important cultural and historical sites);
- alternative locations for components of the site (e.g. the possible future site for the Convention and Exhibition Centre);
- alternative uses for the development site; and
- alternative environmental management techniques.

5 PROJECT DESCRIPTION

This section should describe, where possible, the proposed project in sufficient detail to allow the reader to understand what final land uses may be present within the Waterfront area and determine the potential and anticipated environmental impacts from the project, particularly the preparatory phase. Details of site land uses and development components will not be known until the master plan is produced. However, the likely and preferred components of the Waterfront site have been identified in the Concept Plan and Expressions of Interest documents. An outline of these will allow determination of the expected site preparation standards and potential impacts of the project.

Any headworks to be provided by the Territory Government should be described (e.g. land, decontamination, access, services).

The proponent should provide evidence of its environmental performance in other projects of this magnitude.

Key decision-making processes (such as risk assessment) should be detailed. Relevant Northern Territory and Australian Government legislation, strategies and policies as well as international and national standards should be considered where appropriate. Relevant NT Government environmental and construction guidelines should also be considered during the design phase of the project.

Maps, figures and diagrams should support technical information. Detailed technical information should be included as appendices. Tables may be an appropriate means of summarising key characteristics of the project (described in the body of the Draft EIS), describing phases of the proposal and identifying those components and activities with potential for environmental impacts.

The project description should include information identified in Sections 5.1 to 5.4 below, as a minimum, for all aspects and components of the project.

5.1 Location Details

- Provide a description of the project's location, with particular reference to the Darwin CBD, Port Darwin, Darwin airport and regional coastal features.
- Provide maps and diagrams displaying the above information.
- Provide maps showing the project in relation to current economic, recreational, and indigenous uses of the area (e.g. commercial and recreational fishing, tourism, conservation, navy facilities, etc) and places of cultural significance.
- Provide maps showing the project with respect to catchment location, watersheds and all watercourses including any stormwater sources from the existing CBD.
- Provide a map indicating the Q100 flood levels.
- Provide maps detailing the land units and fine-scale vegetation types in the area.

5.2 Major Components of the Proposal

In this section, the Draft EIS should identify the proposed major components of the development to provide a platform on which the EIS can be based. Some of the likely or preferred components might include the Convention and Exhibition Centre, passive and active open space, foreshore and marina development, swimming feature/s, and medium and high density residential developments.

5.3 Layout of Major Components

This section should illustrate, if possible, the approximate, and/or preferred, locations of major components (indicated in Section 5.2 above) at the development site and include easy-to-read maps and diagrams.

5.4 Preparation Phase

This section should outline (where possible) the major engineering works to be done during the site-preparation and preliminary construction phase (e.g. demolition of existing structures, remedial works on contaminated lands, clearing of vegetation, construction of access roads, etc.) including any surveys undertaken. Relevant plans photos and maps should be included to assist with interpretation. Detailed descriptions of environmental impacts, relevant remedial actions and management and monitoring strategies for particular preparatory and construction activities should be included in Sections 7 and 8 of this document. These factors should be included in the draft Environmental Management Plan produced in conjunction with the EIS.

The text in this section of the Draft EIS should discuss details relating to the following components (Sections 5.4.1 – 5.4.5).

5.4.1 Infrastructure

Where possible:

- Provide a time-line for all site preparation and preliminary construction activities, and outline the timing of the various stages of the project; and
- Identify materials required for site preparation and their source.

5.4.2 Temporary facilities required during site preparation

Identify and briefly describe temporary construction facilities such as batch plant, bulk materials lay-down yard, portable toilets and waste water utilities.

5.4.3 Workforce

If possible, if staffing will include an Environmental Officer, describe that officer's responsibilities.

5.4.4 Occupational health and safety, and emergency response details

Provide information on the following:

- induction details (including environmental management, avoidance of mosquito-borne disease and discovery of UXOs);
- contamination prevention and protection responsibilities;
- UXO hazard and contamination response plans;
- fire and emergency services planning;
- management structure responsibilities; and
- communication structure and processes.

6 EXISTING ENVIRONMENT

6.1 Preliminary

The Draft EIS should include an in-depth description of the areas and values potentially or expected to be impacted by the project.

Seasonal and diurnal meteorological changes and any significant trends (e.g. flood, cyclone frequency) should be indicated where appropriate. Areas of environmental sensitivity should be identified and the scope of investigations fully discussed. Where areas of environmental sensitivity have been identified, any inter-relationship between sensitive areas and other areas should be discussed. Sites and species of special conservation status should be identified and described (e.g. endangered, protected or migratory species; areas or artefacts with significant environmental and conservation values to indigenous people; significant historical sites or structures).

Studies to describe the existing environment should be of a scope and standard sufficient to serve as a benchmark against which the impacts of the project may be assessed over an extended period. Control areas not impacted by the project should be included in proposed studies, and long-term monitoring locations should be established. Where possible, data from existing studies should be obtained and the proponent is encouraged to become involved in any existing or impending integrated monitoring strategies or programs in Darwin Harbour.

All data (including raw data, derived data and results from analysis) to be provided to the Office of Environment and Heritage should be in digital format. Reports from monitoring required by the Office of Environment and Heritage must be submitted at an appropriate frequency and timing.

6.2 Land Administration Issues

This section should indicate and describe the following aspects of the land to be developed:

- size (area of total project and area of land disturbance including the Kitchener Bay area and wharves);
- tenure;
- zoning and current uses;
- proposed land use, tenure and zoning of the adjacent land and sea, including easements, reserves, leases and conservation areas;
- claims under the *Native Title Act, 1993* and the *Aboriginal Land Rights (Northern Territory) Act 1976*;
- Aboriginal Areas Protection Authority Certificates issued or required under the *NT Aboriginal Sacred Sites Act*;
- acquisition requirements; and
- access requirements.

The proponent needs to obtain an Authority Certificate to be “protected” with regard to potential for disturbance to Aboriginal Sacred Sites.

6.3 *Physical Environment*

6.3.1 Topography, geology, and soils

- Provide maps of and interpret the site and regional topography (including near-shore bathymetry).
- Provide maps of and interpret the site and regional geology.
- Provide maps of and interpret the site and regional geomorphology, including that of the coastline adjacent to the redevelopment area.
- Discuss the soil types and land unit(s), including the major marine substrate types.
- Provide information on the nature of the shoreline of the redevelopment area.
- Indicate the location and extent of actual acid sulfate soils (AASS) and potential acid sulfate soils (PASS), with illustrative 3D maps of soils to be disturbed if known (note: any soil disturbance in mangrove zones or adjacent mud flats will require management to prevent generation of acid).
- Detail the existing level of soil erosion and other disturbances.
- Detail the ambient marine sediment and terrestrial soil quality.

6.3.2 Meteorology, air quality and noise

Describe seasonal and diurnal meteorology, including but not limited to:

- prevailing wind directions and strengths;
- maximum wind gusts;
- precipitation (maxima, minima, average);
- temperature (maxima, minima, average);
- evaporation;
- relative humidity;
- frequency and strength of cyclones;
- frequency and magnitude of storm surge; and
- frequency and extent of flooding.

Describe ambient air quality and noise levels for the area and development site.

6.3.3 Oceanography, hydrodynamics and marine water quality

For the seaward margin of the development area, describe local and regional tides and current patterns.

Describe the existing temporal and local variations in turbidity.

Describe existing contaminant issues.

6.3.4 Hydrology and hydrogeology

Using the best information currently available, provide a general description of the surface water systems on-site and adjacent to the development area (to a distance reflecting potential impacts from, or to, the development) including stormwater systems, natural and artificial drainage lines, and the directions of overland flows.

Describe the existing ground water systems in and adjacent to the development area.

6.4 Biological Environment

This section should describe terrestrial and aquatic flora and fauna species, communities and habitats of local, regional or national significance that may comprise constraints to the project. In particular, information should be provided on mangrove or terrestrial vegetation likely to be disturbed, including a map at an appropriate scale showing floral communities to be cleared. An initial weed assessment should also be undertaken.

If the proponent will be making biological collections (as part of required environmental surveys), the proponent must obtain a Scientific Permit to Collect (from the Conservation and Natural Resources Group of the Department of Infrastructure, Planning and Environment [DIPE]). This Permit sets out standards for collection, recording, storage and provision of data to DIPE. A section 17 Fisheries permit may also be required for biological collections below low water.

Sites and species of special conservation status should be identified and described, e.g. endangered, protected or migratory species; and species of environmental and conservation value to indigenous people. Where relevant, reference should be made to current legislation, including the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* and the *Territory Parks and Wildlife Conservation Act 2001*.

6.4.1 Terrestrial and aquatic (freshwater) biota

6.4.1.1 Flora

Describe vegetation communities within and adjacent to the development footprint, including:

- a broad overview of the dominant vegetation communities;
- biodiversity (number of genera and species, and evenness);
- size of the survey area;
- floristic zones (from the seaward edge inland); and
- weeds.

For each vegetation community, indicate:

- prevalence;
- conservation status (e.g. rare, endangered, vulnerable, etc., and with reference to which listing); and
- whether native or introduced.

A table or list of all species, including conservation status, should be included in an appendix that also lists “declared weeds.” Relate the vegetation of the project area to the existing mapping of remnant vegetation in the Darwin area.

6.4.1.2 *Fauna*

For each major terrestrial and aquatic habitat within and adjacent to the development area, describe the resident and migratory species, including:

- prevalence;
- conservation status;
- international treaty obligations;
- preferred habitats (e.g. for feeding, breeding, roosting, etc.);
- whether native or introduced;
- hazardous nature and pest status; and
- social significance.

Indicate/describe the size of the survey area and number of species for major groups (e.g. amphibians, reptiles, birds, mammals and aquatic fauna).

Specifically, assess the status of insectivorous bat colonies that have been reported to occur in and near the project area (number of individuals, species composition, maternity or seasonal use of sites, population size relative to other colonies in the Darwin region).

The proponent should describe protocols for discovery and reporting (to DIPE) of endangered or other significant species encountered during the preparation and construction phases of the project.

Indicate the range and density of mosquitos and biting midges:

- A brief baseline study is recommended, including trapping over a three-night period around the time of a full moon during the August to November period.
- Ground surveys should be conducted to locate actual and potential mosquito breeding sites.
- The Medical Entomology Branch should be the consultant to advise on indicators to be measured and other methodological details.

Indicate other invertebrate pests and harmful bacteria that may occur in the area.

In an appendix, include a list or table of all faunal species, indicating conservation status.

6.4.2 Marine/estuarine biota (flora and fauna)

Provide an overview of the major marine/estuarine habitats within and adjacent to the development site, including:

- rocky shoreline;
- muddy tidal flats;
- sandy beach;
- mangrove forests;
- upper intertidal/supratidal salt marshes;
- sponge/Coral/algal assemblages; and
- seagrass beds.

For each marine/estuarine habitat, provide a general description of resident and migratory species, including (for key or significant species):

- prevalence (within the development area and relative to other areas in the region);
- conservation status;
- international treaty obligations;
- preferred habitats (e.g. breeding, feeding, roosting);
- whether native or introduced;
- hazardous nature and pest status; and
- social significance.

The key groups of biota to consider include:

- seagrasses;
- corals;
- fish;
- shorebirds;
- marine/estuarine reptiles (e.g. turtles, crocodiles and snakes); and
- marine mammals (dugong and dolphins).

Because of their usefulness as indicators of environmental impact in soft-sediment environments (mudflats, mangroves, salt marshes), a general description of assemblages of fauna such as crustaceans (crabs, prawns), molluscs (marine snails, bivalves), polychaete worms and other benthic infauna and encrusting organisms should be included. This information may be obtained from existing studies, or, if data is not available, the proponent is encouraged to investigate cooperative integrated monitoring programs that may potentially study benthic parameters throughout Darwin Harbour in the near future.

Indicate the size of the survey area for the major groups above.

6.5 *Built Environment*

6.5.1 Contaminated land

Describe the location, extent, type and concentration of contaminants within, and adjacent to, the Waterfront redevelopment site, including the marine environment, groundwater, fill material and terrigenous soil. Technical information including assessment results and maps should be provided in an Appendix.

6.5.2 Unexploded Ordnances (UXOs)

Provide details of the probability of UXO occurrence within all key investigation areas of the Waterfront redevelopment site, including the nature and probable locations.

6.5.3 Roads and public transport network

Describe the existing road network, both within and adjacent to the Waterfront site. Include details on traffic volumes and historical trends on key adjacent intersections, and provide information on any existing proposals for improvements to the adjacent road network.

Discuss the existing and proposed parking supply and demand and the public transport service network including any existing water transport services (e.g. Ferries), within the Waterfront vicinity. Assess the capability of the existing system to meet future demands.

6.5.4 Existing structures, buildings and infrastructure

Provide details on existing buildings (e.g. warehouses, sheds) and other structures, above and below ground (e.g. Bitumen plant, wharves, pipelines, storage tanks, septic tanks, water supply and sewerage), that are or may be present on the Waterfront redevelopment site, and detail the intended purpose for these buildings and structures (ie. demolished, removed, retained/maintained).

6.6 Cultural Environment

This section should describe the anthropological, archaeological and heritage values of the development area, including sites/objects of Aboriginal significance.

As a minimum, information should be provided on the following:

- Historical uses of the site (Aboriginal and non-aboriginal) including a review of prehistoric Aboriginal occupation.
- Descriptions of the cultural values¹ that could be impacted by the project should include:
 - areas nominated for listing or listed on the Register of the National Estate or the Interim list of the Register of the National Estate;
 - nominated, proposed and declared heritage places and objects under the *Northern Territory Heritage Conservation Act 1991*;
 - prescribed archaeological and heritage places and objects (Aboriginal and Macassan) under the *Northern Territory Heritage Conservation Act 1991*;
 - historic sites;
 - marine archaeological places and objects (e.g. Gulnare Wharf site, the Warrego);
 - areas with special values to indigenous and non-indigenous people (e.g. traditional land use, landscape, visual environment, recreational, commercial, tourism, scientific and educational); and
 - areas of significance to the Aboriginal population and culture, including sacred sites within the meaning of the *Aboriginal Land Rights Act* and the *NT Aboriginal Sacred Sites Act*.
- For each of these cultural values, indicate:
 - importance/significance relative to other features in the proposed development and at a local, Territory and national level;
 - conservation status;
 - national and international treaty obligations; and
 - clearance permits required or obtained.

¹ The term cultural value should incorporate the terms “cultural significance” as provided in the Burra Charter and “heritage value” as defined in the *NT Heritage Conservation Act*.

- The methodology by which these sites and areas were identified, and their importance assessed, should include survey details such as dates, consultants, survey area and methods.
- This section of the Draft EIS should also include:
 - results of the inspection of the Register of Sacred Sites maintained by the Aboriginal Areas Protection Authority;
 - details of the application lodged with the Aboriginal Areas Protection Authority for an Authority Certificate within the meaning of Part 3, Division 1 of the *Northern Territory Aboriginal Sacred Sites Act*; and
 - a copy of the Certificate issued by the Authority as a result of that application containing conditions (if any) relating to the protection of sacred sites on, or in the vicinity of, the project area.

6.7 Socio-economic Environment

Describe the users of the Darwin metropolitan area, in particular those external to the waterfront and CBD area, that could be directly or indirectly impacted by the project, including but not limited to:

- commercial/retail business;
- recreation (e.g. diving, tourism, boating);
- hospitality (hotel/motel);
- research and education (e.g. surveys of biota and habitats by the NT or Australian Governments or universities); and
- defence and quarantine.

For the above categories and any others identified, the proponent should discuss the associated employment, and social and economic value, of these uses.

List any pre-existing obligations or constraints associated with current uses and businesses in or around the site (e.g. defence facilities and operations).

Describe the socio-economic characteristics of the region (including a prediction of trends over the expected operational life of the project), using tables and figures to summarise patterns.

Describe the following infrastructure and services available within and adjacent to the development area:

- vehicle parking; and
- transport network and usage (roads, bike paths, boat ramps, Darwin Airport and navigable waterways).

6.8 *Systems and Habitats*

Projects may have environmental impacts the significance of which relates to the way a number of different values or processes interact or inter-relate (e.g. impacts on a significant wetland included in wildlife tours or impacts from clearing vegetation on biota, soil erosion, acid generation, use of current site facilities by businesses external to the site).

This section of the Draft EIS should identify the significant inter-relationships between areas and values described previously for the physical, biological, cultural and socio-economic environments and indicate (where appropriate) their:

- importance (including national and international treaty obligations);
- dependencies;
- sensitivities and vulnerabilities; and
- uniqueness.

7 POTENTIAL AND ANTICIPATED ENVIRONMENTAL IMPACTS

The potential and anticipated impacts of the proposal on the existing environment should be discussed, where possible, for all relevant stages of the project (including contaminant remediation, preparation, construction, operation, incidents and accidents). Performance indicators for all potential impacts should be identified. The nature of effects should be characterised by the following qualities:

- direct/indirect
- short-term/ medium-term/ long-term
- adverse/beneficial.

This section should also include an assessment of the level of significance of the impact, be it global, regional or local (e.g. global and national implications of greenhouse gases).

The vulnerability of key habitats and species to potential impacts should be assessed, as should visual impacts of the proposed development. Cumulative impacts should also be discussed. The reliability and validity of forecasts and predictions, confidence limits and margins of error should be indicated where appropriate.

Description of those areas potentially impacted by the project should, as a minimum, include the particular details identified in Sections 7.1 – 7.7 below.

7.1 *Physical Environment*

Describe how the project will or might impact the quality of land, water (marine and freshwater) and air during the construction and operational phases. Indicate the risk and seriousness of each potential and anticipated impact.

Discuss the potential and anticipated impacts on soils and marine sediments in and adjacent to the development area. As a minimum requirement, the discussion should include impacts derived from the following activities and processes:

- erosion;
- contamination;
- acid sulfate formation;
- drilling and excavation; and
- dredging and reclamation (including bund construction).

In relation to dredging and reclamation works:

- Describe the method of dredging that would be employed in Kitchener Bay and its affects on the immediate and surrounding substrates. Include a contextual discussion of acid-forming sediments and bioavailability of contaminants such as metals and metalloids. Indicate the duration and frequency of dredging operations if possible;
- Discuss the fate of spoil from the dredging activities and its suitability for the intended purpose (e.g. use as fill for reclamation);
- If bunds are to be constructed in or near mangroves or marine sediments to facilitate reclamation, indicate where bund material will be sourced;
- Similarly, discuss the likely source of fill material for any reclamation (e.g. dredge spoil); and
- Discuss mud waving and its impacts, if applicable.

Detail the potential and anticipated impacts on hydrodynamic conditions, hydrology and water quality of the above-mentioned activities and processes. Include also a discussion of meteorological impacts (e.g. cyclones, storm surge, and heavy rainfall) and waste generation/disposal issues. In particular:

- Discuss anticipated or potential modifications to natural hydrological regimes, such as changes to the freshwater flows and flooding in the area, and interruption/interception of regular tidal flows;
- Describe the potential impacts of cyclonic storm surge on the foreshore of the waterfront site and potential marina facilities; and

- Discuss impacts to receiving waters (surface/groundwater) from the discharge of wastewater and site run-off.

If a beach is to be constructed, identify the possible source/s of suitable beach sand and discuss the potential impacts of sand removal on the source environment.

In relation to waste generation, identify and quantify the potential and anticipated wastes generated during the preparation, construction and operating phases, including solids, liquids and air emissions (including greenhouse gases), and identify any that are hazardous. Describe the impacts these wastes could have on the receiving physical environment. Discuss also the impacts associated with the construction of sewerage, particularly on any unsewered premises within the project area.

Discuss potential and anticipated impacts on noise from construction and operation of the development. In particular, detail the anticipated noise characteristics generated by traffic during site preparation, construction activities and operation of the Waterfront redevelopment.

Discuss the potential for contamination of water, air and sediments with the demolition of structures during site clearance (e.g. Iron Ore Wharf, Old Fort Hill Wharf), and during contaminant remedial action.

7.2 *Biological Environment*

Describe the potential and anticipated impacts from the project on the floral and faunal species and communities identified in Section 6.4 above, focusing on species of conservation significance.

Identify which activities (e.g. dredging, reclamation, site remediation and preparation) are associated with particular impacts.

Indicate the relative risk of each potential impact and rate the significance of each potential and anticipated impact.

As a minimum, the following issues should be covered:

- a general description of potential or anticipated changes in community structure of aquatic animals (vertebrates and invertebrates) in marine/estuarine sediments, from the alteration of habitat resulting from dredging and reclamation of intertidal and foreshore areas;
- potential effects of acid generation and contaminants on marine flora and fauna;
- potential effects on pelagic species and epibenthos from water quality changes as a result of development activities (e.g. dredging and reclamation);
- the impact of the development on mosquito and other biting insect;

- potential for introduction and establishment of marine pests and/or aquatic pathogens, such as dinoflagellates;
- the impacts on insectivorous bat colonies in the development area, if colonies are shown to be significant;
- the potential effects the development might have on coastal rainforest continuity; and
- potential for introduction and spread of weed species, particularly through construction or earthmoving equipment.

7.3 *Built Environment*

Detail the potential and anticipated changes to the existing built environment that would occur as a prerequisite for the Waterfront redevelopment, as well as any ongoing or future changes associated with continuing development of the site if known. Include a map illustrating the proposed changes.

7.4 *Cultural Environment*

Discuss the potential and anticipated impacts of the project on the cultural and heritage values identified in Section 6.6, in and adjacent to the Waterfront redevelopment area.

7.5 *Socio-economic Environment*

- Discuss the general economic benefits or impacts of the project with reference to parameters such as the regional economy, GSP, GDP, and employment.
- Briefly outline the social and economic issues relating to employment potential, “down-stream” employment effects, impact of transport external to the site and demand on current service infrastructure.
- Indicate how the continued operation of businesses within, around or using the facilities in, the development area might be impacted by on-going development (e.g. food premises on Stokes Wharf).
- Discuss any constraints placed on the project by sites of recreational or other socio-economic importance.
- Identify constraints the project may place on existing and future land uses in the area (e.g. adjacent residential landholders, port and naval facilities).
- Indicate the consistency of the project with the applicable Land Use Objectives.

- Describe potential and anticipated impacts (in relation to neighbouring land-holders and others using the adjacent land and coastal zone) on:
 - existing visual amenity, with particular reference to building design, heights and mass within the redevelopment area, views of the escarpment, and the aesthetics of the site layout;
 - noise levels during construction and subsequent operation of facilities on the site (eg demolition of structures, construction, traffic, marine vessel operation, entertainment events such as open air concerts); and
 - recreational water quality (e.g. fugitive stormwater discharges, sediment resuspension).
- Describe access, fencing and public safety in relation to use of wharf areas, heritage listed/registered sites (eg Oil Storage Tunnels) and adjacent coastal areas for fishing, boating, recreation and conservation.
- Describe the influence the development would have upon the external road network and the associated land user, in particular, the periodic short-term traffic characteristics generated by the operational Convention and Exhibition Centre.
- Other socio-economic factors relevant to the project (in terms of constraints or potential impacts) should be described, including:
 - potentially significant biting midge problems and response of mosquito populations to disturbance in and adjacent to tidal areas; and
 - other potentially dangerous fauna (e.g. crocodiles, box jellyfish, etc.).

7.6 *Systems and Habitats*

Describe how the project will impact each system and habitat in the area and rate the risk and seriousness of each impact. In particular:

- Discuss the potential destruction or disruption of habitat areas of flora and fauna communities (including impacts on ecological processes) from dredging and reclamation; and
- Outline potential impacts on marine systems caused by storm water discharges.

7.7 *Hazard/risk to Humans and Facilities*

The Draft EIS should include a preliminary hazard analysis and assessment of the risks to people, the environment and nearby facilities. The aim of this section is to demonstrate that:

- the proponent is fully aware of the potential hazards associated with the development;
- the prevention and mitigation of potential hazards are being properly addressed in the design specifications for the facility; and
- the potential hazards can and will be managed effectively during the construction, commissioning and operation of the development.

Sufficient quantitative analysis should be provided to indicate whether hazards and risks from the project are likely to be acceptable compared with similar ventures in Australia. Assumptions used in the analyses should be explained. Relevant standards, codes and best practice that minimise the risk of an unacceptable safety or environmental incident should be discussed.

The preliminary hazard analysis and risk assessment should, as a minimum, address:

- the potentially significant biting midge problem and sensitivity of mosquito populations to disturbances in and adjacent to tidal areas;
- potential accidents associated with the construction, operation and maintenance of the various components of the proposal, including storage and transport of materials to and from the complex;
- consequences of possible incidents;
- design, construction and operational requirements of the project to satisfy relevant codes, standards and legislation;
- potential impacts from an incident on health and safety;
- perceptions of risk from the surrounding community regarding the project;
- development of emergency plans, response procedures and staff responsibilities in the event of an emergency or accident, including cyclones and lightning strikes;
- emergency evacuation procedures and requirements, including nearby residents or the public;
- responsibilities and liability in the event of an incident; and
- contingency plans for dealing with spillage of hazardous materials, UXO discovery or acts of terrorism.

The hazard and risk analysis will identify the critical areas that need to be addressed in management plans, monitoring programs and contingency/emergency plans.

8 MITIGATION, MANAGEMENT AND MONITORING

The proponent is required to achieve a level of environmental management and performance consistent with principles of ecologically sustainable development, best practice environmental management, national and international standards and statutory obligations during its pursuit of sound business and financial objectives. The most economically effective, environmentally sound technology and procedures should be incorporated into the design of the project. The adoption of such a strategy should ensure optimal management of all emissions, discharges and waste. This approach is to be adopted for all procedures involving the management of inputs, outputs and the production process itself.

The proposed mitigation measures should be discussed for all relevant stages of the project (including contaminant remediation, preparation, construction, operation, incidents and accidents). Performance indicators for all remediation efforts should be identified.

8.1 *Environmental Safeguards and Mitigation of Impacts*

This section should provide information on environmental management practices and safeguards proposed to prevent, minimise or mitigate environmental impacts both on-site and adjacent to the development area during both the construction and, where known, operational phases of the development.

Any actions required by other bodies to enable the proponent to meet these commitments should also be identified.

A summary table listing undertakings and commitments made in the Draft EIS to avoid or mitigate environmental impacts, including performance indicators (where appropriate) should be provided. The table should be indexed and cross-referenced to the relevant section of text in the body of the Draft EIS.

Environmental safeguards and mitigative and remedial actions should be considered and discussed for those potential and anticipated impacts identified in Section 7, and any further impacts identified during the EIS process. As a minimum requirement for this EIS, the proponent should, in relation to:

Contaminant issues:

- Describe the remedial action required for any contaminants from former land uses. Detail the standards that are required to be met based on potential future uses of each key investigation area, or scenarios for future land use if the final use of a particular area is undetermined;
- Provide details of contaminant disposal; and
- Discuss measures taken to mitigate any fugitive contaminant emissions from contaminated land, both during remedial activities and during future land use on the site (Reference should be made to current legislation, in particular, the *Waste Management and Pollution Control Act 1998* and its regulations, including any amendments).

Unexploded ordnances (UXOs):

- Describe the control and remedial measures that will be used to minimise/remove the hazard of UXOs.

Reclamation activities and soil disturbance:

- Provide information on the implementation of measures to prevent/limit mobilisation of bund material due to heavy rainfall events, wave action, etc (e.g. rock armouring, rip rap, geotextile fabric protection);
- Describe what contingency plans would be in place in case of failures of bund walls or significant acid generation;
- If mud waving is used, indicate measures that will be used to minimise the mud wave footprint;
- Explain how erosion (and potential sedimentation of waterways) would be avoided or minimised during the preparation, construction and operation phases of the project; and
- Develop an *Erosion and Sediment Control Plan* (e.g. as part of the Environmental Management Plan), including:
 - layout, design and specification of sediment control measures (e.g. drains, silt traps, cross-flow banks, batter slopes, surface protective measures and topsoil stockpiling);
 - timing of construction (especially in relation to wet and dry seasons of the Top End of the NT);
 - peak discharge flows (flooding frequencies); and
 - draining of access tracks.

Waste generation and management:

- Discuss the measures that will be employed to contain and suppress air emissions including dust and gases during the preparation, construction and operation phases. Particular reference should be made to the continued operation within health guidelines of the various food outlets during the construction phase;
- Discuss the measures that will be employed to contain and suppress noise emissions during the preparation, construction and operation phases;
- Provide detailed description and standards (where applicable) for prevention, treatment and disposal of wastes during the preparation, construction and operation phases;

- Identify and discuss the potential opportunities to offset or reduce greenhouse and toxic gas emissions generated by the project, including but not limited to:
 - building design and operation;
 - provisions encouraging the use of public transport and non-motorised transport (e.g. paths, bicycle security); and
 - technological innovations such as solar lighting and green or improved energy sources.
- Outline plans for collection, storage, treatment, analysis and disposal of wastewater;
- Identify and describe proposed waste dump locations; and
- Outline arrangements for treatment of sewage/trade waste generated during preparation, construction and operation phases including either the use or upgrade of existing sewerage infrastructure or the provision of a specific facility for the site.

Water management:

- For any artificial ponds and swimming features, provide details on:
 - water requirements and sources (fresh- and salt water);
 - monitoring of water quality;
 - management of clean, used and potentially contaminated water;
 - diversion of surface waters;
 - recycling water;
 - maintenance of salinity levels, with reference to outputs (e.g. evaporation) and inputs; and
 - management of potential impacts from high/extreme rainfall events.
- Provide details on the management of stormwater from the development area.

Cultural Heritage:

- Document an appropriate management approach for all heritage features identified within the project area based upon the assessment of their significance. Clear statements of obligations under Australian and Territory legislation should be incorporated into the plan.

- Provide a conservation and management plan, consistent with the Burra Charter, for all declared or proposed heritage places or objects.
- Document the protocol to be followed in the event of discovery of new archaeological or heritage sites or objects (The proponent should seek advice from the Heritage Conservation Services Branch of DIPE).
- In relation to prescribed archaeological places and objects protected under the *Heritage Conservation Act*, the proponent should seek advice from an archaeologist and document the following:
 - the precise location of such places and objects in relation to the proposal and where necessary undertake an archaeological survey (see below);
 - the significance of the places and objects which are to be impacted by the proposal; and
 - options for mitigation of loss of heritage value of places and objects that lie within the area of impact.

8.2 *Monitoring and Reporting*

A sound monitoring and quality assurance program (including reporting) should be designed to ensure environmental safeguards are being effectively applied and to identify and measure any differences between predicted and actual impacts. Those responsible for monitoring programs should be identified. A description should be included of any provisions for tightening environmental standards, response mechanisms and remedial action if feedback from monitoring indicates that the project is causing unexpected and unacceptable environmental degradation or other harm. Opportunities to work in conjunction with existing or impending cooperative integrated monitoring strategies should be sought where practicable.

For each potential or anticipated impact, field and desktop monitoring should be comprehensively outlined at the following levels:

- *Baseline* – Detail completed or proposed baseline surveys, identifying timing of data collection and their relevance to the project.
- *Ongoing* – For each anticipated or potential impact, detail the proposed monitoring programs and reporting arrangements during the construction and operational phases of the development.

Methods for data collection for baseline (pre-construction) and construction /operational phase impacts (e.g. on biodiversity and water quality) should be developed in consultation with relevant NT Government agencies and other monitoring and research organisations to maximise the potential for:

- valid comparison with existing data sets;
- interpreting environmental information collected in the longer-term for this project; and
- collecting environmental data that will be useful (from an environmental management perspective) for future research and to the NT Government.

Relevant environmental legislation, standards, codes and policies should be briefly described, together with measures proposed to ensure compliance.

8.3 Environmental Management Plan

A Draft Environmental Management Plan (EMP) should be provided at the time of submission of the Draft EIS. The Draft EMP should be strategic, describing a framework for environmental management. Specific management policies, practices and procedures should be included. A final EMP should be prepared at the conclusion of the assessment process, taking into consideration comments on the Draft EMP and the Supplement and incorporating the Assessment Report and Recommendations (included in that Report).

The Draft EMP should:

- Define the management structure of the site preparation and preliminary construction phases of the development and the relationship to the environmental management of the site;
- Describe the proposed measures to minimise adverse impacts and monitor the effectiveness of these safeguards (e.g. by proving performance indicators by which all anticipated and potential impacts can be measured);
- Describe reactive monitoring programs that allow early detection and management/mitigation of adverse impacts;
- Detail how monitoring will be able to determine the differences between predicted and actual impacts; and
- Provide for the periodic review and revision of the EMP.

Reference should be made to relevant legislation, standards, codes and policies and the proposed arrangements for approvals and permits required for commissioning and continued operation of the project. The agencies responsible for approving and overseeing the EMP should be identified. Proposed reporting procedures should be outlined relating to the implementation of the EMP, independent and self-auditing, and reporting of accidents/incidents.

Details of proposed arrangements for publication of the EMP, any sub-plans and/or monitoring results should be provided.

9 PUBLIC INVOLVEMENT AND CONSULTATION

Public involvement and the role of government organisations should be clearly identified. The outcomes of surveys, public meetings and liaison with interested groups (e.g. Larrakia Nation) should be discussed and any resulting changes made to the proposal clearly identified. Details of any ongoing liaison should also be discussed. It is expected that discussions with the Larrakia people will occur from the outset of the project.

Negotiations and discussions with local and community government, the Territory Government and the Australian Government should be detailed and any outcomes referenced. Details of any ongoing negotiations and discussion with government agencies should also be presented.

10 INFORMATION SOURCES AND BIBLIOGRAPHY

The Draft EIS should contain a comprehensive reference list/bibliography. Any source of information such as studies, research, maps and personal communications used in the preparation of the Draft EIS should be clearly identified, cited in the text and referenced in the bibliography.

11 GLOSSARY

A glossary should be provided, defining the meaning of technical terms, abbreviations and colloquialisms. (Note: throughout the Draft EIS, technical terms and jargon should be minimised).

12 APPENDICES

Information and data related to the Draft EIS but unsuitable for inclusion in the main body of the statement (e.g. because of its level of technical detail) should be included as appendices. This may include detailed analyses, monitoring studies, baseline surveys, raw data and modelling data. Where necessary, specific guidance should be provided on the most appropriate means of accessing information not appended to the Draft EIS.