Northern Territory Environment Protection Authority

TERMS OF REFERENCE FOR THE PREPARATION OF AN ENVIRONMENTAL IMPACT STATEMENT

NOONAMAH RIDGE ESTATE

INTRAPAC PROJECTS PTY LTD

November 2014

1 Introduction

The Proponent, Intrapac Projects Pty Ltd, proposes to develop Noonamah Ridge Estate (the Project) approximately 36 km south-east of Darwin, NT. The site for the Project is located in the rural locality of Noonamah, between the Stuart and Arnhem Highways, 7 km south-east of the township of Humpty Doo.

The site of the development proposal spans an area of approximately 2700 ha. The Project proposal involves the rezoning of land, subdivision of land parcels and the construction of infrastructure to create a new local town centre. The Project proposal includes:

- approximately 3500 residential and rural lots that range in size from 800 m^2 to 8 ha, including plans to allocate smaller lot sizes to land with higher land capability and better draining soils and larger lots to areas of constrained land with greater slope and poorly draining soils
- a range of residential allotment types including single dwelling residential, multiple dwelling residential, rural residential, rural living and rural
- interspersed lot sizes and allotment types such that 800 m^2 lots may be adjacent to 2000 m^2 or 8 ha lots as determined by land capability
- a local activity centre including opportunities for retail and commercial space, a community square and recreation spaces
- allocation of land for community facilities such as a fire service site, a primary school and a community hall
- water supply infrastructure, including potable water supply and appropriate water storage and reticulation
- wastewater management infrastructure, including effluent treatment and disposal
- stormwater drainage infrastructure, including mitigation and treatment features such as swales, silt traps and drainage basins and incorporating appropriate erosion and sediment control measures
- an internal road network providing access to existing and proposed arterial and collector roads
- electricity supply, lighting and telecommunications infrastructure.

The Project will require an amendment to the NT Planning Scheme to establish appropriate zoning. Development applications would then be required for each stage of the development. The Proponent intends to develop the Project through a feasibility study and conceptual Master Plan proposal covering the entire estate with the size of each stage and number of proposed lots to be informed by market demand and feasibility assessments.

The Notice of Intent for the Project was referred from the Proponent to the Northern Territory Environment Protection Authority (NT EPA) on 22 December 2014 for consideration under the *Environmental Assessment Act* (EA Act). On 7 April 2014, the NT EPA decided that the Project requires assessment under the EA Act at the level of an Environmental Impact Statement (EIS).

The NT EPA decision was based on the following environmental risks and potential impacts:

- limited availability of existing services and infrastructure, particularly main roads, water and electricity supply
- risk to groundwater quality from septic/sewerage systems and changes to hydrology
- inadequate stormwater and effluent disposal strategies will create mosquito breeding sites and increase pressures on the values of waterways via erosion, sedimentation and the addition of nutrients and pathogens
- land constraints associated with areas that have a moderate to high degree of erosion vulnerability with lowland areas at risk of periodic inundation
- impacts to areas that contain significant conservation and biodiversity values including listed threatened species
- disturbance to and potential loss of individuals of species listed under the *Environment Protection and Biodiversity Conservation Act 1999* and on the *Territory Parks and Wildlife Conservation Act*
- the risk of spread or introduction of weed/pest species
- limited availability of public transport, waste and recycling collection and emergency services as well as the risk that poorly planned road networks will limit the ability of these services to access the site
- potential impacts to historic and culturally significant sites
- changes to the existing socio-economic environment and public amenity
- cumulative impacts of the development in the context of existing, proposed and future developments in the Noonamah/Humpty Doo region.

2 Scope of the Project

2.1 General information

Effective scoping of the Project will assist with the preparation of the EIS as well as clearly defining the footprint and sequence of the development. Establish the context of the Project, including, but not limited to, the following information:

- the title of the Project
- details of the Proponent, including details of any joint venture partners (if relevant)
- the full name and postal address of the Proponent
- the location of the Project in a regional context
- the current status of the Project
- the potential population
- the background to the development of the Project, including a discussion of any previous environmental impact assessment, surveys or investigations undertaken on the site

- discussion of how the Project relates to any other proposals or actions, of which the Proponent should be reasonably aware, that have been or are being taken, and/or have been approved in the region
- national, state and/or territory standards, codes of practice and guidelines relevant to the Project
- the positive and negative consequences of not proceeding with the Project.

2.2 Project components

The objective of this section is to describe the Project through its lifetime of construction stages and occupancy. This information is required to allow consideration of all aspects of the Project including all stages from planning and construction through to occupancy. The elements of the Project must be described in the text and illustrated with maps, diagrams, architectural plans and artist's impressions (as required).

2.2.1 Planning and development

The EIS should provide a detailed description of the Project, including:

- an overview of the life of the Project, including an anticipated timetable for the planning, design and construction of the Project including stages (if relevant) and identify when public input will be required
- conceptual Master Plan(s) identifying the Project's layout, size and predicted yield (number of residential lots)
- locality map(s) delineating the Project footprint in a local and regional context
- indicative timeframes for the establishment of services and essential infrastructure that will be required for the Project, such as transport, power, water and waste services
- the concept and indicative design detail in relation to residential and commercial areas including:
    - areas identified for the purposes of activity/town centres and/or common areas
    - other uses to be provided and/or accommodated
    - proposed land tenure and/or management, particularly of open space and community infrastructure
    - the timeframes for constructing activity centre(s) and/or common areas.

2.2.2 Essential infrastructure and services

The EIS should consider the provision of land for essential infrastructure and services. Where relevant, there should be discussion in the EIS of appropriate service corridors, easements, allowances for future upgrades, buffers and separations distances and how these will be or have been addressed in the planning and design phases of the Project.

Transport

Identify the location, size and capacity of transport infrastructure (roads, cycle paths etc.) that will be constructed to service the Project including maps showing the proposed location of connections with major arterial roads or highways (i.e. Stuart Highway, Arnhem Highway). The EIS should identify:

- how roads and transport related infrastructure will be constructed over the life of the Project (including stages) and the party/parties responsible for the long-term maintenance, repair and upgrade of road and transport infrastructure
- the existing roads that will be used by the Project including the capacity of the existing transport system to accommodate additional traffic generated during each stage of construction and occupancy
- public transport infrastructure that will be required to service the Project
- the approximate timing and scale of stages of upgrades to the existing transport network that may be required to service the Project
- the transport system (roads etc.) that will be constructed by the Proponent to service the Project including maps delineating the proposed road network.

Electricity and telecommunications

The EIS should identify any electricity and telecommunications infrastructure that will be constructed and/or managed by the Proponent for the Project. The EIS should include:

- descriptions of the design and capacity of the infrastructure
- maps that identify the proposed location of infrastructure corridors and the locations of connections with regional electricity/telecommunications infrastructure
- information on the planned roll-out of electricity and telecommunications infrastructure, including a discussion of how the infrastructure will meet the requirements of a staged development
- information on the party/parties responsible for the long-term operation, maintenance and repairs to electricity and telecommunications infrastructure over the life of the Project.

Potable water

The EIS should include a servicing supply strategy for potable water, to the satisfaction of Power and Water and relevant regulatory authorities. The servicing supply strategy should identify and discuss the potable water supply and storage infrastructure that will be constructed and/or managed by the Proponent. The discussion should include the details of any staged construction and installation of reticulated infrastructure and outline agreements with Power and Water for the provision of services. The EIS should include:

- maps identifying the location of any connections with regional supply infrastructure
- the volume of potable water required to service each stage of construction and occupancy of the Project
- an outline of the supply capacity of the infrastructure during each stage and over the life of the Project and identify any potential shortfalls in potable water supplies
- information on the design specifications of all water storage and supply infrastructure, including the design life
- a discussion of the future arrangements for long-term maintenance, repairs and replacement of water supply infrastructure in the future.

Stormwater

The EIS should include a description of the design specifications of stormwater catchment and treatment systems that will be constructed to achieve the stormwater objectives in section 4.5.1. The stormwater treatment systems should be in accordance with appropriate standards or guidelines for stormwater management in the Northern Territory and be developed in consultation with the Department of Lands, Planning and the Environment and relevant regulatory authorities.

The EIS should include:

- proposed plans for staging of stormwater works both on and off the Project site
- details of the design life of stormwater infrastructure
- discussion of the arrangements for long-term maintenance, repairs and gifting of infrastructure in the future.

Sewerage

The EIS should include a sewerage servicing strategy, to the satisfaction of Power and Water and relevant regulatory authorities. The sewerage servicing strategy should identify the wastewater infrastructure that will be required for managing and/or disposing of wastewater and effluent from the site. The EIS should include:

- an options assessment (considering cost/benefit and feasibility) of the proposed wastewater treatment facility. The options assessment should critically review the capability of wastewater infrastructure to manage and treat the expected amount of effluent from the development and include consideration of:
    - treatment consumables
    - waste streams and their disposal
    - energy requirements
    - greenhouse gas emissions
    - traffic impacts
- map(s) identifying the proposed site of wastewater treatment systems and discharge points (if relevant)
- peak design capacity evaluation and associated infrastructure using equivalent persons
- the party/parties responsible for the long-term management and maintenance of sewerage and wastewater infrastructure, including expected ownership time frames
- the maintenance regime(s) for the system(s)
- determination of the potential effluent storage that would be required in a Q1, Q5 and Q100 flood event
- treated effluent quality and quantity.

The sewerage servicing strategy should discuss how the preferred option for wastewater treatment and disposal infrastructure should satisfy the regulatory requirements of the Department of Health outlined in the *Guidelines for Wastewater Works Design Approval of Recycled Water Systems*[1].

Domestic waste

The EIS should include information on provisions for/or arrangements to facilitate the collection and disposal of domestic waste. Information should include details of licenced waste handling and disposal facilities that have the capacity to transport and accept the volume of rubbish and recycling expected to be produced by the Project during each stage of development and occupancy.

Emergency services

The EIS should include information on provisions for/or arrangements to facilitate emergency services and related infrastructure. Information should include details of firefighting infrastructure, cyclone shelters and escape routes, police/ambulance/State Emergency Services (where relevant).

Social infrastructure

The EIS should consider provision for/or arrangements to facilitate social infrastructure. Information should include details of community facilites, including but not limited to schools, child care centres, sports grounds and other community purpose areas.

Other infrastructure

The EIS should provide a description of any other developments directly related to the Project that have not been described in other sections including, but not limited to:

- site offices
- permanent or temporary fuel storage areas (e.g. diesel, petrol, oil, etc.)
- other construction material storage areas (stockpiles)
- equipment hardstand and maintenance areas.

Where relevant, the EIS should outline the method of operation, decommissioning and rehabilitation of temporary facilities, throughout all stages of construction.

2.2.3 Socio-economic considerations

The EIS should identify the Project's economic value (positive and negative) to the local and regional economies, in terms of direct and indirect effects on local businesses, employment and incomes. The following are suggestions that may assist with highlighting the economic value of the Project and are not intended to result in the inappropriate disclosure of confidential information. It should be noted in the EIS if data are not available or unsuitable. Aspects to be covered include:

[1] Environmental Health Branch, 2014. *Guidelines for Wastewater Works Design Approval of Recycled Water Systems*. Department of Health, Darwin. Available at: http://health.nt.gov.au/Environmental_Health/Wastewater_Management/index.aspx#WastewaterWorksDesignApprovalofRecycledWaterSystems

- the Project's contribution to the Northern Territory economy
- arrangements with local government
- a summary of Project feasibility
- opportunities created by the Project (construction and occupancy)
- estimated capital expenditure for the whole Project
- estimated workforce and contractor numbers by occupational classification
- overall employment training proposed during commencement, construction and occupancy (if relevant)
- planned Indigenous employment, training and other Project participation
- expected level of recruitment from outside Darwin and the Northern Territory (if appropriate)
- availability of goods and services
- community and economic value of new ancillary infrastructure of wider public benefit, such as roads, bike paths and public recreation areas
- other contributions to local communities.

2.3 Approvals, conditions and agreements

Provide information on requirements for approval or conditions that apply, or that the Proponent reasonably believes are likely to apply, to the Project, including:

- a description of any approval that has been obtained from a state, territory or Commonwealth agency or authority
- a summary of current agreements between the Proponent and the Northern Territory Government, and/or the Australian Government, and/or other stakeholders, including Traditional Owners and/or land managers
- a statement identifying additional approval(s), certificates, permits etc. required
- details of the approval(s), certificates, permits etc., including any conditions imposed.

Consideration should be given to the following legislation:

- *Planning Act*, Northern Territory Planning Scheme and Litchfield Planning Concepts and Land Use Objectives
- *Building Act* and Regulations
- *Local Government Act*
- *Territory Parks and Wildlife Conservation Act*
- *Heritage Act*
- *Native Title Act*
- *Northern Territory Aboriginal Sacred Sites Act*
- *Water Act*
- *Water Supply and Sewerage Services Act*

- *Waste Management and Pollution Control Act*
- *Bushfires Act*
- *Fire and Emergency Act*
- *Public and Environmental Health Act* & Regulations
- *Minerals Titles Act*
- *Environment Protection and Biodiversity Conservation Act 1999*

2.4 Environmental history

Include details of the environmental record of the Proponent, including, but not limited to:

- any proceedings under a Commonwealth, state or territory law for protection of the environment or the conservation and sustainable use of natural resources against the Proponent and details of systems and processes that have been subsequently upgraded
- a description of similar projects undertaken by the proponent elsewhere in the Northern Territory or Australia
- any international or national accreditations (e.g. ISO 14001 etc.), environmental awards or other recognition for environmental performance.

2.5 Ecologically sustainable development

When considering the matters to be addressed in the EIS, the NT EPA is required under the NT EPA Act to:

(a) promote ecologically sustainable development (ESD)

(b) protect the environment, having regard to the need to enable ESD.

Accordingly, the assessment of the Project, its potential impacts (positive and negative) and the management measures used to enhance positive and reduce negative impacts will be taken in the context of ESD principles, consistent with the *National Strategy for Ecologically Sustainable Development*.[2] Therefore, it is essential that the Proponent demonstrate how it complies with and contributes to the principles and objectives of ESD in the relevant section(s) of the EIS.

2.6 Alternatives

The EIS should describe any feasible alternatives to carrying out the Project. The choice of the preferred option(s) should be clearly explained, including how it complies with the principles and objectives of ecologically sustainable development.

Discussion of alternatives should include, but not be limited to:

- not proceeding with the Project

[2] Ecologically Sustainable Development Steering Committee, 1992. *National Strategy for Ecologically Sustainable Development* . Department of the Environment and Water Resources, Canberra, Australia. Available at: http://www.environment.gov.au/resource/national-strategy-ecologically-sustainable-development

- site selection, including alternative layouts and alternative locations that improve Project outcomes, such as traffic management
- options to optimise ecological sustainability for the Project, such as alternatives to reduce/offset the Project's environmental footprint and reduce ongoing need for high rates of electricity and water consumption
- consideration of alternative environmental management measures for key risks/impacts
- sufficient detail to make clear why a particular alternative is preferred to another
- adverse and beneficial effects (direct and indirect) of alternatives at national, Territory, regional and local levels
- the comparison of short- and long-term advantages and disadvantages of the alternatives.

2.7 Cumulative impacts

Cumulative impacts can arise from compounding activities of a single development or multiple developments, as well as the aggregation and interaction of development impacts with other past, current and future activities that may not be related to the Project.

An assessment of cumulative environmental impacts should be undertaken that considers the potential impact of the Project in the context of existing developments, and reasonably foreseeable future developments, to ensure that any potential environmental impacts are not considered in isolation. The extent of cumulative impacts to be considered depends on the nature of the environmental issue and on ecosystem resilience. The risk assessment in the EIS should discuss the relevant cumulative impacts of this and other Proposals at an appropriate scale. In preparing the cumulative impact section, there should be consideration that:

- landscape change originates not only from single projects and management actions, but also from complex and dynamic interactions of multiple past, present and future management actions
- biophysical, social and economic change accumulates through additive or interactive (or synergistic) processes. The aggregate impact of multiple actions on the environment can be complex and may result in impacts that are more significant because of interactive processes
- any given action does not operate in isolation. The most significant changes are often not the result of the direct effects of an individual action, but from the combination of multiple minor effects over the accumulation of time.

3 Existing environment

Provide a description of the Project area and baseline condition of terrestrial environments, including hydrology, geography, flora and fauna, cultural and heritage values, and all relevant socio-economic considerations. This section must link to the Scope of the action, potential avoidance, mitigation and management measures that are to be implemented throughout the life of the Project, including construction stages and occupancy. This section is to identify and reference any relevant (published and unpublished) studies undertaken in the area that will assist in describing patterns and trends in the environment.

3.1 Land suitability

Maps should be provided locating the Project and its environs in terms of regional and local contexts. The topography should be detailed with contours at suitable increments, shown with respect to Australian Height Datum (AHD). Significant features of the landscape should be included on the maps. Commentary on the maps should be provided highlighting the significant topographical features.

A detailed and field verified land assessment survey should be provided for the Project area. The area should be mapped at a scale of ≤ 1:10 000 to ensure comprehensive land resource information is described to determine land suitability. The mapping should accurately identify the extent of constrained and unconstrained land in addition to describing the landforms, soil types and vegetation communities in the project area. Land suitability assessments should be in accordance with the *NT Land Suitability Guidelines* (2013)[3] and requirements of the *NT Planning Scheme* Clause 11.4 (Subdivision of Rural and Unzoned Land) and 11.4.1 (Site characteristics of Rural and Unzoned Land).

The EIS should provide a description, including maps of the geology of the Project 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.

3.2 Biodiversity

The following information should be provided with regard to biodiversity in the Project area:

- descriptions of the flora, fauna and vegetation communities that could be impacted by Project activities. Surveys should be in accordance with the NT EPA *Guidelines for Assessment of Impacts on Terrestrial Biodiversity*[4] and/or Australian Government Guidelines for the surveying of threatened species available from the Department of the Environment web site at http://www.environment.gov.au/epbc/policy-statements. Describe survey/program timing, locations and methodology, to demonstrate appropriate and statistically sufficient survey designs
- identify and discuss potential for presence in and around the Project area of species listed on the *Territory Parks and Wildlife Conservation Act* (TPWC Act) and/or EPBC Act, and other un-listed species of conservation significance.

Describe and map:

- any areas that have previously been subject to clearing activities or disturbance
- areas of vegetation that are proposed to be cleared permanently or temporarily
- potentially significant or sensitive vegetation types or ecosystems, including, but not limited to:
    - riparian vegetation

[3] Northern Territory Government (2013) Northern Territory Land Suitability Guidelines. Darwin Australia. Available at: http://www.lands.nt.gov.au/__data/assets/pdf_file/0005/38741/NT-Land-Suitability-Guidelines-2013.pdf

[4] NT EPA, 2013. *Guidelines for Assessment of Impacts on Terrestrial Biodiversity*, Darwin, NT. Available at: http://www.ntepa.nt.gov.au/__data/assets/pdf_file/0003/349941/guideline_assessment_terrestrial_biodiversity.pdf

  - important habitat corridors
  - sand sheet heath
  - monsoon forests
  - wetlands
  - groundwater dependent ecosystems

- the presence, or likely occurrence, of introduced and invasive species (both flora and fauna) within the Project area, and regionally, including weed species declared under the NT *Weeds Management Act*.

3.3 Surface water

The EIS should provide a detailed description of the regional surface water catchments and waterways in the vicinity of the Project area. Information provided in the EIS should include, but not be limited to:

- natural/artificial, permanent/ephemeral catchment system(s), drainage lines, waterways and wetlands
- hydrology/hydrogeology including drainage patterns, run-off rates and likelihood of flooding
- a description of the surface water quality and flows and existing water users potentially impacted by the Project
- a description of the environmental values of the surface waterways on-site and regionally. The description should be based on an accepted method for quantifying river health that is able to compared and repeated in future (i.e. AUSRIVAS)
- existing and historic surface water quality information should be described in terms of physical, chemical and biological characteristics within and around the Proposal, upstream and downstream of the area and in waterways (ephemeral and permanent) crossed by any infrastructure utilised for the Proposal.

3.4 Groundwater

The EIS should provide a description of the groundwater resources onsite with respect to any areas that may be affected by the Project. Details relating to existing ground water resource conditions and monitoring should be provided, where relevant, including information relating to:

- local and regional groundwater systems and flow regime
- understanding connectivity between groundwater and surface water systems in the Project area
- current rates of groundwater extraction from the groundwater source for the Project
- results from baseline groundwater quality monitoring.

The description of the groundwater resources on site and the regional hydrogeology should provide sufficient information to enable the prediction of potential impacts of the Project on groundwater resources within and adjacent to the Project area.

3.5 Historic and cultural heritage

The EIS should outline the cultural and heritage significance of any sites located during archaeological investigations on or near the Project area or that could be impacted by the Project activities. The EIS should include the results of searches on the Northern Territory Government database and identify any sites or places protected or nominated for protection under the following legislations and/or databases:

- *Aboriginal and Torres Strait Islander Heritage Protection Act 1984*
- *Environment Protection and Biodiversity Conservation Act 1999*
- *Heritage Act*
- *Northern Territory Aboriginal Sacred Sites Act*
- The Register of the National Estate.

Baseline information should be provided regarding historic or cultural heritage in the region, including:

- a description and location of Indigenous and non-Indigenous sites, places or objects of historic or cultural heritage significance
- areas nominated for listing or listed on Commonwealth and Northern Territory Heritage registers and Commonwealth and Northern Territory registers of Indigenous cultural heritage
- provision of evidence of an Aboriginal Areas Protection Authority (AAPA) Authority Certificate under the *Northern Territory Aboriginal Sacred Sites Act*
- the results of detailed archaeological surveys in and around the Project area. The EIS should provide a summary outlining the survey effort and level of confidence that all items of heritage or cultural significance at risk have been identified. Archaeological surveys and past monitoring for sites of historic or cultural heritage must be undertaken by a suitably qualified person with demonstrated experience in archaeological assessment.

The EIS should provide information on the current status of any approvals, permits or clearances in relation to the protection of heritage items or places.

The EIS should outline consultations with Indigenous stakeholders for all areas potentially affected by the Project. Determination and details should be provided of current traditional owner utilisation of Project areas, and spiritual/cultural significance of potentially affected areas.

3.6 Bushfires

The EIS should provide information on fire regimes and firefighting services in the Noonamah/Humpty Doo region including:

- the cause, frequency, intensity and extent of fires (last 10 years)
- predominant vegetation types and whether they are classed as bushfire hazards
- existing emergency services in the region including distance to the closest fire station and estimated response time
- bushfire response and preparedness capability for each stage of construction and occupancy of the Project.

4 Risk assessment

4.1 Approach

The EIS should have specific emphasis on the identification, analysis and mitigation of risks through a whole-of-project risk assessment. Through this process, the EIS will:

- acknowledge and discuss the full range of risks presented by the Project, including those of special concern to the community
- quantify and rank risks so that the reasons for proposed management responses are clear
- acknowledge levels of uncertainty about estimates of risk and the effectiveness of risk controls
- explicitly identify those members of the community expected to accept residual risks and their consequences, providing better understanding of equity issues.

A number of key risks have been identified through a preliminary assessment of the Project. Each of the identified risks should be addressed by the Proponent in the risk assessment and management process. It is expected that further risks will be identified through the comprehensive risk assessment process required for the EIS. These should be addressed and appropriate management initiatives developed to demonstrate that:

- the Proponent is fully aware of risks associated with all predictable aspects of the Project
- the prevention and mitigation of risks are properly addressed in the design specifications
- the risks can and will be managed effectively during the each stage of construction and occupancy of the Project.

Information provided should permit the reader to understand the likelihood and potential severity of each risk presented by the Project, and any uncertainty around these risks, as well as any uncertainty about the effectiveness of controls. Levels of uncertainty that preclude robust quantification of risk should be clearly acknowledged.

Risk rankings assigned should be fully justified. Where a risk score associated with the likelihood or consequence of an impact is reduced as a result of proposed mitigation measures, clear justification should be provided for the reduction in score. The adequacy and feasibility of mitigation measures must be demonstrable.

Sufficient quantitative analysis should be provided to indicate whether risks are likely to be acceptable or tolerable. A comparison can be made with similar ventures in Australia and internationally. Assumptions used in the analyses should be explained.

Environmental objectives, or overarching goals identifying environmental values to be protected, have been identified for each key risk.

4.2 Information requirements

The NT EPA has prepared a series of Environmental Assessment Guidelines to assist in the preparation of EIS documents. Environmental Assessment Guidelines are developed and updated periodically, and should be referenced and referred to when addressing the information requirements in an appropriate section of EIS. Environmental Assessment Guidelines relevant to the Project and current at the time of publication of these Terms of Reference include:

- *Guidelines for Assessment of Impacts on Terrestrial Biodiversity*
- *Guidelines on Conceptual Site Models*
- *Guidelines for the Preparation of an Economic and Social Impact Assessment*

4.3 Transport

4.3.1 Environmental objective

Limit the overall impacts of traffic from construction stages and occupancy of the development on people and the environment.

4.3.2 Assessment of risk

The EIS should include a Traffic Impact Assessment that has been prepared by an appropriately qualified person with demonstrated experience in the prediction and management of traffic. The Department of Transport and relevant Austroads guides, available at http://www.austroads.com.au/about-austroads/austroads-guides, should be consulted regarding appropriate methodology for assessing regional transport impacts in the EIS.

Aspects to be assessed should include, but not be limited to:

- the existing transport task of the region
- a detailed analysis of the predicted changes to the volume of traffic on local and regional roads potentially affected by the Project during each stage of construction and occupancy
- the predicted peak periods and the capacity of the existing network to accommodate traffic during peak periods
- risk that the Project will create demand for upgrades to the regional transport system, including road networks and public transport services and infrastructure
- impacts to vehicular ingress and egress to Palmerston and surrounds
- the capacity of existing roads to meet the predicted changes to traffic volume in the region with consideration of cumulative impacts on the transport network from other proposals or actions, of which the proponent should reasonably be aware, that have been or are being undertaken and/or have been approved in the region.
- safety risks for the workforce and general public associated with:
    - an increase in the volume of traffic during initial construction and subsequent stages of the Project
    - undertaking construction stages whilst parts of the development are occupied by residents
    - an increase in the number and frequency of heavy vehicles moving onto and off the site during construction stages
    - a possible reduction in the access of emergency vehicles to the immediate vicinity during construction stages.

4.3.3 Mitigation

Describe proposed safeguards, management and monitoring strategies that will be implemented to minimise potential transport impacts during stages of construction and occupancy including, but not limited to:

- upgrades to the transport network
- traffic management
- measures to reduce any road traffic noise impacts
- consultation with local communities affected by transport impacts.

The EIS should include a Conceptual Road and Traffic Management Plan that outlines detailed avoidance and management measures to mitigate the risks of increased road traffic to existing road users. The Conceptual Road and Traffic Management Plan should identify clear thresholds for accidents, near misses and delays that trigger review of the Plan and be prepared consistent with the Department of Transport's Policies available at: http://www.transport.nt.gov.au/ntroads/nt-roads-policies.

Include adaptive management measures and thresholds as appropriate and estimate residual risk levels after application of proposed management measures.

4.3.4 Monitoring

The EIS should present a monitoring program to determine if construction of the Project is impacting:

- vehicular access to Noonamah, Palmerston and surrounds
- travel times, in particular for vehicles travelling along Stuart Highway to and from the Project, Palmerston and the Darwin CBD
- emergency response times.

4.4 Electricity

4.4.1 Environmental objective

To maintain service levels for current users in and around the Project area and to ensure that provision of services and infrastructure is sustainable in the long-term for development in the region.

4.4.2 Assessment of risks

Include a risk assessment that outlines the risks associated with the supply of electricity to the site for each stage of construction and occupancy of the Project. In particular, assess:

- the capacity of existing infrastructure to meet the electricity demands of the Project at various stages and full occupancy. The discussion should consider cumulative impacts from existing and proposed developments in the region that the Proponent should reasonably be aware of
- the risk that development of the Project will create demand for upgrades or construction of new zone substations
- whether there are any potential shortfall(s) in electricity availability and the current state of the network
- the potential for the location of infrastructure to limit future construction, upgrade and location of roads and reticulated services
- the capacity of the network to provide sufficient electricity in response to extreme weather events.

4.4.3 Mitigation

Detail preventative and management strategies used to minimise the potential impacts of the Project on the regional supply of electricity. In particular, provide details of the following for all stages of the Project:

- measures to safeguard electricity supply including during extreme weather events
- contingency measures for maintaining supply of electricity during times of high demand.

Measures should include options for minimising energy use and a strategy for achieving energy efficiency ratings required under Department of Lands, Planning and the Environment Building Advisory Services Energy Efficiency Requirements (available at http://www.lands.nt.gov.au/building/energy).

4.5 Water

4.5.1 Environmental objectives

To maintain equitable, sustainable and efficient use of water resources.

To ensure that water supplies are maintained and current lawful users of water (such as entitlement holders and stock and domestic users) and other beneficial uses of water (such as spring flows and groundwater-dependent ecosystems) are not adversely impacted by the development.

To ensure that surface water and groundwater resources and quality are protected both now and in the future, such that ecological health and land uses, and the health, welfare and amenity of people are maintained.

To protect and improve waterway health by maintaining or restoring the natural hydrological regime.

To minimise the impacts of stormwater on ecosystem health, flooding and drainage control, public health and safety, the economy, recreational opportunities and aesthetic values in the region.

4.5.2 Assessment of risks

The EIS should assess risks to existing regional water resources as a result of construction and occupancy of the Project.

Potable water

The EIS should include a comprehensive assessment of the risks to relevant potable water resources, at an appropriate spatial scale, associated with the potable water servicing supply strategy for each stage of the Project.

In particular, the EIS should identify and assess the risks to:

- current domestic, agricultural or ecological users of potable water resources that will be used to service the Project
- the long-term sustainability of potable water resources (groundwater, town mains etc.) that will be used to service the Project at full occupancy
- aquifer recharge from the potential reduction in infiltration to groundwater from an increase in urbanised area.

The risk assessment should include an assessment of cumulative impacts to regional potable water resources from developments that are being constructed, are proposed or flagged for future development in the region with respect to the availability and sustainability of potable water resources.

Stormwater

The EIS should include assessment of risks to the quality and quantity of surface water and groundwater flows arising from:

- an increase in stormwater run-off from urbanised areas
- physically altering the surface flow regime and the potential that urbanised areas will contribute to flooding or inundation of roads, adjacent properties and other infrastructure downstream of the Project site
- an increase in erosion and sediment flows from development of the Project and the potential to contribute to an increase in downstream nutrient concentrations and turbidity
- extreme weather events including first flush and Wet season influences
- the cumulative impacts of stormwater run-off from developments that are being constructed, are proposed or flagged for future development in the region.

Sewerage

The EIS should include an assessment of risks to surface water and groundwater quality arising from:

- the preferred wastewater treatment option identified through the options assessment required in section 2.2.2
- the potential impacts from any discharge of effluent to the receiving environment, including assessment of impacts from emergency discharges of effluent during times of high/extreme rainfall events
- the cumulative effect of multiple wastewater treatment systems on the environment, particularly ground and surface water resources as well as runoff to adjacent properties
- the short, medium and long-term timeframes of the Project.

The risk assessment should include targeted Land Capability Assessments for lots that will be serviced individually and the potential site(s) for any communal wastewater treatment system(s). The Land Capability Assessments should be prepared in accordance with the Department of Health *Guidelines for Land Capability Assessment for On-site Wastewater Management*[5] and demonstrate that treated effluent can be contained within the site/subdivision boundaries avoiding offsite impacts on local receiving environments (such as surface waters and groundwater).

4.5.3 Mitigation

Detail preventative, management and treatment strategies that will be used to minimise the potential impacts of the Project on surface water and groundwater resources at an appropriate spatial scale. In particular, provide details of the following for all stages of the Project:

[5] Whitehead and Associates Environmental Consultants Pty Ltd (Department of Health) 2014, *Guidelines for Land Capability Assessment for On-site Wastewater Management.* Department of Health, Darwin. Available at: http://health.nt.gov.au/Environmental_Health/Wastewater_Management/index.aspx#WastewaterWorksDesignApprovalofRecycledWaterSystems

- measures to safeguard surface and groundwater resources and their environmental values, including dependant ecological communities and regional economic uses
- management of surface water flows and wastewater during times of high/extreme rainfall events and periods when the soil in effluent land disposal areas (if relevant) is saturated. Where disposal of effluent to land is proposed, the Environmental Management Plan requested in section 5 should include an Irrigation Management Plan that details water balance and wet weather storage calculations for any communal wastewater treatment systems
- management of wastewater to control pollutants at the source and contain them within the effluent disposal area. The EIS should describe measures for maintaining and monitoring any wastewater controls
- contingency measures that will be implemented in the event that seepage or groundwater contamination occurs above the baseline surface and ground water quality results requested in sections 3.3 and 3.4.

To mitigate the risks from erosion and sedimentation, the EIS should include an Erosion and Sediment Control Plan (ESCP) that outlines prescriptive measures that will be implemented to mitigate and manage the movement of, and deposition of sediment as a result of disturbance and run-off from the site. The ESCP must be prepared by a suitably qualified professional. It is recommended that the ESCP be prepared consistent with IECA's Best Practice Erosion and Sediment Control Guidelines 2008 (www.austieca.com.au) and outline the proposed control and maintenance measures for both construction and occupancy stages of the Project. The ESCP should include maps and diagrams that display where control measures are proposed to be installed.

4.5.4 Monitoring

The EIS should include details of the proposed monitoring programs to allow early detection of adverse impacts on environmental values of regional water resources. Methods to monitor the impacts of the Project on groundwater quantity (if groundwater will be used to service the development) and surface and groundwater quality should be detailed in the EIS. The monitoring program should include, but not be limited to:

- a schedule for monitoring the extraction rate and recharge of groundwater resources (if relevant)
- a schedule for site inspections to identify potential failures in the adopted erosion and sediment control measures
- a water monitoring program to determine the effectiveness of adopted erosion and sediment control measures during construction phases
- methods to monitor the performance of the sewage treatment system(s).

The monitoring plan should outline the contingency measures that will be implemented over the stages of the Project in the event that monitoring activities detect a significant change in the environmental values, water quality/quantity as a result of the Project.

4.6 Biodiversity

4.6.1 Environmental objectives

To maintain the conservation status, diversity, geographic distribution and productivity of flora and fauna at species and ecosystem levels through the avoidance or management of adverse impacts.

To prevent the spread of weeds onto the Project area, off the Project area and within the Project area.

4.6.2 Assessment of risk

When assessing the risk of impact to biodiversity, the EIS should refer to relevant research and statutory plans such as: action plans, recovery plans and threat abatement plans. The Australian Government *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance*[6] should be used as a guide in the EIS to determine whether the Project is likely to have a significant impact on flora and fauna of conservation significance listed below. The EIS should include the following:

- a detailed assessment of the potential impacts to native flora and fauna and Litchfield Shire Priority Environmental Management Areas including consideration of vegetation clearance, habitat fragmentation and degradation, edge effects, altered hydrology, water quality impacts, erosion and sedimentation impacting on waterways, soil compaction, inappropriate/ineffective rehabilitation, groundwater contamination, impacts on surface and groundwater systems, waste material, risks associated with transport and traffic during each stage of construction and occupancy, weed and pest invasion, dust and noise impacts

- an assessment of the potential for any flora of conservation significance and potentially significant or sensitive vegetation communities to occur on the site and provide an assessment of the likely risks to these species. The assessment in the EIS should include the following flora species:

    - *Atalaya brevialata*
    - *Cleome insolata*
    - *Cycas armstrongii*
    - *Typhonium praetermissum*
    - *Typhonium taylorii*
    - *Utricularia dunstaniae*
    - *Utricularia hamiltonii*
    - *Utricularia holtzei*
    - *Utricularia singeriana*
    - *Stylidium ensatum*

- an assessment of the potential for any fauna of conservation significance (rare, threatened and/or endemic) to occur on or use the site on occasion, given that the site is relatively undisturbed. The EIS must provide an assessment of the likely risks to these species. In particular:

    - bare-rumped sheathtail bat (*Saccolaimus saccolaimus nudicluniatus*)

[6] Commonwealth of Australia, 2013. *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance*. Department of the Environment, Canberra. Available from: http://www.environment.gov.au/epbc/policy-statements

- black-footed tree-rat (*Mesembriomys gouldii*)
- fawn antechinus (*Antechinus bellus*)
- floodplain monitor (*Varanus panoptes*)
- Howard Springs toadlet (*Uperoleia daviesae*)
- northern brush-tailed phascogale (*Phascogale pirata*)
- partridge pigeon (*Geophaps smithii smithii*)
- pale field-rat (*Rattus tunneyi*)

- a detailed assessment of the potential impact to biodiversity at a local, regional and national scale
- an assessment of the potential risks to any rare, endemic or iconic species, subspecies or isolated or genetically distinct populations
- an assessment of the potential for any species identified as Weeds of National Significance and/or declared under the *Weeds Management Act* to be introduced to the Project site or spread as a result of the Project.

4.6.3 Mitigation

The EIS should contain a detailed Biodiversity Management Plan that outlines clear and concise measures for mitigating likely and potential impacts to biodiversity and threatened species throughout the stages of development.

The Biodiversity Management Plan should include, but not be limited to, the following plans and procedures:

- Vegetation Clearing Management Procedure
- Wildlife Rescue Procedure
- Weed Management Plan including:
  - measures to prevent the spread of weeds during development of the Project such as hygiene protocols recommended to sub-contractors
  - relevant Statutory Weed Plans for species such as gamba grass (*Andropogon gayanus*) available from the Department of Land Resource Management at http://www.lrm.nt.gov.au/weeds.

All mitigation and monitoring measures should be consistent with best practice advice from relevant experts, Northern Territory and Australian Government agencies and focus on:

- potentially significant impacts to biodiversity as a whole
- mitigating the impacts to vegetation
- rare or threatened species at risk of being adversely impacted
- any statutory or policy basis for the mitigation measures.

The plans and procedures should be prepared by a suitably qualified expert that has demonstrated experience in the mitigation and monitoring of adverse impacts to biodiversity and threatened species.

4.6.4 Monitoring

The Biodiversity Management Plan should include details of a Fauna and Flora Monitoring Program that is designed to monitor the effectiveness of the mitigation measures proposed throughout all stages of development. The Flora and Fauna Monitoring Program should identify the methodology for monitoring the impacts to biodiversity and identify clear thresholds and contingency measures that will be implemented in the event that the mitigation measures appear ineffective.

The Weed Management Plan should include a Weed Monitoring Program that is designed to detect the spread and increase in weed load in the Project area during development of the Project, prior to land ownership or management responsibilities being transferred.

4.7 Socio-economic

4.7.1 Environmental objectives

To analyse, monitor and manage the intended and unintended social consequences, both positive and negative, of the Project and any social change processes.

4.7.2 Assessment of risk

The EIS should include an Economic and Social Impact Assessment (ESIA) that demonstrates the potential benefits and costs of the Project. The ESIA should address the information requirements contained within the NT EPA *Guidelines for the Preparation of an Economic and Social Impact Assessment*[7]. The ESIA should include, but not be limited to:

- effective, timely and transparent public consultation
- the cumulative risks of the Project to amenity including, but not limited to:
    - character of the local and surrounding areas: including character of built form (scale, form, materials and colours), vegetation (natural and cultural vegetation), directional signage and land use
    - focal points, landmarks (built form or topography), gateways associated with the Project site (if relevant), waterways and other features contributing to the visual quality of the area and the Project site
    - direct as well as indirect, long term and short term, positive and negative, passing and accumulative impacts
    - the visual impact of street lighting at night
- analysis of the capacity of local infrastructure and services including schools, emergency services, medical services, transport facilities and services, businesses, food and grocery shops, restaurants, petrol stations, recreational areas, parking spaces and roads to cater for the expected changes to the local residential population, in terms of demographic patterns and numbers
- an estimate of the value of the Project to the local economy. In particular, the value associated with expenditure during the construction stage and the annual

[7]NT EPA, 2013. *Guidelines for the Preparation of an Economic and Social Impact Assessment*. NT EPA, Darwin. Available at: http://www.ntepa.nt.gov.au/environmental-assessments/factsheets-and-guidelines

expenditure on regional goods and services as it relates to the mine and associated infrastructure

- impacts, both positive and negative, on local government in the region
- benefits to local communities, during and beyond the life of the development, such as opportunities for new skills and facilities, economic development and opportunities for local and regional business and employment opportunities
- adverse impacts to local communities during each stage of construction and occupancy of the Project.

4.7.3 Mitigation and monitoring

A Social Impact Management Plan (SIMP) should be prepared that addresses any risks identified through the ESIA. At a minimum, the SIMP should outline:

- the stakeholder engagement strategies that have occurred and will continue throughout the life of the Project
- prioritisation of potential economic and social impacts predicted in the ESIA
- mitigation and management strategies for the identified risks including a register of agreed activities and commitments
- required social infrastructure associated with the proposed development including, but not limited to, schools, child care centres, sports grounds and other community purpose facilities
- a mechanism for monitoring any identified potential socio-economic and cultural impacts. The mechanism should also have opportunities for review
- mechanisms to resolve new and emerging issues as they transpire and amend the SIMP
- outcome and threshold criteria that will give early warning that management and mitigation measures are failing
- management of the lighting of the Project, during all stages, with particular reference to objectives to be achieved and management methods to be implemented to mitigate or avoid impacts to visual amenity that includes the night sky.

4.8 Historic and cultural heritage

4.8.1 Environmental objective

To identify, understand and mitigate the potential impacts of the Project on items or places that have historic and/or cultural heritage values and are protected under heritage legislation.

4.8.2 Assessment of risks

The EIS should include a discussion of the following risks to historic and cultural heritage items:

- an assessment of the Project's potential impacts on sacred sites, heritage places and culturally significant sites
- details of the Project's requirements to apply to, or applications already made to, the NT Minister for Lands, Planning and the Environment to disturb or destroy a prescribed archaeological place and/or object under the *Heritage Act*
- an assessment of risk to culturally significant sites from construction and occupancy of the Project.

Advice and permits on the conduct of heritage surveys should be sought from the responsible authorities. Independent qualified professionals, in consultation with the traditional owners, or their representative bodies in the relevant area, must conduct surveys. Consultation with historical organisations should also be undertaken.

4.8.3 Mitigation

The Proponent should describe the prevention and mitigation of potential risks to existing sites or items of historic and cultural heritage in a Heritage Management Plan. The Heritage Management Plan should include:

- procedures to avoid significant sites
- protection of key sites during construction work and occupancy
- measures to enable the Proponent, or contractor to the Proponent, to meet its duty of care to protect the cultural and heritage values of any places or items of significance
- procedures that will be implemented should items with heritage significance be discovered on the surface or sub-surface during the course of the Project.

The Heritage Management Plan should be prepared by a suitably qualified expert that has demonstrated experience in the management of heritage items and places. When preparing the Heritage Management Plan it is strongly recommended that the Proponent give consideration to, and refer to the *Australia ICOMOS Burra Charter, 2013* and practice notes[8] to ensure that the investigations and mitigation measures proposed meet best practice standards for the management of cultural heritage in Australia.

4.8.4 Monitoring

The Heritage Management Plan should include details of a monitoring and reporting program to determine the effectiveness of mitigation measures. The monitoring and reporting program should identify when further action is required and outline contingency measures should the proposed mitigation measures result in degradation to the values of items with heritage or cultural significance.

4.9 Bushfires

4.9.1 Environmental objectives

To minimise the impact of major bushfires on human life as the highest priority, communities, essential and community infrastructure, industries, the economy and the environment. Human life will be afforded priority over all other considerations.

To maintain or improve the resilience of natural ecosystems and their ability to deliver services such as biodiversity, water and carbon storage.

4.9.2 Assessment of risks

The EIS should describe the potential risks from bushfires to people, property and natural ecosystems that may be associated with the Project. With reference to the information provided in section 3.6 assess:

[8] Australia ICOMOS Incorporated, 2013.*The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance, 2013.* International Council on Monuments and Sites. Available at: http://australia.icomos.org/publications/charters/

- the potential for the Project to contribute to increased bushfires in the region
- the potential for a bushfire to occur during each stage of the Project
- the potential impacts to the local community from bushfires in the Noonamah/Humpty Doo region
- the potential impact of altered fire regimes from the Project on natural ecosystems.

4.9.3 Mitigation

The Proponent should be aware of sections of the *Bushfires Act* and Regulations that apply to the Project and address risk and management of bushfires. A Fire Management Plan should be developed in consultation with Litchfield Shire Council. The Fire Management Plan should describe what measures will be taken to reduce the severity of, or eliminate the risk from, bushfires through prevention and community preparedness and include a bushfire protection strategy for all stages of the Project (including additional clearing requirements, and controlled burning regime).

4.9.4 Monitoring

The Fire Management Plan should include details of a monitoring and reporting program to determine the effectiveness of mitigation measures. The monitoring and reporting program should identify when further action is required and outline contingency measures if the proposed mitigation measures do not adequately reduce bushfire risk.

4.10 Other risks

Other environmental risks should be identified and management strategies proposed, including, but not limited to:

4.10.1 Biting insects

There is potential for construction activities and ongoing occupancy of the site to create mosquito breeding sites. The Proponent should be aware of sections of the *Public and Environmental Health Act* that apply to the Project and address risk and management of biting insects in the EIS.

In particular, the EIS should include a Biting Insect Management Plan that identifies appropriate mitigation and management measures to minimise mosquito breeding potential and exposure to residents. Further information on mitigating and managing mosquito breeding is available in the Department of Health:

- *Guidelines for preventing biting insect problems in new rural residential developments and subdivisions in the Top End of the NT*[9]
- *Mosquito breeding and sewage pond treatment in the Northern Territory*[10]
- *Constructed wetlands in the Northern Territory-Guidelines to prevent mosquito breeding*[11]

[9] Medical Entomology Centre for Disease Control, 2014. *Guidelines for preventing biting insect problems in new rural residential developments and subdivisions in the Top End of the NT*. Department of Health and Families, Darwin. Available at: http://www.health.nt.gov.au/Medical_Entomology/Publications/Development_Guidelines/index.aspx

[10] Medical Entomology Centre for Disease Control, 2009. Mosquito breeding and sewage pond treatment in the Northern Territory. Available at: http://www.health.nt.gov.au/Medical_Entomology/Publications/Development_Guidelines/index.aspx

The Biting Insect Management Plan should include the results of baseline monitoring as well as plans for future monitoring of biting insect numbers that will be used to determine the effectiveness of any mitigation and management. Monitoring for biting insects on the site should be undertaken by a person that has demonstrated experience with surveying for biting insects and must undertake the baseline and future monitoring consistent with the methods used by the Department of Health's Medical Entomology Branch.

4.10.2 Noise

The Proponent should address the impact of noise resulting from construction stages of the Project on residents and the community in the EIS. The potential sensitivity of receptors to noise and mitigation measures should be discussed. A Noise Management Plan should outline methods for communicating with, and reducing the impact on, residents within the vicinity of the Project who may be adversely affected by the Project.

Risk assessment for the Project should occur with respect to noise from Project components. Potential sensitive receptors, expected impacts and proposed management should be identified with regard to noise generated from the Project.

A Noise Management and Monitoring Plan should outline proposed management to mitigate identified risks from the Project with regard to noise emissions. Cross reference should be made with a Project Public Consultation Plan facilitating communication with, and reducing the impact on, residents and communities who may be affected by the Project.

4.10.3 Air

The potential nuisance and human health issues associated with air quality, including dust, and mitigation measures should be discussed in the EIS. Consideration should be given to the acute and chronic exposure and pathways, such as inhalation, ingestion and dermal contact. The potential sensitivity of receptors to air quality, including dust, and mitigation measures should be discussed in relevant sections of the EIS.

Risks to air quality may arise from emissions of chemicals, particulates or biological materials from excavation/fill, general site movements over unsealed surfaces and wind erosion mobilising dust from exposed surfaces, such as from neighbouring extractive leases, laydown areas, stockpiles, and sites of vegetation clearing.

The Proponent should also assess the impacts of the Project on air including, but not limited to:

- possible impacts to the following air quality issues resulting from the Project:
    - ambient air quality (in particular the PM10 fraction)
    - dust
    - odour
- dust suppression strategies
- meteorological information applicable to air quality in the Project area.

[11] Medical Entomology Centre for Disease Control, n.d. Constructed wetlands in the Northern Territory-Guidelines to prevent mosquito breeding. Available at: http://www.health.nt.gov.au/Medical_Entomology/Publications/Development_Guidelines/index.aspx

5 Environmental management

Specific safeguards and controls proposed to be employed to minimise or remedy environmental impacts identified in previous sections are to be included in an Environmental Management Plan (EMP).

The EMP should be strategic, describing a framework for continuing management, mitigation and monitoring programs for the relevant impacts of the Project, including any provisions for independent environmental auditing of the Project. As much detail as is practicable should be provided to enable adequate assessment of the proposed environmental management practices and procedures.

The EMP needs to address the Project stages separately. It must state the environmental objectives, performance criteria, monitoring, reporting, corrective action, responsibility and timing for each environmental issue.

The EMP should include:

- the proposed management structure of the development and its relationship to the environmental management of the site
- management targets and objectives for relevant environmental factors
- the proposed measures to minimise adverse impacts and maximise opportunities, including environmental protection outcomes
- performance indicators by which all anticipated and potential impacts can be measured
- proposed monitoring programs to allow early detection of adverse impacts
- proposed reporting procedures consistent with Territory and Australian Government legislative requirements
- contingencies for emergency events, such as hydrocarbon and other hazardous chemical spills or natural disasters
- the name of the agency responsible for endorsing, approving and/or overseeing each mitigation measure or monitoring program
- a summary table listing the commitments made in the EIS, including clear timelines for key commitments and performance indicators, with cross-references to the text of the EIS
- provision for the periodic review of the EMP.

The EMP would continue to be developed and refined following the conclusion of the assessment process, taking into consideration the proposed timing of development activities, comments on the EIS and incorporating the Assessment Report recommendations and conclusions.

6 General advice on the Environmental Impact Statement

6.1 Content

The EIS should be a stand-alone document. It should contain sufficient information to avoid the need to search out previous or additional, unattached reports.

The EIS should enable interested stakeholders and the NT EPA to understand the environmental consequences of the Project. Information provided in the EIS should be

objective, clear, succinct and easily understood by the general reader. Maps (using an appropriate scale, resolution and clarity), plans, diagrams and other descriptive detail should be included. Technical jargon should be avoided or accompanied by a clear explanation so that it is readily understandable. Cross-referencing should be used to avoid unnecessary duplication of text.

The level of analysis and detail in the EIS should reflect the level of significance of the potential impacts on the environment, as determined through adequate technical studies. Consideration of appropriate spatial, temporal and analytical scales should be used to clearly communicate the potential impacts to the environment. Reliability of the data and an explanation of the sampling criteria and approach should be provided where data are used to support statements, studies and claims in the EIS. All known and unknown variables, limitations or assumptions made in the EIS must be clearly stated and discussed.

Information materials summarising and highlighting risks of the Project should be provided in a culturally appropriate format and language, accompanied by graphics and illustrations that assist with interpretation, where relevant.

6.2 Structure, format and style

The EIS should comprise of three elements:

1. Executive summary

The executive summary must include a brief outline of the Project and each chapter of the EIS, allowing the reader to obtain a clear understanding of the proposed action, its environmental implications and management objectives. It must be written as a stand-alone document, able to be reproduced on request by interested parties who may not wish to read the EIS as a whole.

2. Main text of the document

The main text of the EIS should include a list of abbreviations, a glossary to define technical terms, acronyms, abbreviations, and colloquialisms. The document should consist of a series of chapters detailing the level of significance and management of the potential impacts on the environment from the proposed action.

3. Appendices

The appendices must include detailed technical information, studies or investigations necessary to support the main text. These will be made publicly available and should include:

- a table listing how these Terms of Reference have been addressed in the EIS, cross-referenced to chapters, page numbers and/or appendices
- the name of, work done by and the qualifications and experience of the persons involved in preparing the EIS
- a table listing commitments made by the Proponent
- detailed technical information, studies or investigations necessary to support the main text.

The EIS should be produced on A4 size paper capable of being photocopied, with any maps, diagrams or plans on A4 or A3 size paper, and in colour, if possible.

6.3 Referencing and information sources

All sources must be appropriately referenced using the Harvard Standard. The reference list should include the address of any internet pages used as data sources. All referenced supporting documentation and data, or documents cited in the EIS must be available upon request. For information given in the EIS, the EIS must state:

- the source of the information
- how recent the information is
- how the reliability of the information was tested
- what uncertainties (if any) are in the information.

All known and unknown variables or assumptions made in the EIS must be clearly stated and discussed. Confidence levels must be specific, as well as the sources from which they were obtained. The extent to which a limitation, if any, of available information may influence the conclusions of the environmental assessment should be discussed.

The EIS must include information on any consultation about the Project, including:

- methods of consultation
- a list of persons and agencies consulted during the EIS
- documented responses to, or the results of, any consultation that has already taken place
- proposed consultation about relevant impacts of the Project
- identification of affected parties, including a statement mentioning any communities that may be affected and describing their views.

The EIS has an important role in informing the public about this Project. It is essential that the Proponent demonstrates how any public concerns were identified and will influence the design and delivery of the Project. Public involvement and the role of government organisations should be clearly identified. The outcomes of any surveys, public meetings and liaison with interested groups should be discussed including any changes made to the proposal as a result of consultation. Details of any ongoing liaison should also be discussed.

6.4 Administration

The Proponent should lodge ten bound hardcopies and an electronic (Adobe PDF format) copy of the EIS with the NT EPA. The electronic copies should be provided both as a single file of the entire document and separate files of the document components. A Microsoft Word copy of the EIS should be provided to facilitate the production of the Assessment Report.

The Proponent should consider the file size, format and style of the document appropriate for publication on the NT EPA website. The capacity of the website to store data and display the material may have some bearing on how the document is constructed.

The Proponent is to advertise that the EIS is available for review and comment, in the NT News.

The NT EPA requires the draft EIS document and a draft of the advertisement at least one week prior to advertising the draft EIS, to arrange web upload of the document and review and comment on advertising text.

If it is necessary to make use of material that is considered to be of a confidential nature, the Proponent should consult with the NT EPA on the preferred presentation of that material, before submitting it to the NT EPA for consideration. Information of a confidential nature should not be disclosed in the draft EIS if disclosure of the information might:

- prejudice inter-governmental relations between an Australian body politic and a body politic overseas or between two (2) or more bodies politic in Australia or in the Territory
- be an interference with a person's privacy
- disclose information about an Aboriginal sacred site or Aboriginal tradition
- disclose information obtained by a public sector organisation from a business, commercial or financial undertaking that is:
    - a trade secret
    - other information of a business, commercial or financial nature and the disclosure is likely to expose the undertaking unreasonably to disadvantage.

It is an offence under the *Northern Territory Environment Protection Authority Act* to give information to the NT EPA that the person knows is misleading or contains misleading information.

6.5 Public exhibition

Sufficient copies of the EIS should be provided to and be made available for public exhibition at:

- NT EPA, 2nd Floor, Darwin Plaza, 41 Smith Street Mall, Darwin, NT 0800
- Development Assessment Services, Department Lands, Planning and the Environment, Ground Floor, Arnhemica House, 16 Parap Road, Parap, NT, 0820
- Northern Territory Library, Parliament House, Corner of Bennett & Mitchell Streets, Darwin, NT, 0800
- Palmerston City Library, Goyder Square, The Boulevard, Palmerston, NT, 0831
- Litchfield Council, 7 Bees Creek Road, Freds Pass, NT, 0822
- Top End Regional Organisation of Councils, 2 Chung Wah Terrace, Palmerston, NT, 0831
- Environment Centre Northern Territory, Unit 3, 98 Woods Street, Darwin, NT, 0800
- Office for the Member for Goyder, Shop 4, Coolalinga (Woolworths Shopping Centre), Stuart Highway, NT 0835
- Office for the Member for Daly, Shop 4, Berry Springs Shopping Village, 10 Doris Road, Berry Springs, NT 0838
- Office for the Member for Nelson, Shop 5, Howard Springs Shopping Centre, Whitewood Road, Howard Springs, NT 0835 PO Box 120, Howard Springs, NT 0835

The public exhibition period for the EIS will be six (6) weeks. The EIS exhibition period should not occur in late December or January in any year to ensure optimal opportunity for public and Government viewing of the EIS document. Additional time will be added to the EIS exhibition period if the EIS exhibition overlaps any Christmas and January periods.