

**TERMS OF REFERENCE FOR THE PREPARATION OF AN
ENVIRONMENTAL IMPACT STATEMENT**

**NT LINK PROJECT
APA GROUP**

October 2015

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1 Introduction

In October 2014 the Northern Territory Government (NTG) launched a competitive process seeking private sector proposals for the development of a pipeline connecting the Northern and Eastern Gas Markets – the North East Gas Interconnector (NEGI). This was in response to private sector interest in Northern Territory gas – both supply and demand – and Government focus on commercialising the Northern Territory's gas resource. The NTG's objectives for the NEGI are to stimulate exploration and production of the Territory's gas fields, promote economic and infrastructure development in Northern Australia, and provide employment opportunities in regional and remote areas of Northern Australia. The NEGI is a key project for the NTG and has been granted Major Project status.

The APA Group is one of four proponents invited by the NTG to participate in the final request for proposals stage of the NEGI competitive process with the NT Link Project being the APA Group's proposed NEGI solution.

The APA Group (referred to hereafter as the Proponent) proposes to construct and operate a high pressure underground gas pipeline between its existing facilities on the Amadeus Gas Pipeline, approximately 40 km northwest of Tennant Creek, Northern Territory, and the Carpentaria Gas Pipeline near Mount Isa, Queensland. The pipeline would be 632 km in length; approximately 459 km would be in the Northern Territory.

The pipeline would be buried within a 30 m wide construction corridor and mostly trenched using conventional open trenching methods. Major infrastructure, such as road and rail lines, would be crossed using trenchless construction techniques. Supporting infrastructure would include temporary workforce camps, access roads and above ground facilities, such as a gas processing facility, meter stations, scraper stations, compressors and mainline valves, at intervals along the pipeline route.

The Proponent proposes to commence construction activities in the second half of 2016 and begin commissioning in early 2018. The pipeline would be designed to have an operational life of 60 years.

The Proponent submitted the notice of intent for the NT Link Project to the Northern Territory Environment Protection Authority (NT EPA) on 7 July 2015 for consideration under the *Environmental Assessment Act* (EA Act).

On 10 August 2015, the NT EPA decided that the NT Link Project relevant to the Northern Territory requires assessment under the EA Act at the level of an Environmental Impact Statement (EIS). The NT EPA decision was based on the following issues:

- Potential impacts on biodiversity from land clearing and construction activities (e.g. trenching, etc.). Risks and mitigation measures have yet to be adequately addressed, especially in relation to the identification and protection of threatened species listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and the Northern Territory *Territory Parks and Wildlife Conservation Act* yet to be surveyed and in the control of declared weeds.
- Increased risk of soil erosion and dust generation. Some soils that occur along the proposed pipeline route are highly sensitive to disturbance and have poor recovery potential once disturbed.
- The NT Link Project is likely to increase demand and/or impact on existing services and infrastructure, including roads, air transport networks and water supplies. NTG advisory bodies identified that the notice of intent lacked sufficient information to address service requirements; disruptions to services; capacity of

current infrastructure to meet the demands of the project; and appropriate mitigation measures. The increased demand on the transport network has the potential to damage local infrastructure and impact on the safety of users, including seasonal tourists.

- The sourcing of water for pipeline hydrostatic testing, dust suppression and construction camp consumption, and the disposal of waters from the NT Link Project (e.g. hydro-test water) are yet to be defined by the Proponent. The potential impacts on water users and downstream ecosystems are currently unknown.
- Potential impacts to stakeholders, including land holders and Traditional Owners, due to land access and disruption from construction and maintenance activities.
- Potential social, cultural and economic impacts, including the risks of the NT Link Project not realising its projected economic and social benefits.

Uncertainty exists around the scope of the NT Link Project in relation to operational factors, timeframes and feasibility. The NT Link Project is considered to be of a size and scale to connect areas, and communities, previously difficult to access. It is essential at this early stage to ensure development is conducted in a manner that will be sustainable and not cause adverse environmental and social impacts.

Terms of Reference have been developed to assist the Proponent in preparing an EIS for the components of the NT Link Project relevant to the Northern Territory, in accordance with clause 8 of the Environmental Assessment Administrative Procedures.

The Queensland Coordinator-General has declared the NT Link Project to be a 'coordinated project for which an EIS is required' under section 26(1)(a) of the *State Development and Public Works Organisation Act 1971 (Qld)*. Separate Terms of Reference for the preparation of an EIS for the Queensland section of the NT Link Project have been prepared by the Coordinator-General.

Information about the Queensland environmental assessment process and the Terms of Reference for the Queensland component of the NT Link Project are available at www.statedevelopment.qld.gov.au/nt-link.

The NT EPA and the Queensland Coordinator-General intend to work collaboratively to align assessment processes, as far as practicable, to avoid duplication of documents and synchronise public comment periods for the purpose of assessing the NT Link Project.

2 Description of the Proposed Action

2.1 General Information

The EIS should identify all the processes and activities intended for the NT Link Project and associated ancillary activities, during the life of the proposed action. The EIS should provide a brief background and context to the NT Link Project, including:

- the title of the proposed action
- the full name, contact details and postal address of the Proponent
- the current status of the NT Link Project
- the location of the NT Link Project in the region and its proximity to:
 - landmark features

- sites of cultural significance
- sites of social significance
- regional community centres
- areas on the National Reserve System
- police, fire and emergency services infrastructure
- sensitive environments, such as major waterways, significant groundwater resources, significant natural features and conservation reserves
- the location of all infrastructure (both existing and proposed) relating to any aspect of the construction, operation and decommissioning/rehabilitation of the action
- the background to the development of the NT Link Project, including discussion of previous or other environmental impact assessment
- how the NT Link Project relates to any other proposals or actions, of which the Proponent should reasonably be aware, that have been or are being taken, or that have been approved in the region
- National, State and/or Territory standards, codes of practice and guidelines relevant to the Project.

2.2 Project Components

The EIS should provide an overview of the construction, operation and decommissioning/closure phases of the proposed action and describe relevant activities at each phase. Aspects to be covered include, but are not limited to:

- a detailed schedule or timetable of all relevant aspects of the proposed action
- any land acquisitions required, be it in-full or as easements, leases etc.
- the preferred pipeline route and construction corridor
- the preferred layout, locations (with GPS coordinates) and physical details of above ground facilities, including:
 - mainline valves
 - meter stations
 - scraper stations
 - compressor stations
 - gas processing facility
 - construction camps
 - linkages to existing pipelines
 - any other facilities

2.2.1 Pipeline

The EIS should provide a detailed description of the methods and processes during:

- pipeline construction and installation, including:
 - open-cut trench excavation
 - horizontal directional drilling or trenchless excavation
 - trench dimensions
 - construction corridor and lay down areas
 - vegetation clearing methods and disposal of plant matter following clearing
 - type and source of rock, gravel, fill and other bedding materials
 - burial of pipeline
 - blasting and geotechnical requirements
 - description and location (with GPS coordinates) of every identified potentially significant habitat, watercourse, road and infrastructure corridor to be intersected by the NT Link Project
 - methods and crossing techniques that will be used when intersecting infrastructure (e.g. roads, etc.) or sensitive areas, such as significant habitat, watercourses and/or land units with poor soil recovery potential
- pipeline operation, including:
 - operational, maintenance and safety procedures
 - methods of testing the pipeline's integrity
 - pipeline control and monitoring
 - provisions and procedures for the shutdown of the pipeline and/or the venting of gas, in the event of leakage of gas or explosion, as well as provisions for public safety, exclusion and safe zones identified for persons who are evacuated or where cordons are set up to prevent access, in such circumstances.
- pipeline decommissioning and rehabilitation, including:
 - decommissioning and rehabilitation of temporary and permanent facilities, including the pipeline
 - revegetation methodologies
 - rehabilitation objectives for the project area beyond the intended use
- pipeline design with regard to AS2885¹, and other legislative requirements.

¹Meaning the following publications:

(a) the following Australian Standards:

- i. AS 2885.0-2008, Pipelines - Gas and liquid petroleum, Part 0: General requirements
- ii. AS 2885.1-2012, Pipelines - Gas and liquid petroleum, Part 1: Design and construction
- iii. AS 2885.2-2007, Pipelines - Gas and liquid petroleum, Part 2: Welding
- iv. AS 2885.3-2012, Pipelines - Gas and liquid petroleum, Part 3: Operation and maintenance

(b) the Australian and New Zealand Standard AS/NZS 2885.5:2012, Pipelines - Gas and liquid petroleum, Part 5: Field pressure testing .

2.2.2 Workforce and Accommodation

The EIS should provide details of the predicted workforce requirements, including:

- the number of people to be employed, skills base required, and likely sources (local, regional, overseas), for all phases of the NT Link Project
- the number of people that may be employed to manage or undertake environmental duties on the site, including the specific qualifications and the level of experience with related activities
- the arrangements for transport of workers to and from project areas, including proposed use of air services in and out of regional airports and utilisation of regular public transport or charter services (e.g. use of the Centre Run services provided by Airnorth)
- utilising existing short-term commercial accommodation in Tennant Creek and, if so, the anticipated timeframe and room volumes
- site establishment requirements, including access restriction measures and expected size, source and control of the construction workforce accommodation, services (water, sewage, communication, power, recreation) and safety requirements.

2.2.3 Water

The EIS should provide information on the quantity, quality, source (groundwater and/or surface water), storage, and infrastructure requirements for water use for the NT Link Project, considering:

- dust suppression
- drinking water
- ablutions and sewage treatment
- waterway diversion works
- processing circuit
- hydrostatic testing.

The EIS should describe the details of any proposed groundwater extraction, including treatment, storage, reuse and disposal options and changes to the existing water balance. Anticipated extraction rates, usage and volumes of water should be provided, where relevant.

2.2.4 Roads and Transport

The EIS should provide relevant information in respect of the transport logistic networks, access track construction and transport requirements, including:

- precise locations (including maps) of existing and new road infrastructure that will be required to be used during construction and operation activities
- vegetation clearing methods and disposal of plant matter following clearing
- sources of construction inputs and materials
- maximum width of road corridors and access tracks required for construction and operation

- ongoing provisions for road and access track maintenance, including source and extraction of maintenance inputs and materials
- type, size and number of vehicles required during all phases of the NT Link Project
- estimated frequency and times of NT Link Project vehicle use on public infrastructure, including rail and roads
- methods to convey all site traffic (including materials, workers and product) to and from construction sites and the corridor
- routes for transport, including details of proposed routes for over-dimension or very heavy loads
- operational details of any laydown areas proposed to be used
- peak user times for vehicular movements by staff / contractors
- hazardous or dangerous material which may be transported
- additional transport infrastructure works required, including site access and signage
- hours of operation.

2.3 Approvals, Conditions and Agreements

The EIS must provide information on requirements for approval or conditions that apply, or that the Proponent reasonably believes are likely to apply, to the NT Link Project, including, but not limited to:

- a description of any approvals that will be required from State, Territory or Commonwealth agencies and/or authorities
- a summary of current agreements between the Proponent, the Northern Territory, Queensland and/or the Australian Governments, and/or other stakeholders, including Traditional Owners and/or land managers
- details of the monitoring, enforcement and review procedures that apply, or are likely to apply, to the NT Link Project.

When describing the individual approvals, certificates, permits etc. that will be required the Proponent must include details of any conditions likely or expected to be imposed. Consideration should be given, but not limited to, the following legislation:

- *Aboriginal Land Rights Act 1976*
- *Native Title Act 1993*
- *Environment Protection and Biodiversity Conservation Act 1999*
- *Territory Parks and Wildlife Conservation Act*
- *Heritage Act*
- *Northern Territory Aboriginal Sacred Sites Act*
- *Water Act*
- *Waste Management and Pollution Control Act*

- *Work Health and Safety Act*
- *Public and Environmental Health Act & Regulations.*

2.4 Environmental History

The EIS must include details of the environmental record of the Proponent, including:

- details of any proceedings under Commonwealth, State or Territory law for the 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
- any international or national accreditations (e.g. ISO 14001), environmental awards or other recognition for environmental performance.

2.5 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.

Alternatives should include:

- deferral of the NT Link Project or delay
- the potential consequences / benefits from waiting for project certainty
- alternative locations for components of the project (e.g. NT Link Project route; construction corridor, construction camps, etc.)
- alternative processes, methods and lifecycle (e.g. options for installing the pipeline if geotechnical problems do not permit horizontal directional drilling or open cut trenching, etc.)
- alternative sources of services
- alternative energy sources (e.g. renewables)
- decommissioning and rehabilitation methods.

Discussion should include:

- sufficient detail to make clear why a particular alternative is preferred to another
- adverse and beneficial effects (direct and indirect) of alternatives at national, State / Territory, regional and local levels and their distributional impact
- a comparison of short, medium and long-term advantages and disadvantages of the options.

2.6 Ecologically Sustainable Development

When considering the matters to be addressed in the EIS, the NT EPA is required under the *Northern Territory Environment Protection Authority Act* to:

- (a) promote ecologically sustainable development (ESD)
- (b) protect the environment, having regard to the need to enable ESD.

Accordingly, the NT Link Project, its potential impacts (positive and negative) and the management measures used to enhance positive and reduce negative impacts will be

assessed 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.

3 Existing Environment

Studies used to describe the existing environment of the NT Link Project and its surrounds should be of a scope and standard sufficient to serve as a benchmark (or baseline) against which the impacts of the project over time may be assessed. The level of detail should reflect the scale and nature of the likely studies required to clearly define potential for impact from the project.

Existing environments, and their components, to be discussed must include:

- weather and climate (e.g. rainfall patterns [magnitude and seasonality], temperature, humidity, wind, climate extremes, and any seasonal conditions (e.g. floods or dust storms), which may influence timing and/or construction methods, etc.).
- regional and significant topography and geomorphology
- regional geology (e.g. major units, geotechnical surveys, seismic stability, significant geological properties that may influence stability, occupational health and safety, rehabilitation programs, or the quality of water resources in the project area, etc.)
- soil types and land unit(s)
- surface water, including:
 - major and minor drainage lines (permanent and ephemeral)
 - catchment boundaries
 - surface water flow directions
 - water reservoirs (natural and artificial)
 - wetlands
 - areas of periodic inundation
 - beneficial uses
 - details of the locations of where the pipeline crosses watercourses (e.g. bed and bank profiles, riparian vegetation, bank and bed stability, the expected flow regime of the watercourse in the vicinity of the pipeline, in particular the timing of flows in relation to construction work, etc.)
- groundwater aquifers and hydrogeological properties, including:
 - surface connections via springs or recharge zones
 - local and regional aquifers and bores
 - depth to water tables

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>

- potential bore yields
- results of water quality monitoring of existing bores
- air quality, noise and vibration (e.g. receptors sensitive to air quality, dust, noise and vibration adjacent to the proposed pipeline route and relevant ancillary activities, typical background noise levels, etc.)
- existing infrastructure and service networks (e.g. roads, railways, telecommunications, electricity, water supply, etc.).

The EIS should describe fauna, flora and vegetation communities of the NT Link Project area and local region. The EIS should include survey/program timing, locations and methodology, to demonstrate appropriate and sufficient survey designs. At a minimum, surveys should be in accordance with the Northern Territory³ and Australian Government^{4 5} Guidelines. The EIS should describe and map, where relevant:

- significant or sensitive vegetation types and/or ecosystems within the NT Link Project, including any areas already cleared or disturbed (if any)
- the presence or likely presence of species listed under the *Environment Protection and Biodiversity Conservation Act 1999* and/or the *Territory Parks and Wildlife Conservation Act*
- suitable habitat for listed threatened and/or migratory species, including the locations of historic records and consideration of habitat suitable for breeding, foraging, aggregation or roosting
- the presence, or likely occurrence, of introduced and invasive species (both flora and fauna) within and adjacent to the NT Link Project area, and regionally, including weed species declared under the *Weeds Management Act*.

4 Socio-economic Aspects

The EIS should include a balanced summary of the social and economic value (positive and negative) of the NT Link Project on a regional, state, national and international scale. A brief description of the current population, demography and socio-economic aspects of the project should be provided in the EIS. The following are suggestions that may assist with highlighting the social and economic value of the Project and are not intended to result in the inappropriate disclosure of confidential or sensitive information:

- key stakeholders
- community structures and vitality (e.g. demography, health, education and social well-being, access to services, housing, etc.)
- the number and capacity of existing human services to support a remote construction work force:

³ Northern Territory Environment Protection Authority, 2013. *Guidelines for Assessment of Impacts on Terrestrial Biodiversity*, Available at: http://www.ntepa.nt.gov.au/_data/assets/pdf_file/0003/349941/guideline_assessment_terrestrial_biodiversity.pdf.

⁴ Department of the Environment, 2011. *Survey Guidelines for Nationally Threatened Species*, Available at: <http://www.environment.gov.au/epbc/policy-statements>.

⁵ Department of the Environment, 2009. *Draft Background Paper to EPBC Act Policy Statement 3.21 – Significant Impact Guidelines for 36 Migratory Shorebird Species*. Available at: <http://www.environment.gov.au/resource/draft-significant-impact-guidelines-36-migratory-shorebird-species-migratory-species-epbc>.

- skills audit of affected communities
- workforce characteristics
- housing accommodation type and quantity.
- social amenity and use of the project area and adjacent areas for other purposes, including tourism, industrial, traditional land use, residential and/or educational purposes
- laws, customs and/or culture of the Native Title Holders to establish a baseline for aspects of traditional Aboriginal culture
- a summary of the Project's economic feasibility
- details of the financial capacity to implement the Project, the significance of potential risks to project implementation and associated proposed mitigation measures, including the capacity to cost for operation and maintenance activities
- estimated total project revenue for the duration of the Project (to provide the economic scale of the Project)
- total contribution to Gross State Product and Gross Domestic Product over the economic life of the Project
- opportunities available to regional centres based on the activity generated by the Project (construction, rehabilitation and operation)
- estimated overall tax
- estimated capital and annual operational expenditure
- community and economic value of any residual infrastructure, such as roads, following the life of the Project
- other contributions to local communities, including Traditional Owners.

5 Risk Assessment

5.1 Risk Assessment Approach

The EIS should be undertaken with specific emphasis on the identification, analysis and mitigation of potential impacts through a whole-of-project risk assessment. Through this process, the EIS will:

- identify and discuss the full range of risks presented by the NT Link Project
- identify relevant potential direct and indirect impacts
- quantify and rank risks so that the reasons for proposed management responses are clear
- identify levels of uncertainty about estimates of risk and the effectiveness of risk controls in mitigating risk
- explicitly identify those members of the community expected to accept residual risks and their consequences, providing better understanding of equity issues
- demonstrate that the project represents best practicable technology.

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
- prevention and mitigation of risks are properly addressed in the design specifications
- risks can and will be managed effectively during the construction, operation, decommissioning, closure and post-closure phase of the Project.

Information provided should permit the general 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.

5.2 Information Requirements

The NT EPA has prepared Guidelines to assist in the preparation of EIS documents. The Guidelines are developed and updated periodically, and should be referenced and referred to when addressing the information requirements in an appropriate section of EIS. The Guidelines, 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*
- *Guidelines for Consultants Reporting on Environmental Issues*
- *Guidelines on Environmental Offsets and Associated Approval*
- *Guidelines for the Preparation of an Environmental Management Plan.*

The Guidelines are available on the NT EPA webpage at:
<http://www.ntepa.nt.gov.au/environmental-assessments/guidelines>.

5.3 Cumulative Impacts

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. The risk assessment

should consider and discuss cumulative assessment, where relevant, and account for impacts on an appropriate scale, recognising 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.

The EIS should include appropriate consideration of the impacts on the general environment, ecosystems and matters of national environmental significance and discuss whether those impacts could be permanent. If the impacts are not permanent, a description of how long it will take before recovery from any impacts and identify how soon restoration of habitat could be achieved to reinstate ecosystem function.

5.4 Biodiversity

5.4.1 Environmental Objectives

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 (on the Project area and on adjacent areas that may be impacted).

5.4.2 Assessment of Risks

The EIS should include a detailed risk assessment outlining the risks to biodiversity as a result of the NT Link Project. In particular, the risk assessment should include consideration of the following construction and operation aspects of the Project:

- transportation of personnel, machinery and materials during construction and installation of the pipeline
- clearance and disturbance activities along the alignment and access roads
- trenching activities and installation of the pipeline
- hydrostatic testing of the pipeline and disposal of associated water
- rehabilitation and any ongoing maintenance activities.

The risk assessment should specifically consider, where relevant:

- significant or sensitive vegetation types and/or ecosystems
- the presence or likely presence of species listed under the *Environment Protection and Biodiversity Conservation Act 1999* and/or the *Territory Parks and Wildlife Conservation Act*
- suitable habitat for listed threatened and/or migratory species
- the presence, or likely occurrence, of introduced and invasive species.

The EIS should include references to relevant research and statutory plans, such as action plans, recovery plans and threat abatement plans, when assessing the risks.

Where a risk has been identified, the EIS should include an analysis of the risks to individuals and populations.

In addition to the above risk assessment, the EIS should include an analysis of the potential risks to sensitive vegetation communities at a local and regional scale. Consideration should be given to the potential for ongoing indirect impacts resulting from edge effects, increased dispersal of invasive plants/animals, fragmentation of habitat, etc.

5.4.3 Mitigation and Management

The EIS should contain a Biodiversity Management Plan (BMP) that outlines clear and concise methods to mitigate likely impacts to biodiversity. All mitigation and monitoring measures should be in accordance with best practice advice from relevant Northern Territory and Australian Government advisory agencies and focus on:

- potentially significant impacts to the biodiversity as a whole
- mitigating the impacts to vegetation
- rare or threatened species at risk of being adversely impacted
- weed control measures and hygiene protocols as required under the *Weeds Management Act*.

The goals of the measures should be to avoid, mitigate/manage and monitor impacts to biodiversity. Management measures 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. Use of an appropriate expert to identify the occurrence of the Grey Falcon and to ensure that risks to this species are minimised should be considered.

Proposed mitigation measures must be incorporated in relevant sections of the Environmental Management Plan (EMP) (Section 6).

5.5 Water

5.5.1 Environmental Objectives

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

5.5.2 Assessment of Risks

The EIS should include an assessment of risks to surface and/or groundwater resources at an appropriate spatial scale as a result of the NT Link Project. In particular, the EIS should identify and assess the risks:

- to existing surface and groundwater quality and quantity as a result of the NT Link Project, with specific reference to the project components, including hydrostatic testing
- of potential uncontrolled release or passive discharge of contaminants, such as hydrocarbons, to surface and/or groundwater resources as a result of the project components
- of potential impacts to adjacent areas and vegetation, including surface waterways, from the drawdown of groundwater, including the volume of groundwater expected to be intercepted and/or extracted during the Project

- associated with the new infrastructure or disturbance of soils altering the hydrology and rates of erosion and sedimentation of waterways
- associated with slope or erosion stability
- of any additional impacts to surface and/or groundwater resulting from changes to the Project.

The influence of seasonality should be discussed, where relevant. The risk assessment should give consideration to the short, medium and long term timeframes of the Project.

5.5.3 Mitigation

The EIS should contain a Water Management Plan (WMP) that outlines clear and concise measures to mitigate likely impacts of the NT Link Project on water resources. All mitigation and monitoring measures in the WMP should be adequately detailed to demonstrate best practice management and that environmental values of receiving waters will be maintained. The WMP must include but not be limited to measures that:

- avoid contamination of surface or groundwater resources
- ensure the protection and resilience of water dependent ecosystems
- protect water quality and levels for existing and future users of bores and/or surface waterways, including the potable supplies
- avoid the exposure of sensitive biological receptors to contaminants or water of a poor quality which may be harmful
- treat and manage domestic wastewater and sewage
- ensure the extraction, use and disposal of water is consistent with relevant legislation, including the *Water Act* and the *Waste Management and Pollution Control Act*.

The WMP should be closely related to but separate from an Erosion and Sediment Control Plan (ESCP) for the NT Link Project. Measures to be addressed in both the WMP and the ESCP should include options for minimising water use, management and treatment of clean and contaminated water, including erosion and sediment control measures. It is essential that appropriate consideration of potential contaminant sources and their management is provided, such that the environment is protected from pollution.

The ESCP should specifically include details of permanent and temporary erosion and sediment control methods and treatments to be implemented during the construction (clearing, trenching and rehabilitation) and operational phases of the NT Link Project. The ESCP should address factors, including but not limited to:

- timing and duration of works
- vegetation clearance methods
- management of stormwater flows, including external catchment contributions
- pipeline corridor stabilization methods (e.g. cover re-establishment, rollover bank, etc.), particularly in locations where the slope is $\geq 2\%$
- access track drainage and surface protection, stabilisation, earthworks and revegetation required for rehabilitation.

Management measures and plans should be prepared by a suitably qualified expert that has demonstrated experience in erosion and sediment control planning.

5.5.4 Monitoring

The WMP and ESCP should outline details of monitoring programs that would be implemented throughout the life of the NT Link Project to determine the effectiveness of the mitigation measures. The monitoring programs should identify clear thresholds and contingency measures should construction and operational activities affect water resources.

A summary of the surface and groundwater quantity and quality reporting requirements and monitoring programs used to evaluate and report on the effectiveness of the mitigation measures should consider:

- methods to monitor the impacts of the Project on surface and groundwater quality and quantity
- monitoring for leaks or spills of materials from the NT Link Project and transport operations to ensure protection of local soils, aquifers, environments, workers and the general public.

Provisions to notify and respond to environmental and human health risks associated with water quality, or other water related emergencies, should be discussed and provided in the EIS.

Where interpretation of the monitoring data or other observations have detected the potential for or actual adverse trends in performance or impacts, detail what remedial/corrective strategies and actions would likely be implemented.

Proposed mitigation and monitoring measures must be incorporated in relevant sections of the EMP (Section 6).

5.6 Historic and Cultural Heritage

5.6.1 Environmental Objectives

To identify and protect items or places which have historic and/or cultural heritage values.

5.6.2 Assessment of Risks

The EIS should include a comprehensive risk assessment undertaken by a qualified expert who has experience with heritage items and places. The EIS should consider the potential risks to the following places and items:

- the heritage values of places listed on the National Heritage list
- the heritage values of places listed as a Commonwealth Heritage place
- heritage places and items protected under the *Heritage Act*
- areas and objects protected or registered for protection under the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984*
- sacred sites protected under the *Northern Territory Aboriginal Sacred Sites Act*.

The identification of any impacts to Indigenous cultural heritage is to take place in consultation with relevant Indigenous groups, the Aboriginal Areas Protection Authority (AAPA) and the Heritage Branch of the Department of Lands, Planning and the Environment. Provide an assessment of the Project's potential direct and indirect effects on sacred sites, heritage places, and any potential impacts on Indigenous culture generally or traditional use of the area and demonstrate required consultation on

potential impacts to sacred sites through the application of an AAPA Authority Certificate.

5.6.3 Mitigation

Where a place(s) or item(s) has been identified to be at risk from the NT Link Project, the Proponent should prepare a Cultural Heritage Management Plan (CHMP) which outlines clear and prescriptive mitigation and management measures for protecting the values of those places. The CHMP should include:

- encourage ongoing protection and management of cultural values
- procedures to avoid significant sites
- protection of key sites during construction, operation and decommissioning work
- 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 for the discovery of surface or sub-surface items during the course of the Project
- details of any applications to and/or approval conditions from relevant agencies/authorities with respect to the disturbance, degradation or visitation of any listed/protected heritage places and/or items.

When preparing the CHMP, it is recommended that consideration be given to the *Burra Charter*⁶ and guideline. The Burra Charter and guideline outline measures for ensuring that heritage investigations and mitigation measures meet best practice standards for the management of cultural heritage in Australia.

Proposed mitigation measures must be incorporated in relevant sections of the EMP (Section 6).

5.7 Human Health and Safety

5.7.1 Environmental Objectives

Ensure that the risks to human health and safety are identified, understood and adequately mitigated.

5.7.2 Assessment of Risks

The EIS should include an assessment of the risks to people, the environment and nearby facilities associated with the construction, operation, maintenance and decommissioning of the various components of the NT Link Project, and the storage and transport of materials to and from the work sites. The aim of the risk assessment is to demonstrate that:

- the Proponent is fully aware of the risks to human health and safety associated with all aspects of the proposed action
- the prevention and mitigation of risks to human health and safety are properly addressed in the design specifications

⁶ The Australian National Committee of International Council on Monuments and Sites (ICOMOS), 2000. The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance. Available at: <http://australia.icomos.org/publications/charters/>

- the risks can and will be managed effectively during the construction, commissioning, operation, and decommissioning of the proposed action, including safety risks associated with:
 - fire, including combustible materials and wildfire
 - unauthorised tapping of the gas pipeline
 - third party interference with the project
 - asphyxiation due to nitrogen gas exposure during trench excavation
 - emergency situations and exclusions/evacuation zones
 - road users, including seasonal tourist, associated with increased traffic and use of the existing road networks.

5.7.3 Mitigation

Detailed emergency plans and response procedures will need to be developed as a contingency in the event of an emergency or accident (e.g. chemical spillages, leaks, fire and explosions etc.), incorporating management of all emergencies that may impact the environment, infrastructure (e.g. police, fire and emergency services infrastructure, roads, etc.) personnel or the public. Responsibilities and liabilities in such an event should be included.

The EIS should include a construction Traffic Management Plan that outlines detailed avoidance and management measures to mitigate the risks of increased road traffic to existing road users and the interruption of road services. The plan should identify clear thresholds for accidents, near misses and delays/interruptions that trigger review of the plan and be prepared consistent with the Department of Transport's Policies, which are available at: <http://www.transport.nt.gov.au/ntrroads/nt-roads-policies>. Where there is the potential for transport-related impacts to have unintended social and economic consequences, management and mitigation measures should also be provided.

Proposed mitigation measures must be incorporated in relevant sections of the EMP (Section 6).

5.8 Socio-economic

5.8.1 Environmental Objectives

To monitor and manage the intended and unintended social and economic consequences, both positive and negative, of the NT Link Project.

5.8.2 Assessment of Risks

An Economic and Social Impact Assessment (ESIA) should be conducted. The ESIA should:

- document the economic and social impacts of the NT Link Project on the region and more broadly, where relevant
- assess the risks of the Project not realising its projected economic and social benefits
- encourage development of new and/or expansion of existing businesses in the locality
- foster sustainable development and community wellbeing

- provide for appropriate contingencies to protect the community, local business owners and residents in the event of forced or unpredicted delays
- discuss the risks of the Project, related infrastructure and associated workforce negatively impacting on identified economic and social issues in the region.

Further information on the development of an ESIA is available in the NT EPA's *Guidelines for the Preparation of an Economic and Social Impact Assessment*, accessible on the NT EPA webpage at: <http://www.ntepa.nt.gov.au/environmental-assessments/guidelines>.

5.8.3 Mitigation and Monitoring

The EIS should include an Economic and Social Impact Management Plan that addresses any risks identified in the ESIA and should:

- describe how the Proponent proposes to manage any identified economic, social, or relevant cultural risks (e.g. impacts to Aboriginal culture, etc.) from the Project, or its associated workforce
- describe how potential local and regional business and employment opportunities related to the Project will be identified and managed
- include a mechanism for monitoring and reporting any identified potential socio-economic and cultural impacts
- include measures to mitigate negative economic and social impacts on the locality and region
- provide outcome and assessment criteria that will give early warning that management and mitigation measures are not achieving the outcomes and benefits expected and identified by the Proponent
- provide a stakeholder communications strategy including identification of, and ongoing consultation and negotiations with, all relevant stakeholders, ensuring the full range of community viewpoints are sought and included in the EIS.

Proposed mitigation and monitoring measures must be incorporated in relevant sections of the EMP (Section 5).

5.9 Other Risks

The following environmental risks should be identified and proposed management strategies provided in the EIS.

5.9.1 Air

The Proponent should assess the impacts of the NT Link Project on air quality, including the following:

- ambient air quality (in particular the PM₁₀ fraction)
- dust
- odour/gases.

Risks to air quality may arise from emissions of chemicals, particulates or biological materials from:

- gas processing

- general vehicle movements
- wind erosion mobilising dust from exposed surfaces, such as from laydown areas, access tracks and sites of vegetation clearing.

The assessment should be informed by meteorological information applicable to air quality in the project area. The sources and projected quantities of greenhouse gases emitted by the NT Link Project should be described, including from land clearing and the construction and operational requirements of the NT Link Project.

The EIS should outline measures for managing and monitoring the impacts of air quality, including dust suppressions strategies and monitoring of dust impacts.

A discussion of existing variability in air quality target parameters, such as the impact of seasonal smoke haze, should be included in a relevant section of the EIS. Details of the proposed air monitoring, including technique, location, frequency and details of laboratory undertaking analysis, target parameters, and proposed reactive management that are tied to monitoring thresholds, should be provided.

5.9.2 Bushfires

The Proponent should be aware of sections of the *Bushfires Act* and Regulations that apply to the NT Link Project and address risk and management of bushfires. The development of a Fire Management Plan should be in consultation with Traditional Owners, pastoralists and their representative organisations, including relevant Land Councils that have specialist knowledge in fire management.

5.9.3 Noise and Vibration

The EIS should outline proposed management to mitigate any identified risks from the Project with regard to noise and vibration emissions. If relevant, the EIS should describe proposed communication with any residents and communities predicted to be impacted by noise and vibration from the project.

5.9.4 Visual Amenity

The extent and significance of the changed landscape on visual amenity during all stages of the NT Link Project should be discussed in a relevant section of the EIS. Aspects of the project that would be visible from key vantage points, publicly accessible areas and areas of significance, should be discussed.

5.9.5 Waste management

Disposal of waste should be conducted in such a way as to avoid potential public health nuisances and environmental pollution. The EIS should discuss the management and disposal of waste for construction and operation phases, including:

- predicted waste streams, both industrial and domestic, including solid wastes at the Project site
- any hazardous wastes requiring management during the Project
- methods for the storage, handling, containment and emergency management of chemicals and other hazardous substances (including fuel)
- waste management strategies for storage, transport and disposal of waste taking into account the waste hierarchy.

5.9.6 Public Health and Food

Information regarding accommodation requirements, food safety standards, on-site wastewater disposal, wastewater stabilisation ponds, solid waste disposal and public

health nuisance abatement should be included in a relevant section of the EIS. Information with regard to the environmental health requirements from the Department of Health is provided in *Environmental Health Fact Sheet 700 Requirements for Mining and Construction Projects*⁷.

6 Environmental Management

The specific safeguards and controls proposed to be employed to minimise or remedy environmental impacts identified in the risk assessment process are to be included in an EMP. The EMP should be strategic, describing a framework for continuing management, mitigation and monitoring programs for the significant environmental impacts of the Project.

The scope, content and structure of the EMP will be a function of the outcomes of the environmental risk assessment and determined by the significance of the environmental impacts. The EMP should not be prepared in isolation but should be consistent and integrated with the principles of an environmental management system. The EMP should include specialised management plans where it is necessary to provide a high level of operational detail (e.g. WMP, ESCP, etc.). 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 phases (construction, operation and decommissioning/closure) separately. It must state the environmental objectives, performance criteria, monitoring, reporting, corrective action, necessary resourcing, responsibility and timing for each environmental issue.

Further information on the development of an EMP is available in the NT EPA's *Guidelines for the Preparation of an Environmental Management Plan*, accessible on the NT EPA webpage at: <http://www.ntepa.nt.gov.au/environmental-assessments/guidelines>.

7 General Advice on the Environmental Impact Statement

7.1 General 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 proposed action. 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 wherever possible. 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 expected and 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.

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

⁷ Department of Health, 2013. *Environmental Health Fact Sheet 700 Requirements for Mining and Construction Project*, Available at: http://www.health.nt.gov.au/Environmental_Health/Health_Risk_Assessment/

7.2 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 expected and 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.

7.3 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.

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.

Sufficient discussion should accompany the data to demonstrate that the data and results of quality control and quality assurance testing are suitable and fit for purpose. The NT EPA's *Guideline for Consultants Reporting on Environmental Issues* outlines the minimum information required for the presentation of data from studies, investigation, monitoring and remediation of land and water contain to enable efficient review.

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

- any consultation that has already taken place
- a list of persons and agencies consulted during the EIS
- if there has been consultation about the Project, any documented response to, or result of, the consultation
- 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 Project as a result of consultation. Details of any ongoing liaison should also be discussed.

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 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.

7.4 Administration

The Proponent should lodge three bound hard copies and electronic versions (Adobe PDF and Microsoft Word format) 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.

The Proponent should consider the file size, the number of files, 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 documents are constructed.

The Proponent is to advertise that the draft EIS is available for review and comment, in:

- The NT News
- Tennant and District Times
- The Centralian Advocate.

At a minimum, the advertisement should be published in the Saturday edition of the NT News at the commencement of the public exhibition period and the first edition of the Centralian Advocate and Tennant and District Times after the commencement of the exhibition period.

The following information should be published in the advertisement:

- a brief summary of the NT Link Project and the environmental assessment process
- clear notice that the draft EIS is available for public comment and for how long
- the locations the draft EIS will be available for viewing
- the method and contact details for interested groups or persons wishing to make comment, including an address (postal and electronic) to which interested persons may send or deliver their written comments.

The NT EPA requires the complete 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.

7.5 Public Exhibition

The public exhibition period for the draft EIS will be six (6) weeks. The 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. The NT EPA will direct the Proponent to extend the EIS exhibition period if the EIS exhibition overlaps any Christmas or January periods.

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

- NT EPA, Suite 201, The Avenue, 12 Salonika Street, Parap
- Mines and Energy Information Centre, Department of Mines and Energy, 3rd Floor, Paspalis Centrepoint, 48 Smith Street Mall, Darwin
- Northern Territory Library, Parliament House, Darwin
- Northern Land Council, Tennant Creek Office, Shop 4/173 Patterson Street, Tennant Creek
- Arid Lands Environment Centre, 90 Gap Rd, Alice Springs

- Environment Centre Northern Territory, Unit 3, 98 Woods St, Darwin.

It is the Proponent's responsibility to ensure that the hard copies are supplied to the aforementioned locations in a timely manner.