APPENDIX B
Draft Construction Environmental Management Plan (draft CEMP)

Australian

Pipeline Trust

Bonaparte Gas Pipeline Project

Project Plan BGP-PL-E-003

CONSTRUCTION ENVIRONMENT MANAGEMENT PLAN

06.03.07	H4	Draft including comments	Ray Hall	N. Preece	
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Date	**Revision**	**Description**	**Prepared**	**Checked**	**Approved**

NOTE

THIS DOCUMENT IS A DRAFT AND HAS BEEN ISSUED FOR INFORMATION ONLY

FINALISATION OF THIS PLAN IS SUBJECT TO COMPLETION OF A PUBLIC ENVIRONMENTAL REPORT (PER) IN ACCORDANCE WITH NORTHERN TERRITORY LEGISLATION

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1.0 PURPOSE & SCOPE

This Environmental Management Plan (EMP) has been prepared to cover all construction activities associated with the Bonaparte Gas Pipeline (BGP) and associated facilities. The EMP has been developed in accordance with the Australian Pipeline Industry Association (APIA) Code of Environmental Practice to ensure that the BGP Project is constructed in accordance with industry best practice and that commitments from the Public Environment Report (PER) are implemented.

The purpose of the EMP is to ensure that appropriate environmental protection and impact minimisation techniques are implemented during and following construction.

The EMP provides a framework for control of Project impacts.

2.0 INTENT

This EMP seeks to set performance standards the Project is to achieve in its implementation, and has been developed for use by a wide range of Project personnel.

The EMP intentionally avoids being too prescriptive in regard to how performance is to be achieved; rather it details the available management strategies which will be applied to achieve the performance standards set by the Project.

The EMP will be used by:

- **Managers** to assist in the planning and resourcing of functions and to allow for assessment of required skills, competencies and training;
- **Construction Superintendents** to assist in the selection of workforce and equipment and to identify specific training, competencies and resources for the Project;
- **Construction Supervisors** (foremen) to allow them to clearly understand specific requirements for specific tasks at specific locations; and
- **Auditors** to easily understand the general performance requirements of the Project and to enable each of these requirements to be checked and reviewed in an orderly manner.

The EMP will be used for preparation of **Quality Assurance Documentation and Daily/Weekly Reporting structures** by enabling the development of recording requirements for daily activities, location based activities and specific function activities by all construction crews that demonstrate compliance with this EMP.

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3.0 ABBREVIATIONS

ADP	Amadeus Darwin Gas Pipeline
AHD	Australian Height Datum
APIA	Australian Pipeline Industry Association
ASS	Acid Sulfate Soils
BGP	Bonaparte Gas Pipeline
CEP	Construction Execution Plan
CHMP	Cultural Heritage Management Plan
EM	Environment Manager - Constructor
EMP	Environmental Management Plan
Eni	Eni Australia Pty Ltd
ERP	Emergency Response Plan
GIS	Geographical Information System
ITP	Inspection and Test Plan
JHA	Job Hazard Analysis
NT	Northern Territory
PER	Public Environment Report
ROW	Right-of-Way
SAP	Special Area Plans
SMP	Safety Management Plan
WMP	Weed Management Plan

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4.0 RESPONSIBILITIES

APT are responsible for the implementation and compliance with this EMP. APT will engage a construction contractor (the "**Constructor**") to built the BGP. The selected Constructor will be required to implement and comply with this EMP.

The Constructor shall be responsible for:

The selected Constructor will be responsible for the implementation of and compliance with this EMP.

APT will be responsible for contractually binding the Constructor to compliance with this EMP and for regularly monitoring the performance of the Constructor. APT will also be responsible for approval of quality management procedures and systems prepared in association with the Constructor as provided for in the BGP scope of work and in accordance with this EMP.

Amongst other obligations, the Constructor shall be responsible for:

- Development of Systems, Procedures and Reporting mechanisms which will ensure and demonstrate in a tangible way, compliance with the EMP
- Development and implementation of appropriate training to all staff and contractors on the requirements of this EMP. This shall range from detailed training for supervisors, through to inclusion of environmental matters in Project induction for other workers
- Providing a suitably experienced Environmental Manager to work on the Project.
- Participating in Audits and reviews and undertaking corrective actions and system improvements as required

APT will take an active role in ensuring that all aspects of this EMP are implemented and managed.

All BGP personnel are responsible for the environmental performance of their activities and for complying with the laws of the Northern Territory (NT). Specific environmental roles and responsibilities are detailed in the following section.

4.1 Project Manager – APT

The Project Manager is responsible for the standard of all management, including environmental management. To assist in fulfilling this responsibility, the Project Manager is supported by a series of specialist personnel. [This section will require adjustment as Construction Contracting approach and detail further developed]

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4.2 Construction Manager - APT

The Construction Manager is responsible for monitoring all construction activities, including; the Constructors performance and compliance against this EMP. [This section will require adjustment as Construction Contracting approach and detail further developed]

4.3 Manager Environment - APT

The Manager Environment is responsible for monitoring and reporting on the implementation of the EMP, and for the continual measurement of the environmental performance of personnel and equipment. [This section will require adjustment as Construction Contracting approach and detail further developed]

4.4 Manager Land Access – APT

The Manager Land Access is responsible for all communications with landowners and the NLC. [This section will require adjustment as Construction Contracting approach and detail further developed]

4.5 Manager Safety, Risk and Licensing - APT

The Manager Safety, Risk and Licensing is responsible for maintaining the Compliance Register and for establishing compliance audits (safety and environmental) and monitoring programs. Compliance audits will be conducted against the requirements of this EMP, including the construction procedures, relevant legislation, license and permit conditions and industry standards. Refer to Section 8.4 for details of the audit program. [This section will require adjustment as Construction Contracting approach and detail further developed]

4.6 Project / Construction Manager - Constructor

The Construction Manager – Constructor is responsible for directing all work in a manner that complies with all relevant environmental procedures, adheres to all legislative requirements and ensures that all environmental objectives associated with the Project are achieved. This includes development and implementation of appropriate Construction Execution Plan (CEP) and Job Hazard Analysis (JHAs). [This section will require adjustment as Construction Contracting approach and detail further developed]

4.7 Environmental Coordinator – Constructor

The Environmental Coordinator is responsible for the implementation of the EMP in the field.

[This section will require adjustment as Construction Contracting approach and detail further developed]

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5.0 PROJECT OVERVIEW

The Australian Pipeline Trust (APT) proposes to construct approximately 280 km of high pressure gas pipeline from near Wadeye to the existing Amadeus-Darwin Gas Pipeline (ADP). The proposed pipeline will meet the ADP at the Ban Ban Springs scraper station which is approximately midway between Pine Creek and the Adelaide River township.

The Bonaparte Gas Pipeline (BGP) will transport treated natural gas from the Eni Blacktip Gas Plant to supply fuel principally for Darwin's power supply. The current gas contracts from the Amadeus Basin near Alice Springs expire at the end of 2008 and the fields are in decline and unable to continue to provide long term supply. The Power and Water Corporation (PWC) has negotiated an agreement with Eni to source replacement gas supplies from the Blacktip field located offshore in the Bonaparte Gulf, for existing power generation assets in the NT. The pipeline, which will initially be capable of delivering 30 PJ/year of natural gas, will consist of a buried high tensile steel pipe located in a corridor up to 30 metres wide. Above ground facilities at intervals along the pipeline route are likely to include an inlet and meter station at the Wadeye Plant, a mid-line scraper station, up to 2 mainline valves along the pipeline and an outlet station at the ADP connection point.

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Figure 1: Route Map

6.0 APT COMMITMENT TO THE ENVIRONMENT

APT is committed to pursuing industry best practice in environmental performance. This is demonstrated through APT's Environmental, Health Safety and Management System and Environmental Health and Safety Policy (Appendix A).

7.0 CONTROL MEASURES

Control measures have been developed to ensure that the objectives of this EMP are achieved. The control measures have been documented both in this EMP (see Sections 10.0 and 13.0), and where appropriate, in the Construction Specifications, Landowner Line List, Access Mapping and Alignment Drawings. This EMP has made relevant references to additional applicable documentation.

The environmental control measures and associated documentation will be dynamic. They will be periodically reviewed and amended as required to ensure that adverse environmental impacts are minimized.

8.0 TRAINING

All Managers (APT and Constructor) are responsible for identifying training and competency requirements for personnel under their control, and for ensuring that personnel have the requisite competencies, skills and training to carry out their assigned tasks. Managers are also responsible for ensuring training records are maintained. Training may include Inductions, Toolbox Meetings, Job Hazard Analysis and Construction Execution Plans (CEPs).

8.1 Induction

All staff, contractors, and consultants will complete a comprehensive Project Induction. The induction will include safety requirements, site behaviour rules, access protocols and restrictions, and a comprehensive review of environmental requirements and standards. All Project supervisors and managers will have an additional training session on the use and implementation of the EMP.

It is the responsibility of the Construction Managers (APT and Constructor) to ensure records of the training of relevant personnel are maintained.

8.2 Toolbox Talks

The Construction Manager - Constructor will ensure that supervisors hold regular toolbox talks with staff and crews to discuss issues associated with the scheduled work. The toolbox talks will involve highlighting and discussing relevant environmental issues as required and keeping records of Toolbox Talk Agendas, attendance and outcomes. They will also include discussion of strategies to be implemented as identified in JHA (see below).

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8.3 Job Hazard Analysis (JHA)

A JHA is a tool used to help personnel identify, analyze, and manage the hazards that exist in the work they are to undertake. It formalizes the process of hazard identification and management that most people follow when working. The JHA requires personnel to examine the task they are about to undertake, and:

- To break the job into separate, defined steps;
- For each step identify the potential hazards (safety and environmental) that could occur with that job step; and
- For each potential hazard, list the method to be followed to prevent or minimize injury, loss, damage or environmental incident.

8.4 Construction Execution Plans

CEPs are plans that convert construction specifications to a task or method specific approach. From these CEPs the JHAs will be developed.

9.0 REPORTING AND AUDITING

During construction there will be continuous review of the construction area. Individuals and work crews will be required to demonstrate that the pertinent requirements of the Environmental Management Plan are being adhered to. Each supervisor will be required to record daily and weekly activities on pre-prepared checklists addressing relevant EMP requirements.

All reports, reviews, and audits will be kept by the Manager Safety, Licensing and Risk and are to be made available to the appropriate Managers (APT and Constructor) and to the Regulatory Authorities as required. Audit results will be used to review management practices, and if necessary, the EMP will be updated to accommodate changes.

In addition to the monitoring and reporting requirements documented in the relevant sections of the EMP, the following regime will be implemented:

9.1 Audits

Audits will be conducted at the frequencies set out in Table 9-1.

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Table 9-1: Audit Schedule

No	AUDIT	TIMING *
1	EMP Compliance	Within 6 weeks of Construction Commencement
2	EMP Compliance and review of corrective actions from Audit 1	Mid construction
3	Construction completion and review of corrective actions from Audit 2	Within 6 weeks of the completion of reinstatement works

Post-construction, audits will be conducted to evaluate effectiveness of revegetation, erosion and soil stability management, weed control, watercourse alteration prevention and success of bed and bank re-profiling (timing of audits will be dependent on weather conditions). Issues identified during audits will be recorded and corrective action implemented.

9.2 Incident Reporting and Non-Conformance

Incident reporting will be implemented to record any safety or environmental non-conformances or incidents. These shall be recorded on an incident report form and forwarded to the Construction Managers and Manager Safety, Licensing and Risk. The Safety, Licensing and Risk Manager is responsible for notifying the Project Manager (APT) and, where relevant, the appropriate government agency. Incidents will be investigated and followed up and, where relevant, corrective actions nominated and implemented. Depending upon the nature of the incident (safety or environmental), the Manager Safety, Licensing and Risk or Manager Environment are responsible for ensuring all incidents are thoroughly investigated and managed accordingly.

9.3 Complaints Register

The Construction contractor will be required to report and record any complaints from the public or specific Project stakeholders to the Manager Land Access. The Manager Land Access will record any complaints received from the Construction contractor or from the public or specific Project stakeholders and enter these on the BGP Complaints Register in accordance with the Complaints Management Procedure. Project Manager APT and Project Manager Constructor shall review each complaint upon receipt and agree how the complaint will be addressed. Corrective actions and other recommendations including, where applicable, modifications to practices and procedures shall be made and closed out under the direction of the Project Manager APT and the Project Manager Constructor. [This section will require adjustment as Construction Contracting approach and detail further developed]

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10.0 ENVIRONMENTAL CONTROL MEASURES – CONSTRUCTION ACTIVITIES

10.1 Alignment, Access and Site Selection

Company Policy	*To utilize to the extent practicable, existing cleared areas and access tracks so as to minimize the impact on vegetation, and minimize potential for weed invasion, and to limit access to locations agreed with stakeholders*
Performance Objectives	• Minimize impacts to native flora and fauna. • Respect rights and interests of all landholders • Minimize impacts to soil and water. • Avoid adverse impacts on cultural and historic heritage sites. • Reduce the likelihood of the spread of weeds. • Minimize the number of access tracks and diversions. • Minimize disruption to landholders and third parties. • Manage road and track usage, and achieve satisfactory road and site rehabilitation. • Minimize damage to existing road networks. • Demonstrate accurate mapping of all access and alignment development
Legislation and Policies	• *Environmental Protection and Biodiversity Conservation Act 1999.* • *Territory Parks and Wildlife Conservation Act 2000.* • *Heritage Conservation Act.* • *Northern Territory Aboriginal Sacred Sites Act.* • *Soil Conservation and Land Utilization Act.* • *Weeds Management Act 2001.* • *Environmental Assessment Act.*
Aspects	• Initial ground surveys and route selection. • Pre-construction geotechnical surveys • Weed management. • Negotiation between engineering and environmental aspects.
Management Strategy	• Route alignment, the location of campsites, storage, and additional work areas and new access tracks have been/will be based on, to the extent practicable, the following criteria: – Avoiding unduly steep or rugged terrain; – Minimising impacts on sensitive vegetation, erosion prone soils and watercourse crossings, – Avoiding significant natural, Aboriginal, archaeological or historic heritage sites, – Suitable distance from residences (including construction campsites) to avoid noise impacts and other disturbance. • Existing roads and tracks will be used where practicable. • All new access tracks and any diversions will be selected against the above criteria and will be individually approved by the Manager Land Access. Access locations shall be mapped, numbered and clearly signposted. • Where road construction material is required, borrow material will be sourced from: – an approved established borrow site or – a new site established within the 100m study corridor, less than 1ha in size and 1.5m deep and not within 50m of a watercourse or culturally or environmentally sensitive site. • No use of non-designated access tracks will be allowed. • Where fences are breached during construction temporary stock proof gates will be provided. • All fences and gates will be reinstated in accordance with landowner and operational requirements. • Vehicles and personnel will be required to remain on the approved construction corridor, access tracks and other designated work areas or campsites. • Weed management will be conducted in accordance with Section 11.2.

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10.1 Alignment, Access and Site Selection	
	• Maintain property access for landholders at all times. • Impacts to landholders will be minimized (e.g. installation of gates and cattle grids to allow access to pipeline construction corridor, and temporary fencing to control livestock if required). • Track and access maintenance and watering will be conducted as appropriate to minimize dust generation and surface deterioration. • Speed and weight restrictions will be applied to project vehicles as appropriate.
Performance Indicators	• Access and sites readily manageable and able to be rehabilitated using standard techniques. • Complaints from land owners, authorities and public. • Demonstration of cultural heritage avoidance or clearance. • Demonstration of minimisation of impacts during route development
Monitoring, Reporting and Corrective Actions	• During construction the entire length of the construction corridor and associated work areas will be regularly inspected to assess the effectiveness of protection measures with particular attention to; – Topsoil management, – Access management, – Weed management. • Regular audits in accordance with Section 9.1 of this EMP will be undertaken and recommendations and corrective actions shall be implemented. • Non Compliance and Incident Reporting will be reported to, and regulated by, senior management to ensure prompt rectification and change management as required. • Complaints will be recorded and appropriately acted upon (see Section 9.3).
Responsible Person	• Construction Manager
Associated Documentation	• Approved construction access maps. • Alignment drawings. • Access Permits • [This section will require adjustment as Construction Contracting approach and detail further developed]

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10.2 Campsites, Offices and Site Management	
Company Policy	*To minimize the impact on the environment from campsites and office sites providing workspace, accommodation and provisions for construction teams*
Performance Objective	• Minimal impact on the natural environment. • Compliance with NT Government and requirements for provision of infrastructure and waste disposal. • Reinstatement of site equivalent to the surrounding conditions following Project use. • Functional waste minimisation, segregation, and recycling systems operational at all worksites. • Ensure activities do not encourage vermin or mosquito breeding. • High standard of site management and general housekeeping.
Legislation and Policies	• *Environmental Protection and Biodiversity Conservation Act 1999.* • *Environmental Assessment Act.* • Northern Territory *Public Health Act.* • Northern Territory Public Health (General Sanitation, Mosquito Prevention, Rat Exclusion and Prevention) Regulations. • Environmental Health Information Bulletin No. 6 Requirements for Mining, Construction & Bush Camps, NT DHCS 2006. • Northern Territory Code of Practice for the small on-site sewage and sullage treatment systems and the disposal or reuse of sewage effluent.
Aspects	• Large numbers of construction workers. • Waste disposal, waste minimization and recycling. • Human health. • Pests. • Rehabilitation.
Management Strategy	• Campsites will be located based on the criteria in Section 10.1 and in agreement with landholders and NT Government authorities. • When creating campsites, there will be no clearing of 'endangered' or 'of concern' vegetation. • Dust control measures (e.g. watering) will be used as required at campsites. • Campsites will be cleared and graded in accordance with the requirements of Section 10.3. • A vehicle and equipment washdown station will be provided at the campsite. Washdown stations will conform to the requirements of the Weed Management Plan. • Potable water, to Australian Drinking Water Guidelines (ADWG), will be trucked in by a contractor or raw water will be suitably treated on-site. • If raw water is treated on-site, it will be done in accordance with the relevant Australian Standards to ensure that the water quality conforms to the Australian Drinking Water Guidelines. • Effluent will be treated and managed in accordance with the requirements of the NT Department of Health. Refer also to Section 11.7. • All other wastes will be disposed of in accordance with the requirements of the local authorities. Refer also to Section 11.7. • Following use, campsites will be reinstated in accordance with pipeline construction corridor reinstatement specifications practices and requirements. • Any items of equipment or debris, which may hold water and create mosquito breeding sites, and are no longer required for construction will be disposed of as soon as possible. • Periodic inspection will be conducted of any nearby ponded water to ensure no mosquito breeding is occurring. • Use of mosquito chemical controls shall be considered if mosquito breeding is identified within proximity to camps. Use of chemicals (if required) shall be in accordance with NT regulations.

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10.2 Campsites, Offices and Site Management	

Monitoring, Reporting and Corrective Actions	• During construction, the entire length of the construction corridor and associated work areas will be regularly inspected to assess the effectiveness of protection measures with particular attention to;
	  • waste management,
	  • vermin and mosquito breeding,
	  • general housekeeping.
	• Regular audits in accordance with Section 9.1 of this EMP will be undertaken, and recommendations and corrective actions shall be implemented.
	• Non Compliance and Incident Reporting will be reported to, and regulated by, senior management to ensure prompt rectification and change management as required.
	• Landholder complaints will be recorded and appropriately acted upon in accordance with Complaints Management Procedure (see Section 9.3).

Responsible Person	• Construction Manager
Associated Documentation	• Waste Management Plan. • Clean up and Rehabilitation Plan. • Biting Insect Management Plan.

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10.3 Clearing & Grading	
Company Policy	*To minimize the impact of site clearing and disturbance to vegetation communities, and to optimize the use of cleared vegetation to encourage regeneration of cleared areas.*
Performance Objective	• Minimize disturbance to native flora and fauna in accordance with approved work areas / corridor Minimize the potential for the spread of weeds. • Optimize rehabilitation success. • Minimize soil (particularly topsoil) degradation and loss. • Minimize dust generation. Minimize risk of sedimentation and associated impacts on water quality. • Avoid impacts on sites of cultural and historic heritage significance. • Minimize disruption to landholders and third parties.
Legislation and Policies	• *Environmental Protection and Biodiversity Conservation Act 1999.* • *Territory Parks and Wildlife Conservation Act 2000.* • *Heritage Conservation Act.* • *Northern Territory Aboriginal Sacred Sites Act.* • *Soil Conservation and Land Utilization Act.* • *Weeds Management Act 2001.* • *Environmental Assessment Act.* • *Bushfires Act 2004.* • *Planning Act 2005.*
Aspects	• Machinery. • Boundaries. • Valuable habitats. • Seasonality. • Weeds. • Erosion.
Management Strategy	• All clearing boundaries and approved access will be clearly shown on project drawings and Alignment sheets. Where the construction corridor width is to be reduced for any reason, it will be recorded on alignment sheets, referenced in Special Area Plans (SAPs), (refer Section 13.0) and physically marked on the ground. • Clearing in riparian vegetation or wetlands shall be kept to the minimum required to safely construct the pipeline and meet other environmental requirements (e.g. spoil storage). • Extra work space requirements at watercourse crossings shall be located a sufficient distance back from the top of bank and associated riparian vegetation • Permits will be obtained prior to clearing if protected species must be cleared. • Cleared vegetation will be stockpiled for re-spreading during rehabilitation (note: this excludes declared pests species – see Weed Management Plan). • Cleared vegetation will be stockpiled outside of watercourses. • Topsoil will be graded from the corridor and stored separately for re-spreading during reinstatement • Soil stockpiles will not be placed within the bed or banks of watercourse. • Cleared vegetation or soil is not to be pushed up against trunks of trees. • Cleared vegetation and soil is not be stored against fence lines • Access for landholders will be maintained at all times. • Stockpiles will be breached in appropriate locations (coinciding with designated access roads or tracks, fence lines) to allow vehicular, stock and wildlife access. Vehicular movement over stockpiled soil will not be allowed. • Water trucks will be used (particularly in hot and windy conditions) on the construction corridor in the vicinity of the work crews and, where necessary, access roads to reduce dust generation and excessive surface deterioration.

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10.3 Clearing & Grading	
	• Vehicle speeds will be restricted on unsealed roads.
Performance Indicators	• No unplanned or unapproved damage to flora and fauna. • Demonstration that clearing has only occurred in approved areas and in accordance with alignment sheets and access mapping • Soils and vegetation stored to allow for restoring disturbed areas to the equivalent of the surrounding area after construction. • Record and address any complaints from landholders regarding restricted access.

Monitoring, Reporting and Corrective Actions	• During construction the entire length of the construction corridor and associated work areas will be regularly inspected to assess the effectiveness of protection measures with particular attention to:
	  • clearing widths,
	  • topsoil and vegetation storage,
	  • soil and vegetation storage,
	• Regular audits in accordance with Section 9.1 of this EMP will be undertaken, and recommendations and corrective actions shall be implemented.
	• Non Compliance and Incident Reporting will be reported to, and regulated by, senior management to ensure prompt rectification and change management as required.
	• Landholder complaints will be recorded and appropriately acted upon by the Manager Land Access (see Section 9.3)

Responsible Person	• Construction Manager
Associated Documentation	• Approved construction access maps. • Alignment drawings. • Weed Management Plan. • Erosion Management Plan. • Fire Management Plan. • Flora and Fauna Protection Plan. • Watercourse Management Plan.

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10.4 Trenching	
Company Policy	*To protect topsoil quality, maintain land productivity and to limit the disruption caused by trenching to landholders, their improvements and domestic stock as well as native fauna.*
Performance Objective	• Minimize adverse impacts through mixing or burial of top soils. • Minimize adverse impacts to water, stock and wildlife. • Minimize disruption to landholders and third parties. • Avoid the accidental breakage of third party buried services.
Legislation and Policies	• *Environmental Protection and Biodiversity Conservation Act 1999.* • *Territory Parks and Wildlife Conservation Act 2000.* • *Soil Conservation and Land Utilization Act*
Aspects	• Fauna trapped in trench. • Topsoil preservation • Lack of access across open trench. • Possible use of explosives • Dust. • Erosion.
Management Strategy	• The location of the existing Third Party infrastructure in the construction corridor will be accurately identified on the alignment sheets and then marked physically on the ground prior to trenching activities. • Where possible, trench line shall be a minimum of 12m from edge of 30m wide construction corridor to ensure stored topsoil is not contaminated by padder. • Known areas of contaminated land will be avoided. • Trenching Supervisor will be responsible for handling previously unidentified contaminated areas (e.g. dip, waste pit) or acid sulfate soil (ASS) in the event that any such areas are uncovered during trenching. These will include: – Cessation of trenching at the location. – Relocation and recommencement of trenching 50m ahead. – Advise Construction Manager and Environment Coordinator. – Have site assessed for the level of contamination or ASS – Initiate appropriate remedial action based on the assessment (refer also Section 13.2). This may include deviating around the site. • Stockpile trench spoil (sub soils) separately to topsoil and vegetation. • Stockpile spoil outside watercourses and clear of access tracks. • Provide gaps and spaces in the trench spoil stockpiles, consistent with topsoil and vegetation gaps left by grading, for fauna movement. • Utilize trench plugs at appropriate intervals to allow access across the construction corridor (refer Section 11.1). • Ramps (slope 1 vertical to 2 horizontal), at 500m intervals, will be installed in the trench to allow the easy egress of fauna from the trench. • Sawdust-filled wet hessian bags or similar devices will be installed in open trenches approximately every 250m to provide protection for fauna. In areas of high fauna density additional measures (e.g. additional ramps) may be installed to enable small fauna to exit the trench. • Fauna Handlers will monitor the open trench for fauna to catch, record and release trapped fauna from the start of each day; • All sealed road and rail crossings will be bored • Open cut crossing of roads and tracks will be managed in consultation with landholders and third parties. Installation of bypass tracks or detours will be undertaken as required.

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10.4 Trenching	
Performance Indicators	• Subsoil segregated from topsoil and vegetation. • No subsoil at surface on completion of back filling. • Ramps and fauna exit points installed and maintained. • Fauna Handling rescue records • Access for landholders and third parties maintained.

Monitoring, Reporting and Corrective Actions	• During construction, the entire length of the construction corridor and associated work areas will be regularly inspected to assess the effectiveness of protection measures with particular attention to;
	  • soils segregation,
	  • fauna handling records and installation of escape ramps,
	  • access across the construction corridor.
	• Regular audits in accordance with Section 9.1 of this EMP will be undertaken, and recommendations and corrective actions shall be implemented.
	• Non Compliance and Incident Reporting will be reported to, and regulated by, senior management to ensure prompt rectification and change management as required.
	• Landholder complaints will be recorded and appropriately acted upon by the Manager Land Access (see Section 9.3).

Responsible Person	• Construction Manager
Associated Documentation	• Approved construction access maps. • Alignment drawings. • Fauna management plan

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10.5 Pipe Stringing and Welding	
Company Policy	*To carry out pipe stringing and welding in a safe and responsible manner with minimal interference to the landowner or risk to the environment.*
Performance Objective	• Minimize disruption to landholders and third parties. • Minimize the risk of bushfire associated with construction activities.
Legislation and Policies	• *Environmental Protection and Biodiversity Conservation Act 1999.* • *Territory Parks and Wildlife Conservation Act 2000.* • *Soil Conservation and Land Utilization Act.* • *Waste Management and Pollution Control Act 1998.* • *Bushfires Act*
Aspects	• Lack of access across open trench. • Fauna trapped in trench. • Fire. • Waste.
Management Strategy	• Pipe will be strung, allowing gaps for access across the line of pipe. Gaps will coincide with access roads or tracks, boundary fences, and will be located in consultation with relevant landholders. • All pipe delivery packaging (e.g. ropes, straps) will be removed from the construction corridor and disposed of appropriately. • The following precautions will be taken to minimize the possibility of fire due to welding activities (refer also to Section 12.2): – The actual strip of land along the pipeline construction corridor over which welding will take place will be cleared of combustible vegetation reducing the risk of fire. – Firefighting equipment and personnel training to be in accordance with the Bushfire council requirements. – Water trucks (also used for dust suppression) will be available for use as fire trucks in the event of fire. • 'Night caps' or other appropriate devices will be placed over the open pipe string ends to prevent the ingress of dust, wildlife or other objects into welded pipes. • All welding waste will be managed appropriately and removed from the construction corridor on a daily basis.
Performance Indicators	• No uncontrolled fires. • Number and nature of complaints from landholders on access. • Complaints from landholders / occupiers. • Debris absent from construction corridor.
Monitoring, Reporting and Corrective Actions	• During construction, the entire length of the construction corridor and associated work areas will be regularly inspected to assess the effectiveness of protection measures with particular attention to; • debris control, • availability of fire fighting equipment, • crew preparedness. • Regular audits in accordance with Section 9.1 of this EMP will be undertaken, and recommendations and corrective actions shall be implemented. • Non Compliance and Incident Reporting will be closed out by senior management to ensure prompt rectification and change management as required. • Landholder complaints will be recorded and appropriately acted upon by the Manager Land Access (see Section 9.3)
Responsible Person	• Construction Manager

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10.5 Pipe Stringing and Welding	
Associated Documentation	• Alignment drawings

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10.6 Pipe laying and Backfilling	
Company Policy	*To lay the pipe in the trench and undertake backfilling in a safe and responsible manner with minimal interference to the landowner or risk to the environment.*
Performance Objective	• Minimize adverse impacts to soil through mixing or burial. • Minimize impacts to water, stock and wildlife. • Minimize disruption to landholders and third party access. • Provide safe and appropriate temporary deviations for landholders and public as required • Manage crossing of third party services in accordance with agreements and without unplanned loss of service. • Minimize future subsidence through consistent compaction of backfill
Legislation and Policies	• *Environmental Protection and Biodiversity Conservation Act 1999.* • *Territory Parks and Wildlife Conservation Act 2000.* • *Soil Conservation and Land Utilization Act.* • *Waste Management and Pollution Control Act 1998.*
Aspects	• Lack of access across open trench. • Protection of topsoil • Fauna trapped in trench. • Compaction. • Dust. • Waste.
Management Strategy	• Appropriate means such as trench blocks (i.e. trench/sack breakers) and compaction of backfilled soils will be used to prevent future erosion along the backfilled trench • Use of pipeline padders shall be encouraged rather than importing bedding and padding material. • Pipeline trench shall be inspected for trapped fauna prior to pipelaying and backfill. • Topsoil will not be used as padding material. • Where padding material cannot be provided from trench spoil, weed free borrow material will be sourced from: – an established supplier, – an approved established borrow site or – a new site established within the 100m study corridor, less than 1ha in size and 1.5m deep and not within 50m of a watercourse or culturally or environmentally sensitive site. • Topsoil will only be reinstated after the excavated spoil has been backfilled and compacted. • Compaction is to be relieved prior to spreading topsoil.
Performance Indicators	• Subsoil returned to trench without loss or contamination of topsoil. • Well compacted trench line with appropriately installed trench breakers and contour banks. • Number of landholder complaints regarding access, quality of soil and buried services.
Monitoring, Reporting and Corrective Actions	• During construction, the entire length of the construction corridor and associated work areas will be regularly inspected to assess the effectiveness of protection measures with particular attention to; • Soils management, • Fauna management • Trench compaction. • Regular audits in accordance with Section 9.1 of this EMP will be undertaken, and recommendations and corrective actions shall be implemented. • Non Compliance and Incident Reporting will be reported to, and regulated by, senior management to ensure prompt rectification and change management as required. • Landholder complaints will be recorded and appropriately acted upon by the Manager Land Access (see Section 9.3)

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10.6 Pipe laying and Backfilling	
Responsible Person	• Construction Manager
Associated Documentation	• Alignment drawings.

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10.7 Hydro testing	
Company Policy	*To protect the quality of local land and water resources during the pipeline hydro testing.*
Performance Objective	• Minimize water use. • Ensure no detrimental impacts on soils, vegetation, land use or surrounding water quality.
Legislation and Policies	• *Soil Conservation and Land Utilization Act 1980.* • *Water Act 1992.* • *Waste Management and Pollution Control Act 2003.*
Aspects	• Water requirements, access and use. • Potential Impacts of pumping on groundwater. • Ground and surface water quality protection. • Monitoring and contingency measures. • Water discharge and management.
Management Strategy	• The source of hydrostatic test water shall be approved in advance by the Manager Environment. • Relevant permits to draw water from potential sources and landholders shall be obtained. • Inspection of all pipeline section welds, or hydrotesting of pipeline sections before installation under waterbodies, will be performed in accordance with construction specifications/procedures. • The Manager Environment will check and approve detailed hydrostatic test water discharge procedures. • Biocides and oxygen scavengers, where required, shall be selected to be biodegradable. • If biocides are added ensure that discharge water is treated. • Prior to discharge of hydrotest water, the Manager Environment shall be consulted about requirements for water quality testing. Where the water source and water quality is known, and no chemicals have been added, water quality testing may not be required. • Discharge the first 5% of hydrotest water into a structure such as a geotextile lined mesh basket so that contaminants can be contained and disposed of. • Discharge hydrotest water to land and in such a way as to prevent runoff into any watercourse or drainage lines and to prevent erosion, especially near the outlet (e.g. against a splash plate or other dispersive device in order to aerate, slow and disperse the flow). • Discharge of hydrotest water shall be in compliance with all regulatory and landholder requirements and shall not cause environmental harm.
Performance Indicators	• No short or long term impacts to water resources. • No adverse impacts on soil or surface water as the result of discharging hydrotest water. • Minimal level of erosion at site of hydrotest water discharge.
Monitoring, Reporting and Corrective Actions	• Inspection of hydro test water source for adequacy of supply. • Inspection of discharge points for soil erosion, surface water sedimentation, and runoff into drainage areas. • Regular audits in accordance with Section 9.1 of this EMP will be undertaken, and recommendations and corrective actions shall be implemented. • Non Compliance and Incident Reporting will be reported to, and regulated by, senior management to ensure prompt rectification and change management as required. • Landholder complaints will be recorded and appropriately acted upon by the Manager Land Access (see Section 9.3)
Responsible Person	• Construction Manager , • Manager Environment
Associated Documentation	• Alignment drawings. • Watercourse management • Erosion management

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10.8 Clean Up and Rehabilitation	
Company Policy	*To restore land to surrounding condition and restore land use as far as practicable compatible with pipeline operation.*
Performance Objective	• Minimize soil erosion. • Revegetate so that result will be similar to surrounding vegetation. • Minimize modification of drainage patterns. • Minimize weed, vermin or pathogen invasion. • Minimize visual impact. • Minimize adverse impacts on other land uses.
Legislation and Policies	• *Environmental Protection and Biodiversity Conservation Act 1999.* • *Territory Parks and Wildlife Conservation Act 2000.* • *Soil Conservation and Land Utilization Act 1980.* • *Weeds Management Act 2001.* • *Environmental Assessment Act.*
Aspects	• Corridor revegetation. • Removal and reinstatement of Construction camps. • Compaction relief • Weeds. • Drainage and erosion management.
Management Strategy	• Develop a construction timetable which provides for clean up and reinstatement to be able to be fully completed by the time the pipeline is commissioned – ie before commencement of wet season • All Work areas shall be ripped or scarified to relieve compaction caused by construction vehicles and equipment and to trap water and seed. Particular attention shall be paid to areas subject to regular watering and high traffic volume • Drainage lines will be restored as appropriate • Close temporary access roads and rehabilitate them to a condition compatible with the surrounding land use. • Where access routes are to be retained, but are not public access, the entry will be blocked off and disguised (e.g. by dog-legging, brush spreading). • Remove windrows and, where practicable based on soil management practices, contour and scarify to relieve compaction. • Flagging used to identify clearing boundaries and sensitive features will be removed. • Previously cleared native vegetation will be re-spread over the construction corridor (not burnt) to assist in the distribution of seed stock and provide shelter for fauna. Distribution of vegetation will be controlled to ensure that any erosion or subsidence that may occur will not be hidden from view during subsequent monitoring inspections. When re-spreading on slopes, tree trunks should be along the line of the contour. • Compaction relief will be undertaken along the contours to minimize rilling. • Any wheel ruts will be graded and erosion control measures will be installed (see Section 11.4) • The construction area will be re-profiled to original contours, or to new, stable contours. • Permanent Erosion and sediment control measures will be installed where necessary. Existing soil erosion measures will be reinstated to a condition at least equal to the pre-existing state (refer also to Section 11.4). • Above ground infrastructure (e.g. valves and pigging stations) shall be fenced to discourage third party, stock and wildlife entry. • Fences or other barriers shall be installed where appropriate and where approved by the landholder to minimize unauthorized construction corridor access. • Permanent pipeline warning signs shall be erected along the construction corridor in

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10.8 Clean Up and Rehabilitation	
	accordance with AS2885. • All waste materials and equipment will be removed from the pipeline construction area once backfilling and tie-ins are completed (refer to Section 11.7). • Unutilized subsoil displaced by the pipe may be stockpiled in locations approved by the landholder for use during operations – e.g. future subsidence. • If in the unlikely event imported topsoil (of an appropriate quality and weed free) is required for construction corridor repairs, this will only be used with landholder approval. • Where it has bee determined that disturbed areas are to be re-planted or re-seeded, preference will be given to the use of local provenance native species. If required, the seed species mix and rate will be determined in consultation with landholders and other interest groups. • In areas where only native species are cleared, they will be replaced by native species. • Where surface stability requirements dictate, a sterile seed mix will be applied at appropriate rates to enable quick cover and stability whilst providing means for native grasses to establish. • Where applied, seed will be evenly dispersed over the entire disturbed area. • Seeding will take place as soon as practicable during clean up. • Fertilizers and soil supplements will be used only where absolutely necessary, and if so, shall be applied at the minimum rate to reduce the risk of increasing nutrient levels in watercourses.
Performance Indicators	• No new weed species introduced. • Weed Management Implemented. • No impediment to revegetation from compacted ground. • Revegetation occurring naturally and in line with surrounding vegetation. • No unplanned change in drainage pattern leading to soil erosion. • Reinstated drainage patterns correctly.
Monitoring, Reporting and Corrective Actions	• Regular inspections will be undertaken during the pipeline construction, maintenance and operations periods to monitor for trench subsidence. • Until re-growth is established, significant areas, such as riparian zones, and any seeded areas will be monitored regularly to ensure growth. If necessary, appropriate reapplication of seed will be carried out. • The success of restoration will be assessed by comparing the % cover and species diversity on the construction corridor with that of adjoining land. • Reseeding will be carried out where results are unsatisfactory. • Monitoring will also include an assessment of the effectiveness of weed control measures. • Any sites not displaying stability (after 12 months) and natural revegetation (after 24 months), will undergo rehabilitation using a method approved by the relevant authority. • The process of monitoring and rehabilitation will only conclude when the site becomes stable. • Regular audits in accordance with Section 9.1 of this EMP will be undertaken, and recommendations and corrective actions shall be implemented. • Non Compliance and Incident Reporting will be reported to, and regulated by, senior management to ensure prompt rectification and change management as required. • Landholder complaints will be recorded and appropriately acted upon by the Manager Land Access (see Section 9.3).
Responsible Person	• Construction Manager • Environment Coordinator
Associated Documentation	• Alignment drawings • Erosion management • Weed management

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11.0 ENVIRONMENTAL CONTROL MEASURES – ENVIRONMENTAL ASPECTS

11.1 Flora and Fauna Protection

Company Policy	*To minimize the effect on flora, fauna and habitat and to promote natural regeneration on the construction corridor.*
Performance Objective	• Minimize impacts to all native vegetation. • Avoid disturbance to threatened flora and fauna species. • Avoid disturbance to particular sensitive vegetation types (notably wetlands, rainforests Minimize habitat fragmentation). • Manage open trench to minimize fauna mortalities. • Ensure activities result in no additional spread of exotic species
Legislation and Policies	• *Environmental Protection and Biodiversity Conservation Act 1999.* • *Territory Parks and Wildlife Conservation Act 2000.* • The Australian National Health and Medical Research Council's *Australian Code of Practice for the Care and Use of Animals for Scientific Purposes 2004.*
Aspects	• Vegetation Clearing. • Lineal development. • Trenching and an open trench. • Increased traffic.

Management Strategy	• The flagging of individual significant plant species (including habitat trees) that are located within the construction corridor, which are intended to be avoided during construction.
	• The construction of physical barriers around significant vegetation areas in order to restrict access and avoid disturbance in accordance with Project mapping and Alignment Drawings.
	• There will be no burning of cleared vegetation.
	• Cleared native vegetation is to be re-spread over the construction corridor.
	• All construction equipment will be washed down at pre determined locations to prevent the spread of exotic plants
	• Ensuring installation of additional fauna escape ramps or ladders in open trenches within areas of high faunal density.
	• Specialist fauna handlers will be engaged to monitor the open trench and rescue trapped fauna.
	• Fauna management strategies for the open trench include;
	  ◦ Inspection of the entire open trench each day, current work areas being the priority,
	  ◦ The installation of ramps, at 500m intervals, to allow for the easy egress of fauna,
	  ◦ The placement of moistened hessian sacks as wildlife havens in each section between a ramp and/or a plug,
	  ◦ In areas of high faunal density, additional measures (e.g. more hessian sacks, additional ramps and branches) may be installed to enable small fauna to exit the trench.
	• There will be no permanent barrier to fish movement at any stage of the Project.

Performance Indicators	• Minimal disturbance to; terrestrial flora and fauna, above ground structures, tracks, services, and campsites during construction of the pipeline. • Restoration of disturbed areas to equivalent to surrounding area after construction. • No exotic grass species introduced into native grass communities. • Success of rehabilitation measures. • No damage to, or removal of, protected species unless permitted by relevant authority.

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11.1 Flora and Fauna Protection	
Monitoring, Reporting and Corrective Actions	• During construction, the entire length of the construction corridor and associated work areas will be regularly inspected to assess the effectiveness of protection measures with particular attention to; ▪ Fauna protection and management, ▪ Flora protection and management. • Throughout construction, the entire length of the open trench will be inspected by approved fauna handlers. • Regular audits in accordance with Section 9.1 of this EMP will be undertaken, and recommendations and corrective actions shall be implemented. • Information gathered on the numbers and varieties of the fauna removed from the trench will be presented to the PWSNT and the NT Museum. • Non Compliance and Incident Reporting will be reported to, and regulated by, senior management to ensure prompt rectification and change management as required. • Landholder complaints will be recorded and appropriately acted upon by the Manager Land Access (see Section 9.3). • Ongoing monitoring will be undertaken to assess the success and integrity of construction and rehabilitation measures. One success indicator will be the effectiveness of the weed control programs.
Responsible Person	• Environment Coordinator.
Associated Documentation	• Alignment drawings.

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11.2 Weed Management	
Company Policy	*To prevent the spread of weeds*
Performance Objectives	• All weed infested areas associated with the Project Area are to be identified by qualified personnel and logged using GPS. • Ensure washdown procedures and facility locations are provided to address identified weed infestations. • Ensure effective access control is in place to reflect the most recent weed identification survey • Clear and obvious maps of existing weed infestations will be provided. • Clear and obvious procedures will be provides to manage existing weed infestations. • No usage of prohibited access routes. • Compliance with washdown requirements • Vehicles, plant and equipment to be clean of organic material at identified locations • Vehicles, plant and equipment pass inspection by nominated personnel at the change points.
Legislation and Policies	• *Environmental Protection and Biodiversity Conservation Act 1999.* • *Territory Parks and Wildlife Conservation Act 2000.* • *Weeds Management Act 2001.* • *Environmental Assessment Act.* • *Bushfires Act 2004.*
Aspects	• Increased vehicle traffic. • Surveys and construction passing through various land uses and tenures. • Introduction of construction machinery and materials. • The installation of facilities. • Construction and earthworks.
Management Strategy	• Qualified personnel are to undertake weed surveys of the Project Area prior to construction to identify wash down locations. • Liaise with government authorities and landholders in relation to any existing weed data sets and management strategies. • Map and maintain a weed identification layer on the Project GIS. • Review weed survey and identify levels of infestation. • Limit vehicle movement through weed infested areas. • Develop/revise the access control map as new information arises. • Review/revise and nominate appropriate washdown facilities and locations, including their locations on the Access Mapping. • Vehicles, plant and equipment are to travel on approved access routes only (Approved access mapping). • Limit vehicles pulling onto the road shoulder on all major and minor routes (shoulders should be used for emergency only). • Vehicles travelling from weed affected areas must washdown prior to leaving these areas or prior to re-entering the road network. • All vehicles, plant and equipment (including hand tools such as shovels) will be inspected by nominated personnel before being certified clean for entry to the Project Area. • All vehicles, plant and equipment will be kept visually clean (as practicable) and will be kept free of grass and other materials where possible. • Weed screens will be fitted to all vehicles that may be going off-road, especially on route surveys (involving fly-screen over the grill, tied with garden ties). • Equipment and vehicles will be cleaned in designated washdown sites before leaving weed-infested areas or entering weed free areas • Personal clothing, including boots, will be cleaned of mud and weed seeds each night, and

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11.2 Weed Management	
	whenever leaving weed-infested areas. Trouser pockets and cuffs are to be turned inside out to remove any seeds • A mobile washdown unit will accompany or visit the clear and grade and survey team where major infestations deem it necessary. • The construction contractor will provide the NRETA Weeds Branch with details of their wash down procedures for approval, prior to mobilisation. • Vehicles, plant and equipment that fail inspection must be washed down and re-inspected. • A log to be completed for all washdown activities (refer Appendix E) with a copy sent to Darwin Office. • Only identified washdown facilities will be used (refer GIS maps). • Weed washdowns to be managed so as to not leave a weed seedbank.
Performance Indicators	• Weed data on GIS accurately reflecting the on-site species and distribution. • All approved weed washdown facilities are marked on the maps. • All approved access routes are identified on the maps. • The most recent weed survey is reviewed and washdown facilities and access routes revised appropriately. • Washdown logs correspond to known vehicle movements (Project related tasks). • Weeds and pathogens on the construction corridor are no more prevalent than on adjacent land.
Monitoring, Reporting and Corrective Actions	• During construction, the entire length of the construction corridor and associated work areas will be regularly inspected to assess the effectiveness of weed protection measures. • Ongoing monitoring will be undertaken for a period of up to 2 years after construction is completed to assess the success of weed control activities. • Regular audits in accordance with Section 9.1 of this EMP will be undertaken, and recommendations and corrective actions shall be implemented. • Non Compliance and Incident Reporting will be reported to, and regulated by, senior management to ensure prompt rectification and change management as required. • Landholder complaints will be recorded and appropriately acted upon by the Manager Land Access (see Section 9.3). Survey of weed prone areas to be conducted after early wet season rainfall events, and monthly during the first wet season if access allows. • Survey data to be forwarded to the GIS coordinator for inclusion in data sets. • Where weed infestation is identified, initiate appropriate remedial action (e.g. notify the weed contractor to carry out the control program).
Responsible Person	• Environment Coordinator
Associated Documentation	• Alignment drawings • Access and Site Inspection Plan. • Clearing and Grading Plan. • Clean up and Rehabilitation Plan.

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11.3 Watercourse Management	
Company Policy	*To avoid degrading water quality and to minimize the impact and degradation to ecosystems.*
Performance Objective	• Minimize impacts on riparian, aquatic, and water dependent flora and fauna. • Minimize erosion, sedimentation and acidification impacts. • Maintain water quality and water flow regimes. • Minimize impacts on cultural and heritage sites. • Maximize rehabilitation success by achieving long-term site stability. • Prevent the spread of weeds.
Legislation and Policies	• *Environmental Protection and Biodiversity Conservation Act 1999.* • *Soil Conservation and Land Utilization Act 1980.* • *Water Act 1992.* • *Waste Management and Pollution Control Act 2003.*
Aspects	• Water flows. • Erosion. • Aquatic Fauna movements. • Vegetation clearing. • Monitoring and contingency measures.
Management Strategy	• The crossings will typically be at right angles to the direction of water flow. This will minimize scour potential. This will include vehicular and maintenance tracks. • Crossings will, where practicable, be undertaken in no or low flow conditions, and rehabilitation completed prior to the wet season. • Barrier bunds will be placed in trenches close to flowing streams, or in times of potential inundation, to limit the potential for stream flow into the trench. • Vehicle crossings will be appropriately constructed (e.g. include rock and flume(s) to cater for existing or reasonably expected flow conditions. • Watercourse banks and beds will be reinstated as near as possible to their former profile, stabilized and revegetated as necessary to prevent scouring. • Drainage shall be reinstated. • Crossings will be completed promptly. • The disturbance corridor for the bed, bank and approaches to watercourses will be the narrowest practicable for safe construction. However, a wider construction corridor and work area will be required for watercourses with deep and steep banks, to install the pipeline at the required depth, and to restore as close to the original contour as practicable. • Where practicable, large trees will be retained. Root stock will, wherever practicable, be retained for stabilisation of the banks. • Riparian vegetation clearing will be minimized whilst still allowing safe construction of the pipeline, and consideration of other environmental constraints (e.g. soil and cleared vegetation stockpiling for rehabilitation). • The Construction Supervisor will be vigilant of flood warnings, and remedial action for floods will be taken in accordance with the Construction Emergency Response Plan where necessary. • Where potential or actual ASSs are disturbed during creek crossings, the spoil must be stockpiled within a contained area. No discharge to waters shall occur unless the discharge quality complies with the government agreed standard.
Performance Indicators	• Watercourse banks effectively reinstated to prevent scouring. • Watercourse flows and channel crossings not altered. • Erosion and sediment control techniques implemented on-site where necessary. • Any failure of water quality control. • Any failure of rehabilitation measures.

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11.3 Watercourse Management	
	• Records of all actions and controls.
Monitoring, Reporting and Corrective Actions	• During construction, the entire length of the construction corridor and associated work areas will be regularly inspected to assess the effectiveness of protection measures, with particular attention to management of watercourse environments. • Water quality will be monitored upstream and downstream of the construction area where a discharge, including storm water runoff and dredging might occur. It will be ensured that all discharge is in accordance with conditions agreed upon with the government (e.g. visual observation, turbidity, dissolved oxygen, pH and suspended solids). • Records of location, frequency of discharge and monitoring results for all releases to waters will be maintained. • Ongoing monitoring will be undertaken to assess the success and integrity of construction and rehabilitation measures. Appropriate follow-up rehabilitation measures will be implemented to assess the ongoing stability of the watercourse crossings. • Regular audits in accordance with Section 9.1 of this EMP will be undertaken, and recommendations and corrective actions shall be implemented. • Non Compliance and Incident Reporting will be reported to, and regulated by, senior management to ensure prompt rectification and change management as required. • Landholder complaints will be recorded and appropriately acted upon by the Manager Land Access (see Section 9.3) • Construction Audits will include all watercourse crossings of medium to high sensitivity. • A post-construction audit will be conducted annually for two years following construction. This audit will evaluate revegetation, erosion control, weed control, water course alteration prevention and success of bed and bank re-profiling.
Responsible Person	• Environment Coordinator
Associated Documentation	• Alignment drawings. • SAP's on HDD, special and flow diversion crossings

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11.4 Erosion Management	
Company Policy	*To provide effective erosion and sediment control practices to mitigate the potential effects of the disturbed areas on local watercourses, land use and the general environment with particular focus on meeting the potentially heavy wet season rainfall by providing robust and fit for purpose permanent erosion control measures.*
Performance Objective	• Minimize soil erosion. • Minimize sedimentation of land. • Minimize modification to drainage patterns. • Prevent as far as practical, sediment transport to adjacent creeks. • Develop a stable, vegetated construction corridor.
Legislation and Policies	• *Environmental Protection and Biodiversity Conservation Act 1999.* • *Soil Conservation and Land Utilization Act 1980.* • *Water Act 1992.* • *Waste Management and Pollution Control Act 2003.*
Aspects	• Creek crossings and water flows. • Slopes. • Vegetation clearing. • Erosion mitigation plans and structures. • Monitoring and contingency measures.
Management Strategy	• The timing of construction to occur predominantly in the dry season minimising likelihood of construction sedimentation events. • Rehabilitation to be scheduled to be completed prior to the first storms of the wet season. • Minimize the quantity and duration of soil exposure. • Protecting topsoil and seed stock by; – Topsoil – separation; stockpiling; grading away from watercourses; re-spreading last; scarification; and brush spreading to protect the topsoil, – ,Seed – separation and stockpiling of topsoil to preserve seed stock; brush spreading to provide additional seed stock if necessary • Selection of the route to avoid areas of side slope, • Protecting critical areas post construction by development of structures to reduce the velocity of water and which redirecting runoff. • Installing diversion banks at the crest of the stream approach slope to divert sheet flow away from backfilled trenches. • Re-contouring landforms to their original condition as soon as practicable, including any erosion controls established prior to construction. • Installing and maintaining permanent erosion and sediment control measures (e.g. contour banks, earth banks, turn off drains, silt fences). • Reinstating the construction corridor as soon as practicable after completion of backfilling • Limiting vehicle movement on restored construction corridor until the vegetation has re-established. • Inspecting the construction corridor and maintaining erosion and sediment controls as necessary, during and after construction until stabilisation is achieved.
Performance Indicators	• No evidence of uncontrolled erosion following high rainfall. • No evidence of sedimentation in watercourses. • Reinstatement of watercourse evident. • Review of and reinstatement of Erosion controls. • Erosion controlled and limited to that consistent with “natural processes” such that pipeline cover is maintained without reducing capacity.

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11.4 Erosion Management	

Monitoring, Reporting and Corrective Actions	• During construction, the entire length of the construction corridor and associated work areas will be regularly inspected to assess the effectiveness of protection measures with particular attention to;
	  • Erosion protection measures,
	  • Sensitive areas, such as creek crossings.
	• Ongoing monitoring will be undertaken to assess the success and integrity of permanent erosion control devices and structures.
	• Regular audits in accordance with Section 9.1 of this EMP will be undertaken, and recommendations and corrective actions shall be implemented.
	• Non Compliance and Incident Reporting will be reported to, and regulated by, senior management to ensure prompt rectification and change management as required.
	• Landholder complaints will be recorded and appropriately acted upon by the Manager Land Access (see Section 9.3)

Responsible Person	• Environment Coordinator
Associated Documentation	• Alignment drawings • Watercourse management

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11.5 Air Emissions	
Company Policy	*To complete the installation of the pipeline in a manner that maintains ambient air quality of the local area.*
Performance Objective	• To maintain acceptable limits of dust emissions during construction. • To maintain acceptable limits of vehicular and machinery operating emissions, and to receive zero complaints from local landholders regarding air quality. • To reduce the generation of fugitive emissions produced during construction.
Legislation and Policies	• *Soil Conservation and Land Utilization Act 1980.* • *Water Act 1992.* • *Waste Management and Pollution Control Act 1998.* • *Work Health Act 1986.* • *Bushfires Act.*
Aspects	• Vegetation clearing. • Trenching. • Vehicle and machinery movements. • Wind action on cleared and graded areas and on stockpiles.
Management Strategy	• Vehicles and machinery shall be fitted with appropriate exhaust systems and devices. Such devices will be maintained in good working order. • Watering of construction sites and project access roads will be carried out on an 'as required' basis, to minimize where practical the potential of dust causing environmental for nearby residents. • Watering frequency will be increased during periods of high risk (e.g. high winds). • Investigation and potential use of chemical dust suppressants and water saving polymers • The potential for generation of bulldust will be reduced through management and control (e.g. watering to provide a stable surface). • Community notification and consultation of scheduled construction activity likely to generate dust will be provided. • Smoke generation will be avoided through a strict 'no burning' Company Policy. • Fire control procedures will be implemented in welding operations.
Performance Indicators	• Visual observance of defective exhausts. • Visual observations of dust emissions during windy/dry periods. • Receipt of air quality related complaints from neighbouring residential areas and industry. • Excessive visual dust cloud during construction activities. • Watering of construction sites and access roads being carried out on an 'as required' basis.
Monitoring, Reporting and Corrective Actions	• During construction, the entire length of the construction corridor and associated access areas will be regularly inspected to assess the effectiveness of Air Quality protections. • Regular audits, in accordance with Section 9.1 of this EMP will be undertaken, and recommendations and corrective actions shall be implemented. • Non Compliance and Incident Reporting will be reported to, and regulated by, senior management to ensure prompt rectification and change management as required. • Landholder complaints will be recorded and appropriately acted upon by the Manager Land Access (see Section 9.3)
Responsible Person	• Construction Manager
Associated Documentation	

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11.6 Noise and Vibrations	
Company Policy	*To construct the Pipeline in a manner to minimize the impact of construction related noise and vibrations on surrounding residences and industry*.
Performance Objective	• Minimize the noise level generated by construction activities. • Implement noise monitoring and ensure all noise complaints are recorded and addressed.
Legislation and Policies	• *Work Health Act 1986.* • National Standard for Occupational Noise (NOHSC:1007(2000)) National Code of Practice for Noise Management and Protection of Hearing at Work (NOHSC:2009(2000)) 2nd Edition July 2000. • *AS2436:1981; Guide to Noise Control on Construction, Maintenance, and Demolition Sites.* • *AS/NZS 1269-1998 Occupational Noise Management: Overview*. • *AS/NZS 1269.1-1998 Occupational Noise Management: Measurement and Assessment of Noise Emission and Exposure.* • Occupational Noise will be management in accordance with NT WorkSafe *Occupational Noise Management, 2003.*
Aspects	• Trucks and Machinery. • Potential Blasting. • Local residents and employees.
Management Strategy	• Blasting, if necessary is to be carried out in accordance with current practice standards, with particular reference to Standard AS2187. (also see section 10.5) • Adequate community notice of any scheduled, atypical noise events will be provided. • Campsites, offices and stockpile sites will be located a sufficient distance from residences to limit any noise impacts. • Liaison will be conducted with the local communities to advise on the timing and duration of noisy activities. • Noise events will be scheduled for appropriate times.
Performance Indicators	• Number of noise related complaints received from residents and landholders during construction. • Evidence that faulty equipment is repaired or replaced as soon as possible. • Evidence of consultation and planning for atypical noise events.
Monitoring, Reporting and Corrective Actions	• Blasting carried out in accordance with current practice standards with particular reference to Standard AS2187. • Provide adequate community notice of any scheduled, atypical noise events. • Ensure campsites, offices and stockpile sites are located a sufficient distance from residences to limit any impacts. • Equipment will be fitted with noise control devices. • Liaise with community to advise on likely timing and duration of noisy activities. • Schedule noise events for appropriate times.
Responsible Person	• Construction Manager
Associated Documentation	• Alignment drawings • SAP Rock Cairn

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11.7 Waste Management	
Company Policy	*To minimize waste generation and maximize reuse and recycling of construction waste products. Development and implementation of a waste minimisation and management strategy.*
Performance Objective	• Minimize impacts related to waste management. • No evidence of litter or refuse generated from construction related activities following post-construction phase clean-up program. • Following the post-construction phase clean-up program, there should be no contaminated land from construction related activities.
Legislation and Policies	• *Public Health Act 1981.* • *Dangerous Goods Act 1981.* • *Soil Conservation and Land Utilization Act 1980.* • *Water Act 1992.* • *Waste Management and Pollution Control Act 1998.* • *Work Health Act 1986.* • Northern Territory Code of Practice for the small on-site sewage and sullage treatment systems, and the disposal or reuse of sewage effluent. • Environmental Health Information Bulletin No. 6 Requirements for Mining, Construction & Bush Camps, NT DHCS 2006.
Aspects	• General putrescible wastes, including food, plastic and cardboard for approx 130 construction personnel for 120 days. • Non-putrescible wastes such as plastic, paper, glass, food containers. • Waste liquids including oils, lubricants and fuels, including spilled substances and clean-up materials. • Sewage, wash water and other domestic waste water. • Wash-out waters from vehicle, plant and equipment wash-downs. • Construction packaging, strapping, pallets, containers and welding wastes.
Management Strategy	• Developing strategies for specific waste streams prior to construction commencing. • Stockpiling and salvaging reusable and recyclable wastes, such as timber skids, pallets, drums and scrap metals. • Storing hazardous wastes in bunded area away from watercourses. • Collecting and removing (via a contractor licensed to transport such wastes) waste oil, solvents and other toxic materials from site for recycling, reuse or disposal at facility licensed to accept such wastes. Waste oil and chemical storage areas must be suitably bunded in accordance with EPA requirements. • Disposing of sewage and sullage from worksites via approved systems • Sewage effluent absorption beds and/or irrigation fields will be selected and designed to ensure that; – sensitive areas are avoided – soil erosion and soil structure damage is avoided, – there is no surface ponding or runoff of effluent, – percolation of effluent (for irrigation) beyond the plant zone is minimized, – the receiving environment has the capacity to assimilate the contaminants, – the quality of groundwater is not adversely affected. • Warning notices will clearly mark areas where treated sewage effluent is discharged to absorption beds or irrigation. • Effluent treatment systems will be designed to include alternate measures for effluent storage and/or disposal, where conditions prevent the absorption of treated effluent to land (e.g. rain events). This may include wet weather storage or disposal off site. • There will be no discharges of treated effluent from wet weather storage to any waters or stormwater drains.

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11.7 Waste Management	
	• Disposal of vehicle washdown water in accordance with the Weed Management Plan. • Collection of chemical wastes (e.g. spent pipeline x-ray film developer chemicals) in 200 litre drums (or similar sealed container), appropriately labeled, for safe transport to an approved chemical waste depot or collection by a liquid waste treatment service. • All bonding material and dunnage from transport vehicles and unloading areas is to be collected and transported off the construction corridor to designated disposal areas. The Construction Superintendent will advise designated disposal areas for each section of the construction corridor. • All general refuse and food wastes (taking into account health and hygiene issues where practicable) to be collected and transported to NT Government and/or local government approved disposal sites. • No on-site disposal of waste without EPA approval. • Refuse containers will be located at each worksite. • Where practical, wastes will be segregated and reused/recycled (e.g. scrap metal). • All personnel shall be instructed in project waste management practices as a component of the environmental induction process.
Performance Indicators	• Cleanliness and waste efficiency of the construction site. • Amount of litter detected off-site. • Amount of litter left on-site after construction/maintenance. • Records of regulated waste disposal. • On site sewage system operating efficiency.
Monitoring, Reporting and Corrective Actions	• During construction, the entire length of the construction corridor and associated access areas will be regularly inspected to assess the effectiveness of Waste Management Practices • Housekeeping checks will ensure waste is being stored correctly and there is no littering occurring. • Regular audits in accordance with Section 9.1 of this EMP will be undertaken, and recommendations and corrective actions shall be implemented. • Review of old campsite area after relocation. • Review of operations waste management procedures, and quantity of regulated wastes generated. • Non Compliance and Incident Reporting will be reported to, and regulated by, senior management to ensure prompt rectification and change management as required. • Landholder complaints will be recorded and appropriately acted upon by the Manager Land Access (see Section 9.3)
Responsible Person	• Construction Manager
Associated Documentation	▪ Handling and Disposal of Dangerous Goods. ▪ Clean Up and Rehabilitation Plan.

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11.8 Archaeological and Historic Material and Site Management	
Company Policy	*To prevent any adverse impact on Archaeological or Historic material and sites*
Legislation and Policies	• *Heritage Conservation Act 1991.*
Aspects	• Management of known archaeological and historical sites during construction of pipeline. • Management of Archaeological discoveries during construction. • Clear and grade. • Trenching. • Access tracks. • Fencing and flagging of sites.

Management Strategy	• No disturbance to certain known features (see SAP's)
	• Immediate assessment of Archaeological or Historic discoveries during construction.
	• Archaeologist or Construction Manager on site has stop work powers if newly discovered archaeological or historical material is discovered.
	• Temporary fencing (100m) will be installed under archaeologist's supervision at 8 sites to prevent any adverse impact (see Archaeology report as Appendix G of PER)
	• Flagging of 3 historic sites to prevent any adverse impact (see Archaeology report as Appendix G of PER).
	• Should any suspected human remains be unearthed or located during works, the police will be immediately notified and the remains will not be disturbed until all necessary investigations are complete.
	• There is potential for Cultural material, including human remains, to be dug up or uncovered during construction. This will be managed by
	  • The immediate cessation of work
	  • Assessment by Archaeologist and advice from Heritage Conservation Services (NRETA)

Performance Indicators	• Minimal adverse impacts to Archaeological or Historic sites.
Monitoring, Reporting and Corrective Actions	• Archaeologist to monitor the construction of the pipeline in identified areas to ensure works do not cause adverse impacts on Archaeological or Historic sites. • During construction, the entire length of the construction corridor and associated work areas will be regularly inspected to assess the effectiveness of protection measures with particular attention to; • Archaeological site management, • Regular audits in accordance with Section 9.1 of this EMP will be undertaken, and recommendations and corrective actions shall be implemented. • Non Compliance and Incident Reporting will be closed out by senior management to ensure prompt rectification and change to management as required. • Landholder complaints will be recorded and appropriately acted upon by the Manager Land Access (see Section 9.3)
Responsible Person	• Construction Manager. • Archaeological monitor
Associated Documentation	• Alignment drawings • Archaeology report • Special area plans

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12.0 ENVIRONMENTAL CONTROL MEASURES – OTHER

12.1 Handling and Disposal of Dangerous Goods

Company Policy	*To ensure that storage and handling of dangerous goods on-site does not cause environmental harm or harm to persons.*
Performance Objective	• To minimize potential for land contamination. • Nil human health issues from the use of Dangerous Goods
Legislation and Policies	• *Dangerous Goods Act.* • *Waste Management and Pollution Control Act.* • *Bushfires Act 2004.* • Northern Territory *Public Health Act.* • Environmental Health Information Bulletin No. 6 Requirements for Mining, Construction & Bush Camps, NT DHCS 2006.
Aspects	• Use of Dangerous Goods. • Waste, waste minimization and recycling of Dangerous Goods. • Human health. • Ecosystem health threats from Dangerous Goods.
Management Strategy	• An Emergency Response Plan in place and employees inducted in its application. • Dangerous goods will be stored, handled, separated and signed as required by the Flammable and Combustible Liquids Regulations and AS1940. • Hazardous goods will, where appropriate (e.g. outside locations) be stored in bunded areas away from watercourses. • Explosives will be stored in magazines constructed and located as prescribed in AS2187. • Transportation of dangerous goods will be in accordance with the Regulations and with AS1678, AS2809 and AS2931. • A qualified person will be appointed as Site Safety Adviser and will have on-site a set of the relevant MSDS for hazardous and dangerous materials. • Waste dangerous goods which cannot be recycled will be transported to a designated disposal site as approved by Local Government. • Spills of dangerous goods will be rendered harmless and collected for treatment and disposal at a designated site, including cleaning materials, absorbents and contaminated soils. • Absorbent and containment material (e.g. absorbent matting) will be available where hazardous materials are used and stored and personnel trained in correct use. • Protective clothing, appropriate to the materials in use, will be provided • Relevant Local Government permits will be held and conditions of permits met.
Performance Indicators	• No contamination of the environment by hazardous goods. • Reviews and corrections to storage and handling procedures as appropriate. • The flow path to drains and watercourses cut off by sand bags or earthen bunds. • Review of records showing that any spill has been addressed by the Environment Coordinator and Site Safety Adviser and appropriate remedial action has been implemented.
Monitoring, Reporting and Corrective Actions	• Weekly inspections will be conducted to ensure that chemical storage facilities continue to meet Australian Standards. • Regular audits and reviews in accordance with Section 9.1 of this EMP will be undertaken, and recommendations and corrective actions shall be implemented. • Audits shall include inspection storage and records for hazardous goods. • Non Compliance and Incident Reporting will be reported to, and regulated by, senior management to ensure prompt rectification and change management as required. • Landholder complaints will be recorded and appropriately acted upon by the Manager Land Access (see Section 9.3)
Responsible Person	• Construction Manager

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12.1 Handling and Disposal of Dangerous Goods	
Associated Documentation	• Safety and Emergency Management Plan. • Waste management plan

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12.2 Fire Management	
Company Policy	*To minimize the potential for vegetation to catch fire from construction activities and to be prepared to manage wildfires or vegetation control by landholders and third parties.*
Performance Objective	• No unplanned fires along the construction corridor. • No build-up of flammable material during construction near hot work areas.
Legislation and Policies	• *Bushfires Act 2004.* • *Fire and Emergency Act.* • *Work Health Act 1986.* • AS 1851-2005 Maintenance of fire protection systems and equipment. • Basic Fire Laws (Bushfires NT) (Appendix F).
Aspects	• Construction activities. • Increased traffic and access. • Emergency protocols. • Fire response procedures. • Fire-fighting equipment at strategic locations.
Management Strategy	• Open fires, including open barbecues, billy fires, and brush burning, will be banned on the Project. • Unnecessary buildup of flammable material in working areas will be prevented, through stockpiling vegetation and other flammable material well clear of hot work activities. • Burning of timber and vegetation stockpiles will be avoided (brush spreading is preferred). If burning should be required, permits must be obtained from the Bush Fires Council prior to carrying out any such activity. • Vehicle and machinery exhaust systems shall be inspected regularly for leaks and accumulated vegetation debris. Fuel systems shall also be inspected for leaks. • Water trucks (used for project road maintenance) will be available for use as fire trucks in the event of fire. • All vehicles will be equipped with portable fire extinguishers. • Fire extinguishers and a water cart will be available to the welding crew. All appropriate crew members will be trained in the use of firefighting equipment. • Precautions will be taken to minimize the risk of fire during welding (refer to Section 10.5). • The Emergency Response Plan shall include details on local contacts for fire fighting assistance. • The Construction Manager shall ensure that all relevant laws with regard to Fire Management are adhered to.
Performance Indicators	• No uncontrolled fires along the construction corridor. • No buildup of flammable material near hot work areas. • Emergency Response Plan in place. • Permits and approvals sought as required.
Monitoring, Reporting and Corrective Actions	• During construction, the entire length of the construction corridor and associated access areas will be regularly inspected to assess the effectiveness of Fire Management and Prevention practices. • Inspection of work areas for flammable material. • Regular audits, in accordance with Section 9.1 of this EMP, will be undertaken, and recommendations and corrective actions shall be implemented. • Non Compliance and Incident Reporting will be reported to, and regulated by, senior management to ensure prompt rectification and change management as required. • Landholder complaints will be recorded and appropriately acted upon by the Manager Land Access (see Section 9.3).

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12.2 Fire Management	
Responsible Person	• Construction Manager
Associated Documentation	• Safety and Emergency Management Plan • Clearing and grading plan

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12.3 Biting Insects Management	
Company Policy	*To minimize breeding opportunities for biting insects and to protect personnel from biting insects.*
Performance Objective	• To prevent the introduction of new mosquito species to the site. • To prevent the spread of existing mosquito species to and from the site. • To prevent the creation of habitat suitable for breeding. • To ensure no diseases are brought onto site and contracted from site. • To minimize the occurrence of mosquitoes on the site. • To minimize the impacts of biting insects on personnel. • To provide adequate protection for and information to personnel regarding mosquito borne diseases.
Legislation and Policies	• *Work Health (Occupational Health And Safety) Regulations.* • *Public Health Act.* • *Public Health (General Sanitation, Mosquito Prevention, Rat Exclusion and Prevention) Regulations.* • *International Health Regulations (2005).* Relevant policies, codes of practice and measures include; • NT Medical Entomology Branch Guidelines, • Personal protection from mosquitoes and biting midges in the NT. Whelan P. (1997) Territory Health Services, Darwin, • Drainage considerations for mosquito control. Whelan P. (1997) • Guidelines for preventing the creation of mosquito breeding sites in non residential rural subdivisions or developments. (1996).
Aspects	• Mosquito breeding and infestations. • Mosquito introductions. • Mosquito borne diseases. • Biting midge habitat.
Management Strategy	• Elimination of midge and mosquito habitat is not feasible, however, reduction of larvae and prevention of irritation from biting can be accomplished by the following management procedures; • Where required, Bifenthrin barrier treatments around personnel areas such as campsites will be implemented to reduce adult biting midge numbers. • Yellow or red lights will be used in personnel areas, where possible, to prevent attracting midges. White lights will be used away from non-personnel areas to divert the midges. • The workforce will be notified if there is a mosquito or biting midge problem and individuals will take appropriate personal protection, such as appropriate clothing and insect repellent. • Preventing the creation of areas and structures in which water could be retained for more than 5 days (i.e. potential mosquito breeding habitat). • Stormwater drains will be constructed in a manner that does not lead to the creation of new mosquito breeding sites. • Bunded areas will be managed to prevent mosquito breeding. • Rehabilitated sites will be re-contoured to the original surface profiles to prevent ponding. • Access roads will be fitted with culverts where necessary, in order to prevent water ponding upstream, and thus prevent mosquito breeding. • All containers and vessels capable of holding water for mosquito larvae will be inspected, drained, and treated as required. • All materials taken on or off site will be inspected for pooled water; drained, and treated with chlorine as required. • Inspection of materials from Queensland or overseas will be conducted to identify and treat mosquito larvae sources.

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12.3 Biting Insects Management	
	• In-bound containers containing mosquito larvae will be sampled and referred to the Medical Entomology Branch (MEB) for identification and appropriate remedial action. • Monitor for symptoms in employees (such as temperature, fever, joint and muscle pain) that may indicate mosquito-borne disease.
Performance Indicators	• No ponding of water. • Containers do not hold water for more than 5 days. • Materials inspected regularly, and treated if required. • Personal Protection Equipment (PPE) adequate to prevent exposure. • Mosquito numbers managed. • All illnesses assessed for cause. • Minimal impacts from biting insects on the construction workforce.
Monitoring, Reporting and Corrective Action	• During construction, the entire length of the construction corridor and associated access areas, especially campsites, will be regularly inspected to assess the effectiveness of Biting Insect Management practices. • Regular audits, in accordance with Section 9.1 of this EMP, will be undertaken, and recommendations and corrective actions shall be implemented. • Regular audits in accordance with Section 9.1 of this EMP will be undertaken, and recommendations and corrective actions shall be implemented. • Non Compliance and Incident Reporting will be reported to, and regulated by, senior management to ensure prompt rectification and change management as required. • Landholder complaints will be recorded and appropriately acted upon by the Manager Land Access (see Section 9.3).
Responsible Person/s	• Manager Safety, Risk and Licensing
Associated Documentation	• Campsites, offices and site management

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12.4 Safety and Emergency Management	
Company Policy	*To carry out construction of the BGP Project in a safe and responsible manner to ensure no long term adverse impacts on health, safety or the environment.*
Performance Objectives	• Nil Lost Time Injuries (LTIs). • Nil Fatalities. • Nil government notices. • 100% compliance with induction training procedures. • 100% compliance with corrective action procedures.
Legislation and Policy	• *Dangerous Goods Act.* • *Fire and Emergency Act.* • *Work Health Act 1986.* • *Bushfires Act.*
Aspects	• Construction activities. • Increased traffic. • Emergency protocols. • Fire response procedures. • Remote worksite and wildlife interactions.
Management Strategies	• Implementation of a Safety Management Plan (SMP). • Ensure that the SMP establishes the obligations, requirements, processes and systems for managing safety hazards and statutory requirements. • Ensure all personnel understand that they are responsible for ensuring the safety of themselves and any other people who may be affected by their actions. • Provide safety induction to all personnel and contractors working on the pipeline project. • Provide personnel with appropriate resources to ensure they can carry out their tasks in a safe manner. • Implementation of an Emergency Response Plan (ERP). • Ensure that the ERP defines the responsibilities, procedures, systems, method of identifying and assessing emergencies and resources for mitigating potential emergency events including: – Serious injury/death/medical emergency – Significant chemical or fuel spill – Fire – not related to a gas leak – Bush fire – Natural Disaster – Bomb threat – Major gas leak – Damage to pipeline (no leak) – Plant failure – Finding unexploded ordinance • Minimize damage from spills by shut down or isolation of source of spill or leak.
Performance Indicators	• Number of incident reports. • Extent of incidents (e.g. fatality, injury, major spill). • % compliance with SMP. • % compliance with training procedures. • % compliance with corrective action procedures.
Monitoring, Reporting and Corrective Action	• All incidents, including near misses to be reported through the incident reporting system. • All incidents to be reviewed by the Manager Safety, Licensing and Risk. • Annual reporting of incidents to the Board. • Implementation of change in procedures if required.

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12.4 Safety and Emergency Management	
	• Regular safety audits and inspections (at least two audits conducted during construction)
Responsible Person/s	• Manager Safety, Licensing and Risk
Associated Documentation	• Safety Management Plan. • Emergency Response Plan.

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13.0 SPECIAL AREA PLANS

13.1 Special Area Plan –HDD Crossings	
Item / Area of Significance	All Horizontal Directional Drill (HDD) crossings.
Company Policy	*To install HDD crossing in an orderly and planned fashion with no adverse impacts*
Legislation and Policies	• *Environmental Protection and Biodiversity Conservation Act 1999.* • *Territory Parks and Wildlife Conservation Act 2000.* • *Soil Conservation and Land Utilization Act 1980.* • *Water Act.* • *Waste Management & Pollution Control Act.*
Aspects	• Equipment and Machinery Access. • Bunding and drilling mud management.
Detailed Requirements	• Preparation of a detailed site plan for each drill, prior to mobilisation to site. Drawings will include the slope of the site. • Vehicle entry is not to be permitted at the topographical low point of the area. • No drilling work to commence until the pre-start checklist is completed and approved by the Environment Coordinator and the Construction Manager (i.e. HDD Contractor must have provided a spillage and drilling mud management plan prior to construction commencing). • Entire HDD site to be enclosed by earthen bund. • Bund height shall be double at vehicle crossing points to allow for compaction by vehicle crossings. • All cuttings to be stored in skips and disposed of at licensed waste facility unless otherwise approved by APT and Authorities. • Hourly visual inspection of drill route for potential drill mud break out. • Mud pits are to be lined with poly liner if ground is unsuitable. • HDD work areas must be included in the approved access mapping and alignment sheets, and no work or disturbance shall occur outside these areas. • Where feasible, machinery will have drip trays installed beneath them to collect oil drips • All fuel and other Hazardous materials to be stored in accordance with Section 10.11. • Drill mud spillage and breakout response materials and equipment is to be maintained on site, and personnel trained in its use. • Portable toilet to be located and maintained at the HDD site for the duration of HDD construction. • The site to be reinstated and revegetated at conclusion of construction of crossing. Silt fences to remain until site stable and vegetated.
Performance Indicators	• No work commenced until pre-start checklist completed • Site Plan prepared and site constructed to this plan • Bund installed and maintained • Cultural clearance undertaken • Work areas additional to construction corridor agreed upon and documented • Drip trays in place • Fuel and Hazardous materials appropriately stored • Portable toilet in place and maintained.
Monitoring, Reporting and Corrective Actions	• A Pre-start HDD Checklist will be completed and signed by the Construction Manager, Environment Coordinator and HDD supervisor prior to commencement of drilling. • Regular audits in accordance with Section 9.1 of this EMP will be undertaken, and recommendations and corrective actions shall be implemented. All HDD sites will be audited once during installation. • Non Compliance and Incident Reporting will be reported to, and regulated by, senior

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13.1 Special Area Plan –HDD Crossings	
	management to ensure prompt rectification and change management as required. • Landholder complaints will be recorded and appropriately acted upon by the Environment Coordinator (see Section 9.3).
Responsible Person	• Construction Manager
Associated Documentation	• Detailed HDD drawings. • Geotechnical investigations. • Pre Start HDD Checklist. • Watercourse management

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13.2 Special Area Plan – Acid Sulfate Soil	
Item / Area of Significance	Acid Sulfate Soils (ASS) – areas where construction goes below the 5m AHD level.
Company Policy	*To restrict the disturbance and distribution of ASS and to effectively mitigate and treat ASS if encountered during construction.*
Legislation and Policies	• *Soil Conservation and Land Utilization Act 1980.*
Aspects	• Acid Sulfate Soils. • Watercourse management. • Excavated soil management. • Impact of ASS on pipeline.

Detailed Requirements	• Site Environment Officer to monitor for visual signs of ASS in excavated soils.
	• If Site Environment Officer considers material contains ASS, immediate steps must be taken to segregate and contain the material (e.g. inside plastic lined earthen bund).
	• Contact the Environment Coordinator, who will;
	  • Source a relevant expert to confirm if ASS is present and provide relevant management strategies,
	  • Contact the relevant authorities where required.
	• Typically, ASS management strategies would include;
	  • Minimising the amount of time the excavated soils are stockpiled, thus reducing the potential time for oxidation of ASS, and subsequent runoff,
	  • Stockpiling excavated soil containing ASS within a bunded area and treating it with lime. The rate of lime is to be confirmed, but will be at least 50kg per 10m^3 of soil,
	  • Retaining ASS within the original location of excavation to reduce the potential for spreading acidity.
	• Trench backfill will be compacted to a level at least similar to that of the surrounding soil profile. This will ensure that the structure does not provide a permeable pathway for acid leachate migration, and that permanent lowering of the water table does not occur.

Performance Indicators	• Nil distribution of ASS to adjacent land by construction activities. • Effective treatment of any ASS encountered during construction.

Monitoring, Reporting and Corrective Actions	• Monitor construction at ;
	  • KP 14.5 – a drainage line and part of the Sandfly Creek system;
	  • KP 20.2 – Dee Creek, also part of the Sandfly Creek system;
	  • KP 56.4 – Anopheles Creek, a tributary of the Moyle River;
	  • KP 86.2 – Kurrowa Creek, also a tributary of the Moyle River; and
	  • KP 175 and 181 – either side of the Daly River.
	• If ASS is located, the Environment Coordinator will report it to the relevant authority.
	• Regular audits in accordance with Section 9.1 of this EMP will be undertaken, and recommendations and corrective actions shall be implemented.
	• Regular activity inspection checklists shall be recorded and reviewed by each supervisor or manager.
	• Non Compliance and Incident Reporting will be reported to, and regulated by, senior management to ensure prompt rectification and change management as required.

Responsible Person	• Construction Manager
Associated Documentation	• Alignment drawings

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13.3 Special Area Plan –Open-cut with Flow Diversion	
Item / Area of Significance	Special crossing – Open-cut with Flow Diversions. E.g. Moyle River (KP 84).
Company Policy	*To provide effective water management and sediment control practices during and post construction to mitigate the potential adverse impacts to water quality (principally as a result of increased sediment load), which may affect downstream users or ecosystems*
Legislation and Policies	• *Environmental Protection and Biodiversity Conservation Act 1999.* • *Territory Parks and Wildlife Conservation Act 2000.* • *Soil Conservation and Land Utilization Act 1980..* • *Water Act 1992.*
Aspects	• River crossing and water flows. • Slopes. • Vegetation clearing. • Erosion mitigation plans and structures. • Existing erosion nearby. • Monitoring and contingency measures.
Detailed Requirements	• Construction of these crossings to occur in the dry season reducing the impacts of construction sedimentation events. • All work areas must be included in the approved access mapping and alignment sheets, and no work or disturbance shall occur outside these areas. • Due to the nature of the site and soils, minimize the quantity and duration of soil exposure. • Protecting, root stock by minimizing root stock clearance through the use of graders rather than bulldozers. • The dam walls will be constructed from locally sourced material, or clean imported material if earthen or preferably utilizing Aqua Dams where feasible. • The dam walls will be introduced into and removed from the waterway in a manner that if possible minimises stream bed disturbance and sedimentation. • Fauna handlers must be on site during the damming process to check aquatic wildlife. • If there is flow in the stream then water is to be pumped around the trench clearing. • Bunds must be created to manage any potential spills from all pumps used on site. These bunds must be lined with impervious material such as plastic. • Pump inlets must be screened to insure that no aquatic life enters or becomes trapped by the pump. • Rock or geofabric must be installed where the pumped water is released so as to prevent scouring of the channel. • Turbid trench water removed during construction is to be pumped and discharged into geofabric (or similar) so that it does not flow directly back into this or any watercourse. • Separate trench spoil and watercourse bed and bank material and place them in bunded areas on the easement adjacent to the crossing so that they can be returned to the trench in the order and depth equivalent to original conditions. • Place rock protection over the installed pipe to prevent potential scouring during flood events. • Reinstate all watercourse banks and profiles to as near as practicable to their original profile. Use geofabric to assist this process where required. • Revegetate (with sterile grass) and stabilise the watercourse banks. • Protecting critical areas during and post construction by installing and maintaining sediment fences and multiple permanent structures to reduce the velocity of water flowing down the slope. (e.g. whoaboys, contour banks, earth banks, turn off drains, silt fences). • Reinstating the construction corridor as soon as practicable after completion of backfilling • Restricting vehicle movement on restored construction corridor until the vegetation has re-established.

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13.3 Special Area Plan –Open-cut with Flow Diversion	
	• Inspecting the construction corridor and maintaining erosion and sediment controls as necessary, during and after construction until stabilisation is achieved. • Any approved off corridor work site to be reinstated and revegetated at conclusion of the construction of the crossing. Silt fences to remain until site stable and vegetated. • Rehabilitation to be scheduled to be completed prior to the first storms of the wet season.
Performance Indicators	• Site Plan prepared and site constructed to this plan. • Cultural clearance undertaken • Work areas additional to construction corridor agreed upon and documented. • No evidence of uncontrolled erosion following high rainfall. • No evidence of sedimentation in the watercourse. • Reinstatement of natural flow regimes evident. • Review of and reinstatement of Erosion controls. • Erosion controlled and limited to that consistent with "natural processes" such that pipeline cover is maintained without reducing capacity.
Monitoring, Reporting and Corrective Actions	• Ongoing monitoring will be undertaken to assess the success and integrity of permanent erosion control devices and structures. • Regular audits in accordance with Section 9.1 of this EMP will be undertaken, and recommendations and corrective actions shall be implemented. • Non Compliance and Incident Reporting will be reported to, and regulated by, senior management to ensure prompt rectification and change management as required. • Landholder complaints will be recorded and appropriately acted upon by the Manager Land Access (see Section 9.3)
Responsible Person	• Construction Manager
Associated Documentation	• Alignment drawings • Watercourse management • Erosion management

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13.4 Special Area Plan – Dee Creek (KP 20).	
Item / Area of Significance	Special crossing – Open-cut. E.g. Dee Creek (KP 20).
Company Policy	*To provide effective erosion and sediment control practices to mitigate the potential effects of the disturbed areas on the watercourse, land use and the general environment with particular focus on meeting the potentially heavy wet season rainfall by providing robust and fit for purpose permanent erosion control measures*
Legislation and Policies	• *Environmental Protection and Biodiversity Conservation Act 1999.* • *Territory Parks and Wildlife Conservation Act 2000.* • *Soil Conservation and Land Utilization Act 1980..* • *Water Act 1992.*
Aspects	• Creek crossing and water flows. • Slopes. • Vegetation clearing. • Erosion mitigation plans and structures. • Existing erosion nearby. • Monitoring and contingency measures.
Detailed Requirements	• Construction of this crossing to occur in the dry season minimising likelihood of construction sedimentation events. • All work areas must be included in the approved access mapping and alignment sheets, and no work or disturbance shall occur outside these areas. • Extra work space requirements for the watercourse crossing shall be located a sufficient distance back from the top of bank and associated riparian vegetation. • Due to the nature of the site and soils and the obvious erosion associated with the road crossing and other disturbances, minimize the quantity and duration of soil exposure. • Protecting critical areas during and post construction by installing and maintaining sediment fences and multiple permanent structures to reduce the velocity of water flowing down the slope. (e.g. contour banks, earth banks, turn off drains, silt fences). • Preventing all vehicle access to critical management areas and restricting vehicle movement on restored construction corridor until the vegetation has re-established. • Inspecting the construction corridor and maintaining erosion and sediment controls as necessary, during and after construction until stabilisation is achieved. • Any approved off-corridor work site to be reinstated and revegetated at conclusion of the construction of the crossing. Silt fences to remain until site stable and vegetated. • Rehabilitation to be scheduled to be completed prior to the first storms of the wet season.
Performance Indicators	• Site Plan prepared and site constructed to this plan. • Work areas additional to construction corridor agreed upon and documented. • No evidence of uncontrolled erosion following high rainfall. • Minimal evidence of sedimentation in the watercourse. • Reinstatement of natural flow regimes evident. • Review of and reinstatement of erosion controls. • Erosion controlled and limited to that consistent with “natural processes” such that pipeline cover is maintained without reducing capacity.
Monitoring, Reporting and Corrective Actions	• Ongoing monitoring will be undertaken to assess the success and integrity of permanent erosion control devices and structures. • Regular audits in accordance with Section 9.1 of this EMP will be undertaken, and recommendations and corrective actions shall be implemented. • Non Compliance and Incident Reporting will be reported to, and regulated by, senior management to ensure prompt rectification and change management as required.

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13.4 Special Area Plan – Dee Creek (KP 20).	
	• Landholder complaints will be recorded and appropriately acted upon by the Manager Land Access (see Section 9.3)
Responsible Person	• Construction Manager
Associated Documentation	• Alignment drawings • Watercourse management • Erosion management

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13.5 Special Area Plan – Fenton Airstrip / Camp	
Item / Area of Significance	Fenton Camp, historic World War II site. (recorded as archaeological site BGP19)
Company Policy	*To prevent any adverse impact on Archaeological/historic sites*
Legislation and Policies	• *No specific legislation to protect site*
Aspects	• Management of archaeological site BGP19 during construction of pipeline. • Clear and grade. • Access tracks. • Fencing and flagging of site.
Detailed Requirements	• No disturbance to any features located in the Fenton Camp • All activities to be kept within the 30m alignment in the area of Fenton camp • Archaeologist to flag Features 1- 3 and 6-7 of the site before construction commences.
Performance Indicators	• Nil disturbances to archaeological site.
Monitoring, Reporting and Corrective Actions	• Archaeologist to monitor the construction of the pipeline in the area of the camp to ensure no work occurs outside the pipeline alignment. • During construction, the entire length of the construction corridor and associated work areas will be regularly inspected to assess the effectiveness of protection measures with particular attention to; • Archaeological site management, • Regular audits in accordance with Section 9.1 of this EMP will be undertaken, and recommendations and corrective actions shall be implemented. • Non Compliance and Incident Reporting will be closed out by senior management to ensure prompt rectification and change to management as required. • Landholder complaints will be recorded and appropriately acted upon by the Manager Land Access (see Section 9.3)
Responsible Person	• Construction Manager. • Archaeological monitor
Associated Documentation	• Alignment drawings • Archaeological and Historic Material and Site management plan

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13.6 Special Area Plan – Archaeological site; Rock Cairn	
Item / Area of Significance	A significant archaeological and historic stone cairn (recorded as archaeological site BGP6)
Company Policy	*To prevent any adverse impact on Archaeological sites*
Legislation and Policies	*Heritage Conservation Act 1991.*
Aspects	• Management of archaeological site BGP6 during construction of access track and pipeline. • Access for Geotechnical investigations • Clear and grade • Access tracks • Fencing and flagging of site
Detailed Requirements	• No disturbance to site during track construction or clear and grade • No disturbance through vibrations of heavy machinery • Construction of a permanent fence around the site, prior to any on ground works. The fence is to be at least 5m away from the foot of the cairn
Performance Indicators	• Nil disturbances to archaeological site.

Monitoring, Reporting and Corrective Actions	• This SAP is subject to further field investigations by an expert team including engineers, blasting experts and archaeologist to determine the appropriate management measures. Measures are expected to include:
	  • Archaeologist and / or Traditional Owner to monitor the site for disturbance from the vibrations of heavy machinery.
	  • All works to be undertaken in a manner that minimises vibration.
	  • Fencing of site prior to 2007 Geotechnical studies – secure fence for the duration of the construction period.
	  • Archaeologist and / or traditional owner to monitor the installation of the fence around the cairn to ensure the site is not damaged.
	  • During construction, the entire length of the construction corridor and associated work areas will be regularly inspected to assess the effectiveness of protection measures with particular attention to Archaeological site management,
	  • Regular audits in accordance with Section 9.1 of this EMP will be undertaken, and recommendations and corrective actions shall be implemented.
	  • Non Compliance and Incident Reporting will be closed out by senior management to ensure prompt rectification and change management as required.
	  • Landholder complaints will be recorded and appropriately acted upon by the Manager Land Access (see Section 9.3)

Responsible Person	• Construction Manager. • Blasting Engineer. • Archaeological monitor
Associated Documentation	• Alignment drawings • Archaeological and Historic Material and Site management plan

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APPENDICES

APPENDIX A: BGP ENVIRONMENT HEALTH AND SAFETY POLICY

Australian
Pipeline Trust

Bonaparte Gas Pipeline Project
Health, Safety and Environment (HSE) Policy

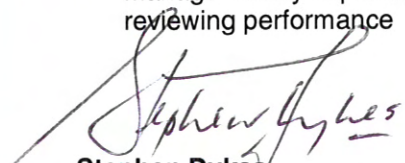
The Australian Pipeline Trust is committed to managing the Bonaparte Gas Pipeline Project in a safe, environmentally responsible and practical manner for the benefit of all stakeholders. To achieve this principle, the HSE policy is an integral part of the project

Objectives:

- Meet or exceed our statutory HSE obligations
- Provide a workplace that allows every person to finish work as healthy as when they started work each day
- Manage health, safety and environmental risks so as to minimise harm
- Respect the traditional rights of indigenous people, care for the environment and value all cultural heritage
- Build a Project culture of continuous improvement, openness and ownership and improve our HSE performance over the Project

To achieve the objectives, APT will:

- Define roles, responsibilities and levels of accountability for Health, Safety and Environment
- Require all Project personnel at all levels of the Project to take personal responsibility for HSE behaviour
- Build relationships based on honesty, openness, mutual trust and involvement
- Integrate HSE objectives into all Project activities
- Ensure that all contractual arrangements entered into incorporate HSE performance requirements.
- Communicate with, and engage, employees, contractors, stakeholders, suppliers, visitors and communities on HSE matters
- Treat contractor HSE performance with equal importance to that of our employees
- Identify, assess and manage HSE risks prior to commencing all project activities
- Identify and comply with all applicable laws, regulations, advisory and industry standards
- Provide a suitable working environment and conditions in which employees and contractors can work without danger to themselves, the community and the environment
- Involve employees and contractors in the continuous improvement of Project HSE performance
- Provide effective training, efficient communication and continuous review in our HSE performance processes and procedures
- Establish measurable objectives and targets aimed at the elimination of work related incidents and harmful impacts from Project activities
- Manage risk by implementing systems to identify, report, assess, monitor and control risks and by reviewing performance



Stephen Dykes,
BGP Project Manager
1 September 2006

APPENDIX B: ASSOCIATED DOCUMENTS

Public Environment Report

A PER has been prepared and submitted for public consultation under the *Environmental Assessment Act* and the *Environment Protection and Biodiversity Conservation Act 1999.*

Cultural Heritage Management Plan

A Cultural Heritage Management Plan (CHMP) will be developed and implemented in consultation with the Native Title/Traditional Owner groups with interests in the lands traversed by the pipeline. Requirements for construction monitoring of Clear and Grade and Trenching is a key component of the CHMP.

Community Consultation Management Plan

A Community Consultation Management Plan has been created for the Project, setting out the methodologies for ensuring all key stakeholders and landowner/holders issues are addressed throughout the life of the Project. The Plan forms an integral part of the Project.

Transport and Traffic Management Plan

A Transport and Traffic Management Plan will be developed, in consultation with road authorities, prior to construction commencing. The plan will address; how pipe and equipment will be transported (e.g. road or rail), how route issues will be managed (e.g. capacity of bridges etc to handle required load), management of vehicle movements through built up areas, and the management of traffic during road crossings

Industry Participation Plan

An Industry Participation Plan has been developed for the Project outlining how the Project will provide opportunities for local industry involvement in the Project.

Construction Specifications

Construction Specifications are standard pipeline documents with engineering and environmental information integrated into them. Therefore, this EMP forms part of the Construction Specifications, ensuring that environmental management is an integral part of the development and is equally as important as the engineering design specifications.

Construction Execution Plan (CEP)

CEPs will be generated as appropriate for each activity. These will convert construction specifications to a task or method specific approach. From these CEPs the project Job Hazard Analysis (JHA) will be developed.

Alignment Drawings

Alignment Drawings define the alignment of the pipeline and are used as a graphical "key" to supporting documentation such as Construction Specifications and Technical Drawings.

The Alignment Drawings include areas with special requirements and engineering information, such as pipe wall thickness and depth of cover. The *Environmental* section of the Alignment Drawings for this project will make reference to the relevant SAPs.

Engineering Drawings

Engineering drawings will be prepared prior to construction and will reference standards and relevant procedures as applicable.

Hazard and Risk Registers

Hazard and Risk registers provide a summary of the hazards and risks identified in association with the pipeline and the mitigation measures to be implemented.

Detailed Procedures

A number of project specific procedures will be developed. Each procedure shall incorporate the requirements and intent of this EMP. Similarly, Procedures shall be developed to reflect the specific requirements of the following Plans and JHA:

- Emergency Response Plan (ERP) – the plan specifically developed for the Project for management of emergencies e.g. onset of cyclone or bushfire situation. The plan will be tested by simulated responses at appropriate intervals;
- Safety Management Plan (SMP) – the SMP specifically developed for the project for management of safety as required by legislation and APT;
- Job Hazard Analysis (JHA) – the specific analysis of safety and environmental aspects of each activity as identified in the specifications and CEPs

APPENDIX C: LIST OF AUSTRALIAN STANDARDS REFERRED TO IN THIS EMP

AS/ NZS 1269	Occupational Noise Management Set
AS 1678	Road Transport of Dangerous Goods
AS 1851	Maintenance of Fire Protection Systems and Equipment
AS 1940	The Storage and Handling of Flammable and Combustible Liquids
AS 2187	Explosives- Storage, Transport and Use- Use of Explosives
AS 2436	Guide to Noise Control on Construction, Maintenance and Demolition Sites
AS 2809	Road Tank Vehicles for Dangerous Goods
AS 2885	Pipelines Gas and Liquid Petroleum – Design and Construction.
AS 2931	Selection and Use of Emergency Procedure Guides for the Transport of Dangerous Goods

APPENDIX D: LIST OF RELEVANT ACTS, GUIDELINES, CODES OF PRACTICE AND MEASURES REFERRED TO IN THIS EMP

- *Aboriginal Sacred Sites Act.*
- *Bushfires Act*
- *Dangerous Goods Act 1981.*
- *Environmental Assessment Act.*
- *Environmental Protection and Biodiversity Conservation Act 1999.*
- *Fire and Emergency Act.*
- *Heritage Conservation Act.*
- *Planning Act 2005.*
- *Public Health Act.*
- *Soil Conservation and Land Utilization Act.*
- *Territory Parks and Wildlife Conservation Act 2000.*
- *Waste Management and Pollution Control Act 1998.*
- *Water Act 1992.*
- *Weeds Management Act 2001.*
- *Work Health Act 1986.*

- International Health Regulations (2005).
- NT Medical Entomology Branch Guidelines,
- Public Health (General Sanitation, Mosquito Prevention, Rat Exclusion and Prevention) Regulations,
- Personal protection from mosquitoes and biting midges in the NT. Whelan P. (1997) Territory Health Services, Darwin,
- Drainage considerations for mosquito control. Whelan P. (1997) In: *Australian Mosquito Control Manual* (eds. C. Morris & P. Dale) pp. 8pp. Australian Mosquito Control Association, 1998.
- Northern Territory Public Health (General Sanitation, Mosquito Prevention, Rat Exclusion and Prevention) Regulations.
- Environmental Health Information Bulletin No. 6 Requirements for Mining, Construction & Bush Camps, NT DHCS 2006.
- Northern Territory Code of Practice for the small on-site sewage and sullage treatment systems, and the disposal or reuse of sewage effluent.
- National Standard for Occupational Noise (NOHSC:1007(2000)) National Code of Practice for Noise Management and Protection of Hearing at Work (NOHSC:2009(2000)) 2nd Edition July 2000.
- NT WorkSafe *Occupational Noise Management, 2003.*

APPENDIX E: WASHDOWN LOG

Date	Vehicle/Plant	Rego No	Operator	Washdown Location *Easting (GDA 94) or name*	Washdown Location *Northing (GDA 94)*	Signature

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APPENDIX F: BASIC FIRE LAWS (BUSHFIRES NT)

FIRE RISK FROM ENGINES AND EQUIPMENT

1. Do not start or drive a motor vehicle (within the meaning of the Motor Vehicles Act) or start an engine unless a spark arrester has been fitted.
2. Do not use electric or gas welding or cutting equipment in the open in a Fire Protection Zone or during a Fire Danger Period or Fire Ban Day:
   a) within 4 metres of any flammable material; and
   b) unless there is a fire extinguisher readily available.

BURNING MATTER NOT TO BE THROWN DOWN

Cigarettes and other burning or smouldering matter must be thoroughly extinguished before being disposed of.

Penalty: $5000 or imprisonment for 5 years.

OBSTRUCTION

Hindering a Fire Control Officer or Fire Warden in the exercise of their duty, or failing to comply with any requirement so made is an offence.

Penalty: $5000 or imprisonment for 2 years.

Giving false information or producing false documentation to an Fire Control Officer or Fire Warden exercising their duty is an offence.

Penalty: $5000 or imprisonment for 2 years.

This is not a legal document but rather a summary of the **Bushfires Act**. It does not cover all the provisions of the Act but refers to those matters which the majority of people will be concerned.

FOR FURTHER INFORMATION CONTACT

DARWIN HEADQUARTERS
1718 Albatross Street Winnellie
PO Box 37346 Winnellie NT 0821
Telephone: 8922 0844
Facsimile: 8922 0833
www.nt.gov.au/bfc/

BATCHELOR OFFICE
142 Cameron Road Batchelor
c/o Post Office Batchelor NT 0845
Telephone: 8976 0098 or 8976 0321
Facsimile: 8976 0222

KATHERINE OFFICE
32 Giles Street Katherine
PO Box 532 Katherine NT 0851
Telephone: 8973 8888
Facsimile: 8973 8899

TENNANT CREEK OFFICE
2 Leichardt Street Tennant Creek
PO Box 846 Tennant Creek NT 0861
Telephone: 8962 4522 or 8962 4577
Facsimile: 8962 2651

ALICE SPRINGS OFFICE
3 Elder Street Alice Springs
PO Box 2533 Alice Springs NT 0871
Telephone: 8952 3066
Facsimile: 8952 7576

Northern Territory

Basic Fire Laws

The Bushfires Act has been established to help protect life, property and the environment from the threat of wildfire. Within the Act there are a number of important sections with which landholders must comply.

Northern Territory Government
Department of Infrastructure, Planning and Environment

BUSHFIRES COUNCIL NT

BUSHFIRES ACT

The Act says you must not set fire or cause fire to be set to land or property belonging to any other person under such circumstances as to cause or be likely to cause damage to that other person or that land or property.

Penalty for Failure to Comply with the Bushfires Act:
$25000 Fine or imprisonment for 5 years.

FIRE PROTECTION ZONES

In the Northern Territory, certain areas have been declared as Fire Protection Zones, these are:

- 50 kms radius from Katherine PO
- 50 kms radius from Tennant Creek PO
- 50 kms radius from Alice Springs Airport
- Northern Fire Protection Zone as per map

You must not set fire to any bush or other inflammable material on land within a Fire Protection Zone at any time of the year, except with and in accordance with the terms of a Permit to Burn, issued by a Fire Warden or a Fire Control Officer.

If it is necessary for you to use a fire for the purpose of camping, cooking or the urgent disposal of animal carcass, this must not be done unless:

a) the nearest flammable matter to the fire is more than 4 metres away

b) the fire is fully extinguished before being left.

BURNING OUTSIDE A FIRE PROTECTION ZONE - FIRE DANGER AREAS

Fires may be lit without a Permit, on land outside a Fire Protection Zone except where the land lies within a declared Fire Danger Area.

The Minister may during the Fire Season declare a Fire Danger Period over certain areas defined by lines of latitude. When such a period has been declared the 'following restrictions apply to the lighting of all fires in the open air.

If a fire is required for the purpose of clearing land, mustering cattle, burning firebreaks or for any other purpose, a Permit to Burn must first be obtained from either a Fire Warden or a Fire Control Officer and the following conditions will apply:

a) at least 48 hours notice must be given to all neighbours adjoining the land on which it is intended to light a fire

b) the fire should be lit only when weather conditions are favourable

c) adequate manpower and equipment must be on hand at all times to control the fire.

FIRE BANS

A ban on the lighting of fires in the open may be imposed during periods of Very High or Extreme Fire Danger. During this time **NO FIRES** of any kind may be lit in the open air with the exception of those fires used for cooking or boiling water, provided that the nearest flammable matter to the fire is more than 4 metres away.

Fire bans are announced on radio and in the press; when the Ban is lifted normal burning restrictions continue to apply.
If you have a fire on your property that was lit prior to the commencement of a Fire Ban, you must put it out or if you are unable to do so you must notify a Fire Warden or Fire Control Officer without delay.

Penalty: $25000 or imprisonment for 5 years.

POWER OF FIRE CONTROL OFFICERS AND FIRE WARDENS

Under the Bushfires Act, a Fire Control Officer or Fire Warden, for the purpose of controlling a bushfire or protecting property or life from danger arising out of a bushfire, has the power to:

a) enter any building or upon any land

b) pull down, cut or remove any fence

c) establish a firebreak by using fire otherwise

d) take water from any source other than drinking or domestic water

e) cause any road or public place to be closed to traffic

f) require a person reasonably suspected of having committed an offence against the Act to give their full name and place of residence and to produce any Permit held by them

g) require a person who has lit or is using a fire in contravention of the Act to immediately put it out.

FIRE PREVENTION

The Chief Fire Control Officer may require you to construct firebreaks on or remove flammable material from land apparently under your control.

Penalty: $5000 or 2 years and $500 each day during which the offence continues.

LANDOWNERS OR OCCUPIERS

If you are the owner or occupier of any land and you are made aware that a fire on your property is likely to spread to other land, you must take all reasonable steps to control the fire. If you are unable to do so you must immediately notify:
a) a Fire Warden or Fire Control Officer; and
b) all neighbouring property holders of the fact.

Penalty: $5000 or imprisonment for 2 years.

Northern Territory Basic Fire Laws