NORTHERN NETWORK ALLIANCE

NORTHERN PIPELINE INTERCONNECTOR PROJECT STAGE 2

MANAGEMENT PLAN

Planning Environmental Management Plan (PEMP)

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TABLE OF CONTENTS

TABLE OF FIGURES

TABLE OF TABLES

Acronym	Glossary
AHD	Australian Height Datum
ANZECC	Australian and New Zealand Environment and Conservation Council
APMT	Alliance Project Management Team
AS/NZS	Australian and New Zealand Standard
ASS	Acid Sulphate Soils
BCC	Brisbane City Council
CAR	Corrective Action Requests
CEMP	Construction Environmental Management Plan
CGR	Coordinator-General's Report
CHMP	Cultural Heritage Management Plan
Cth	Commonwealth
DEWHA	Commonwealth Department of Environment, Water, Heritage and the Arts
DES	Department of Emergency Services
DoIP	Department of Infrastructure and Planning
DPI&F	Department of Primary Industries and Fisheries
EIN	Environmental Improvement Notice
EIS	Environmental Impact Statement (Draft) as prepared by NNA March 2008
EMP	Environmental Management Plan
EMR	Environmental Management Register (administered by the EPA)
EMS	Environmental Management System (as defined under ISO14 001)
EMT	Environment Management Team
EPA	Queensland Environmental Protection Agency
EPA Act	*Environmental Protection Act 1994* (Qld)
EPP (Water)	Environmental Protection (Water) Policy
ERA	Environmentally relevant activity
ESD	Ecologically sustainable development
FARMP	Fire Ant Risk Management Plan
IAS	Initial Advice Statement
IEAust	Engineers Australia (Institution of Engineers, Australia)
KPIs	Key Performance Indicators
LinkWater	SRWPCo now trades as Linkwater, which is 100 per cent owned by the Queensland Government
MSDS	Material Safety Data Sheets
NATA	National Association of Testing Authorities
NCR	Non-Conformance Report
NNA	Northern Network Alliance

Acronym	Glossary
NPI	Northern Pipeline Interconnector
NR&W	Department of Natural Resources and Water
PAA	Project Alliance Agreement
PASS	Potential Acid Sulphate soils
PM_{10}	Particulate matter with a diameter of 10 microns or less
Project Site	As defined by SRWP Alliance Agreements/Acquisitions
QASSIT	Queensland Acid Sulphate Soils Investigation Team
QESE	Quality Environment Safety Engineering Database
Qld	Queensland
RE	Regional Ecosystem
RIFA	Red Imported Fire Ants
ROW	Right of Way
SAPs	Sensitive Area Plans
SEQRWQMS	South-east Queensland Regional Water Quality Management Strategy 2001
SRWP Co	Southern Regional Water Pipeline Company
TOC	Total Out-turn Cost
UXO	Unexploded ordnance
WMS	Work Method Statements

The following Associated Management Plans will be available prior to construction:
Construction Environmental Management Plan (to supersede PEMP)
Heritage Management Plan (this includes both indigenous and non-indigenous)
Weed and Disease Management Plan
Vegetation Management Plan
Fauna Management Plan
Soil and Water Management Plan
Rehabilitation and Revegetation Plan
Acid Sulphate Soil Management Plan
Contaminated Land Management Plan
Waste Management Plan
Air Quality, Noise and Vibration Management Plan
Associated Alliance Management Plans
Alliance Project Management Plan
Community and Stakeholder Management Plan
Construction Management Plan

The following Associated Management Plans will be available prior to construction:
Document Control Management Plan
Workplace Health and Safety Management Plan
Construction Safety Management Plan
Training and Development Plan
Quality Assurance Management Plan
Risk Management Plan
Blast Management Plan
Traffic Management Plan
Incident Response Management Plan

1 INTRODUCTION

This Planning Environmental Management Plan (PEMP) has been written for the Northern Pipeline Interconnector Stage 2 (NPI - herein referred to as the 'project'), and provides a structural template for the future Construction EMP (CEMP). This PEMP will ensure that the Northern Network Alliance (NNA) maintains best practice controls through their CEMP to manage potential environmental impacts during the construction of the project and associated infrastructure and, wherever practicable, to realise opportunities for enhanced environmental outcomes.

The project is a drought contingency project that will provide a bulk fresh water supply in the order of 65 ML/d between the Sunshine Coast and Brisbane. To be undertaken in several stages, the project relies on the collection and transportation of available spare capacity from existing water allocations at supply sources throughout the Sunshine Coast.

The first stage (Stage 1) is currently being constructed and will link the main supply line from the Morayfield Reservoirs heading north through to the Landers Shute Water Treatment Plant (WTP), (approximately 47 km in length).

The second stage (Stage 2) of the NPI will involve the construction of approximately 48 km of an underground pipeline (including associated facilities) between Noosa water treatment plant (WTP) and the termination point of NPI Stage 1 at Eudlo.

The NNA consists of the following partners:

- LinkWater
- Abigroup Contractors Pty Ltd
- McConnell Dowell Constructors (Aust) Pty Ltd
- Kellogg Brown & Root Pty Ltd.

NN Alliance (referred to as the Alliance) is committed to providing the services it offers in a manner that conforms to the contractual requirements and to all relevant regulatory and legislative requirements. To achieve this, the Alliance has established an integrated management system that achieves the stated environmental outcomes.

The PEMP (and subsequent management plans) will ensure that mechanisms are in place for controls to be properly implemented, regularly monitored and audited to assess their effectiveness. It has built-in flexibility to allow changes to the controls to be instigated if they are not achieving their objectives; it is a working document.

This overarching PEMP outlines the management system to deal with the issues identified and assessed through the Environmental Impact Statement (EIS) prepared for the project. The plan includes objectives and targets, monitoring procedures, auditing, training and reporting requirements and clearly specifies areas of responsibility related to the construction of the project.

1.1 Purpose and scope

This PEMP addresses environmental issues associated with construction of the project, including activities for the maintenance and rehabilitation of the project site after the main construction activities.

A series of more detailed management plans have been developed to augment this PEMP to address specific environmental issues associated with each element of the project. These management plans are listed below:

- Heritage Management Plan
- Vegetation Management Plan
- Fauna Management Plan
- Soil and Water Management Plan
- Rehabilitation and Revegetation Management Plan
- Contaminated Land Management Plan
- Waste Management Plan
- Acid Sulphate Soils Management Plan
- Air Quality, Noise and Vibration Management Plan
- Weed and Disease Management Plan

To complement this PEMP and associated MPs, the Alliance will also prepare Work Method Statements (WMS) for all relevant construction activities. The WMS's will provide guidance for the stated environmental mitigation measures and ensure they are implemented in the field. These WMS are an integrated approach to managing potential impacts with respect to health and safety, quality assurance and the environment.

1.2 Integrated Project Management System

This PEMP forms part of an Integrated Project Management System for the project, and comprises a number of plans, each focusing on a major element of project delivery.

1.3 Environmental management framework

This EMS has been developed in accordance with the principles of the international standard for environmental management systems, AS/NZS ISO 1400

The Alliance Management Team (AMT) will lead by example to ensure that statutory and contractual requirements are met. The team will develop Environmental Key Performance Indicators (KPIs) along with mechanisms to ensure they can be continuously monitored, with work instructions capable of review in order to eliminate risk and ensure continuous improvement. Audit and Monitoring results will be electronically recorded in the project's Quality Environment Safety Engineering (QESE) database.

Throughout this Planning document, systems are outlined to ensure that, during the construction phase, employees will be given clearly assigned responsibilities for complying with statutory and work requirements. In addition, a range of Environmental Management Plans will be issued with procedures to rectify or report harmful environmental conditions: there will also be active participation in daily pre-work meetings and various training sessions on environmental aspects. The Alliance Management Team will develop protocols to encourage all employees to raise suggestions for improvement of environmental performance.

1.4 Project Description

NPI Stage 2 forms part of the drought contingency pipeline to connect existing and future water infrastructure on the Sunshine Coast with the Brisbane network. The NPI will be constructed in two stages and will allow the transfer of up to 65 ML/d of potable water between the Sunshine Coast and Brisbane. Stage 1 of the NPI project—between Landers Shute water treatment plant (WTP) and Morayfield—is due for completion by 31 December 2008.

The completed NPI (Stage 1 and Stage 2) will supply a target volume of 65 ML/d of potable fresh water to existing facilities at Caboolture for distribution to localities in the greater Brisbane region. NPI Stage 2 will have the capacity to deliver up to 18 ML/d (under existing utilized entitlements for the Noosa Shire).

Subsequent interconnection of Stages of the NPI may be constructed to link with the proposed Traveston Crossing Dam and/or other bulk water sources proposed for the Sunshine Coast. These subsequent Stages are not considered in this report. However, the use of a large diameter pipe capable of transporting bulk water is a basis for the design of both Stages 1 and 2 of the NPI.

The key components of the NPI Stage 2 project are as follows:

- approximately 48 km of underground pipe between Noosa water treatment plant (WTP) and the termination point of NPI Stage 1 at Eudlo;
- a balance tank with a 5 ML capacity;
- three new pump stations; and
- a new water quality management facility (WQMF) and upgrades to an existing WQMF at Landsborough.

A number of additional above-ground facilities would be required for commissioning, operation and maintenance of the system. These include:

- Water quality maintenance structures
- Water branch mains
- Cleaning and communications stations

1.5 Environmental context

The environmental planning and management context for the project is summarised in Figure 1, which displays the most likely relationships between this PEMP and the associated management plans that have been developed for use prior to and during construction. It should be noted that these management plans will be regularly reviewed and amended where necessary throughout the life of the project.

1.6 PEMP concept

This PEMP has been designed to address commitments provided by the Alliance in the EIS within a comprehensive management system. This will help ensure that the PEMP contains mitigation measures:

- That are appropriate and acceptable for enhancing the overall project design
- Provide an adequate template for NNA to prepare a Construction EMP
- Are contemporary and reflect recent or emerging issues not raised to date in the Environmental Documents
- Are likely to be understood by key stakeholders.

1.7 Structure of the PEMP

Table 1 details items to be included within the PEMP.

Table 1. PEMP overview

Item within PEMP	Requirements	Location within PEMP
Environmental elements	The environmental aspect requiring management consideration	The environmental context of this project is included in Section 1.5 and 2.4. The environmental aspects requiring management during construction are contained within the EIS and EMP sub-plans.
Potential environmental impacts	As identified in the EIS	Section 5.0 of this plan outlines the risk assessment process undertaken to identify the key environmental impacts associated with the construction of this project. The potential environmental impacts are then included in the relevant management plans.
Performance objectives	The target or strategy to be achieved through management	Performance objectives for each of the relevant aspects are included in Section 3.2.
Performance indicators	Criteria against which the implementation of the actions and the level of achievement of the performance objectives will be measured	Key Performance Indicators (KPIs) are outlined in Section 3.0. Relevant performance criteria to meet these KPIs will be included in each of the relevant management plans.
Management actions/control measures	The strategies and actions to be undertaken to achieve the performance objective, including any necessary approvals, applications and consultation	Measures to manage project impacts are included in each of the relevant management plans.
Monitoring	Process of measuring actual performance	Monitoring of each key element is described in each relevant management plan.
Responsibility	The assigning of responsibility for carrying out strategies and monitoring actions to relevant persons/organisations	Roles and responsibilities of key individuals are contained in Section 4.4.
Reporting	The process and responsibility for reporting monitoring results	Reporting requirements are included in Section 9.
Non-conformance/ corrective actions	The action to be implemented in the case of non-compliance and the person/organisation responsible for action	Non-conformance management is located in Section 8.3

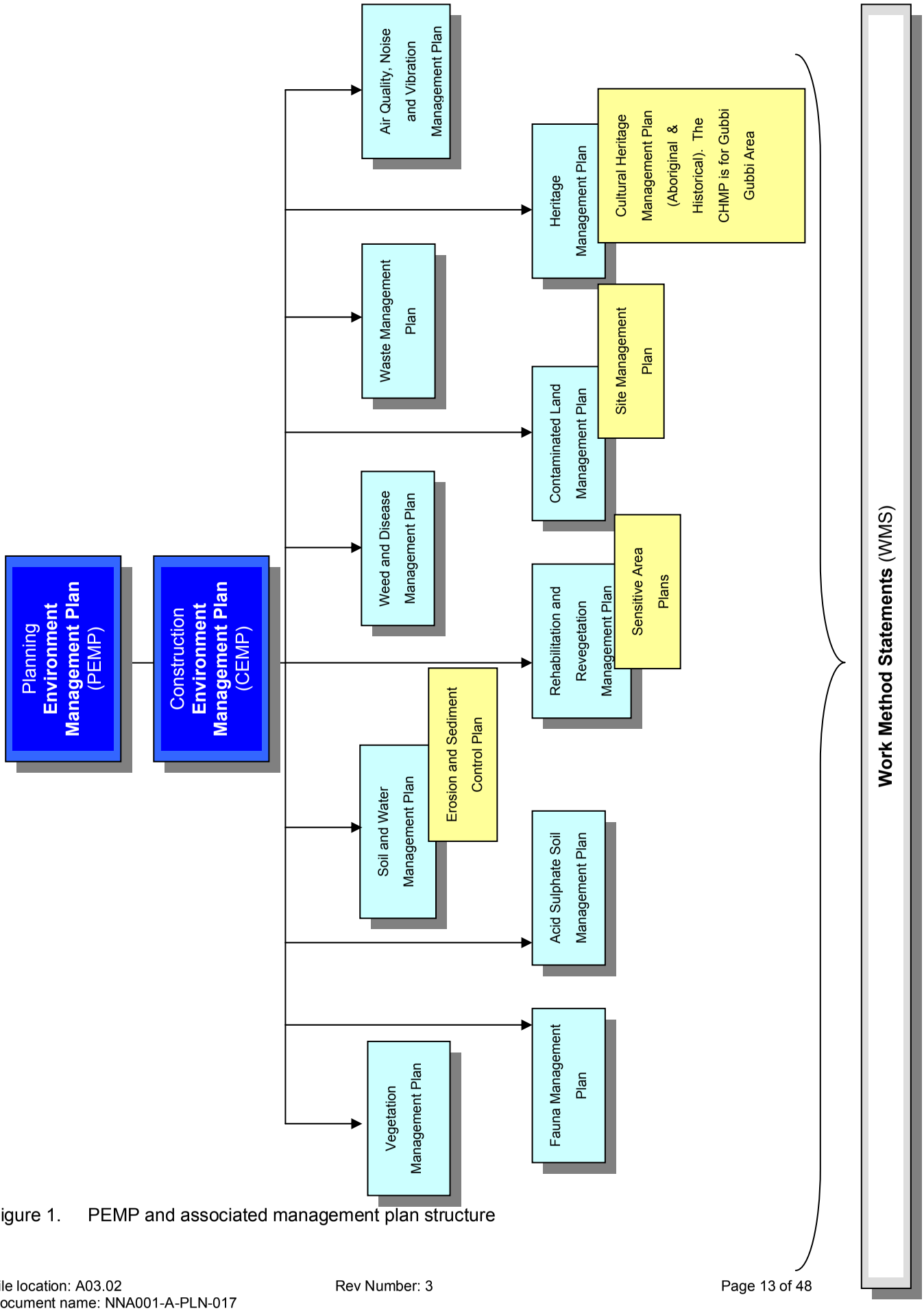

Figure 1. PEMP and associated management plan structure

2 PLANNING

2.1 Considerations

The Planning EMP will be superseded by the Construction EMP.

2.2 Legislation

The following table provides a list of legislation relevant to the project. For further information in relation to statutory requirements and their application (refer to the NNA EIS).

Table 2. Current applicable legislation

Legislation	Application	Administering Authority
Aboriginal Cultural Heritage Act 2003 (Qld)	Management of Aboriginal cultural heritage	Department of Natural Resources and Water (DNR&W)
Coastal Protection and Management Act 1995 (Qld)	Management of the coast, including its resources and biological diversity	Environmental Protection Authority (EPA)/local Government bodies
Coastal Protection and Management Regulation 2003 (Qld)	As above	EPA/local Government bodies
Environment Protection and Biodiversity Conservation Act 1999 (Cth)	As a controlled action, the project is subject to assessment and approval under this Act	Department of Environment, Water, Heritage and the Arts (DEWHA)
Environmental Protection (Waste Management) Regulation 2000 (Qld)	Management of waste generation, handling and disposal	EPA
*Environmental Protection Act 1994 (*Qld)	Overall environmental planning and protection	EPA/local Government bodies
Environmental Protection Regulation 1998 (Qld)	As above	EPA/local Government bodies
Fisheries Act 1994 (Qld)	Management of fisheries resources and habitats	Department of Primary Industries and Fisheries (DPI&F)
Integrated Planning Act 1997 (Qld)	Environmental planning and assessment	Various
Land Protection (Pest and Stock Route Management) Act 2002 (Qld)	Management of weeds, pest animals and the stock route	DNR&W

Legislation	Application	Administering Authority
	network	
Native Title (Queensland) Act 1993 (Qld)	As above	DNR&W
Native Title Act 1993 (Cth)	Management of native title	DEWHA
Nature Conservation Act 1992 (Qld)	Management and protection of plants and animals and management of Protected Area estate	EPA
Nature Conservation Regulation 1994 (Qld)	As above	EPA
Heritage Act 1992 (Qld)	Management of the conservation of cultural heritage	EPA
Road Transport Reform Act 1999 (Qld)	Management of road transport, traffic, etc.	Queensland Transport/ Department of Main Roads
Vegetation Management Act 1999 (Qld)	Management of vegetation clearing	DNR&W
Water Act 2000 (Qld)	Management of water usage, protection and treatment	DNR&W
Workplace Health and Safety Act 1995 (Qld)	Management of workplace health and safety	Department of Industrial Relations

Local laws regarding animal management, pest management, weed management, vegetation clearing, blasting, construction/building noise and hours of work are also likely to apply.

2.3 Approvals/licences/permits

The Alliance will maintain a register of all approvals/licences/permits received for the project.

2.4 Policies/standards and guidelines

Policies, standards and guidelines relevant to the project are detailed in Table 4.

Table 3. Current applicable guidelines/standards/policies

Element	Guidelines/standard policy	Application
General		
	ISO 14000 series of Environmental Management Standards	Develop and implement an Environmental Management System, and review and improve this system throughout the project

Flora and fauna		
	Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland (Version 3.1)	Provides specific procedures for regional ecosystems vegetation and mapping (including classification, mapping and collection of site data)
	Animal Ethic Advice	Licence and reporting of interaction with native fauna
	State Planning Policy 1/05 Koala Management	Ensures that development minimises the adverse effects on koala populations and provides a list of criteria with which the development must comply
	Control of Red Imported Fire Ants (RIFA) required under Plant Protection Regulation 2002 by DPI&F	Fire Ant Risk Management Plan (FARMP) sets out the requirements for compliance Inspection of landscape and fill-type material, monitoring and control of RIFA within the project
Noise and vibration		
	Queensland Environmental Protection Policy (Noise) 1997	Does not impose noise or vibration limits (other than for blasting) for construction work occurring during normal daytime hours provided all mechanically powered plant is fitted with appropriate mufflers. Noise criteria do apply for construction activity outside standard construction hours (7 a.m. to 6 p.m. Mondays to Fridays and 8 a.m. to 1 p.m. on Saturdays)
	Environment Protection Amendment Regulation (No. 2) 1999	Airblast overpressure not to exceed 115 dB linear peak for four out of five consecutive blasts. Ground vibration is: • for vibrations of more than 35 Hz – no more than 25 mm/s peak particle velocity· • for vibrations of no more than 35 Hz – no more than 10 mm/s peak particle velocity
	AS 2436: Guide to noise control on construction, maintenance and demolition sites	Provides practical recommendations to assist in mitigating construction noise emissions
	AS 2187.2-1993: Explosives – Storage, transport and use	Sets out the requirements and precautions for the use of factory-made explosives and certain explosives mixed at sites
	AS 1055: Acoustics – Description and measurement of environmental noise	Need to comply with technical standards in the measurement and reporting of noise impacts for the monitoring results to be defensible
	EPA *Noise Management Manual*, 2000	
	Technical Basis for Guidelines to	Provides technical recommendations to reduce noise and

	Minimise Annoyance due to Blasting Overpressure and Ground Vibration, ANZECC 1990	vibration impacts
Air quality		
	Environmental Protection (Air) Policy 1997 (Qld)	Sets the framework for the assessment of air quality issues and air quality criteria (in particular for health) during the construction and operation of the NPI project
	Draft National Environmental Protection Measures and Impact Statement for Ambient Air Quality 1997	Provide a set of goals designed to assess the level of exposure of the population of a region to air pollution
Soil and water		
	Australian and New Zealand Guidelines for Fresh and Marine Water Quality, ANZECC 2000	Need to protect the water quality of the major and minor waterways within the project area such as Caboolture River and Mooloolah River The EPP (Water) is the governing piece of legislation in relation to water. The EPP (Water) sets the broad goals for design of water quality controls Need to undertake water sampling, using the ANZECC guidelines and EPA *Water Quality Sampling Manual*
	Environmental Protection (Water) Policy 1997 (Qld)	
	EPA *Water Quality Sampling Manua*l	
	SEQ Regional Water Quality Management Strategy 2001 (SEQRWQMS)	
	Soil Erosion and Sediment Control, Engineering Guidelines for Queensland Construction Sites, IEAust (Qld) 1996	
	Maroochy Shire Manual for Erosion and Sediment Control	
	Waterways Management Plan – A Framework for the Management of the Waterways of the Brisbane River and Moreton Bay Catchment 1998	
Acid Sulphate Soils		
	Queensland Acid Sulphate Soil Technical Manual – Soil, Nov 2002 (QASSIT)	Testing to be conducted prior to commencement of construction to confirm location of ASS and PASS in areas at or below 5 m Australian Height Datum (AHD),where soil will be disturbed
	EPA Instructions for the Treatment of Acid Sulphate Soils, 2001	Instructions developed to give direction in undertaking activities that may drain or disturb ASS
	State Planning Policy 2/02, Planning and Managing Development Involving Acid Sulphate Soils	The policy applies within the local government area, to all land, soil and sediment at or below 5 m AHD where the natural ground level is less than 20 m AHD The policy applies to development involving any of the following: excavating or otherwise removing 100 m³ or

		more of soil or sediment; or filling of land involving 500 m³ or more of material with an average depth of 0.5 m or greater
Contaminated land		
	Department of Environment Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland	Assess the risk of contamination using quantitative soil analysis and prepare a site management plan if required
Hazardous goods		
	AS 1940-2004: Storage and handling of flammable or combustible liquids	Provide a compacted impervious floor and bunding to 120% of the largest tank Obtain a permit for storing large quantities of flammable or hazardous material
	Australian Code for Transport of Dangerous Goods by Road and Rail	The code addresses containers and vehicles involved with the movement of dangerous goods to ensure that dangerous goods are stored in the correct transport container
Waste management		
	Environmental Protection (Waste Management) Policy 2000 (Qld)	Identifies environmental values to be enhanced or protected Provides a framework for administration concerning waste management, minimisation of impacts of waste on the environment and human health, minimisation of waste, promotion of resource efficiency and reuse Provides the waste management hierarchy and principles
	Waste Management Strategy for Queensland	Waste management must be fully integrated, dealing with waste management from the point of generation to final disposal The principles of 'polluter pays' and 'user pays' should be applied where possible to promote responsible waste management Waste generators have responsibility for the fate of their wastes and products until correct waste management or disposal is assured Waste management should be based on a waste management hierarchy

3 KPIs, OBJECTIVES AND TARGETS

The key performance objective set by the Alliance is to comply with all environmental obligations contained in the EIS and the various statutory policies, standards and guidelines. This includes compliance with relevant environmental legislation (EPA Act), including minimising pollution, waste generation and environmental impacts.

3.1 Key Performance Indicators

NNA Key Performance Indicators (KPIs) will be dveloped and endorsed by the Alliance Leadership Team. They demonstrate a commitment to achieving outstanding performance for environmental management and compliance through the construction of the project.

Table 4. KPI scale of reward

KPI #	Element	Disaster 0%	30%	Business as usual 50%	70%	Breakthrough 100%
E1	TBA					
E2	TBA					
E3	TBA					

3.2 Environmental element objectives and targets

The below performance criteria have been developed for this MP to assist to deliver desirable outcomes. The performance criteria will be linked to Key Performance Indicators (KPIs) for the Project. Targets are to be measurable.

Table 5. Project environmental objectives and targets

Environmental Aspect	Objectives	Targets
Project Environmental – General	• Ensure compliance with applicable legislation, approvals, permits and licences and commitments made within the Environmental Policy Statement	• Achieving breakthrough results as per KPIs • >95% compliance with the CEMP as assessed during audits
Vegetation management	• Minimise the impact of construction on native vegetation, while ensuring all works are completed effectively and efficiently • Successful rehabilitation and enhancement as measured against pre-construction assessment	• No disturbance to flora outside the required corridor except where deemed unavoidable for construction access • The width of the corridor constrained when working within endangered regional ecosystems and/or habitat for listed threatened flora species • Successful rehabilitation and enhancement of disturbed areas within the corridor as measured against pre-construction assessment
Fauna management	• Minimise the impact of construction on native fauna, • No significant long-term disturbance to fauna outside the required corridor except where deemed unavoidable for construction access	• No disturbance to fauna and their habitats outside the required corridor except where deemed unavoidable for construction access • Safe relocation of 100% of captured fauna within the corridor
Soil and water	• Minimise impacts on water quality in creeks or drainage lines adjacent to the proposed development, caused by erosion or sedimentation from construction activities • Comply with the EPA Act and the EPP (Water) • Minimise environmental impact by maintaining water quality/quantity entering and discharging from project sites, in particular, the disposal of water used for commissioning and maintenance of the pipeline	• Compliance with water quality discharge criteria • No deterioration in water quality in creeks or drainage lines adjacent to the proposed development caused by erosion from construction activities • No incidents resulting in Material or Serious environmental harm
Rehabilitation & Revegetation	• Minimise area of overall disturbance • Undertake a comprehensive revegetation and rehabilitation program of all disturbed areas • Revegetation and rehabilitation undertaken in a timely manner	• No unnecessary clearing during the project • Reinstatement and rehabilitation to occur within 6 months of commencement of works for each subcatchment

		• Successful rehabilitation and enhancement of disturbed areas within the corridor as measured against pre-construction assessment
Acid Sulphate Soils (ASS)	• Avoid and minimise the environmental impacts arising from the disturbance of potential or actual ASS • Follow the guidelines set out in the statutory requirements for managing ASS • Provide strategies for minimising avoidable environmental harm during the development and operation of the site(s)	• Compliance with all regulatory requirements regarding the management and handling of ASS • No degradation to soils relating to ASS along the pipeline route as a result of the project
Contaminated lands	• Avoid and minimise the environmental and human health risks arising from the disturbance of contaminated land encountered during construction of the project • Follow the guidelines set out in the statutory requirements for managing contaminated land and the transport of contaminated goods	• No degradation to the receiving environment along the pipeline route as a result of disturbance of contaminated land • No contamination of soil, air or water as a result of spillages or other impacts arising from construction activities • Compliance with specified regulatory requirements including conditions of approval
Waste management	• Ensure that all waste material generated on site is handled in a responsible manner, and in accordance with legislative requirements • Educate all employees on waste minimisation hierarchy principles of reduce, reuse, recycle and dispose • Prevent pollution associated with the management and disposal of waste material • Increase employee and subcontractor awareness and their obligations regarding waste management • Promote waste recycling throughout the project	• No spillage or leaks of hazardous materials • No damage to the environment as a result of poor waste management by the project • All regulated wastes transported by an EPA approved licensed contractor • 100% of native vegetation wastes are reused in rehabilitation and revegetation • Waste management register created, implemented and maintained • 100% of employees trained in regard to their responsibilities in managing waste
Heritage management	• Protect Aboriginal areas and objects of cultural and heritage value • Comply with all requirements of the *Aboriginal Cultural Heritage Act 2003* and Guidelines from the Cultural Heritage Coordination Unit, DNR&W • Engender cultural awareness within the Alliance and wider community, and develop positive working relationships with Aboriginal parties	• Develop and adhere to the requirements of the Cultural Heritage Management Plan (CHMP) • No unauthorised damage to Aboriginal and historical cultural heritage artefacts during construction • Positive working relationships with Aboriginal parties maintained • 100% of employees trained in

		regard to their responsibilities under the Aboriginal Cultural Heritage Act, 2003.
Air Quality, Noise and vibration	• Define the roles, responsibilities and the tasks to be performed, in regard to the control and monitoring of emissions affecting air quality and activities generating noise and vibration • Avoid or minimise the impact on air quality, and the generation of noise and vibration associated with the construction of the project • Comply with the EP Act and associated policies • Protect the amenity of residents and other sensitive receptors • Prevent damage to adjacent public utilities, structures and buildings resulting from vibration • Reduce the impact of construction noise on passive recreational areas • Educate all employees of their responsibilities in regard to air quality, noise and vibration	• No complaints from nearby residents relating to air quality, noise and vibration impacts during construction • Community complaints in relation to air quality, noise and vibration investigated and responded to within 24 hours and corrective action taken for each incident • No significant negative or long-term impacts from air quality, noise and vibration on sensitive receptors (such as urban residences or listed native flora or fauna) • No non-compliances with regard to statutory requirements or permit conditions • 100% of employees trained on their responsibilities in regard to air quality, noise and vibration
Weed and disease management	• Minimise the negative impacts of pest weed species within and adjoining the pipeline easement during construction • Develop and implement appropriate measures to mitigate impacts of infestation by pest plant species during construction and throughout the maintenance period of the project • Ensure that project activities are conducted in accordance with the requirements of the *Land Protection (Pest and Stock Route Management) Act 2002*, the Land Protection (Pest and Stock Route Management) Regulation 2003 and other relevant legislation • Define the roles, responsibilities and the tasks to be performed, in regard to the control and monitoring of weed infestations • Educate all employees of their responsibilities in regard to weed and disease management	• No complaints from affected landowners or nearby residents relating to weed impacts during construction and the monitoring period • Community complaints in relation to weed infestation are investigated and responded to within two weeks (reduced to 24 hours where high potential for harm to the environment exists) and corrective action taken where necessary • No degradation of the pipeline ROW with regard to weed infestation from the baseline condition as determined by the pre-construction weed survey • Procedures implemented for the management of equine influenza • 100% of employees trained on their responsibilities in regard to weed and disease management

4 ENVIRONMENT MANAGEMENT TEAM

4.1 Project team structures

The project organisational chart is provided in the Project Management Plan. The structure of the Construction Environment Management Team is shown in Figure 3 below.

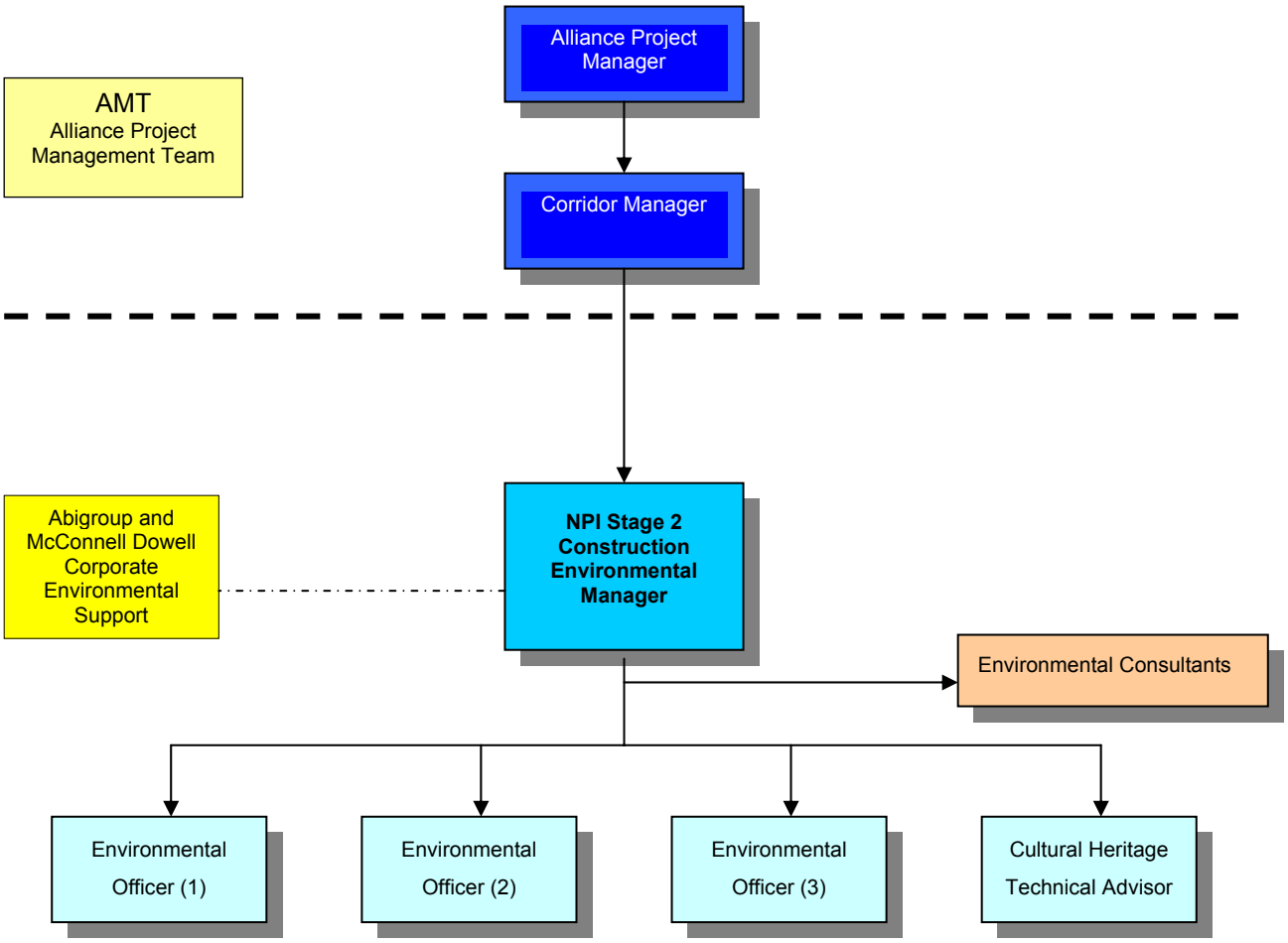

Figure 2. Environment Management Team structure and reporting line

4.2 Structure

The Construction Environmental Management Team will be made up of five full-time personnel, comprising an NPI Stage 2 Construction Environmental Manager, three Environmental Officers and one Cultural Heritage Technical Advisor. This team will be supported by the Corridor Manager, technical specialists and consultants. This Management Team structure reflects the Alliance's commitment to best practice environmental management and determination to ensure compliance with the forthcoming Coordinator General's (COG) Conditions of Approval and EIS commitments.

The use of senior and appropriately qualified team members, together with the unit's independence from the construction personnel, will provide opportunities to exert considerable influence where and if required over construction, to ensure compliance and appropriate standards of environmental management practice.

4.3 Environment Team operation

Effective environmental management requires day-to-day liaison with construction personnel at all organisational levels and across all phases of the project. It also requires considerable attention to on-the-ground design, approvals, work methods and the implementation of environmental monitoring controls. With these requirements in mind, the three Environmental Officers will be site-based and co-located with the respective Construction Teams for the different sections of the project, while the remaining positions will be based in the main project office and in the field where required.

To ensure that the Environment Management Team (EMT) as a whole is effective and aware of project-wide issues, all site-based environmental personnel will meet weekly at the construction site office. These EMT meetings will provide staff with the opportunity to discuss any project related matters (e.g. training, anticipated construction activities, CEMP, WMS's, contractual/statutory/reporting requirements, administration, and so on). Discussions may also include updates on environmental control measures, revisions to procedures and additional consultation/liaison.

The EMT will undergo specialist training on an as-required basis.

4.4 Roles and responsibilities

All workforce personnel have a responsibility for their own environmental performance and the impact they have on the environment. In particular, all staff are required to:

- Complete project induction
- Undertake all activities in accordance with the agreed EMPs, procedures and WMS
- Ensure that they have the details issued prior to construction of the contact person regarding environmental matters
- Report to their supervisors (who are in turn to report to the Environmental Manager) any activity that has resulted in, or has the potential to result in, an environmental incident
- Ensure that they attend any additional environmental training provided.

Position descriptions will be developed for all project personnel detailing the responsibilities and authorities applicable to the position. Relevant environmental management responsibilities for key positions are described below.

4.4.1 Alliance Manager

The Alliance Manager will:

- Ensure the requirements of the EMS are fully implemented and in particular, that environmental requirements carry equal weight to other construction requirements
- Endorse and support the implementation of the Project Environmental Policy
- Provide adequate resources (personnel, financial and technological) to ensure effective development, implementation and maintenance of the CEMP, all field MPs and WMS
- Ensure that work is undertaken in line with statutory (permit) and contractual requirements
- Participate and provide guidance in the review of the field MPs and associated documents
- Implement and ensure compliance with the field MPs and WMS.

4.4.2 Environmental Manager

The Environmental Manager will develop, implement and review an environmental management system for the project. In addition to managing the Environment Team unit, specific responsibilities include:

- Liaise with the project team to supersede the PEMP to produce a CEMP and oversee production of associated management plans
- Ensure contractor CEMPs are consistent with the Alliance CEMP, otherwise ensure the adoption the Alliance CEMP
- Develop strong working relationships with regulatory agencies and stakeholders
- Notify regulatory agencies and key stakeholders of environmental incidents (as per requirement of conditions)
- Together with senior project personnel and specialist assistance, ensure that the commitment to excellence in environmental management is communicated to and understood by all project members
- Report to senior line managers on a regular basis in regard to environmental management and performance
- Ensure that key environmental management deliverables are provided within required time frames
- Identify and propose solutions to significant environmental issues
- Ensure that environmental risks are appropriately identified, communicated and effectively managed
- Contribute to resolving environmental issues in conjunction with project team members

- With the assistance of community liaison personnel, coordinate investigation and response to environmental enquiries and complaints
- With other key personnel, review relevant design strategies and documents to ensure that all applicable mitigation measures are incorporated into engineering and environmental design
- Attend various project team meetings as required
- Monitor, report and make recommendations on the Alliance's ability to achieve its KPIs
- Manage specialist environmental subconsultants
- Review and approve environmental management procedures
- Review relevant WMS
- Oversee the environmental induction and training program
- Establish the project environmental compliance reporting protocols and templates
- Determine, issue and close-out environmental non-compliance notifications (environmental improvement notices and non-conformance reports)
- As required, attend Community Liaison Group meetings
- In consultation with the Quality team, deliver a high quality environmental audit program and ensure consistency in implementation across worksites and work areas.

4.4.3 Environmental Officers

The Environmental Officers will have day-to-day responsibility for environmental compliance. They will spend the majority of their time field based working directly with construction personnel. They may at times also be required for office duties. Duties include:

- Provide environmental input into the development of integrated (construction, safety, quality, community and environment) procedures, for example, WMS as directed by the Environmental Manager
- Develop erosion and sedimentation control plans for sites and work areas
- Undertake environmental audits in accordance with the environmental audit program
- Maintain the environmental compliance register to ensure that all obligations are being satisfactorily implemented
- Produce environmental compliance reports for approval conditions
- As necessary, participate in the environmental complaint process in conjunction with the Community Liaison personnel and to ensure complaint close-outs are within acceptable time frames
- Identify new environmental approvals and permits as required
- Ensure that construction personnel are aware and advised of the environmental control measures that must be applied to particular construction activities or processes
- Responsible for the delivery of the environmental component at daily prestart sessions

- Attend various project team meetings as required
- Provide content, including verified environmental monitoring results, for uploading into QESE.
- Provide environmental input to incident response
- Undertake environmental monitoring (surface water, groundwater, noise, vibration, air quality, ASS contamination and waste)
- Prepare reports summarising the results of environmental monitoring
- Undertake field inspections and follow up on any issues identified
- Participate in environmental audits
- Review and suggest improvements to environmental management procedures
- Notify the Environmental Manager of all significant environmental field incidents
- Where necessary, issue non-conformance reports or environmental improvement notices.

4.4.4 Cultural Heritage Technical Advisor

The Cultural Heritage Technical Advisor will:

- Manage the implementation of the Cultural Heritage Management Plan and any related Heritage Plans
- Liaise with the Environmental Manager to determine the progress of the project delivery and scope in order to advise relevant Aboriginal parties and associated companies
- Maintain records identified and associated with the implementation of the Heritage Management Plan
- Liaise with relevant Aboriginal Party representatives, organise field cultural heritage monitoring activities and the production of associated reports, and review and approve Aboriginal party invoicing
- Liaise with consultant archaeologist as required on heritage issues
- Undertake auditing, monitoring and reporting associated with cultural heritage management for the Environmental Manager
- Notify the Environmental Manager of any significant heritage finds or monitoring issues
- Arrange necessary project heritage inductions and provide assistance where necessary.

4.4.5 Head office support

Head office environmental personnel will:

- Oversee the preparation of documentation required to obtain project licences, approvals and permits
- Support the process of unforeseen route alignment changes

- Ensure all relevant licences, approvals and permits are in place prior to commencement of works in areas which require approvals
- Liaise with the Environmental Manager to determine the progress of the project delivery and scope to advise on any variance of which the Alliance should be aware
- Provide specialist advice to contractors or consultants on an as-needs basis.

4.5 Subcontractor management

The Alliance recognises that it is often subcontractors who present the greatest environmental risks to a project due to:

- Their detachment from the main construction delivery teams, and therefore the potential for poor communication regarding environmental risks
- The large number of subcontractors on site
- Subcontractors operating under a different management system from the Alliance.

The Alliance acknowledges its responsibility to ensure that all persons on the project, including subcontractors and their employees, comply with the relevant environmental requirements. As a minimum, subcontractors and their employees will be required to comply in full with the environmental requirements outlined in the Alliance PEMP (CEMP), regardless whether they have their own CEMP or not. All subcontractor personnel are considered equivalent to the Alliance project personnel in all aspects of environmental management and control, and their responsibilities in this respect mirror those of the Alliance personnel.

Appropriate references and a requirement to comply with the environmental management, commitments and controls reflected in the EIS, the various management plans and all regulatory permit requirements will be included in subcontract documentation. Subcontractor personnel will be included in the on-site induction process, toolbox/prestart talks, WMS reviews and daily pre-starts.

Subcontractors working on the project will be required to:

- Observe subcontract and statutory requirements relating to environmental protection and other environmental legislation and to follow instructions issued by Alliance management and supervisory personnel
- Nominate site representatives to liaise with Alliance management with respect to environmental requirements for the site activities
- Cooperate fully with site emergency incident procedures and consultative arrangements, including familiarity with spill response training and equipment
- Follow procedures and mitigation measures identified in the PEMP (CEMP) and associated management plans.

The Environmental Manager will determine the appropriate environmental management requirements from specific subcontractors during contract meetings with subcontractors, and include these in the Subcontract Agreement. Depending upon the complexity of the subcontractor's work, the Alliance may require the subcontractor to produce documentation detailing their own proposed environmental management systems and where necessary to prepare their own EMPs, WMS and/or environmental procedures to augment the Alliance environmental requirements. Details within the subcontractors' EMPs will be consistent with the Alliance PEMP (CEMP) and the statutory environmental requirements. The Environmental Manager will review and be satisfied with all subcontractor's EMP's where they exist. Where they do not supply their own, they must comply with NNA's.

The Alliance Environmental Officers will ensure that the work of subcontractors is monitored through the site inspection process (Refer to Section 5.3). All subcontractor personnel must complete the site

induction before they commence any work on site. Subcontractor personnel may also be involved in the preparation of WMS.

Signatures demonstrating acknowledgement of environmental responsibilities of subcontractors, direct labour and others will be contained in the project induction records.

5 ENVIRONMENTAL PROCESS AND MANAGEMENT CONTROLS

A range of environmental obligations and control measures will be identified in the various Environmental Documents including the EIS and the final Conditions of Approval.

Specific measures and procedures are then identified to address each of the obligations and are included in relevant management plans. This process of matching actions with obligations and assigning responsibility for each action will ensure that each project obligation is implemented.

The scheduling of control measures will be critical to ensuring that environmental obligations are met within the required time frame and that controls are effective in achieving their purpose. For example, the installation of controls at crossings in a watercourse must consider seasonal weather patterns (flooding or scouring) while general riparian disturbance and dust management will similarly be weather dependent.

A program of routine maintenance audits will be conducted on critical sites and areas. Daily inspections of work areas by the foreman and inspections weekly by the Environmental Officers will provide a means for identifying maintenance requirements before they reach a critical threshold (Refer to Section 7).

5.1 Environmental constraints

Plans of environmental constraints will be prepared to highlight the following elements to the project team, and will be available in GIS and hard map format:

- Regional ecosystems (as provided by DNR&W) including status and type
- Significant flora and fauna species, habitats and critical habitat trees
- Right of way (ROW), and reduced-width corridors due to adjoining sensitive areas
- Location of declared weed species/pests and abundance
- Contaminated land (lots identified in the environmental management register [EMR])
- Potential acid sulphate soil (PASS) areas
- Cultural heritage sites and monitoring zones
- Non-indigenous heritage sites and those under conservation agreements
- Sensitive receptor zones
- Water-sensitive receptors and environmental monitoring locations
- No-go zones.

5.2 Verification Procedure

The verification procedure is a holdpoint that must be satisfied prior to the commencement of any construction activity in a new lot. Once a lot has been raised in QESE and land access granted, the verification package ensures that all relevant environmental information is supplied for the specific lot and that any permit requirements and/or stakeholder obligations are met. The package must be signed off prior to works commencing to ensure that all environmental information has been supplied. The information is then passed onto supervisors and used as a tool onsite to ensure that all works associated with construction comply with the verification documentation.

The following information will be included as part of the verification package:

- The pre-construction checklist
- Environmental constraint maps
- Drainage, erosion and sediment control plans
- Cultural heritage signoff
- Permit requirements
- Any information to be included in activity pre-starts.

5.3 Environmental risk assessment and Work Method Statements

The identification of significant environmental aspects and impacts that could eventuate during the project is central to the selection of appropriate environmental safeguards. The relationship of aspects and impacts is one of cause and effect. The process of identifying impacts is one of progressively breaking down each activity into environmental aspects.

Environmental aspects and impacts will be identified by the Alliance for each major area of construction work and used as input when developing WMS. This involves the identification of environmental risks to be encountered and managed during the construction process.

Examples of environmental risks can include construction activities that:

- Have the potential to cause the discharge or release of pollutants to the water, air, or land
- Impact on significant or protected flora, fauna or heritage
- Have the potential to create permanent change to the environment
- Generate wastes.

Qualitative risk assessments have been included in each management plan. Consistent with the project Risk Management Plan, the risk analysis matrix in Table 7 will be used as a guide when predicting the potential level of risk of construction activities. The potential environmental/community consequences or impacts of the activity, and the likelihood of an incident occurring when undertaking activities, will be rated as High, Medium or Low.

Table 6. Risk Matrix

	CONSEQUENCE				
LIKELIHOOD	Catastrophic	Major	Moderate	Minor	Insignificant
Almost certain	High (1)	High (2)	High (4)	Medium (7)	Medium (11)
Likely	High (3)	High (5)	Medium (8)	Medium (12)	Medium (16)
Possible	High (6)	Medium (9)	Medium (13)	Medium (17)	Low 20)
Unlikely	Medium (10)	Medium (14)	Low (18)	Low (21)	Low (23)
Rare	Medium (15)	Low (19)	Low (22)	Low (24)	Low (25)

(Risk ranking between 1 and 6): '**High Risk**', immediate action must be taken, work must not begin until hazard to health and safety, or to environment/cultural heritage site is appropriately controlled by eliminating hazard or minimising risk by following the hierarchy of controls.

(Risk ranking between 7 and 17): '**Medium Risk**', risk management responsibility must be specified and appropriate controls implemented to eliminate the hazard or minimise risk by following the hierarchy of controls.

(Risk ranking between 18 and 25): '**Low Risk**', manage by routine procedures to eliminate the hazard or minimise risk by following the hierarchy of controls.

A project risk assessment workshop will be held in the early stages of the project to identify and document the project risks. The risk assessment process will be based on the Australian Standard for risk assessment (AS/NZS 4360:1999) and cover all aspects of the project including normal and abnormal operations or activities and any potential emergency situations.

The outcomes of this process will be reflected in and managed via the relevant Risk Assessments, MPs and Work Method Statements. The various MPs will include detailed mitigation measures, monitoring, reporting and corrective actions should an accident or incident occur for any environmental element.

5.3.1 Work Method Statements

Based on the pre-construction risk workshop, WMS's will be developed as an important field-based prescriptive instruction for all major work activities associated with the project.

The aim of a WMS is to provide field staff with specific instructions for undertaking project works in a safe and environmentally responsible manner, producing a quality product. The WMS will incorporate actions to ensure that environmental commitments made by the Alliance are managed.

Each WMS will:

- Include an assessment of the predicted level of environmental risk
- Include reference to implementation details such as:
  - measures to avoid and/or control environmental and safety risks
  - Plans, schedules, responsibilities, reporting and work instructions.

6 ENVIRONMENTAL TRAINING

6.1 Project induction

All personnel, including direct Alliance employees and subcontractors, will be required to attend a compulsory project induction before commencing any work on the project.

The environmental component of the induction will includes the following:

- Project Environmental Policy
- CEMP overview
- Roles and responsibilities and site management contact details
- Relevant legislation
- General environmental duty of care and duty to notify
- Conditions of environmental licences, permits and approvals
- Environmentally sensitive areas (including no-go zones), with emphasis on indigenous heritage, contaminated land, ASS, waterway mitigation measures, and the imperative of working within the project corridor and respecting the local community
- Verification Procedure
- Key environmental issues and controls as identified in the various management plans
- Emergency response and spills management
- Incident reporting.

Induction records will be maintained in QESE detailing the attendees, trainer and dates of the induction/training

6.2 Activity based job hazard analysis

A JHA will be undertaken in the event that an additional environmental hazard has been identified and is not included in the relevant WMS.

6.3 Pre-start meetings

Pre-start meetings are held by supervisors or leading hands prior to commencing works each day. These meetings itemise the work that will be undertaken during the day and include a component on the following environmental issues:

- Weather observations and forecast
- Environmental focus for the day (e.g. housekeeping/litter clean-up, water management, dust control, etc.) and any special requirements for the work tasks

- Feedback on environmental issues that have recently occurred within the area or other areas of the project
- Identification of new environmental risks or the need to review and improve existing WMS
- Feedback from Health, Safety and Environment Committee meetings.

6.4 Toolbox talks

Toolbox talks include relevant environmental management awareness training that is communicated to the wider project team or individual task teams of the respective disciplines. Toolbox talks may also be developed and delivered to improve performance or in response to the issuing of a non-conformance or environmental improvement notice.

7 MONITORING, INSPECTIONS AND AUDITS

7.1 Environmental monitoring

To ensure environmental compliance with the various statutory and contractual requirements and to ensure management controls are being effectively managed in the field, the project works will be subject to a range of monitoring, inspections and audits.

Monitoring may address a range of aspects including:

- Noise and vibration
- Air quality
- Water quality, including post rainfall
- Erosion and sedimentation control
- Rehabilitation.

Analyses of environmental media will be undertaken by National Association of Testing Authorities (NATA) accredited laboratories. Where appropriate, specialist field based monitoring may be undertaken by Environmental Officers.

The timing, frequency, methodology, locations and responsibilities for the proposed environmental monitoring programs are specified in the respective management plans. The monitoring programs range from those involving quantitative sample collection, analysis and measurement to those involving a more qualitative assessment.

Weekly inspections will be undertaken throughout the construction period by the Site Environment Officers, the Site Superintendents and Project Engineers. This inspection will ensure that appropriate controls are being implemented and are effective. It will also ensure that where necessary additional monitoring is undertaken as a result of changes to activities/construction methods.

Where a non-conformance is detected or monitoring results are outside of the prescribed range (permit criteria or nominated by the Alliance), a non-conformance report (NCR) will be prepared and implemented as outlined in Section 8.

7.2 Site inspections

Routine inspections and tests will be conducted to monitor work practices and identify areas and activities or work practices which could lead to non-conformances.

The effectiveness of environmental protection measures will be formally assessed at least once per week. To monitor performance, site inspections will be undertaken incorporating the best management practices and safeguards identified in the management plan as well as any specific approval requirements (Tables 4, 6 & 8). The purpose of the inspections and tests is to:

- Provide a surveillance tool to ensure that safeguards are being implemented
- Identify where problems might be occurring
- Identify where sound environmental practices are not being implemented
- Facilitate the identification and early resolution of problems.

7.3 Plant inspections

Prior to mobilisation to site, Alliance plant and mechanical equipment will be inspected by the Plant/Workshop supervisor. This is to ensure it is in safe condition, is not leaking oil and complies with the Queensland Government weed and disease declaration requirements. A weed declaration register will be retained by the Plant/Workshop supervisor. Furthermore, all plant operators will conduct their own daily inspections and routine maintenance checks.

All contract plant and mechanical equipment must supply A Weed Hygiene Declaration (this is a contractual requirement) for each plant/mechanical item each time they commence work with the Alliance. All declarations will be retained by the Plant/Workshop supervisor.

7.4 AMT Management and Quality Team Leader Review

The Environmental Manager and Safety Manager will organise a meeting during the life of the project with the AMT to review the management system to determine its continuing suitability, scope, relevance and effectiveness, and to assess and identify opportunities for improvement. This meeting may also include a site inspection.

7.5 Health, Safety and Environment Committee

A project Health, Safety and Environment Committee has been established through the election of representatives from the field and Office. All committee members are displayed throughout the Site Office. Additional Alliance staff and subcontractors may be invited to attend meetings throughout the life of the project. The committee will meet monthly or at a frequency dependent upon the project risks.

The purpose of the committee, as it relates to environmental elements, will be to:

- Review effectiveness of WMS and environmental procedures
- Discuss environmental concerns and any non-conformances/environmental improvement notices
- Review/be advised about changes to legal, statutory and industry codes of practice
- Improve environmental awareness and communications throughout the project
- Promote KPI awareness and active involvement
- Assess ongoing improvements and training needs
- Review incident investigations and promote incident prevention
- Review audit and inspection findings.

7.6 KPIs and performance incentives

KPIs will be developed for the project and endorsed by the Alliance Leadership Team. The environmental inspections will be used to document progress in achieving these KPIs.

7.7 Internal audits

The Environmental Manager in conjunction with the Quality Manager, or their delegate, will undertake an internal system audit (as it relates to environmental elements) on a six-monthly basis. The objective of this audit is to determine the appropriateness of the Integrated Management System in achieving environmental objectives and targets in the field.

The Environmental Manager will also conduct periodic reviews of the project environmental issues, complaints and incidents to identify trends in environmental incidents and report findings to the Health, Safety and Environment Committee and the AMT if required.

7.8 External audits

External audits on the CEMP and associated management plans will be undertaken annually by an accredited external auditor. This audit will include:

- Compliance with the conditions of approval
- Compliance with the CEMP
- Compliance with WMS's
- Subcontractor activities
- NCR's and EIN's
- Monitoring results
- System documentation such as field checklist completion
- Suitability of, and modifications to, WMS, particularly corrective actions
- Complaint response and close-out.

7.9 Audit resolution

The outcomes of any audit will be documented. Corrective action requests (CAR), Environmental Improvement Notices (EINs), and/or Non-Conformance Reports (NCR's) will be addressed using audit findings and resolved within two weeks of receiving the final audit report. Resolution of EINs and NCRs will be documented and filed with the audit report and within QESE.

Refer to Section 8.5 for further information on Non-conformances.

8 INCIDENT/COMPLAINT MANAGEMENT, CORRECTIVE AND PREVENTATIVE ACTIONS

8.1 Community liaison and complaint management

Complaints represent an opportunity to enhance project environmental performance. All project complaints, including those from members of the public, stakeholder groups and Government agencies, will be managed via the NNA 1800 243 998 phone number.

Complaints from any source must be registered using the QESE complaint record section. Where the complaint is environment-related, the complaint will be investigated by the Environmental Manager or Environmental Officer in consultation with the Site Manager or delegate and action/s taken to enable satisfactory closure.

Feedback to relevant personnel will be managed by the community relations team. As required, complaint details (including type and preventative/corrective actions) will be advised to field staff via pre-start meetings, toolbox talks or the Health, Safety and Environment Committee as appropriate.

8.2 Environmental incident/emergency reporting

All project staff and subcontractor personnel shall report all environmental incidents to the Environmental Manager, although initial response may go via the Site Manager/Supervisor or Environmental Officer.

8.3 Incident/emergency preparedness and response

An Incident Response Plan has been prepared for the project. This plan documents suitable incident procedures to ensure effective response in the event of an emergency (including environmental emergencies such as fire, flood and large fuel spills).

The emergency procedures shall be tested on a six-monthly basis. Records are to be maintained of all site emergencies and results of emergency practice drills. The Emergency Response Controller for the project will be defined within the Incident Response Plan.

The key to effective prevention of incidents is monitoring, surveillance and training. During construction activities, inspections and preventative action to be performed by the Alliance will include:

- Daily inspections of active worksites and completion of routine environmental inspections
- Issue and quick close-out of EIN/NCR
- Supervision on site
- Ongoing environmental training
- Environmental audits of worksites, subcontractors and compliance.

Environmental and safety information on hazardous substances (e.g. Material Safety Data Sheets [MSDS]) will be available at the main site office and on sites where hazardous substances are used and/or stored. An up-to-date list of emergency response personnel and organisations will be maintained at the main office and compounds. A list of key environmental personnel and their contact details will also be included.

Specific measures will also be implemented to minimise the risk of an incident occurring due to spillage, storage of hazardous materials or fire. Further information will be detailed in the Incident Response Plan.

8.4 Incident investigation

All incidents will be documented, investigations conducted and action plans (if required) developed to ensure no repetition of the event. Where current procedures are identified as being ineffective, the CEMP and any relevant MP's or WMS's will be revised by the Environmental Manager and/or Health and Safety Manager.

An environmental investigation includes the following basic elements:

- Advising the environmental authority(ies) if any substantial pollution has occurred
- Identifying the cause and extent of and responsibility for the incident
- Identifying and implementing the necessary corrective action
- Identifying the personnel responsible for carrying out the corrective action
- Implementing or modifying controls necessary to avoid a repeat occurrence of the incident
- Recording any changes required to written procedures.

All personnel are required to report all incidents, as incident reporting is regarded as a valuable method of addressing shortcomings in procedures, training or equipment, and is an opportunity for improvement. It is also an offence not to report to the EPA any incident causing serious environmental harm.

8.5 Non-conformances

The Environmental Manager or delegate will issue an Environmental Improvement Notice (EIN) or a Non-conformance Report (NCR) in response to inappropriate or non-conforming work methods, equipment selection, maintenance of controls or any other identified concerns.

In the event of a non-conformance:

- The nature of the event will be investigated by the Environmental Manager
- Advice may be sought from a specialist
- Monitoring may be undertaken
- The effectiveness or need for new/additional controls will be reviewed
- An appropriate preventative and corrective action will be implemented
- Strategies will be identified to prevent reoccurrence

- The NCR will be closed-out
- Environmental documentation/WMS will be reviewed and revised
- Will be documented on QESE.

9 REPORTING AND COMMUNICATION

9.1 Internal reporting

The Environmental Manager will complete a Monthly Environment Report for submission to the AMT. Items to include in the report are as follows:

- Internal/external audits/inspections completed
- Non-conformances raised (EINs and/or NCRs)
- Complaints reported and findings
- Environmental accidents or incidents causing environmental harm reported
- Waste minimisation strategies carried out
- Monitoring results reported
- Improvements implemented on site
- KPI's measured for the month and progress to date.

9.2 External reporting

9.2.1 Notification of accident/incident

The Environmental Manager or Alliance Manager will notify the EPA (or EPA Pollution Hotline should an incident occur outside normal business hours) of pollution incidents on or around the site which have occurred in the course of activities. Notification shall occur in the following circumstances:

- If the actual or potential harm to the health or safety of human beings or ecosystems is not minor
- If actual or potential loss or property damage (including clean-up costs) associated with a pollution incident exceeds $5,000 (Environmental Protection Act 1994).

The Alliance Leadership Team will be notified within four hours of any pollution incidents involving notification to the EPA or any other external State agency (e.g. DPI&F if there is a fish kill).

9.3 Internal correspondence and filing

The project filing index and correspondence register system has been set up in the Document Control system called 'Documentum'. Project records shall be maintained to provide evidence of conformity to licence and project Conditions of Approval requirements and evidence of the effectiveness of the CEMP. Responsibility for filing sits with the corresponding individual.

10 ENVIRONMENTAL MANAGEMENT PLAN REVIEW AND IMPROVEMENT

10.1 CEMP review

The Environmental Manager will review the CEMP (including associated MP's) and its operation and implementation during the life of the project. The purpose of the review is to ensure that the system is meeting the requirements of relevant legislation, standards, policies, licences, permits, approvals and objectives. A report will be provided to the Alliance Manager with any recommendations for change to the Environmental Management System. The Alliance Manager will review and approve changes to the system as required.

Acting on the advice of the Alliance Manager, the Environmental Manager will review the various policies and objectives and approve any changes. The Environmental Manager will implement any changes arising from the reviews of the policies and/or the management plans. Records of such reviews will be maintained.

Details of any significant changes made to the CEMP and MP's will be summarised in a table and forwarded in a memo to all relevant project personnel and relevant State agencies/licensing administrative authorities.

10.2 Document review

In addition to CEMP review outlined above, the Environment Management Team may review the CEMP and all related system documentation at any time to ensure compliance with project policies and objectives. The CEMP may be revised at any time by the project Environmental Manager if:

- There are important changes to environmental conditions or generally accepted environmental management practices
- New/significant environmental risks are identified
- There is a significant change in relevant legislation that impacts on either the design outputs or construction activities
- There is a request to do so by the EPA, COG, DPI&F, DNR&W or any other relevant State agencies.

As previously described, there may also be a need to review management plans, WMS, and other guidelines and procedures if legislation, statutory controls or the environmental risk associated with any activity changes.

11 REFERENCE DOCUMENTS

NNA 2008, NNA Draft Environmental Impact Statement (EIS), Northern Network Alliance, Queensland

SEQWater 2005 SEQ drought emergency strategy outlined in the *Water Amendment Regulation (No.6) 2006* and the *Water Regulation 2002*.

AS/NZS ISO 9001 Quality Management Systems

ISO 14000 series of Environmental Management Standards

Australian Standard for risk assessment (AS/NZS 4360:1999)

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Australian Standard 2187.2-1993: Explosives –Storage, transport and use

Australian Standard 1055: Acoustics – Description and measurement of environmental noise

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AS/NZS 4360-2004 Risk Management

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Environment Protection and Biodiversity Conservation Act 1999. (Cth)

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Land Protection (Pest and Stock Route Management) Act 2002. (Qld)

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Road Transport Reform Act 1999. (Qld)

State Planning Policy 1/05 Koala Management

Transport Infrastructure Act 1994.

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Workplace Health and Safety Act 1995. (Qld)

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- Ambient Air Quality
- Ambient Air Quality - Particles Standard PM2.5
- Air Toxics
- Diesel Emissions

Safe Storage and Handling of Dangerous Goods: Guidelines for Industry DES

National OHS Strategy 2002-12, National Action Plan 3: National Standards.

Emergency Planning: Guidelines for Hazardous Industry DES

APIA Code of Environmental Practice

EPA Noise Management Manual, 2000

Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration, ANZECC 1990

Australian & New Zealand Guidelines for Fresh and Marine Water Quality, ANZECC 2000

EPA Water Quality Sampling Manual

EPA:2005: Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland (Version 3.1)

SEQ Regional Water Quality Management Strategy 2001 (SEQRWQMS)

Soil Erosion and Sediment Control, Engineering Guidelines for Queensland Construction Sites—IEAust (Qld) 1996

Queensland Acid Sulphate Soil Technical Manual – Soil, Nov 2002 (QASSIT)

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SRWPA 2006a, *Southern Regional Water Pipeline Project Draft Environmental Impact Statement* for the Northern Pipeline Connector (EIS), Southern Regional Water Pipeline Alliance, Queensland.

State Planning Policy 2/02, Planning and Managing Development Involving Acid Sulphate Soils

Department of Environment. Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland

Australian Code for Transport of Dangerous Goods by Road and Rail

Waste Management Strategy for Queensland

Guidelines from the Cultural Heritage Coordination Unit, NR&W