



APPENDIX F ENVIRONMENTAL MANAGEMENT PLAN



WESTERN DOWNS Transmission Line Environmental Management Plan

Built section/Functional Location: Kogan

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Notes:

- Legislation referenced in this EMP can be found at:
 - Local Laws - <http://www.localgovernment.qld.gov.au/Laws/LocalGovernment/LocalLaws/Locallawsdatabase.aspx>
 - State legislation – www.legislation.qld.gov.au
 - Commonwealth Legislation - www.comlaw.gov.au
- Obj. ref: - is the document reference number for Powerlink's internal electronic document and record management system (eDRMS). The Powerlink eDRMS is called Objective.

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1 Purpose

The Western Downs Transmission Line Environmental Management Plan (EMP) provides an environmental management framework and procedures to avoid or minimise the actual and potential environmental impacts resulting from activities undertaken for the Western Downs Transmission Line project.

This EMP covers Powerlink's activities only (activities carried out by Powerlink, its contractors or representatives). Powerlink is not responsible for the activities in the project area (e.g. easement) of other parties (such as activities carried out by landholder or of other utilities).

The purpose of the EMP is to ensure:

- Effective and efficient environmental management is carried out through the construction and operation of the asset;
- Principles and objectives of the National Strategy for Ecologically Sustainable Development (1992) are incorporated into all phases of the project; and
- Compliance with relevant State and Commonwealth legislation.

It will provide:

- Evidence of practical and achievable plans for the management of the project to ensure that environmental requirements are complied with, by providing an integrated planning framework for comprehensive monitoring and control of construction and operational impacts;
- Relevant local, state and Commonwealth authorities with a framework to confirm compliance with policies and requirements; and
- The community with evidence of the management of the project in an environmentally acceptable manner.

This EMP contains:

- A description of Powerlink's environmental management objective and policy;
- A description of typical activities to be undertaken;
- Details of Powerlink and other's responsibilities; and
- Environmental aspects, including key performance objectives, management strategies and performance indicators of potential impacts from the proposed activities.

Each environmental aspect of the EMP is divided into preconstruction, construction, and operation and maintenance phases, with the following structure within each phase:

- The operational policy which applies;
- The performance criteria for each aspect;
- The implementation strategies to achieve the performance standards;
- The monitoring and auditing procedures to assess performance;

- The procedure for reporting of monitoring and auditing results; and
- The corrective action or choice of corrective action.

This EMP has also been prepared to meet the Environmental Protection Agency's (now Department of Environment and Resource Management – DERM) Guideline "Preparing environmental management plans" dated March 2003. The general requirements of ISO14000 suite of Environmental Management System Standards were also taken into consideration in the preparation of this Environmental Management Plan.

2 Powerlink Environmental Management Structure

Powerlink's organisation structure for the preconstruction, construction and maintenance phases of the project are shown in Figures 1, 2 and 3.

2.1 Preconstruction

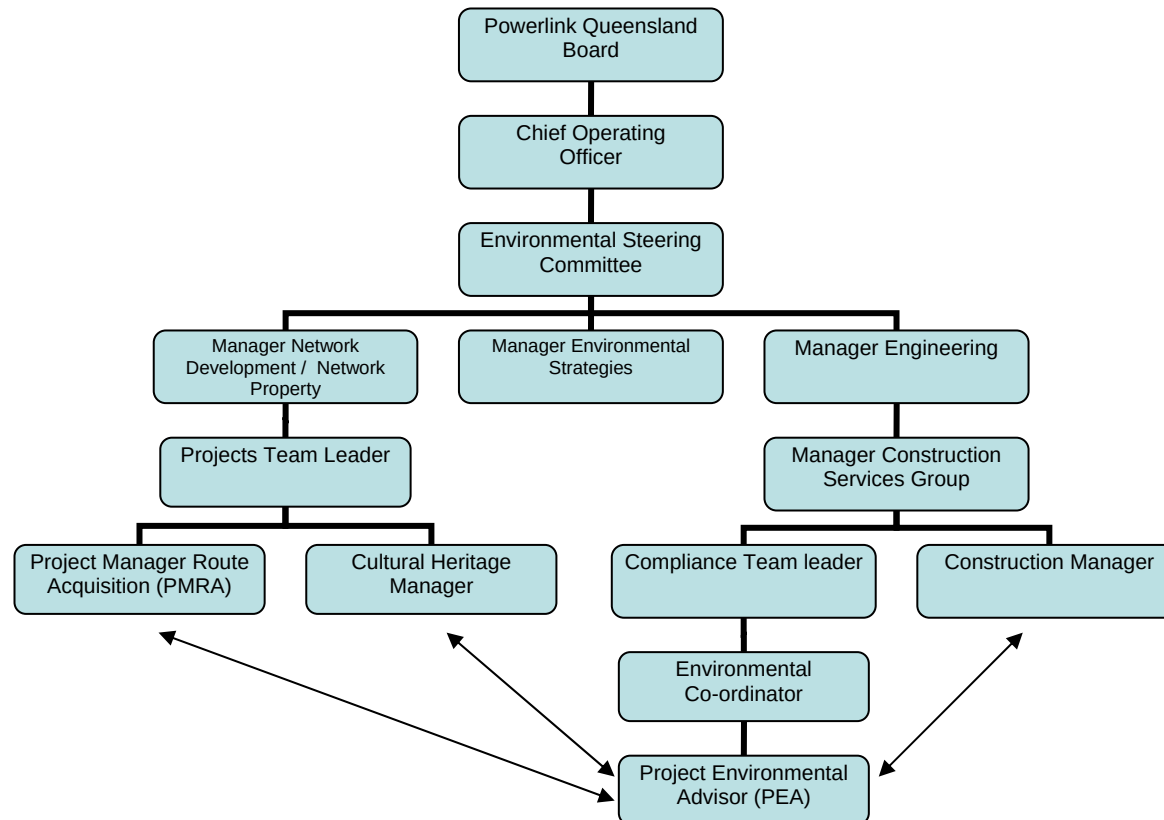


Figure 1: Powerlink's Environmental Management Structure – Preconstruction Phase

2.2 Construction

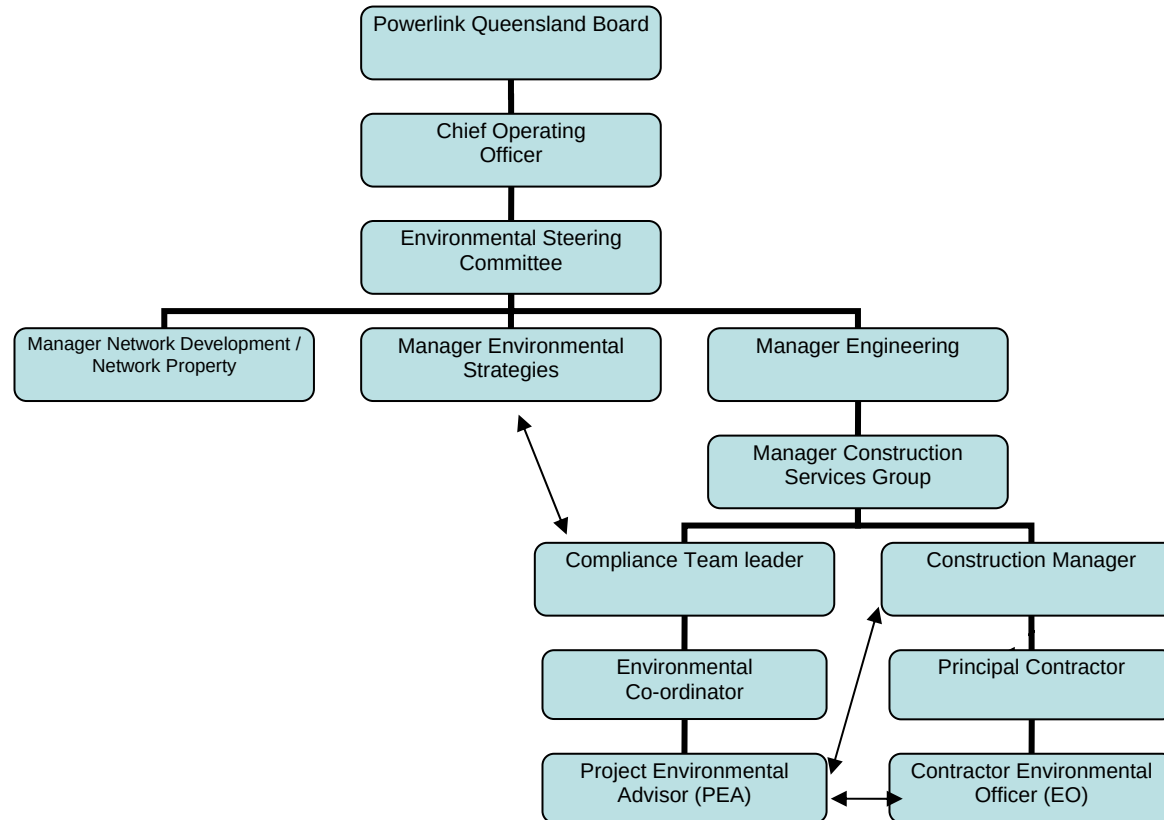


Figure 2: Powerlink's Environmental Management Structure – Construction Phase

Key project contacts during the construction phase of the project will be:

Position Title	Contact Person	Phone Number	Email
Manager Transmission Environment			
Manager Environmental Strategies			
Manager Engineering			
Construction Manager			
Principal Contractor			
Cultural Heritage Liaison Officer			
Project Environmental Advisor			

2.3 Operation and Maintenance

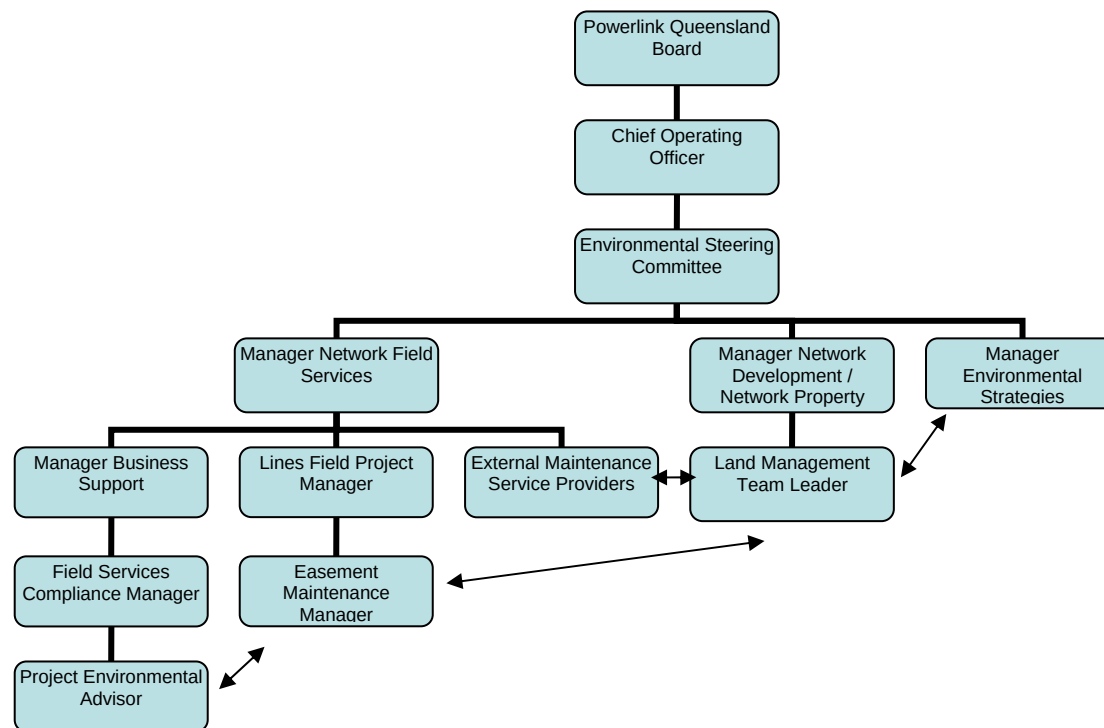


Figure 3: Powerlink's Environmental Management Structure – Maintenance Phase

Powerlink is committed to carrying out its activities in an environmentally responsible manner and has integrated responsible environmental management into all its business activities (See Appendix A – Environmental Policy).

3 Background to the Environmental Management Plan

3.1 *Implementation*

Powerlink is responsible for implementing the EMP for the whole project and ensuring compliance with the nominated requirements. Powerlink will also be responsible for ensuring appropriate corrective actions arising from a failure to meet stated performance requirements are implemented.

3.1.1 Preconstruction

Powerlink will have the necessary authority and responsibility for ensuring compliance with the EMP and the monitoring performance requirements for the preconstruction phase of the project. Initially this responsibility will be held by the Network Property Project Manager Route Acquisition (NP PMRA). The NP PMRA will be responsible for communicating EMP requirements to design and other teams, where applicable to their involvement in the project.

The NP PMRA will also be responsible for handing over the requirements of the environmental management plan to the construction project team, prior to the commencement of construction. During the handover, information on approvals/permits/licences, commitments and agreements will be provided.

Environmental Work Plans (EWPs) will also be prepared to assist in the implementation of this EMP. Information presented on the EWPs may include and not necessarily be limited to:

- Vegetation communities;
- Clearing extents and methods;
- Access tracks;
- Areas of cultural significance;
- Significant environmental management measures;
- Land status (e.g. weed status, contaminated land status); and
- Special access requirements and controls.

The environmental work plans will be prepared in accordance with the Construction Services Group Clearing and Environmental Work Plan guideline (Obj. ref: A471860). The EWPs preparation will be facilitated by the Project Environmental Advisor (PEA) in conjunction with the NP PMRA.

3.1.2 Construction:

Powerlink will appoint a PEA who will have the necessary authority¹ and responsibility for ensuring compliance with the EMP and monitoring performance requirements for construction phases of the project. The PEA and construction team will facilitate the preparation of EWPs, which will provide a summary of environmental management requirements during the construction phase.

Where contracts are entered into for work associated with this project, Powerlink will:

- Include the EMP in contract documents for all work to be undertaken by contractors;
- Induct the contractor on the requirements of the EMP and Powerlink's expectations, on awarding of the contract;
- Ensure that all contractors comply with the requirements of the EMP and appoint a suitably qualified and/or experienced Environmental Officer (EO) with the necessary authority to implement the relevant requirements of the EMP;
- Ensure that the contractor prepares a contractor's environmental management plan (CEMP) which demonstrates how the contractor will meet the requirements of this plan. As required by contract, the CEMP should be submitted to Powerlink prior to any works being carried out to ensure that the CEMP meets the requirements of the contract and statutory obligations;
- Require the contractor to report non-conformances to the EMP;
- Require the contractor to report on a monthly basis on the implementation of this EMP; and
- Monitor and measure the performance of the contractor against the requirements of the EMP.

The PEA will also be responsible for handing over the requirements of the environmental management plan to those parts of the business responsible for maintenance and operation activities at the completion of construction. During the handover, information on approvals/permits/licences, commitments, ongoing management requirements and agreements will be provided.

At the end of the construction phase of the project, the PEA will also prepare a report outlining how each of the policy, performance criteria and implementation strategies contained in this EMP were met during the construction phase of the project. The PEA will also be responsible for documenting the implementation of this EMP, and ensuring that any records, reports or registers nominated in this EMP are prepared and filed in Powerlink's eDRMS (Objective).

Should works be carried out by using a contractor, the roles and responsibilities of the Principal and Contractor will be outlined in contracts prepared and issued by the Principal.

3.1.3 Operation and Maintenance:

Powerlink will appoint a PEA with the necessary authority and responsibility for ensuring compliance with the EMP and monitoring performance requirements for the operation and maintenance phase of the project.

¹ Refer to the contract for the project for authorities of the PEA.

3.1.4 Asset Removal or Replacement

As the asset will have a minimum design life in the order of 40-50 years, specific measures relating to asset removal or replacement (e.g. specific handling and management of wastes from asset removal, specific reinstatement outcomes to meet stakeholder requirements, work methods and environmental controls for asset removal) have not included in this EMP.

Asset removal or replacement will trigger a full review of the EMP prior to the carrying out of such activities. The review will ensure that the requirements of this EMP meet legislative and community expectations at the time of the asset removal or replacement. Specific work methods or instructions may also be prepared at that time to guide asset removal and replacement activities.

Any agreements, requirements or conditions relating to asset removal or replacement (e.g. conditions of a development approval) have been included in this Environmental Management Plan to ensure that such measures are not overlooked at the end of the asset's life.

3.2 Legislative requirements

A summary of the legislation and other applicable standards which establish the performance criteria for the environmental strategies can be found in Table 1.

Table 1
Legislative and other controls for Environmental Strategies

Environmental Aspect	Legislative/standards cross-reference
General	State Legislation
	<i>Electricity Act 1994</i>
	<i>Electricity Regulation 2006</i>
	<i>Environmental Protection Act 1994</i>
	<i>Environmental Protection Regulation 1998</i>
	<i>Workplace Health and Safety Act 1995</i>
	<i>Workplace Health and Safety Regulation 1997</i>
Air Quality	State Legislation
	<i>Environmental Protection (Air) Policy 1997</i>
	Powerlink Procedures
	<i>Air Quality – Management and Control of Dust AM-PR-0917 (Obj. ref: A596707)</i>
	Guidelines and Standards
	<i>Environment Protection Measures for Ambient Air Quality</i> <i>National Environment Protection Council, National</i>

Environmental Aspect	Legislative/standards cross-reference
Cultural Heritage	Federal Legislation <i>Aboriginal and Torres Strait Islander Heritage Protection Act 1986</i> <i>Aboriginal Cultural Heritage Act 2003</i> <i>Australian Heritage Council (Consequential and Transitional Provisions) Act 2003</i> <i>Australian Heritage Council Act 2003</i> <i>Environment and Heritage Legislation Amendment Act (No. 1)2003</i> <i>Environment Protection and Biodiversity Conservation Act 1999</i> <i>Native Title Act 1993</i> State Legislation <i>Native Title (Queensland) Act 1993</i> <i>Queensland Heritage Act 1992</i>
Energy Use/Greenhouse gas	Federal Legislation <i>National Greenhouse and Energy Reporting Act 2007</i>
Erosion and Sediment Control	State Legislation <i>Environmental Protection (Water) Policy 1997</i> <i>Water Act 2000</i> Powerlink Procedures <i>Maintenance of Access Tracks, Powerlink Procedure AM-PR- 0035 (Obj. ref: A510284)</i> <i>Soil Erosion and Sediment Control – Powerlink Policy AM-POL- 0830 (Obj. ref: A517)</i> Guidelines and Standards <i>Best Practice Erosion and Sediment Control – IECA 2008</i> <i>Australian and New Zealand Guidelines for Fresh and Marine Water Quality, ANZECC, 2000</i>
Fauna and Vegetation	Federal Legislation <i>Environment Protection and Biodiversity Conservation Act 1999</i> State Legislation <i>Agricultural Chemicals Distribution Control Act 1966</i> <i>Animal Care and Protection Act 2001</i> <i>Nature Conservation (Wildlife) Regulation 2006</i> <i>Nature Conservation Act 1992</i> <i>Vegetation Management Act 1999</i> <i>Vegetation Management Regulation 2000</i> <i>Water Act 2000</i> Powerlink Procedures

Environmental Aspect	Legislative/standards cross-reference
	<i>Assessment of Hazardous Marginal Trees AM-PR-0855 (Obj. ref: A676)</i> <i>Vegetation Control Standards, Powerlink Standard AM-STA-0834 (Obj. ref. A462955)</i> <i>Vegetation Management for Transmission Corridors and Sites, Powerlink Policy AM-POL-0050 (Obj. ref: A462945)</i>
Land Contamination	Guidelines and Standards <i>Draft Guidelines for the Assessment and Management of Contaminated Land, May 1998</i>
Noise and Vibration	State Legislation <i>Environmental Protection (Noise) Policy 2008</i> Guidelines and Standards <i>AS 2436: 1981 – Guide to noise control on construction, maintenance and demolition sites</i> <i>Noise Measurement Manual Department of Environment and Heritage 1995</i> <i>User's guide to the Environment Protection (Noise) Policy Environmental Protection Agency 1997</i> <i>AS 1055. 1/2: 1997 – Acoustics – Description and management of environmental noise</i>
Hazardous Materials	State Legislation <i>Carriage of Dangerous Goods by Road Act 1984</i> <i>Carriage of Dangerous Goods by Road Regulation 1989</i> <i>Dangerous Goods Safety Management Act 2001</i> Powerlink Procedures <i>Management of insulating and petroleum based liquid spills AM-POL-0076 (Obj. ref: A520843)</i> <i>Management, Transport and Disposal of Waste Insulating and Petroleum-Based Liquids (Regulated Wastes) AM-PR-0926 (Obj. ref: A598354)</i> Guidelines and Standards <i>AS 1940: 2004, The storage and handling of flammable and combustible liquids</i>
Biosecurity (Pest and Disease)	State Legislation <i>Integrated Planning Act 1997</i> <i>Land Protection (Pest and Stock Route Management) Act 2002</i> <i>Pest Management Act 2001</i> <i>Plant Protection Act 1989</i> Powerlink Procedures <i>Biosecurity Management – Pest and Pathogen Control Measures AM-PR-0039 (Obj. ref: A513014)</i> <i>Fire Ant Management Plan AM-PR-0781 (Obj. Ref: A582069)</i> <i>Vehicle and equipment cleardown AM-PR-0968 (Obj. ref: A256951)</i>
Traffic and Site Access	State Legislation

Environmental Aspect	Legislative/standards cross-reference
Waste	<i>Transport Operations (Road Use Management) Act 1995</i>
	Guidelines and Standards
	<i>Queensland Department of Main Roads Manual for Uniform Traffic Control Device</i>
	State Legislation
Waste	<i>Environment Protection (Waste Management) Policy 2000</i>
	<i>Environmental Protection (Waste Management) Regulation 2000</i>
	Guidelines and Standards
	<i>Waste Management Strategy for Queensland 1996</i>

3.3 Review, update and continuous improvement

The EMP and EWPs will be reviewed and updated as required to ensure that they address any site related environmental issues or changes in guidelines, policies, procedures or legislation. The EMP and EWPs will also be reviewed at the completion of the construction phase of the project. The PEA, in consultation with other Powerlink staff, shall be responsible for this review and the internal GIS will be updated to reflect any new information discovered as part of this review.

Maintaining the currency of the EMP after the construction phase is completed will be the responsibility of the Manager Environmental Strategies, or delegate.

The EMP will also be amended or updated from time to time during the construction and operation of the asset to reflect:

- New information or discoveries occurring after the preparation of the EMP;
- Change in site conditions or requirements;
- Changes in statutory requirements or community expectations; and
- Changes in construction and/or operational activities, technology or equipment.

The review and update of the EMP and EWPs is to allow for a process of continuous improvement.

Any identified changes or deficiencies in the EMPs and EWPs will be promptly addressed and new revisions of the EMP/EWPs will be issued as necessary.

Any changes or updates to the EMP/EWPs will be discussed with the Manager Environmental Strategies to determine if such changes/updates trigger an external approval process.

3.4 *Training requirements*

3.4.1 Preconstruction Phase

The NP PMRA will be responsible for ensuring that all personnel working on the project during the preconstruction or planning phase of the project are aware of the requirements of this EMP.

The NP PMRA is also responsible for handing over the project, and providing details on the project to the PEA and construction team. Such information will be used by the PEA to prepare inductions and updating/preparing construction related records.

3.4.2 Construction Phase:

The PEA shall be responsible for ensuring that relevant staff are adequately trained regarding the contents, interpretation, responsibilities and performance measures contained in this EMP, and that personnel working on the project have sufficient knowledge and awareness to identify potential environmental issues. Unless stated otherwise in a contract, the Principal Contractor will be responsible for ensuring that all site personnel are trained/inducted on the requirements of this EMP and the procedures outlined within the CEMP, prior to site personnel carrying out any work.

All construction personnel shall be required to participate in an environmental induction, prior to their commencement of work on site. Records of personnel who have completed the inductions will be maintained.

This induction shall include:

- Awareness of the general environmental requirements for the project, including key site specific management measures;
- Knowledge of the roles and responsibilities of the various parties on site, including the key contacts for reporting and notifications;
- Training in appropriate corrective action in event that they become aware of an environmental issue;
- Instruction on procedures and reporting on issues that may result in environmental degradation; and
- Awareness of cultural heritage (this may take the form of a separate induction and will be nominated in the cultural heritage requirements for the project).

3.4.3 Operation and Maintenance Phase:

Powerlink will appoint an officer with the necessary authority and responsibility for ensuring relevant training is provided to field staff to ensure compliance with the EMP during the operation and maintenance phase of the project.

3.5 *Reporting and records procedure*

3.5.1 Preconstruction Phase

Where development approval or designation is required, the NP PMRA will be responsible for finalising the EMP prior to construction commencing. The NP PMRA will also be responsible for ensuring that all approvals, agreements or commitments are documented and handed to the construction team.

For projects not requiring development approval or designation, the PEA will be responsible for finalising the EMP prior to construction commencing. The PEA will be responsible for maintaining the EMP currency during the construction phase of the project.

3.5.2 Construction Phase

All Powerlink and Contractor staff are required to report environmental issues or incidents to their direct Supervisor, who shall be responsible for reporting to the Powerlink Construction Manager, who will, in consultation with the PEA be responsible for implementing initial mitigation measures, and subsequent reporting to the Project Manager.

Processes for resolving environmental issues or incidents from a contractor working within a contractual framework, will also carried out in accordance with this contractual framework. During the construction phase, an environmental issues register will be established to resolve any environmental, community relation or cultural heritage issues associated with the construction phase. Items in the register may include actions to rectify observed non-conformances with the EMP or actions to prevent reoccurrences of a non-conformance.

Response to any environmental incident shall be carried out in accordance with the requirements of Powerlink's Emergency Response Management Handbook. This includes external reporting to the relevant Government Agencies (e.g. Environmental Protection Agency, Department of Environment and Resource Management, or relevant Local Authority)

Records of implementation of the EMP will also be completed during the construction phase. Non-conformance with the EMP will also be recorded and will include corrective actions to resolve these non-conformances. The PEA will prepare a monthly report which will summarise the performance of construction activities, non-conformances with the EMP and corrective and preventative actions.

Other records and reports which will be prepared during the construction phase include, but not necessarily limited to:

- Cultural Heritage Requirements;
- Local Weed Management Plan;
- Environmental Work Plans;
- Landholder Consultation Records (esp. for clearing and access);
- Record of Activities within a Watercourse under s269 of the Water Act 2000;

- Complaints Register;
- Construction Close Out Records; and
- Any records pertaining to any approval, permit or licence.

Completing and collating records associated with and the reporting of environmental, community relations and cultural heritage is the responsibility of the PEA.

3.5.3 Operation and Maintenance Phase

All staff shall report any non-conformances with this EMP to their direct Supervisor, who shall be responsible for reporting to their relevant Manager. The manager, in consultation with the PEA will be responsible for implementing initial mitigation measures, and subsequent internal monthly and quarterly reporting.

When necessary, the Manager in consultation with Manager Environmental Strategies will be responsible for implementing a response in accordance with the requirements of Powerlink's Emergency Management Handbook. This includes external reporting to the relevant Government Agencies (e.g. DERM, relevant Local Authority).

Inspections such as those required by AM-FM-0354 Maintenance of Concrete Pole Built Sections (Obj. ref: A535910), AM-FM-0377 Maintenance of Steel Pole Built Sections (Obj. ref: A537505), AM-PR-0034 Maintenance of Easements (obj. ref: A510274) and AM-POL-0154 Transmission Line Patrols (Obj. ref: A572682) will also be carried out on a regular basis during the life of the asset.

3.6 *Complaints procedure*

Landowners, occupiers and the general community will be consulted to ensure that any impact or disruption to their operations or infrastructure is minimised.

Any complaint received onsite or by the contractor must be reported verbally to Powerlink as soon as possible, and a followed up in writing within 24 hours.

The environmental issues register will be used to provide actions and timeframes to resolve complaints.

Media enquiries are to be addressed in accordance with the Media Policy in the Workplace Conduct for Powerlink Contractors (Obj. ref: A497976).

3.6.1 Preconstruction Phase

Concerns of landholders during the preconstruction phase of the project will be recorded and actioned. Powerlink's Management of Property Contact Information (Obj. ref: 388589) will be followed and a Land Owner Action Request Spreadsheet (Obj. ref: A387454) will be established to record and resolve the concerns.

Any concerns which are identified as impacting on construction, operation or maintenance activities will also be documented and provided to the PEA or PEA/Easement Maintenance Manager.

3.6.2 Construction Phase

A complaints handling protocol will be established and managed by the PEA, and all complaints received will be investigated, and where necessary actions will be implemented to resolve reasonable and relevant complaints.

An Environmental Complaints Register shall be established, and the following details recorded in the event of a complaint:

- Time and date of the incident/complaint;
- Nature of the incident/complaint;
- Name of person receiving / investigating the complaint;
- Type of communication (e.g. telephone, letter, in person);
- Name and contact details of complainant (if provided);
- Investigation and response undertaken;
- Corrective action taken as a result of the incident/complaint investigation; and
- Follow up with complainant.

Powerlink Corporate Communications or Network Development / Network Property will also, where necessary, assist in the resolution of complaints or feedback from Local, State or Commonwealth Government.

3.6.3 Operation and Maintenance Phase

A complaints procedure will be established and managed by Powerlink and all complaints received will be investigated. An Environmental Complaints Register shall be established, consistent with the outline provided in section 3.6.

Powerlink Corporate Communications or Network Development / Network Property will also, where necessary, assist in the resolution of complaints or feedback from Local, State or Commonwealth Government.

4 Environmental Aspects

Key environmental aspects associated with the project, and their relationship to various activities carried out can be found in the following matrix:

		Environmental Aspects																	
		Acid Sulphate Soils	Air Quality	Biosecurity (excluding weeds)	Cultural Heritage	EMF	Energy Use/GHG	Erosion and Sediment Control	Fauna	Hazardous Materials	Land Contamination	Noise and Vibration	Traffic	UXO	Vegetation (Flora)	Visual amenity	Waste	Weed Management	
Activity	Preconstruction: Site inspections and surveys	•	○	•	○	○	•	•	•	•	•	○	○	•	•	○	•	●	
	Preconstruction: Design	•	•	•	●	●	•	•	•	•	○	•	•	•	●	●	•	•	
	Construction: Access, clearing and earthworks	•	●	●	●	•	●	●	●	○	○	●	●	•	●	●	●	●	
	Construction: Foundations	•	●	●	●	•	●	●	○	○	○	●	●	•	○	○	●	●	
	Construction: Tower and Steel Erection	•	●	○	•	•	○	○	○	○	○	●	●	•	○	●	●	●	
	Construction: Hardware Installation	•	○	○	•	•	○	○	○	○	○	●	●	•	○	●	●	○	
	Construction: Stringing and connections	•	●	○	○	•	○	○	○	○	○	●	●	•	○	●	●	○	
	Construction: Reinstatement/Rehabilitation	•	●	○	○	•	○	○	○	○	○	●	●	•	○	●	●	●	
	Maintenance: Built Asset Ground Patrol	•	○	•	○	○	○	•	•	•	•	○	○	•	•	•	•	●	
	Maintenance: Asset Inspection	•	○	•	○	○	•	•	•	•	•	○	○	•	•	•	•	○	
	Maintenance: Earth Testing	•	○	•	○	○	•	•	•	•	•	○	○	•	•	•	•	○	
	Maintenance: Insulator Testing	•	○	•	○	○	•	•	•	•	•	○	○	•	•	•	•	○	
	Maintenance: Additional Earthing	•	●	●	●	•	○	●	○	○	○	●	○	•	○	•	○	●	
	Maintenance: General Tower Maintenance	•	●	●	○	•	○	●	○	○	○	●	○	•	○	•	○	○	
	Maintenance: Insulator Replacement	•	○	●	○	•	○	○	○	○	○	○	○	•	○	•	○	○	
	Maintenance: Vibration Damper Replacement	•	●	●	○	•	○	○	○	○	○	○	○	•	○	•	○	○	
	Maintenance: OPGW Installation	•	●	●	○	•	○	○	○	○	○	○	○	•	○	•	○	○	
	Maintenance: Vegetation management	•	○	○	○	●	●	●	●	○	○	●	○	•	●	○	●	●	
	Maintenance: Access Track Maintenance	•	●	○	○	●	●	●	●	○	○	●	○	•	●	○	●	●	
	Maintenance: Declared Plant Control	•	○	•	○	●	○	•	•	•	•	○	○	•	•	○	•	●	
	Operation: Energised Asset Operation	•	•	•	•	●	○	•	○	○	○	•	○	•	•	•	●	•	•
	Asset Removal or Replacement	•	●	●	●	●	•	●	●	●	○	○	●	●	•	●	●	●	●
• No significant impact		○ Potential low impact		● Potential moderate to high impact															

• No significant impact ○ Potential low impact ● Potential moderate to high impact

The Environmental Aspect Matrix is a quick cross-reference table to identify what aspects need to be effectively managed at each stage of the project.

Management of environmental risks associated with works during the construction of new assets, refurbishing existing assets and maintaining/operating existing assets is to be carried out in accordance with Powerlink's procedure AM-PR-0045 Managing Environmental Risks (Obj. ref: A510304). This Procedure establishes responsibility for ensuring that environmental impacts have been considered and evaluated at an appropriate level for all activities. This procedure should also be read in conjunction with AM-POL-0019 Environmental Compliance Whole of Life for Powerlink Assets (Obj. ref: A530492) and AM-PR-0304 Determining the Level of Environmental Assessment for Powerlink Activities (Obj. ref: A530610).

4.1 Cultural Heritage

Powerlink resolves cultural heritage in accordance with the provisions and processes outlined in the *Aboriginal Cultural Heritage Act 2003* and *Queensland Heritage Act 1992*. As a result, specific cultural heritage management measures for the project may be developed to protect cultural heritage. These specific cultural heritage management measures are presented in other plans and documents and will be issued by the Powerlink Cultural Heritage team prior to commencement of any construction, maintenance or operational activities.

This Environmental Management Plan must be read in conjunction with any project specific cultural heritage management measures. It is worth noting that Environmental Management Plan does not replace or override such measures. An environmental management strategy has been prepared for cultural heritage to recognise and cross-reference these other documents and plans.

4.2 Environmental Aspect Management

Management measures to mitigate potential impacts on environmental aspects identified for the project have been prepared and are presented in Section 5.0 "Environmental Management Strategies". Potential impacts associated with the project were identified in the Environmental Impact Statement for the Western Downs Transmission Line.

During the construction, operational and maintenance phase of the project, there will be an ongoing process of monitoring, evaluation and review to enhance the Environmental Management Strategies to achieve continuous improvements in overall environmental performance in line with Powerlink's environmental policy (refer to section 3.3).

5 Environmental Management Strategies

5.1 Air Quality

The Transmission Line has been located to maximize (where practicable) the distance from sensitive receptors such as houses. During construction activities, air quality impacts may arise as a result of traffic movements and emissions, unsealed access tracks, bulk earthworks and vegetation clearing. All impacts are expected to be short in duration and restricted to the localised area surrounding construction works. The operation of the transmission line is not expected to impact upon air quality. Maintenance activities are unlikely to cause a dust nuisance.

5.1.1 Policy

- o To prevent dust and other atmospheric emissions generated by preconstruction, construction, operation and maintenance activities from causing a hazard or nuisance to neighbouring landowners.
- o To comply with the *Environmental Protection Act 1994* and *Environmental Protection (Air) Policy 1997*

5.1.2 Performance Criteria

- o Compliance with the *Environmental Protection Regulation 1998* and *Environmental Protection (Air) Policy 1997*.
- o To maintain acceptable limits of vehicular and machinery operating emissions, including dust, associated with construction activities (i.e. both on-site and vehicles transporting materials to and from the site).
- o Powerlink's procedure AM-PR-0917 Air Quality – Management and Control of Dust (Obj. ref: A596707).
- o No complaints regarding air quality or dust nuisance.

5.1.3 Preconstruction Phase

Implementation Strategy:

- o Restrict vehicle travelling speed (<40km/h) on unsealed access tracks, where possible (there is a direct correlation between speed and the amount of material that is released into the air).
- o In consultation with Western Downs Regional Council, identify potential water sources for dust suppression during the construction phase. If water source extraction is required, the PEA will prepare and lodge applications where required.
- o Obtain permits, where required, to extract water.
- o Identify dust sensitive locations (e.g. residences) prior to construction activities occurring.
- o The transmission line is required to conform to the appropriate Australian Standards.

Monitoring and Auditing:

- o Not applicable to this phase.

Reporting:

- o Not applicable to this phase.

Corrective Action:

- o Not applicable to this phase.

5.1.4 Construction Phase

Implementation Strategy:

- o Carrying out activities in accordance with Powerlink procedure *AM-PR-0917 Air Quality – Management and Control of Dust* (Obj. ref: A596707).
- o Ensure that Powerlink notifies all adjacent landholders of the timing and sequence of Powerlink's construction activities.
- o Ensure that vehicles and machinery will be fitted with appropriate exhaust systems and devices. Such devices will be maintained in good working order, in accordance with the manufacturer's recommendations.
- o Watering of or application of dust suppressants to work areas and access tracks will be carried out on an as required basis to prevent dust nuisance.
- o Restricting vehicles to approved access tracks, and only those vehicles required for the safe, efficient and essential construction activities will be allowed on the work area.
- o Implement and ensure that all construction personnel to work in accordance with the Workplace Conduct for Powerlink Contractors (Obj. ref: A497976)
- o Cover all loose loads for transport to and from the work site.
- o Maintain sealed public roads (i.e. Banana Bridge Road, Warra Kogan Road) free of trafficked soil materials. When required, sealed roads are to be swept regularly.
- o Maintain stockpiles, for example stripped topsoil, in a condition which prevents wind blown dust generation. This may include watering, covering of the stockpiles or limiting the height of stockpiles.
- o Limit bare earth exposure to that essential to the efficient and effective construction of the asset. Using vegetation cover, mulch covers or other suitable methods will be adopted where possible.
- o Rehabilitate or allow natural regeneration of bare areas as soon as the area is no longer needed for construction.
- o Restrict vehicle travelling speed (<40km/h) on unsealed access tracks, where possible (there is a direct correlation between speed and the amount of material that is released into the air). Vehicle speeds will be further reduced on unsealed access tracks during dry, windy weather, to a speed whereby visible dust emanating from soil type interaction is minimised.
- o Time dust generating activities in proximity to dust sensitive locations (e.g. neighbouring dwelling), when possible, to prevent dust nuisance at the sensitive receptors. Consideration shall be given to local site conditions, including soil type, rainfall, wind speed and direction, proximity to receptors and duration of the activity.
- o Where practicable, locate access tracks away from dust sensitive locations (e.g. neighbouring residence) to reduce likelihood of dust nuisance or complaint.
- o Construct access tracks from materials which are more stable and less likely to turn to bull dust.
- o Cleared vegetation should be left in-situ (e.g. where appropriate to assist revegetation or erosion control), mulched, stockpiled and/or removed in accordance with landholder instructions. The selected disposal method will be assessed on a site specific basis. The option for stockpiling & or burning may be adopted where there is a large amount of material, and it would be impractical or inefficient to use other disposal methods. This is especially relevant where substantial volumes of cleared material would result in significant timber heaps, or unmanageable volumes of wood chip. Spread vegetation is to be "topped and tailed", the root ball removed and trunks/branches laid across the contour to impede cross country flow and provide micro sediment traps. If cleared vegetation is stockpiled, the stacks are to be free of

dirt and clear of standing trees. No burning is to occur unless permitted by the local fire warden. Permits for vegetation burning must be obtained and provided to the Powerlink Construction Manager/PEA prior to the burn. All conditions of any permit must be adhered to.

Monitoring and Auditing:

- o All site personnel will monitor condition of access tracks and work areas, and report to the PEA any areas where dust nuisance is likely to occur
- o The Environmental Issue Register shall be used to record and resolve any dust issues. The environmental issues register is to also provide corrective and preventative actions
- o The PEA and contractor are to carry out regular visual surveillance of vehicles, plant and equipment working or moving within proximity to residences or other dust sensitive locations. The surveillance is to determine when actions are required to reduce potential dust nuisance
- o Quantitative monitoring may be conducted to investigate a complaint, if required by an administering authority, to determine if dust levels comply with the performance criteria specified in this EMP.

Reporting:

- o All complaints received to be reported to the Powerlink Construction Manager or PEA immediately, and in writing within 24 hours
- o Actions taken to mitigate dust nuisance and complainants to be recorded as implemented, and reported on a monthly basis
- o All complaints recorded in the complaints register for the project (refer section 3.6 of this EMP). The resolution of the complaint will also be recorded
- o Any air quality observations or test results to be presented in the monthly compliance report
- o Any EMP non-compliances to be documented and reported to Powerlink Construction Manager
- o Summary of non-compliances, corrective actions and preventative actions to be recorded in the monthly compliance report
- o Any material or serious environmental harm to be reported to the Manager Environmental Strategies by the Powerlink Construction Manager.

Corrective Action:

- o If a dust complaint is received, the PEA will investigate and provide advice on measures to reduce the nuisance and the likelihood of further complaints
- o Review of the implementation strategies will be carried out following any complaint to determine their adequacy, and whether additional measures need to be implemented. Where further measures need to be implemented, these will be added to the EMP.
- o Corrective and preventative actions will be implemented, on an as needed basis, to address dust nuisance.

5.1.5 Operation and Maintenance Phase

Implementation Strategy:

- o Carrying out activities in accordance with Powerlink procedure AM-PR-0917 Air Quality – Management and Control of Dust (Obj. ref: A596707)
- o Maintain ground covers in accordance with surrounding land use and current groundcover vegetation levels
- o Restrict speed limits on off road access tracks to 40km/h. Vehicle speeds will be further reduced on unsealed access tracks during dry, windy weather, to a speed whereby visible dust emanating from soil tyre interaction is minimised
- o Coordinate activities generating dust or other atmospheric emissions to coincide with favourable climatic conditions
- o Cleared vegetation should be left in-situ (e.g. where appropriate to assist revegetation or erosion control), mulched and/or removed. If burning of cleared vegetation is planned, no burning is to occur unless permitted by the local fire warden. Permits for vegetation burning must be obtained and provided by the External Maintenance Service Provider prior to the burn. All conditions of any permit must be adhered to.

Monitoring and Auditing:

- o As specified for the Construction Phase and Complaints Management Procedure outlined in Section 3.6 of this EMP

- o Operation and maintenance activities will be monitored to ensure compliance with the performance requirements as specified in this Environmental Strategy or as frequently as necessary.

Reporting:

- o Any dust related complaints will be reviewed quarterly and reported to the Asset Manager
- o Actions taken to mitigate dust nuisance and complainants to be recorded and reported on a monthly basis

Corrective Action:

- o Any dust complaints received will be investigated and steps taken to reduce impact (refer to Section 3.6 of this EMP)
- o Corrective and preventative actions will be implemented, on an as needed basis, to address dust nuisance.

5.2 Biosecurity (inc. red imported fire ants)

Biosecurity issues (including Red Imported Fire Ants) were not identified during the EIS, however generic pest and pathogen controls (including the potential for importation of Red Imported Fire Ants) need to be considered and managed on the project.

5.2.1 Policy

- o No introduction, release, movement or transportation of red imported fire ants or other pests and diseases declared under the *Plant Protection Act 1989*.
- o Compliance with Powerlink's *AM-PR-0039 Biosecurity Management – Pest and Pathogen Control Measures* (Obj. ref: A513014) and *AM-PR-0781 Fire Ant Management Plan* (Obj. ref: A582069).

5.2.2 Performance Criteria

- o No new pest or disease outbreaks observed on the project area.

5.2.3 Preconstruction Phase

Implementation Strategy:

- o Identify properties which have been mapped as restricted or quarantined by Biosecurity Queensland.
- o Implement *AM-PR-0781 Fire Ant Management Plan* (Obj. ref: A582069) in relation to movement of high risk materials onto the transmission line site.
- o Implement any specific measures prescribed or nominated by Biosecurity Queensland in relation to the management of pests and diseases.
- o Prepare, when required, pest/disease management plans for declared pests and diseases in restricted and quarantined areas.
- o Prepare a local weed management plan (refer to Weed Management Strategy) and incorporate weed management plan in Environmental Work Plan.

Monitoring and Auditing:

- o Monitoring for the presence of new outbreaks of pests and diseases
- o When required, monitoring will be conducted to ensure compliance with the Fire Ant Management Plan and any other specific requirements during entry, on and leaving properties.
- o

Reporting:

- o Report any suspected pest or disease outbreaks to the Manager Environmental Strategies and Biosecurity Queensland
- o Record location of any pest or disease outbreaks.

Corrective Action:

- o Any new outbreaks forward to the Land Management Team for inclusion into the Powerlink's PQ Maps
- o Develop management measures for new outbreaks.

5.2.4 Construction Phase

Implementation Strategy:

- o Review land information databases prior to construction to determine current status of quarantined or restricted areas
- o Implement the pest/disease management plan
- o Implement *AM-PR-0781 Fire Ant Management Plan* (Obj. ref: A582069)
- o Implement the local weed management plan (refer to Weed Management Strategy).

Monitoring and Auditing:

- o Monitoring will be conducted to ensure compliance with the Pest/Disease Management Plan.

Reporting:

- o Report any suspected pest or disease outbreaks to the Manager Environmental Strategies and Biosecurity Queensland
- o Record location of any pest or disease outbreaks
- o Prepare and keep records required by the pest/disease management plan
- o Summary of non-compliances, corrective actions and preventative actions to be recorded in the monthly compliance report.

Corrective Action:

- o Any new outbreaks forward to the Land Management Team for inclusion into the Powerlink's PQ Maps
- o Update pest/disease management plans for new outbreaks.

5.2.5 Operation and Maintenance Phase

Implementation Strategy:

- o Refer to the implementation strategy of the construction phase of this Environmental Strategy.

Monitoring and Auditing:

- o Monitoring will be conducted to ensure compliance with the Pest/Disease Management Plan.

Reporting:

- o Report any suspected pest or disease outbreaks to the Manager Environmental Strategies and Biosecurity Queensland
- o Record location of any pest or disease outbreaks
- o Prepare and keep records required by the pest/disease management plan.

Corrective Action:

- o Any new outbreaks forward to the Land Management Team for inclusion into the Powerlink's PQ Maps
- o Update pest/disease management plans for new outbreaks.

5.3 Biosecurity (Tong Park)

Biosecurity issues were not identified during the EIS, however generic pest and pathogen controls, particularly regarding Tong Park Piggery, need to be considered and managed on the project. Work in and around Tong Park Piggery is to be in accordance with their Biosecurity protocols, as summarised below.

5.3.1 Policy

- o No introduction, release, movement or transportation of pests or diseases in Tong Park
- o Compliance with Tong Park Pty Ltd *Tong Park: Biosecurity Procedures*..

5.3.2 Performance Criteria

- o No new pest or disease outbreaks observed within Tong Park

5.3.3 Preconstruction Phase

Implementation Strategy:

- o Identify properties which have been mapped as restricted or quarantined by Biosecurity Queensland.
- o Implement Tong Park's *Biosecurity Procedures*
- o Implement any specific measures prescribed or nominated by Biosecurity Queensland in relation to the management of pests and diseases.
- o Prepare pest/disease management plans for declared pests and diseases in restricted area.
- o Prepare a local weed management plan (refer to Weed Management Strategy) and incorporate weed management plan in Environmental Work Plan.
- o Visitors, contractors and contractor's personnel must not enter Tong Park without the prior permission of the Tong Park General Manager or Tong Park Operations Manager
- o Contractors must provide the Tong Park Operations Manager prior to, or upon entry to the site, with a work plan showing anticipated work areas and not proceed further on site unless the Tong Park Operations Manager has approved that work plan. Any change to this work plan must be approved by Tong Park Operations Manager in advance of work.
- o Visitors and contractors coming onto Tong Park must comply with following restrictions:
 - o Must not live on a farm where pigs are kept
 - o Must not engage in any activity which may bring them into contact with pigs e.g. pig shooting
 - o Must not visit other piggeries, any animal saleyards or animal slaughterhouses, agricultural shows or exhibitions (or reside with or have close personal contact with, any person who has done so) within 72 hours preceding coming onto Tong Park

Monitoring and Auditing:

- o When required, monitoring will be conducted to ensure compliance with Tong Park's *Biosecurity Procedures* during entry, on and leaving Tong Park.

Reporting:

- o Report any suspected pest or disease outbreaks to the Manager Environmental Strategies and Tong Park Operations Manager.
- o Record location of any pest or disease outbreaks.

Corrective Action:

- o Any new outbreaks forward to the Land Management Team for inclusion into the Powerlink's PQ Maps
- o Develop management measures for new outbreaks.

5.3.4 Construction Phase

Implementation Strategy:

- o Visitors, contractors and contractor's personnel must not enter Tong Park without the prior permission of the Tong Park General Manager or Tong Park Operations Manager
- o Contractors must provide the Tong Park Operations Manager prior to, or upon entry to the site, with a work plan showing anticipated work areas and not proceed further on site unless the Tong Park Operations Manager has approved that work plan. Any change to this work plan must be approved by Tong Park Operations Manager in advance of work.
- o Visitors and contractors coming onto Tong Park must comply with following restrictions:
 - o Must not live on a farm where pigs are kept
 - o Must not engage in any activity which may bring them into contact with pigs e.g. pig shooting
 - o Must not visit other piggeries, any animal saleyards or animal slaughterhouses, agricultural shows or exhibitions (or reside with or have close personal contact with, any person who has done so) within 72 hours preceding coming onto Tong Park
- o All vehicles and equipment coming onto any part of Tong Park must enter through disinfection station at the Main Gate between 6am and 6pm only after contacting Tong Park Operations Manager by telephone 07 4668 1296
- o Machinery that has been used on other piggery sites must not be brought onto Tong Park
- o All vehicles and machinery must be cleared of mud and heavy dirt before proceeding onto any part of Tong Park
- o All visitors and contractors must report to the maintenance office for permission to proceed and to undergo induction to Tong Park and carry a Tong Park pass at all times while on site
- o All visitors and contractors must travel directly to their authorised work area and must not go to any other area
- o Visitors and contractors must complete the piggery visitor book and certify compliance with these procedures
- o All vehicles must travel on constructed roads unless previously approved by Tong Park Operations Manager
- o Implement the pest/disease management plan
- o Personnel must ensure that all rubbish including food scraps are placed in proper waste bins and removed from site daily
- o If contractor's personnel are on Tong Park for extended periods, portable toilets must be provided by the contractor and must be used by the contractor's personnel at all times.
- o Implement the local weed management plan (refer to Weed Management Strategy).

Monitoring and Auditing:

- o Monitoring will be conducted to ensure compliance with the Pest/Disease Management Plan.
- o Monitoring will be conducted to ensure compliance with Tong Park's *Biosecurity Procedures*

Reporting:

- o Report any suspected pest or disease outbreaks to the Manager Environmental Strategies and Tong Park Operations Manager
- o Record location of any pest or disease outbreaks
- o Prepare and keep records required by the pest/disease management plan
- o Summary of non-compliances, corrective actions and preventative actions to be recorded in the monthly compliance report.

Corrective Action:

- o Any new outbreaks forward to the Land Management Team for inclusion into the Powerlink's PQ Maps
- o Update pest/disease management plans for new outbreaks.

5.3.5 Operation and Maintenance Phase

Implementation Strategy:

- o Refer to the implementation strategy of the construction phase of this Environmental Strategy.

Monitoring and Auditing:

- o Monitoring will be conducted to ensure compliance with the Pest/Disease Management Plan and Tong Park's *Biosecurity Procedures*

Reporting:

- o Report any suspected pest or disease outbreaks to the Manager Environmental Strategies and Tong Park Operations Manager
- o Record location of any pest or disease outbreaks
- o Prepare and keep records required by the pest/disease management plan.

Corrective Action:

- o Any new outbreaks forward to the Land Management Team for inclusion into the Powerlink's PQ Maps
- o Update pest/disease management plans for new outbreaks.

5.4 Cultural Heritage

The proposed transmission line is not expected to impact upon areas or objects of social importance or non-indigenous cultural significance. Commonwealth and State heritage registers have not identified non-indigenous cultural heritage sites on or within the immediate vicinity of the proposed transmission line. With consideration of the broader context of the area surrounding the Study Alignment, the proposed development is not expected to have a negative impact on the lifestyle of local residents, or on the appeal of places frequently visited within the region. However, the likely presence of remnants of non-indigenous cultural heritage has not been dismissed.

5.4.1 Policy

- o Compliance with the *Aboriginal Cultural Heritage Act 2003* and *Queensland Heritage Act 1992*.

5.4.2 Performance Criteria

- o Provide effective recognition, protection and conservation of cultural heritage.

5.4.3 Preconstruction Phase

Implementation Strategy:

- o Contact Powerlink's Cultural Heritage Team prior to carrying out any works, for the cultural heritage management measures² which require implementation during the carrying out of such works
- o Management measures will be developed by Powerlink's Cultural Heritage Team (refer section 4.1 of this EMP) which meet Powerlink's obligations under the *Aboriginal Cultural Heritage Act 2003* and *Queensland Heritage Act 1992*. These measures are to be implemented.

Monitoring and Auditing:

- o Refer to the preconstruction implementation strategy.

Reporting:

- o Refer to the preconstruction implementation strategy.

Corrective Action:

- o Refer to the preconstruction implementation strategy.

5.4.4 Construction Phase

Implementation Strategy:

- o Management measures will be developed by Powerlink's Cultural Heritage Team (refer section 4.1 of this EMP) which meet Powerlink's obligations under the *Aboriginal Cultural Heritage Act 2003* and *Queensland Heritage Act 1992*. These measures are to be implemented.

² Note: Specific preconstruction, construction, maintenance and operation cultural heritage management measures are not included in this EMP as they may vary depending on the nature, intensity and location of any works. Contact must be made with Powerlink's Cultural Heritage Team to ascertain the management measures to be implemented for the proposed works. Such specific preconstruction, construction, maintenance and operation cultural heritage management measures issued by Powerlink's Cultural Heritage Team must be read and implemented in conjunction with the requirements of this EMP.

Monitoring and Auditing:

- o Refer to the cultural heritage requirements for construction phase of the project.

Reporting:

- o Refer to the cultural heritage requirements for construction phase of the project.

Corrective Action:

- o Refer to the cultural heritage requirements for construction phase of the project.

5.4.5 Operation and Maintenance Phase

Implementation Strategy:

- o Management measures will be developed by Powerlink's Cultural Heritage Team (refer section 4.1 of this EMP) which meet Powerlink's obligations under the *Aboriginal Cultural Heritage Act 2003* and *Queensland Heritage Act 1992*. These measures are to be implemented.

Monitoring and Auditing:

- o Refer to the cultural heritage requirements for maintenance and operational phase of the project.

Reporting:

- o Refer to the cultural heritage requirements for maintenance and operational phase of the project.

Corrective Action:

- o Refer to the cultural heritage requirements for maintenance and operational phase of the project.

5.5 *Electric and Magnetic Fields (Interference Considerations)*

The Transmission Line has been located to maximize (where practicable) the distance from sensitive receptors such as houses. The EMF levels at sensitive receivers close to the transmission line are expected to be quite low and comparable to those for small electrical appliances. The closest sensitive receiver (a currently unoccupied house) is within 250m of the proposed transmission line, however the EMFs become negligible at a distance of less than 100m from the type of line proposed for this project.

5.5.1 Policy

- To minimise the potential interference caused by electric and magnetic fields at nearby residences or facilities by:
 - Appropriate separation distances between the asset and residences.
 - Use of latest technology to minimise interference effects (e.g. low surface voltage gradient on conductors, corona free support hardware, sectionalising, earthing).

5.5.2 Performance Criteria

- No observable deterioration of radio or television signals received at nearby residences.
- No perceptible (i.e. nuisance) electric shock effects from nearby metal structures.
- No reasonable or relevant complaints in relation to EMF.

5.5.3 Preconstruction

Implementation Strategy:

- During the design stage of the project, an appropriate separation distance from nearby residences, particularly the residence within 250m of transmission line, has been included to ensure no impact of EMF on these residences.
- Design conductors, insulators, and hardware for minimal corona initiation.
- Identify any adjacent metal structures to determine whether precautionary measures are needed.

Monitoring and Auditing:

- Where landholders raise concerns in relation to EMF interference, carry out sample measurements of TV and radio signal reception quality prior to transmission line commissioning for comparison after the asset is energised.

Reporting:

- Record concerns of landholders/residents and provide information on the impact of the asset on background EMF.
- Report detailing measurements carried out.

Corrective Action:

- Determine appropriate corrective actions where there is a difference in TV or radio signals at a residence between preconstruction and post-energising conditions.

5.5.4 Construction Phase

Implementation Strategy:

- o Ensure that during construction / installation:
 - o No burring or damage is caused to conductors or hardware.
 - o All related hardware (e.g. domed nuts etc.) correctly installed.
- o Identify adjacent metal structures to determine whether precautionary measures (e.g. earthing) are needed and install precautionary measures as necessary.

Monitoring and Auditing:

- o Random inspection of hardware and conductors
- o Random checking of adjacent metal structures for implemented precautionary measures
- o General surveillance for metal structures during routine inspections by the Powerlink Construction Manager or Inspectors.

Reporting:

- o Any defects or damaged hardware or conductors are to be recorded routine inspections
- o Non Conformance Reports (NCRs) are issued by the contractor in relation to defects or damage. NCR to be addressed by the contractor.

Corrective Action:

- o Defective hardware or conductor is to be replaced or repaired to ensure compliance with the construction specification.

5.5.5 Operation and Maintenance Phase

Implementation Strategy:

- o Identify newly installed metal structures to determine whether precautionary measures (e.g. earthing) are needed. Install precautionary measures, such as earthing, as necessary
- o Maintain the asset to reduce the likelihood of EMF interference
- o Confirm TV and radio reception at nearby residences to ensure reception quality is not impacted.

Monitoring and Auditing:

- o Monitor during routine inspections to confirm that precautionary measures (e.g. earthing) are installed at adjacent metal structures where an electric shock hazard could occur
- o Monitor for any encroachments or proposed developments adjacent to the transmission line.

Reporting:

- o Any potential hazards are to be recorded during routine inspections
- o Report any encroachments or proposed developments to the Land Management Team Leader
- o Report on any EMF interference complaints after commissioning of the transmission line to the resident EMF expert in Transmission Environment.

Corrective Action:

- o Implement precautionary measures, such as earthing, as required
- o Investigate EMF interference complaints and installed appropriate control measures, where necessary, to resolve the complaint
- o If required, upgrade antenna facility to reinstate TV or radio reception.

5.6 Electric and Magnetic Fields (Health Considerations)

The Transmission Line has been located to maximize (where practicable) the distance from sensitive receptors such as houses. Powerlink appreciates that transmission of electricity via the proposed transmission line has the potential to generate electrical and magnetic fields which have the potential to raise public health concerns. Whilst an assessment has been conducted which illustrates that exposure levels are well below the ARPANSA Draft Standard and NHMRC limits of exposure, the following management arrangements should be undertaken to ensure Powerlink policy is met.

5.6.1 Policy

- o Prudent avoidance when determining transmission line alignment. This approach recommends that unnecessary exposure to electric and/or magnetic fields should be avoided if this is feasible in terms of both cost and technical considerations.
- o Electric and magnetic field strengths for the proposed asset will be well below the exposure limits set down by the National Health and Medical Research Council for members of the general public³

5.6.2 Performance Criteria

- o For the seven houses within 750m of the Transmission Line, EMF attributable to the transmission line will not significantly increase the background EMF levels normally found in any home using electricity.
- o Owners are informed and educated about the EMF/ health issue.
- o No reasonable or relevant complaints in relation to EMF.

5.6.3 Preconstruction Phase

Implementation Strategy

- o During the design stage of the project, an appropriate separation distance has been included to ensure there is no impact of EMF on the seven adjacent residences
- o Configure phase conductors and circuits to produce the lowest practical possible EMF levels at the easement boundaries.
- o Provide EMF information to owners and adjacent residents and / or conduct magnetic field readings on request.

Monitoring and Auditing:

- o On request, measure, to allay concerns of residents in proximity to the asset, EMF levels in and adjacent to near residences before and after energising of the transmission line

Reporting:

- o A copy of any EMF readings taken or information sent to an owner is to be recorded in Objective.

Corrective Action:

- o Advise and consult with affected property owners to implement corrective action acceptable to both parties.

³ The National Health and Medical Research Council (NHMRC) in 1989 issued interim guidelines for limitations of exposure to electric and magnetic fields (EMF), *Radiation Health Series No. 30 "Interim guidelines of exposure to 50/60 Hz electric and magnetic fields."* The NHMRC rescinded this publication in accordance with its policy of reviewing documents published more than 10 years ago. The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) has taken over responsibility of the review process for this publication.

In the absence of any other Australian guidelines, ARPANSA still refers to the NHMRC guidelines. In December 2006, ARPANSA released its own draft guidelines "*Exposure Limits for Electric & Magnetic Fields – 0 Hz to 3 kHz*" for public comment, with a final document expected in 2009. It is expected that the ARPANSA review, when finalised, will replace the NHMRC publication.

5.6.4 Construction Phase

Implementation Strategy:

- o Provide EMF information to owners and adjacent residents and / or conduct pre-energising and post-energising magnetic field readings on request.

Monitoring and Auditing:

- o Not applicable to this phase.

Reporting:

- o Report on any EMF health concerns to the resident EMF expert in Transmission Environment.

Corrective Action:

- o Not applicable to this phase.

5.6.5 Operation and Maintenance Phase

Implementation Strategy:

- o As specified for the Construction phase of this EMP.

Monitoring and Auditing:

- o As specified in the Construction phase of this EMP.

Reporting:

- o As specified by Section 3.5.

Corrective Action:

- o As specified in the Construction phase of this EMP

5.7 Energy Use/Greenhouse Gas

Powerlink appreciates that the construction, operation and maintenance of a transmission line will result in greenhouse emissions through tree clearing (removal of carbon sink) and where liquid fossil fuels are used to transport materials and equipment for construction and operation. Energy (as both fuel and electricity generated from fossil fuels) is also consumed in the manufacture and production of the materials used, and can be considered to be 'embedded' in the final product. Many of these contributions can be significantly reduced or eliminated through better planning and design decisions by recognising these links and accounting for them in the development phase. The following management arrangements should be undertaken to reduce, where practicable, energy use and greenhouse gas emissions.

5.7.1 Policy:

- o To be more efficient in the use of resources in the construction, operation and maintenance of the transmission line.

5.7.2 Performance Criteria

- o Energy use and waste generation is considered in all activities
- o The 'Environmental Footprint' is reduced wherever practicable.

5.7.3 Preconstruction Phase

Implementation Strategy:

- o Prepare a waste management plan which identifies measures to reduce, reuse and recycle materials generated by the construction. The waste management plan is to establish a preferred waste management hierarchy and develop principles for achieving good waste management in accordance with the *Environmental Protection (Waste Management) Policy 2000*.
- o Design to reduce the amount of resources required for the project.
- o Reduce to the maximum extent the amount of waste produced during the preconstruction phase.
- o Use, where appropriate, telephone hook-ups/ video-conferencing in preference to driving for face to face meetings.

Monitoring and Auditing:

- o Not applicable for this stage.

Reporting:

- o Not applicable.

Corrective Action:

- o Identified opportunities should be incorporated into future projects as part of a process of continual improvement.

5.7.4 Construction Phase

Implementation Strategy:

- o Induct all site personnel on general measures to reduce energy use and emissions associated with the construction activities
- o Implement the waste management plan, including clear segregation and collection of materials fit for reuse
- o Minimise vegetation clearing to that only essential for the effective, efficient and safe operation of the transmission line
- o Turn off plant, equipment and vehicles not in use to prevent unnecessary idling
- o Burning of waste, other than cleared vegetation permitted by the local fire warden, is not to occur
- o Limit the number of vehicles used to that essential for efficient construction activities. Car pooling for visits to work sites should occur to reduce the number of vehicle movements associated with the project.
- o Schedule delivery truck movements, where possible, such that delivery trucks can backload waste or excess construction materials to reduce the number of truck movements on the project
- o Investigate backloading for delivery of materials where feasible
- o Implement a process to reduce the likelihood or amount of rework
- o Restrict the number of plant and equipment movements by ensuring, wherever possible, that all staged works are completed prior to departure from the work area
- o Use, where appropriate, telephone hook-ups/ video-conferencing in preference to driving for face to face meetings.

Monitoring and Auditing:

- o General surveillance of construction activities for the implementation of this strategy
- o General surveillance to ensure that unnecessary construction activities are not being carried out.

Reporting:

- o Include in the monthly compliance report, initiatives employed to meet the requirements of this strategy
- o Report on a quarterly basis, initiatives implemented during the construction phase to reduce the 'environmental footprint' of activities
- o Report unnecessary construction activities to the Powerlink Construction Manager and resolve such works with the contractor.

Corrective Action:

- o Identify additional opportunities, and implement measures where practicable to reduce waste from foundations, tower erection and stringing activities
- o Remind all site personnel the requirement to reduce, where possible, the 'environmental footprint' of construction activities
- o Identify opportunities to be incorporated into future projects as part of a process of continual improvement.

5.7.5 Operation and Maintenance Phase

Implementation Strategy:

- o Induct all site personnel on general measures to reduce the 'environmental footprint' of operation and maintenance activities
- o Consider the waste management hierarchy when carrying out operation and maintenance activities
- o Identify opportunities to reduce the number of routine inspections by combining with other activities where possible
- o Turn off plant, equipment and vehicles not in use to prevent unnecessary idling
- o Burning of waste, other than cleared vegetation permitted by the local fire warden, is not to occur
- o Limit the number of vehicles used to that essential for efficient operational activities. Car pooling to work sites should occur to reduce the number of vehicle movements associated with the project
- o Schedule delivery truck movements, where possible, such that delivery trucks can backload waste or excess construction materials to reduce the number of truck movements on the project
- o Restricting the number of plant and equipment movements by ensuring, wherever possible, that all staged works are completed prior to departure from the work area
- o Use, where appropriate, telephone hook-ups/ video-conferencing in preference to driving for face to face meetings.

Monitoring and Auditing:

- o General surveillance of construction activities for the implementation of this strategy
- o General surveillance to ensure that unnecessary construction activities are not being carried out.

Reporting:

- o Include in the monthly report, initiatives employed to meet the requirements of this strategy
- o Report on a quarterly basis, initiatives implemented during the operation and maintenance phase to reduce the 'environmental footprint' of activities
- o Report unnecessary construction activities to the Construction Manager and resolve such works with the contractor.

Corrective Action:

- o Identify additional opportunities, and implement measures where practicable to reduce waste from operation and maintenance activities
- o Remind all site personnel the requirement to reduce, where possible, the 'environmental footprint' of activities
- o Identify opportunities to be incorporated into future projects as part of a process of continual improvement.

5.8 Erosion and Sediment Control

Desktop investigations have illustrated that soils on site have been identified as having/being:

- low salinity in the surface, increasing with depth;
- low nutrient status; and
- sodic in the surface and strongly sodic in the subsoils (i.e. highly dispersive).

Because of these characteristics, there is a need to reduce the risk that erosion of the subsoils occurs due to construction activities. Also, there is a need to avoid impacting the erosion that already exists on the site. Mitigation and management measures to assist reducing the risks which exist on site are described below.

5.8.1 Policy:

- o All Erosion and sediment control to be consistent with the International Erosion Control Association (2008) *Best Practice Erosion and Sediment Control for Building and Construction Sites (Australasia)*
- o To comply with the *Environmental Protection Act 1994*, *Environmental Protection (Water) Policy 1997* and *Water Act 2000*.

5.8.2 Performance Criteria

- o All sites are stable.
- o No new tunnel and/or gully erosion resulting from Powerlink's activities within and adjacent to the project area.
- o No deterioration in water quality in creeks or drainage lines caused by erosion from the project area.
- o No release of untreated water to roadside gutter, stormwater drain or to waterways.
- o Suitable vegetative cover or erosion and sediment controls in work areas.
- o Powerlink's *AM-POL-0830 Erosion and Sediment Control* (Obj. ref: A517).
- o No complaints or reports of significant erosion or downstream sedimentation as a result of Powerlink's activities.
- o Where quantitative monitoring of discharge water quality is required (such as in response to an inquiry from a statutory authority or in investigating a complaint), contamination levels of stormwater discharged through runoff from work areas, dewatering of holes or pits to the drainage system will meet the following nominated targets:
 1. Turbidity < 150 NTU for Condamine River and <100 for associated tributaries.
 2. pH 6.5 – 8.5.
 3. Dissolved Oxygen ≥6.5mg/L.
 4. Electrical conductivity 30 – 350 µs (ANZECC Guidelines)
 5. No visible debris or hydrocarbons.

5.8.3 Preconstruction Phase

Implementation Strategy:

- o Implement erosion and sediment control measures which will be effective in controlling sediment from sodic/saline soils present on site (high erosion potential/dispersive soils).

- o Due to the gentle slopes of the site no areas have been identified which would be subject to landslip or mass slope movements.
- o Develop an Erosion and Sediment Control Plan (ESCP) and determine rehabilitation requirements. These ESCPs may include access track sketches and site work plans and show temporary and permanent erosion controls. The ESCP should:
 - o Identify temporary and permanent measures to ensure the short, medium and long term stability of the site.
 - o Identify drainage patterns and discharge points.
 - o Nominate the location and extent of erosion and sediment controls, for each stage of construction.
 - o Provide for cost effective solutions to the management erosion and sediment.
 - o Establish performance and design standards for the sediment and erosion controls.
 - o Provide flexibility and allowance for future upgrades and amendments.
 - o Include details of the maintenance of the controls, and when the controls can be removed.
 - o Identify sodic soils that may require alternative clearing methods such as the use of a mega mulcher, to minimise the risk of erosion. Control measures for sodic soil impacts should limit or avoid vegetation clearing using mechanical means, stock access and grazing pressure should also be limited.

The ESCP should also meet the requirements for an Erosion and Sediment Control Program according to International Erosion Control Association (IECA) (A) Guidelines.
- o Locate, where practicable, tower pads outside existing erosion areas.
- o Search Powerlink's PQ Maps and property register prior to the start of any soil disturbing activities to identify if the land is on the Contaminated Land Register (CLR) or Environmental Management Register (EMR) to ensure no special controls are required.

Monitoring and Auditing:

- o Not applicable to this phase

Reporting:

- o Report and record any identified sodic or saline soils on the project to the PEA.

Corrective Action:

- o Not applicable to this phase

5.8.4 Construction Phase

Implementation Strategy:

- o Carry out all activities in accordance with Powerlink's *AM-POL-0830 Erosion and Sediment Control* (Obj. ref: A517).
- o Implement the requirements of the ESCPs for each stage of construction. Install devices, when possible, prior to soil disturbance from construction activities.
- o Maintain all temporary erosion control measures until the site is stabilised.
- o Maintain access tracks in good condition. Adequate erosion and sediment controls will be installed to reduce the likelihood of track deterioration and soil tracking.
- o Access tracks are to be designed, constructed and maintained in accordance with Powerlink's *AM-STA-0784 Transmission Line Access Tracks Standard* (Obj. ref: A576805).
- o In erosion prone areas, adopt clearing methods which allow the root system and grass cover to be retained. The use of a mega mulcher or similar is recommended in erosion prone areas.
- o The majority of the proposed alignment has been identified as having high erosion potential due to the sodic nature of topsoils and subsoils. Develop specific work plans prior to soil disturbance to ensure soils are not exposed to concentrated water flows from work areas. These work plans will detail the controls/methods to be deployed to reduce the potential for erosion and downstream sedimentation. The PEA will provide advice on the controls required for high erosion potential areas.

- o Soil ameliorants that may be required for soil stabilisation (gypsum to counteract sodicity), and revegetation (fertiliser rates) are recommended at the following rates; gypsum at 18 t/Ha and phosphate fertiliser at 10-20 P kg/ha. Gypsum will only be applied in areas which have been disturbed.
- o Topsoil to approximately 30mm should be stripped separately, treated and used for revegetation.
- o Consult with the land owners prior to any modification or removal of sediment and erosion control structures, to determine alternative controls and timeframes for reinstatement.
- o Direct all uncontaminated (clean) stormwater to stable land, ensuring that water is dispersed/diffused to prevent erosion.
- o Where topsoils are disturbed and subsoils exposed they should be covered with topsoil and rehabilitated as soon as practicable on completion of corridor.
- o Carry out clearing activities in and within 50 metres of a watercourse and development of creek crossings only in accordance with the *Guideline for Activities in a Watercourse or Lake for Destroying up to 0.25 Ha of Vegetation, Excavating up to 500m³, and Placing up to 500m³ of Fill*, including:
 - o For minor watercourse crossings (Stream Order 1-2) a buffer of 50m to be flagged from the outside banks that contain water flows.
 - o For intermediate watercourse crossing (Stream Order 3-4) a buffer of 100m to be flagged from the outside banks that contain water flows.
 - o Clearing of vegetation that is to be removed for safety purposes, should be undertaken within the riparian areas and buffer areas, by hand clearing or machinery methods that allow for stumps and roots to be retained. Clearing width of this vegetation is nominally 40m within removal of marginal trees outside the area.
- o Minimise, where practicable, disturbance to ground cover and topsoil disturbance in erosion prone areas and steeply sloping areas during clearing activities. Determine appropriate clearing methods for moderate to high erosion prone areas so that the clearing methods minimises soil disturbance and potential for soil loss. Consideration should also be given to those clearing methods which reduce damage to ground covers.
- o Maintain grass cover in the site and work areas to the maximum practicable extent. Reduce damage to grass cover by limiting vehicle movements to work areas and approved access tracks.
- o While it is unlikely that groundwater will be intercepted, a dewatering plan or work procedure should be prepared and implemented for dewatering of rainwater filled excavations. The contractor/person carrying out the works is to prepare this plan/procedure. The dewatering plan/procedure should consider the following:
 - o Measures to avoid the accumulation of water in pits, trenches and foundations.
 - o Design standards for settling ponds/sediment traps and verification that the pond/traps meet this nominated design standard (only relevant to sites where settling structures have been installed).
 - o Triggers for dewatering (e.g. to maintain free storage capacity in a pond for future storm events, to allow pouring of foundations, reinstatement of settling ponds post construction etc).
 - o If trigger levels occur, what decision making process will be adopted to determine the suitable method for dewatering considering:
 - the receiving environment
 - quality and quantity of the water
 - location and accessibility
 - requirements of this EMP and statutory requirements.
 - o Recording and monitoring details required by the dewatering management plan/work procedure. This may include, but not necessarily limited, to approved copies of dewatering processes, dates when dewatering occurred, photographs, water quality monitoring (qualitative or quantitative), rainfall records and persons conducting dewatering.
- o Keep sealed public roadways clean and free of sediment. Tracking of soil onto local roads will be prevented by:
 - o Limiting off road vehicle movement during and immediately after wet weather to that essential for efficient and safe construction activities, when access tracks may be severely damaged by vehicle movements and there is a high possibility of the transport of soil materials onto sealed public roads.
 - o Installing in areas with problematic soil types, a rock rumble pad or similar device in accordance with the IECA (A) Guidelines near the intersection of the access track and the sealed road.

- Providing brush down equipment to remove loose soil from wheels, wheel arches, tracks, augers and under bodies.
- Limit area and duration of exposed soil to that essential for safe and efficient construction activities.
- Retain temporary erosion and sediment controls in place and maintain until the site has been successfully stabilised. On successful stabilisation, the temporary controls will be removed. For example, temporary sediment controls will be removed from below batters when successful revegetation of the batters is achieved (viz. nominal 70% ground cover established on batters – where the preconstruction environment has less than 70% ground cover, the ground over establishment target will be similar to that which existed prior to construction).
- Ensure fill used for pads is compacted in 200mm layers to prevent subsidence, slippage (bulk soil loss) and change in drainage patterns.
- Energy dissipaters/level spreaders should be installed on permanent discharge points to prevent concentrated flows.
- Store fuels oils and chemicals on-site in accordance with relevant Australian Standards and Fire Safety regulations (e.g. plastic lined earthen bund, portable bunds, appropriate spill kits present, etc).

Monitoring and Auditing:

- The Environmental Issue register shall be used to record and monitor any erosion or sediment control issues. The environmental issues register is to also provide corrective and preventative actions.
- Visual assessment of presence and effectiveness of erosion and sediment control structures and measures, particularly following significant rainfall events (>25mm in 24 hours).
- Monitoring condition and capacity of sediment fences.
- Visual assessment of the condition of adjacent local roads.
- Reviewing adequacy of installed erosion and sediment controls.

Reporting:

- Observations to be recorded in the monthly compliance report.
- Any water quality test results to be recorded in the monthly compliance report.
- Any EMP non-compliances to be documented and reported to Construction Manager.
- Summary of non-compliances, corrective actions and preventative actions to be recorded in the monthly compliance report.
- Any material or serious environmental harm to be reported to the PEA.
- ESCP, Rehabilitation Plans, Dewatering Plans and Site Work Plans/Benching Plans to be prepared and registered in objective.

Corrective Action:

- Existing erosion and sediment structures to be re-instated or repaired.
- Clean affected roadways using a road sweeper or brooms and shovels.
- Review of adequacy of stormwater management measures, and install additional measures were required.
- Repair any damaged access tracks.
- Desilt sediment control devices when the 50% capacity of the device is reached.
- Remove sediment fences when reinstatement of the disturbed area has been successful.

5.8.5 Operation and Maintenance Phase

Implementation Strategy:

- Prepare Erosion and Sediment Control Plans for activities which result in soil disturbance.
- Prepare a dewatering plan/work procedure for activities which cause trenches, pits or ponds to be created.

- o Keep to approved access tracks.
- o Carry out maintenance activities in and within 50 metres of a watercourse in accordance with the *Powerlink Vegetation Control Standard AM-STA-0834* (Obj. ref: A62955) and *Powerlink Guideline for Activities in a Watercourse or Lake for Destroying up to 0.25 Ha of Vegetation, Excavating up to 500m3, and Placing up to 500m3 of Fill* (Obj. ref:A471789).
- o Maintain erosion control measures until the site is stabilised.
- o Maintain all permanent erosion control structures in good working order.

Monitoring and Auditing:

- o During routine maintenance inspections, identify areas where erosion is occurring and undertake corrective action.
- o All remaining erosion control measures should be monitored for their effectiveness for at least 12 months. Remedial measures should be put in place should any controls fail.
- o Ensure that access tracks do not channel water directly into watercourses, but are designed and graded to ensure run-off is filtered through vegetated areas.

Reporting:

- o Advise relevant maintenance crews of any erosion and sediment control issues.
- o Report damage to access tracks or other assets to the Easement Maintenance Manager.
- o Any material or serious environmental harm to be reported to the Manager Environmental Strategies.
- o As specified in Section 3.5 of this EMP.

Corrective Action:

- o Stabilise areas where erosion has occurred or is likely to occur and install/maintain appropriate devices to reduce the potential of further erosion occurring.

5.9 Fauna

Construction activities for the transmission line will require the clearing of both non-remnant and remnant vegetation which may have a direct impact on terrestrial fauna. Vegetated portions of the proposed transmission line have potential to provide excellent cover and resources for local fauna and forest dependent species. Whilst no threatened species were recorded on site during the field survey, background searches suggest that the site may potentially provide suitable habitat for several threatened species (See Section 10 of the EIS).

5.9.1 Policy

- o To minimise the impacts on fauna that are likely to arise from construction, operation and maintenance activities.

5.9.2 Performance Criteria

- o Minimal disturbance to fauna.
- o No fauna injured or killed.
- o Habitat retained where possible across the transmission line.

5.9.3 Preconstruction Phase

Implementation Strategy:

- o Identify opportunities to maintain vegetation links to reinforce habitat connectivity.
- o Transmission line to be positioned to reduce impacts to habitat and minimise harm to wildlife.
- o Retain habitat trees where practical, where the habitat trees will not impact on the safe and secure operation of the transmission line.
- o No fauna listed under the *Environmental Protection, Biodiversity and Conservation Act 1999* were recorded during field assessments however if listed species are identified, development of species specific strategies to minimise impact on such fauna should be undertaken.
- o Identify local fauna carers and fauna associations, who may be able to provide fauna rescue and recovery services if required.
- o Identify any areas of significance which will require specific attention (areas of sensitivity), on the EWP.

Monitoring and Auditing:

- o Not applicable to this phase.

Reporting:

- o A Vegetation Management Plan (VMP) should be prepared for the transmission line to address clearing and protection of habitat vegetation along the transmission line.

Corrective Action:

- o Not applicable to this phase.

5.9.4 Construction Phase

Implementation Strategy:

- o Induct all site personnel on importance of minimising impacts on native fauna, and the requirements of this EMP.
- o Habitat trees on site should be identified (e.g. trees containing nests or hollows) using a suitably trained person such as trained PEA, spotter catcher or ecologist, and

the trees retained if they will not impact on the safe and secure operation of the transmission line.

- o Areas to be cleared should be surveyed by a trained PEA, spotter catcher or ecologist within 24 hours prior to clearing to identify habitat trees that could be occupied by fauna. These trees should be clearly marked and retained during the clearing phase until fauna has had the opportunity to move into nearby habitat on their own accord.
- o Measures to manage the habitat trees are to be prepared and adopted, where practicable, to minimise fauna impacts.
- o No barbed-wire or electric fencing should be used during construction.
- o Construction activities should be restricted to the hours between 6.30am and 6.30pm to reduce potential impact on nocturnal fauna.
- o Clearing should be undertaken in the presence of a fauna spotter/catcher or trained PEA. Carry out clearing methods, on advice of the ecologist/spotter catcher/PEA and clearing contractor to minimise harm to fauna. For example, if the tree requiring removal is occupied by native fauna, considerations should be given to leaving the tree in place until any juveniles present in the tree are fledged or have left hollows.
- o Prohibit the burning of cleared vegetation unless such fires are permitted by the local fire warden. Should burning of cleared vegetation be undertaken, permits for vegetation burning must be obtained and provided to Powerlink prior to the burn. All conditions of any permit must be adhered to.
- o Implement Powerlink's *AM-POL-0050 Vegetation Management for Transmission Corridors and Sites* (Obj. ref: A462945) and *AM-STA-0834 Vegetation Control Standards* (Obj. ref: A462955)
- o Where necessary or specifically required, compensate for habitat loss by including nesting boxes or placing recovered hollows adjacent to cleared areas.
- o Implement measures to recover and rehabilitate injured or orphaned native animals unavoidably impacted by clearing and construction activities.
- o Obtain necessary permits and approvals for any nest removal (with the exception of Corvid (e.g. Crow) species).
- o All vehicles, except in the event of an emergency, should be restricted to designated access tracks with a maximum speed limit of 40km/hr to prevent collision with fauna.
- o Aerial markers should be placed on the earth wire at Braemar Creek where the transmission line crosses the dam in the creek to reduce the risk of impact by migratory bird species.
- o In potential habitat area, signs should be erected to notify speed limits and potential presence of wildlife.

Monitoring and Auditing:

- o Monitoring will be conducted to ensure compliance with the Performance Criteria and Implementation Strategies specified in this EMP.

Reporting:

- o Clearing fauna reports will be prepared documenting fauna species identified during clearing and measures deployed to minimise impacts on the identified fauna.
- o Summary of non-compliances, corrective actions and preventative actions to be recorded in the monthly compliance report.

Corrective Action:

- o Ensure above implementation strategies are in place.
- o Review and amend implementation strategies if necessary.
- o Significant habitats discovered during the construction phase managed in accordance with the EMP.
- o New fauna discoveries, such as listed under the *Environmental Protection, Biodiversity and Conservation Act 1999* or *Nature Conservation Act 1992*, reported to the TEPM and appropriate management strategies for the fauna discovery prepared.

5.9.5 Operation and Maintenance Phase

Implementation Strategy:

- o As specified in the construction phase of this EMP.

Monitoring and Auditing:

- o Monitoring will be conducted to ensure compliance with the Performance Criteria and Implementation Strategies specified in this EMP.
- o As specified in the construction phase of this EMP.

Reporting:

- o In accordance with Section 3.5.
- o As specified in the construction phase of this EMP.

Corrective Action:

- o Ensure above implementation strategies are in place
- o Implementation strategies to be reviewed and amended where necessary.
- o If new species listed as threatened under the *Environmental Protection, Biodiversity and Conservation Act 1999* or *Nature Conservation Act 1992* are discovered during the construction phase, the species will be reported to the TEPM and appropriate strategies for the management of the species will be prepared.

5.10 Hazardous Materials

Hazardous materials may need to be utilised during the construction and operation of the transmission line. Hazardous materials need to be stored, handled and disposed of in the correct manner to minimise potential harm. The following should be adhered to in order to help reduce/eliminate potential harm.

5.10.1 Policy

- To ensure correct storage, handling, transport and disposal of hazardous materials and waste in accordance with *Environmental Protection Act 1994, Environmental Protection (Waste Management) Policy 2000, Dangerous Goods Safety Management Act 2001, AS 1940: 2004 The storage and handling of flammable and combustible liquids, Workplace Health and Safety Act 1995, Workplace Health and Safety Regulation 1997, Carriage of Dangerous Goods by Road Act 1984 and Carriage of Dangerous Goods by Road Regulation 1989.*

5.10.2 Performance Criteria

Performance Criteria:

- Chemicals stored, handled and disposed of in accordance with legislative requirements, Australian Standards and the MSDS.
- No contamination of land or water as a result of a spill.
- No new lands recorded on the Contaminated Lands Register.
- Powerlink's procedure *AM-PR-0926 Management, Transport and Disposal of Waste Insulating and Petroleum-Based Liquids (Regulated Wastes)* (Obj. ref: A598354).

5.10.3 Preconstruction Phase

Implementation Strategy:

- Prepare an Emergency Response Plan for construction activities (the contractor will prepare such plans where the works are contracted out). It should include procedures to ensure the correct storage, handling and transport of hazardous materials, and proposed response to accidental spills and contamination incidences.
- Obtain approval from landholders for the application of chemicals (e.g. herbicides) on their land.

Monitoring and Auditing:

- Not applicable to this phase.

Reporting:

- Complete landholder consultation records for clearing and access works.

Corrective Action:

- Not applicable to this phase.

5.10.4 Construction Phase

Implementation Strategy:

- Carry out activities in accordance with Powerlink's procedure *AM-PR-0926 Management, Transport and Disposal of Waste Insulating and Petroleum-Based Liquids (Regulated Wastes)* (Obj. ref: A598354).
- Ensure hazardous materials are not stored or allowed to drain onto the ground.

- o Implement measures to prevent hazardous material entering watercourses.
- o Transport, handle and store all oils and chemicals in accordance with the relevant Australian Standards (including secure storages). Temporary bunds may include earthen bund lined with plastic sheeting or portable plastic trays. Long term storages will be installed with Australian Standard and statutory requirements, and capture devices will have a capacity of at least 110% the volume of the maximum chemical storage capacity of the facility.
- o Prohibit the refuelling of vehicles and machinery within 100m of a watercourse or open drain and when possible all refuelling will be off-site at an approved refuelling station (e.g. service station).
- o Maintain machinery in accordance with manufacturer's recommendations/servicing schedules.
- o Keep Material Safety Data Sheets (MSDS) for each chemical used on-site.
- o Ensure MSDS are kept at a location that is easily accessible by all site personnel.
- o Maintain records for chemical inventory and storage locations.
- o Train all site personnel on safety and response procedures during site inductions.
- o Ensure materials and equipment (viz. spill kit) required to respond to a hazardous spill are to be on site at all times when hazardous materials are being used, transported, loaded or unloaded.
- o Ensure waste material will be disposed of appropriately and in accordance with the requirements of the Environmental Protection (Waste Management) Policy.
- o Handle spoil from land on the contaminated land register or environmental management register in accordance with the Environmental Protection Act and its regulations. Where possible, spoil generated on land identified as being contaminated will be kept on the listed parcel of land, stabilised and rehabilitated. Spoil in such cases will not be placed in flood plains, or within 100m of a water course.

Monitoring and Auditing:

- o Monitoring will be conducted to ensure compliance with the Performance Criteria and Implementation Strategies specified in this EMP.
- o The PEA will carry out monthly inspection of contractor's records and registers to ensure compliance with the requirements of the EMP.

Reporting:

- o Spill Register to be kept on site for all spills.
- o MSDS for all chemicals to be retained on site in a MSDS register.
- o Incident report to be issued for all spills greater than 10 litres, or any other volume nominated by the PEA.
- o All spills of chemicals or hydrocarbons on-site, regardless of amount or nature of the spill, are to be reported to the PEA.
- o Spills with a clean up costs greater than \$5000 will be reported to the Manager Environmental Strategies by the PEA.
- o Summary of spills, non-compliances, corrective actions and preventative actions to be recorded in the monthly compliance report.

Corrective Action:

- o Spills to be remediated depending on nature of product (the Manager Environmental Strategies will advise correct procedure). Immediate action should include:
 - o Small Hydrocarbon Spill (<10L) Apply absorbent material.
 - o Large Hydrocarbon Spill (>10L). Install containment (e.g. block drains, surround with sandbags, dig earthen bund) and apply absorbent material.
 - o Chemical Spill Application of appropriate absorbent material and containment.
- o All spills will be managed as follows:
 1. Stop the equipment causing the spill (only when safe to do so)
 2. Ensure appropriate PPE is worn (refer to MSDS).
 3. Isolate the spill at the point of the release (only when safe to do so)
 4. Use devices or containers to prevent the further spread of spill (only when safe to do so).
 5. Report the spill to PEA. The contractor must notify Powerlink of any spill within 24 hours – and immediately for any major spills of more than 50L.

6. Remove the entire spill including contaminated soil and place into a suitable, sealable containment device ready for removal from site.
7. If the spill is hydrocarbon based, the contaminated soil is to be removed off site and disposed of in accordance with legislative requirements. If another chemical has been released, the contaminated soil is to be disposed off in accordance with the MSDS or at a facility approved to receive such waste. Contractor will identify this facility in the CEMP prior to construction commencing.
8. The equipment causing the spill is not to be used until repaired to prevent further spills. Only minor repairs are permitted onsite (e.g. replacing a blown hydraulic hose). For any major repairs, equipment is to be removed offsite, however, minor/temporary repairs should be carried out to prevent further spills either onsite or during transit to a service facility.
9. Investigate and prepare an incident report/log in the spill register. Incident reports to be prepared for any spill greater than 2 litres, or any other volume nominated by the PEA. Any incident report prepared will identify the causal factors, document corrective actions and nominate preventative actions to prevent a re-occurrence.

5.10.5 Operation and Maintenance

Implementation Strategy:

- o As specified for the Construction Phase of this EMP.
- o Compliance with Powerlink's Policy AM-POL-0076 Management of insulating and petroleum based liquid spills (Obj. ref: A520843).

Monitoring and Auditing:

- o Monitoring will be conducted to ensure compliance with the Performance Criteria and Implementation Strategies specified in this EMP.

Reporting:

- o As specified by Section 3.5 of this EMP.

Corrective Action:

- o Immediate containment and clean up of spilt material. Contaminated material is to be remediated or disposed of at a licensed disposal facility.

5.11 Land Contamination

A visual site inspection of the project site was conducted on 6 and 7 January 2010. The observation made during the inspection was that there appeared to have been no identifiable contaminating activities conducted on the land parcels.

5.11.1 Policy

- Compliance with the *Environmental Protection Agency Draft Guidelines for the Assessment and Management of Contaminated Land* and Powerlink's *AM-PR-0841 Identification and Management of Contaminated Land 2006* (Obj. ref: A587980) and *Corporate Emergency Management Handbook* (Obj. ref: A547611).

5.11.2 Performance Criteria

- No spillage or leaks of hazardous materials.
- No contamination of land or waters as a result of a spill and no new lands recorded on the Contaminated Lands Register.
- No movement of contaminated material offsite without the relevant approval/permit/tracking.
- Powerlink's procedure *AM-PR-0926 Management, Transport and Disposal of Waste Insulating and Petroleum-Based Liquids (Regulated Wastes)* (Obj. ref: A598354).

5.11.3 Preconstruction Phase

Implementation Strategy:

- Search Powerlink's PQ Maps and property register prior to the start of any soil disturbing activities to identify if the land is on the CLR or EMR.

Monitoring and Auditing:

- Not applicable to this phase.

Reporting:

- Not applicable

Corrective Action:

- Not applicable to this phase.

5.11.4 Construction Phase

Implementation Strategy:

- Carry out activities in accordance with Powerlink's procedure *AM-PR-0926 Management, Transport and Disposal of Waste Insulating and Petroleum-Based Liquids (Regulated Wastes)* (Obj. ref: A598354).
- Retain, wherever possible, any excavated soil or other earthen material on site.
- For any significant quantities of soils contaminated by spills and requiring off site disposal, analysis of the soil (or other earthen material) may be required to enable an application for a disposal permit to be made.
- Cease work in the immediate area if potential land contamination is discovered (evidence to suggest potential contamination may be oil staining, buried waste or surrounding land-use). Work to only resume after appropriate site management measures are prepared and implemented.

- o Cease work in that area, when activities or actions have the potential to cause land contamination.
- o Investigations of the nature, extent and source of the contamination may be required. This may include further control measures to manage contaminated materials.

Monitoring and Auditing:

- o Monitoring will be conducted to ensure compliance with the Performance Criteria and Implementation Strategies specified in this EMP.

Reporting:

- o The PEA will document the management of contaminated soil for the project. Disposal receipts/waste tracking records to be collated and kept by Powerlink.
- o Any land which has a spill which may result in the registering the land parcel on the Contaminated Land Register will be reported to the Manager Environmental Strategies.
- o Summary of non-compliances, corrective actions and preventative actions to be recorded in the monthly compliance report.

Corrective Action:

- o Ensure above implementation strategies are in place.
- o Review and amend Implementation strategies if necessary.
- o Implement management strategies appropriate to the nature of the contamination where a discovery is made.

5.11.5 Operation and Maintenance Phase

Implementation Strategy:

- o Carry out activities in accordance with Powerlink's procedure *AM-PR-0926 Management, Transport and Disposal of Waste Insulating and Petroleum-Based Liquids (Regulated Wastes)* (Obj. ref: A598354).
- o Obtain necessary approvals/permits, should soil materials require removal from land on the CLR or EMR. Contact the PEA to arrange the necessary approvals/permits.
- o Stop work in that area, if potential land contamination is discovered (evidence to suggest potential contamination may be oil staining, buried waste or surrounding land-use).
- o Stop work, if activities have the potential to cause land contamination.

Monitoring and Auditing:

- o Monitoring will be conducted to ensure compliance with the Performance Criteria and Implementation Strategies specified in this EMP.

Reporting:

- o Report any suspected land contamination to the Environmental Officer and Manager Environmental Strategies.

Corrective Action:

- o Ensure above implementation strategies are in place.
- o Review and amend Implementation strategies if necessary.

5.12 Noise and Vibration

Impacts to the ambient noise and vibration levels as a result of the proposed development are expected to be minimal. Seven noise sensitive receptors (houses) has been identified within approximately 750m of the proposed transmission line, however only one of these (a currently unoccupied house) is within 250m. Construction of the substation may produce short-term increases in noise and vibration as a result of earthworks, machinery traffic etc. However, these impacts will be localized and of short duration and could be minimized through the implementation of appropriate mitigation strategies. During the operational phase, the transformer units of the substation can produce a low-level noise or hum. Noise created during the operation phase is not expected to result in a significant increase in the current ambient noise levels.

5.12.1 Policy

- o Compliance with the *Environmental Protection (Noise) Policy 1997*
- o Compliance with the *Environmental Protection Regulation 1998*

5.12.2 Performance Criteria

- o No noise/vibration complaints received.
- o Consultation with community and relevant Government Agencies.

5.12.3 Preconstruction Phase

Implementation Strategy:

- o Appropriate standards of professional behaviour to be maintained at all times (e.g. no bad language or yelling).
- o Operate vehicles in a manner which gives consideration to other road users and minimises the impact of traffic noise on potentially sensitive areas.
- o Implement Workplace Conduct for Powerlink Contractors (Obj. ref: A497976).

Monitoring and Auditing:

- o Not applicable to this phase.

Reporting:

- o Not applicable to this phase.

Corrective Action:

- o Not applicable to this phase.

5.12.4 Construction Phase

Implementation Strategy:

- o Notify all landholders who may be affected by noisy activities of the timing and sequence of Powerlink's construction activities.
- o Ensure that machinery is fitted with appropriate noise attenuation devices, and will be maintained in accordance with manufacturer's recommendations.
- o Ensure construction noise at sensitive receptors is in accordance with the EPP (Noise).
- o Shut down any equipment generating loud, extraneous (unusual) noise until the source of the noise can be identified and rectified.
- o Carry out construction in the hours of Monday to Saturday, during the hours of 6.30am–6.30pm. Work which can cause a nuisance through noise or other impacts is not

to occur outside these hours unless in an emergency, or required to meet operational constraints or other exceptional circumstances, and is approved by Powerlink. Local government, Department of Environment & Resource Management and near residents will be notified by the PEA of any works outside the normal construction hours, and appropriate actions to mitigate any stakeholder concerns will be implemented where practicable.

- o Unavoidable loud noise activities will be programmed to occur at times to minimise noise nuisance in noise sensitive areas.
- o Delivery or removal of materials and equipment to and from the site will occur within the approved hours for construction. All transport vehicles will be in good working order and will avoid using exhaust brakes in noise sensitive areas, adjacent to the work site.
- o Ensure transport routes to and from the site are located, where possible, so that impact of traffic noise on potentially sensitive areas can be avoided.
- o If the need for blasting is identified, carry out pre-work assessments to identify sensitive areas in proximity to blasting locations (e.g. cultural heritage sites and residences).
- o If the need for blasting is identified,
 - o design blasting, if carried out, so that the airblast overpressure and ground vibration at near noise sensitive places meets the criteria established in the *Environmental Regulation 1998*.
 - o ensure that any blasting to be carried out by a suitably experienced and qualified person (viz. a person with a shot firers licence issued under the *Explosives Act 1999*).
 - o implement measures to prevent ground vibration (such as delays), air blast overpressure and stemming ejection.

Monitoring and Auditing:

- o General auditory observations (qualitative assessments) during site activities.
- o Noise assessments (quantitative) following non-vexatious noise complaint. These noise assessment will be carried out, where necessary, to investigate a complaint. The noise assessment will determine if noise nuisance has occurred, and will also identify measures to reduce the likelihood of further complaint.

Reporting:

- o If the need for blasting is identified, provide 7 days notification
 - o of any works outside of normal construction hours
 - o or the firing of a blast.
- o The complaints register shall be used to record any incidence of noise or vibration nuisance.
- o All complaints to be reported to the PEA immediately and in writing within 24 hours.
- o Complainants will be recorded in the complaints register, including the resolution of the complaint.
- o Summary of non-compliances, corrective actions and preventative actions to be recorded in the monthly compliance report.

Corrective Action:

- o Investigate any noise complaints and implement measures, where practicable, to prevent the re-occurrence of a similar complaint. Noise measurement and monitoring may be required.
- o Repair or modify defective or noisy equipment to comply with the above policy requirements.
- o Concerns in relation to work outside normal construction hours will be addressed, and actions will be implemented in negotiation with landholders to achieve a mutually beneficial outcome.
- o The environmental issues register will outline actions to be implemented to prevent the re-occurrence of noise nuisance.

5.12.5 Operation and Maintenance Phase

Implementation Strategy:
o Ensure noise levels are below 5 dB above the background level (based on a similar type of noise outlined in the Environmental Protection Act - s44OT).
Monitoring and Auditing:
o As specified for the Construction Phase and Reporting procedure outlined in Section 3.6 of this EMP.
Reporting:
o Any noise related complaints will be reviewed quarterly and reported to the Asset Manager.
Corrective Action:
o Investigate any noise complaints and take steps to reduce impact. This may include a noise assessment if appropriate.

5.13 Traffic and Site Access

The area containing the proposed transmission line contains a number of State controlled roads under the management of the Department of Transport and Main Roads (DTMR), and local authority roads under the management of the recently formed Western Downs Regional Council. During the construction phase, a light increase of traffic volumes on the roads adjacent to the transmission line is expected to occur given the necessary transport of materials, equipment and personnel. Vehicle movements related to the maintenance and inspections of the transmission line are expected to be very low, particularly when compared to those that will potentially occur during the construction phase. The anticipated route to be used by construction vehicles should be inspected prior to the commencement of the construction works. The access to the transmission line alignment must be cleared of any obstacles or constraints and the access track must be in good condition to ensure that access to the site can be achieved even under periods of wet weather.

5.13.1 Policy

- o Ensure safe flow of traffic both to and from the site whilst minimising the impact of construction traffic on the amenity of the nearby community.

5.13.2 Performance Criteria

- o No movements off the approved access tracks.
- o Minimal disturbance to community and normal traffic flow.
- o No transport related incidents (including vehicles travelling to and from the project).
- o Nil complaints from surrounding property owners for access conditions or conduct of construction vehicles.
- o Appropriate security, signage and safety fencing.

5.13.3 Preconstruction Phase

Implementation Strategy:

- o Prior to conducting activities, consult landholders and local authorities regarding construction and ongoing maintenance access.
- o Limit speed to 40km/h on unsealed, off road access tracks.
- o Implement Workplace Conduct for Powerlink Contractors (Obj. ref: A497976).
- o Obtain necessary approvals/permits in preparation for temporary road closures. Powerlink's contractor will undertake detailed planning for the stringing across State and Council controlled roads.
- o Liaise with Western Downs Regional Council to agree temporary access points from Council-controlled roads for construction purposes. All access is to be at appropriately signed and highly visible locations.
- o Powerlink to conduct a joint asset condition assessment with the Western Downs Regional Council to determine the state of the road infrastructure prior to commencing the Project and agree on the upkeep and rehabilitation required for the affected road infrastructure during the course of the project.
- o Ensure all gates are to be left as found and any gate handling protocol to be implemented.
- o Implement and meet any agreed landholder requirements for access (e.g. notifications, biosecurity management, weed management etc).
- o Access track to be included on EWPs.
- o Survey of road condition by council offices and Powerlink Queensland construction representatives to determine 'bench mark' standard and consider proactive maintenance.
- o Notify the Department of Community Safety construction methods, traffic movements and proposed time frames for the duration of the project. GPS coordinates of each

- tower location will be supplied to each entity to accelerate access in an emergency. Relevant Contact Details are:
1. Queensland Fire and Rescue Service Assistant Commissioner Telephone Number (07) 4616 1506
 2. Queensland Ambulance Service Assistant Commissioner Telephone Number (07) 4616 1581
 3. Emergency Management Queensland Regional Director Telephone Number (07) 4616 1578

Monitoring and Auditing:

- o Not applicable to this phase.
- o

Reporting:

- o Not applicable to this phase.

Corrective Action:

- o Not applicable to this phase.

5.13.4 Construction Phase

Implementation Strategy:

- o Consult with landowners regarding access. Obtain landholder agreement in relation to property access requirements and location.
- o Implement project requirements for access (e.g. notifications, biosecurity management, weed management etc).
- o Handle gates, as a minimum, in accordance with the following protocol:
 - o Open gates are to be left as found.
 - o Closed gates are to be returned to the closed position after vehicles pass through the gate.
 - o The person who opens the gate is to close the gate to ensure that the gate is secured as found.
 - o Gates found closed or locked are not to be left open and unattended, for vehicle convoys or while site personnel visit a property.
 - o Gates which have locks installed must be kept locked at all times.
 - o Signage on the gate must be followed.
- o Consult regulatory bodies regarding new access points from local or State controlled roads.
- o Use, wherever practicable, existing roads and farm/property/access tracks for access.
- o Restrict those off road vehicle movements to those for safe, efficient and essential construction activities.
- o Ensure temporary or permanent road signage complies with the Queensland Department of Main Roads Manual for Uniform Traffic Control Device and be approved by the relevant council and/or the Department of Main Roads.
- o Install appropriate signage, where required, at off road access tracks to assist with construction personnel keeping to approved access tracks.
- o Minimise development of new access tracks, where possible, by using existing roads and property tracks for access. Using existing accesses will avoid/minimise unnecessary soil, vegetation and fauna disturbance.
- o Limit vehicle speed on unsealed accesses to a maximum of 40 km/h. Vehicle speed limit may be reduced on unsealed access tracks where condition of access tracks or potential for environmental nuisances is a concern.
- o Ensure loaded vehicles do not exceed design and standard vehicle weights.
- o Erect truck warning signs where warranted by limited visibility.
- o Conduct stringing lines across Banana Bridge Road, Muhlins Road, Taylor's Road, Healy's Crossing Road and Warra Kogan Road in consultation with the road controlling authority. Where possible, program stringing during low traffic movement periods, such as early morning to minimise disruption to road users. Necessary

- o approvals to be obtained by the contractor.
- o Ensure the transport hazardous or dangerous goods in accordance with the Australian Dangerous Goods Code for road and rail and *Transport Operations (Road Use Management) Regulation 1995*.
- o Restrict access to public (non-construction personnel) during construction activities.
- o Install appropriate controls/fencing/barriers in locations where fauna interaction is likely. Ensure that these controls are maintained in good working order while construction is occurring to restrict such intrusions.
- o Induct all personnel on the Traffic and Site Access requirements.
- o Implement Workplace Conduct for Powerlink Contractors (Obj. ref: A497976).
- o Confine all activities to within the approved work area, work pads and approved access tracks. Areas outside approved work areas are not to be used for storage of plant, equipment or vehicles without landholder and Powerlink's approval.
- o Ensure that the contractor prepares a traffic management plan for the project.
- o Clearly identify all project (Powerlink and contractor) vehicles so that the community can identify the vehicles without confusion.

Monitoring and Auditing:

- o Monitoring will be conducted to ensure compliance with the Performance Criteria and Implementation Strategies specified in this EMP.
- o General surveillance of access tracks and surrounding areas for damage to access tracks, off access movements or impact on other road users.

Reporting:

- o Reporting shall be in accordance with Section 3.5 of this EMP
- o Complaints to be recorded in the Complaint Register. Complaints to be immediately reported to Powerlink upon receipt of a complaint (traffic and security matters).
- o Reporting of traffic issues will be conducted in accordance with the requirements of approvals/licences e.g. development approval conditions.
- o Contractors records of site inductions.
- o Report and document damage to private assets, access tracks and local roads.
- o Summary of non-compliances, corrective actions and preventative actions to be recorded in the monthly compliance report.

Corrective Action:

- o Ensure above implementation strategies are in place.
- o Review and amend Implementation strategies if necessary.
- o Repair damage to private assets, access tracks and local roads in consultation with the relevant stakeholder.

5.13.5 Operation and Maintenance Phase

Implementation Strategy:

- o Determine maintenance access routes and protocols in consultation with landowners.
- o Where required, implement weed spread avoidance strategies e.g. wash downs .
- o Use existing roads and tracks only to access the substation site and transmission line.
- o Limit vehicle speed on unsealed access tracks to a maximum of 40 km/h. Vehicle speed limit may be reduced on unsealed access tracks where condition of access tracks or potential for environmental nuisances is a concern.
- o Implement Workplace Conduct for Powerlink Contractors (Obj. ref: A497976).

Monitoring and Auditing:

- o Monitoring and auditing against the Performance Criteria and Implementation Strategy sections of this EMP will be conducted.

Reporting:

- o Reporting in accordance with Section 3.5.

Corrective Action:

- o Ensure above implementation strategies are in place.
- o Review and amend implementation strategies if necessary.

5.14 Unexploded Ordnances (UXOs)

A search of the Department of Defence maps indicates that the site is in an area unaffected by UXOs.

5.14.1 Policy

- o Compliance with Powerlink's *AM-POL-0183 Management of Unexploded Ordnances* (Obj. ref: A58003).

5.14.2 Performance Criteria

- o Work practices recognise the potential to expose UXOs.
- o Appropriate identification, handling and reporting of UXOs.

5.14.3 Preconstruction Phase

Implementation Strategy:

- o Search the Department of Defence maps prior to any works to check UXO status of property has not changed.

Monitoring and Auditing:

- o Not applicable

Reporting:

- o See corrective action.

Corrective Action:

- o If UXOs or suspicious objects are discovered:
 - o Do not disturb, touch or move the object.
 - o Note the general appearance, dimensions and any visible markings on the object.
 - o Safely and clearly mark its location (without disturbing or impacting on the object).
 - o Cease work in the immediate area and inform others in that area of the presence of a suspicious object.
 - o If possible, leave one person at the site to warn others and to prevent disturbance of the object.
 - o Note the route to the object.
 - o Advise the police as soon as possible and seek their action to have the object dealt with
 - o Call 1800 353 031 and report the suspected find to the Powerlink Hotline.
 - o Do not re-enter the area of the discovery until it is made safe.

5.14.4 Construction Phase

Implementation Strategy:

- o General surveillance of work areas for UXO discoveries. Should UXO's be found or Department of Defence status of property change, implement relevant UXO measures.
- o

Monitoring and Auditing:

- o General surveillance for UXOs when working on site.

Reporting:

- o See corrective action.
- o Summary of discoveries, non-compliances, corrective actions and preventative actions to be recorded in the monthly compliance report.

Corrective Action:

- o If UXOs or suspicious objects are discovered:
 - o Do not disturb, touch or move the object.
 - o Note the general appearance, dimensions and any visible markings on the object.
 - o Safely and clearly mark its location (without disturbing or impacting on the object).
 - o Cease work in the immediate area and inform others in that area of the presence of a suspicious object.
 - o If possible, leave one person at the site to warn others and to prevent disturbance of the object.
 - o Note the route to the object.
 - o Advise the police as soon as possible and seek their action to have the object dealt with.
 - o Call 1800 353 031 and report the suspected mine to the Powerlink Hotline.
 - o Do not re-enter the area of the discovery until it is made safe.

5.14.5 Operation and Maintenance Phase

Implementation Strategy:

- o See Construction Implementation Strategy.

Monitoring and Auditing:

- o General surveillance for UXOs when working on site.

Reporting:

- o See corrective action.

Corrective Action:

- o See Construction Corrective Action.

5.15 Vegetation

Construction activities for the transmission line and road infrastructure will require the clearing of both non-remnant and remnant vegetation which may have a direct impact on terrestrial flora. Whilst there is evidence of prior disturbance across much of the vegetation along the transmission line (i.e. substantial evidence of clearing in some areas), there are some areas of mapped remnant vegetation which have potential to have significant habitat values. Vegetated portions of the proposed transmission line provide excellent cover and resources for local fauna and forest dependent species. Two populations of the threatened *Philotheca sporadica* are known to occur on and adjacent to the existing easement at Sites WDH04 and WD07 and there is a potential occurrence of *Diuris sheaffiana* (Tricolour Diuris) (see Section 10.2 of EIS).

5.15.1 Policy

- o To minimise the impacts on vegetation from the construction and operation of the transmission line project, in compliance with *Electrical Safety Act*, *Vegetation Management Act 2000*, *Environmental Protection and Biodiversity and Conservation Act 1999*, and *Nature Conservation Act 1992*.

5.15.2 Performance Criteria

- o Disturbance to flora is minimised, consistent with the space requirements of the transmission line and the safe and reliable operation of the asset, and provision of access in accordance with standard Powerlink construction and maintenance requirements.
- o No damage to populations of *Philotheca sporadica* or other threatened plants discovered within the alignment.
- o Significant habitat retained or connections maintained across the transmission line where possible.
- o Vegetation clearing is consistent with requirements of:
 - o Powerlink's AM-POL-0050 *Vegetation Management for Transmission Corridors and Sites* (Obj. ref: A89739)
 - o Powerlink's AM-PR-0833 *Routine Vegetation Management* (Obj. ref: A667) Note : Operation and Maintenance phase only
 - o Powerlink's AM-STA-0834 *Powerlink Vegetation Control Standard* (Obj. ref: A62955)
 - o Powerlink's AM-PR-0855 *Assessment of Hazardous Marginal Trees* (Obj. ref: A676)
 - o Powerlink's *Guideline for Activities in a Watercourse or Lake for Destroying up to 0.25 Ha of Vegetation, Excavating up to 500m3, and Placing up to 500m3 of Fill* (Obj. ref: A471789)

5.15.3 Preconstruction Phase

Implementation Strategy:

- o The proposed location of the transmission alignment has taken into account the requirements of this EMP (namely reducing, where possible, the impacts of the alignment on vegetation).
- o Identify opportunities to provide habitat connectivity across the transmission line.
- o Prepare EWPs to show the proposed extent and methods of clearing. The EWPs will be compatible with/complement/incorporate the Erosion and Sediment Control Plans and/or benching or site work plans. The clearing methods should consider information presented in the Environmental Impact Statement. Clearing is to be carried out such that the impact on native fauna, downstream water quality and surrounding land use is minimised.
- o One threatened species (*Philotheca sporadica*) was identified during field investigations and the location shall be noted on the EWPs. If other species listed under the *Environmental Protection, Biodiversity and Conservation Act 1999* or the *Nature Conservation Act 1992* are discovered on site, the location shall be noted on the EWPs

- and strategies implemented to minimise impact on such vegetation implemented.
- o Limit the extent of clearing to that for the effective and efficient construction and maintenance activities, as well as the safe and secure operation of the transmission line.
- o Develop a Bushfire Management Plan in conjunction with the Department of Community Safety (Queensland Fire and Rescue Service).
- o Powerlink to provide at least three months notification to DERM of any proposed clearing within State Land so that the necessary assessment can be undertaken to determine the extent of commercial timber present.

Monitoring and Auditing:

- o Not applicable to this phase.

Reporting:

- o Records of habitats to be protected or managed to minimise impacts to be kept and provided to the PEA by the TEPM.
- o A Vegetation Management Plan (VMP) should be prepared for the site to address clearing and protection of vegetation on the site.

Corrective Action:

- o Not applicable to this phase

5.15.4 Construction Phase

Implementation Strategy:

- o Areas of vegetation to be retained and populations of threatened species should be identified and protected by erecting temporary fencing to prevent access by machinery or construction crews. No stockpiling of material or equipment, or dumping of construction waste should be permitted in these areas.
- o All activities in areas adjacent to any vegetation to be retained should be carried out in such a manner as to minimise damage to the vegetation.
- o Clearing should be undertaken in the presence of a fauna spotter/catcher. Carry out clearing methods, on advice of the ecologist/spotter catcher/PEA and clearing contractor to minimise harm to fauna. For example, if the tree requiring removal is occupied by native fauna, considerations should be given to leaving the tree in place until any juveniles present in the tree are fledged or have left hollows.
- o Identify habitat trees (e.g. trees containing nests or hollows) using a suitably trained person such as a spotter catcher, ecologist or PEA. Inspect these trees immediately prior to clearing and adopt, where practicable, measures to minimise fauna impacts.
- o As construction activities may impact on retained vegetation, it is important to ensure that sediment fencing is in place before site preparation and other earthworks commence.
- o Implement the requirements of the EWPs which detail the extent of clearing, clearing methods and other requirements.
- o Limit the extent of clearing to that for the effective and efficient construction and maintenance activities, as well as the safe and secure operation of the transmission line. Any clearing outside the designated area may require additional statutory approval.
- o Prohibit unauthorised clearing.
- o Minimise, where practicable, soil disturbance to that essential for construction activities, as soil on the project site is highly erosion prone.
- o Limit access to the approved access tracks (detailed in the EWPs). Note: additional access may be required during stringing or for emergency purposes and such additional access is to be approved by the landholder.
- o Carry out clearing in identified Regional Ecosystems in accordance with the EWPs.
- o Salvage, where practicable and in accordance with landholder instructions, timber of economic value (e.g. millable, fencing or landscaping). Any other timber waste may be mulched, retained onsite as microhabitat, or stacked for future disposal. Timber left in situ must be placed to prevent concentrated overland flows causing erosion.

- o As the soils on the Project site are highly erosive, natural re-establishment of vegetation cover on disturbed areas is to be encouraged.
- o Restrict the burning of cleared vegetation unless permitted by the local fire warden. Should burning of cleared vegetation be undertaken, permits for vegetation burning must be obtained and provided to Powerlink prior to the burn.
- o Induct all site personnel, on clearing methods and vegetation marking protocols. Work areas will also be clearly defined in the induction.
- o Prepare a rehabilitation or reinstatement plan to guide reinstatement/rehabilitation to close out construction activities.
- o Revegetation (grassing etc) shall be encouraged on non-work areas as required. Batters are to be revegetated/allowed to naturally regenerate on completion of pad development activities to achieve a minimum 70% groundcover. Where the preconstruction environment has less than 70% ground cover, the ground over establishment target will be similar to that which existed prior to construction.
- o Implement the local weed management plan (refer to the Weed Management Environmental Strategy).
- o Restrict all vehicles, plant and equipment movements to the approved access tracks.
- o Promote where possible on the completion of construction activities, natural regeneration. Suppress weed growth as the preferred method of initial site rehabilitation. Revegetation may be used where the likely success of natural regeneration is limited.
- o Rehabilitation of sites may involve the respreading of stockpiled topsoil (and grassing etc) where applicable, to establish cover.

Monitoring and Auditing:

- o Construction activities will be monitored to ensure compliance with the performance requirements as specified in the EMP or as frequently as necessary.
- o Extent of clearing marked up prior to the commencement of works.
- o Inductions register.
- o Any unauthorised works beyond the extent of clearing barriers.
- o Monitoring of clearing extent barriers.
- o Monitoring movements of vehicles, plant and equipment onsite.

Reporting:

- o In accordance with Section 3.5
- o Reporting will be carried out in compliance with conditions of any approval issued under the *Environmental Protection, Biodiversity and Conservation Act 1999*.
- o Clearing consultation records are to be prepared.
- o Construction close out records to be completed.
- o Summary of non-compliances, corrective actions and preventative actions to be recorded in the monthly compliance report.

Corrective Action:

- o Ensure above implementation strategies are in place
- o Review and amend implementation strategies as necessary
- o Corrective actions shall be developed in consultation with Powerlink where any unauthorised clearing has occurred.
- o Install fencing/bunting and signage to prevent re-occurrence of off access or work area movements or damage.
- o New flora discoveries, such as listed under the *Environmental Protection, Biodiversity and Conservation Act 1999* or *Nature Conservation Act 1992*, reported to the TEPM and appropriate management strategies for the flora discovery prepared.

5.15.5 Operation and Maintenance Phase

Implementation Strategy:

- Carry all maintenance activities in accordance with:
 - Powerlink's *AM-POL-0050 Vegetation Management for Transmission Corridors and Sites* (Obj. ref: A89739).
 - Powerlink's *AM-PR-0833 Routine Vegetation Management* (Obj. ref: A667) Note: Operation and Maintenance phase only.
 - Powerlink's *AM-STA-0834 Powerlink Vegetation Control Standard* (Obj. ref: A62955).
 - Powerlink's *AM-PR-0855 Assessment of Hazardous Marginal Trees* (Obj. ref: A676).
 - Powerlink's *Guideline for Activities in a Watercourse or Lake for Destroying up to 0.25 Ha of Vegetation, Excavating up to 500m3, and Placing up to 500m3 of Fill* (Obj. ref: A471789).
- Implement the local weed management plan (refer to the Weed Management Environmental Strategy).
- Consider other requirements outlined in the construction phase of this environmental strategy, and implement where necessary.

Monitoring and Auditing:

- Vegetation management activities will be monitored to ensure compliance with the performance requirements as specified in this Work Plan or as frequently as necessary.

Reporting:

- In accordance with Section 3.5.

Corrective Action:

- Vegetation management activities / practices shall be modified to comply with the above requirements.

5.16 Visual Amenity

Local visual impact will be moderate due to clearance of existing vegetation during the site preparation and construction period when the transmission towers and lines and the construction activity will be visible from many of the local roads and local properties. The potential impacts on visual amenity can be mitigated and managed by adhering to visual amenity strategies outlined below.

5.16.1 Policy

- o To minimise the visual impact of the transmission lines at sensitive locations by appropriate clearing techniques and vegetation screening / tree planting, as applicable.

5.16.2 Performance Criteria

- o Minimise reduction of visual amenity from locations where the transmission lines will be visible.

5.16.3 Preconstruction Phase

Implementation Strategy:

- o Where possible, allow natural regeneration of native woodland screens in the vicinity of road crossings to allow early establishment and growth to provide screening during the construction period.
- o In locations where the study alignment crosses roads, existing vegetation should be retained (where possible) to minimise the visual impact of these crossing points on passing traffic. Regeneration associated with existing vegetation south of the Warra Kogan Road will increase the screening effect to the transmission towers and lines along this section of the alignment.
- o Where requested, provide property owners with Powerlink Information Brochure '*Screening your home from Powerlines: A guide for planting trees and shrubs outside of easements to screen Powerlines*'.

Monitoring and Auditing:

- o Not applicable to this phase.

Reporting:

- o Not applicable to this phase.

Corrective Action:

- o Not applicable to this phase.

5.16.4 Construction Phase

Implementation Strategy:

- o Minimise vegetation clearing where practicable and maintain and manage woodland vegetation screening along the transmission line route and at road crossings.
- o Implement the requirements of this EMP.

Monitoring and Auditing:

- o The visual amenity of the project shall be progressively monitored by the PEA.
- o Through the use of a complaints register, evaluate the impacts from the construction on the visual amenity of adjacent residents.

Reporting:

- o In accordance with Section 3.5 of the EMP
- o Summary of non-compliances, corrective actions and preventative actions to be recorded in the monthly compliance report.

Corrective Action:

- o In the event of a complaint, the PEA will investigate (refer Section 3.6 of this EMP for specific details) and recommend an appropriate mitigation response.

5.16.5 Operation and Maintenance Phase

Implementation Strategy:

- o Maintain vegetation to provide visual screening of assets where possible and appropriate.
- o Provide property owners with Powerlink Information Brochure '*Screening your home from Powerlines: A guide for planting trees and shrubs outside of easements to screen Powerlines*'.

Monitoring and Auditing:

- o Monitoring and auditing against the Performance Criteria and Implementation Strategy sections of this EMP will be conducted

Reporting:

- o As specified in Section 3.5.

Corrective Action:

- o Investigate any complaint and recommend appropriate mitigation.

5.17 Waste

Waste products, including cleared vegetation, excess spoil, waste concrete, and domestic rubbish will be generated from the construction of the transmission line. In addition, waste water, gas cylinders and sewage will be generated during the operation and maintenance phases of the Project. The potential impacts of waste generation can be mitigated and managed by adopting appropriate waste disposal and tracking procedures, as well as adhering to waste management strategies outlined below.

5.17.1 Policy

- o Compliance with *Environmental Protection (Waste) Policy 1997*

5.17.2 Performance Criteria

- o No uncontrolled waste or litter observed on site.
- o No evidence of uncontrolled releases to surrounding environment (e.g. dewatering or fugitive waste).
- o Appropriate storage and disposal of fuels and waste evident on site.
- o Powerlink's procedure *AM-PR-0926 Management, Transport and Disposal of Waste Insulating and Petroleum-Based Liquids (Regulated Wastes)* (Obj. ref: A598354).

5.17.3 Preconstruction Phase

Implementation Strategy:

- o Not applicable to this phase.

Monitoring and Auditing:

- o Not applicable to this phase.

Reporting:

- o Not applicable to this phase.

Corrective Action:

- o Not applicable to this phase.

5.17.4 Construction Phase

Implementation Strategy:

- o In Consultation with the Western Downs Regional Council, prepare a Waste Management Plan which addresses the collection, handling and disposal of waste. The Waste Management Plan should explore the opportunities to avoid, reduce, reuse and recycle waste materials. Where practical, wastes shall be segregated and reused/recycled (e.g. scrap metal and cable off cuts). The waste management plan is to also establish a preferred waste management hierarchy and develop principles for achieving good waste management in accordance with the Environmental Protection (Waste Management) Policy 2000. This plan must identify waste removal service providers for the removal of the various wastes identified for the construction process.
- o Clearly identify collection bins as "general waste" and "recyclables"
- o Dispose of felled timber in accordance with landholders instructions. If retained on site and not burnt, consult with local rural fire officers so that the residues do not pose a fire hazard. Vegetation residues should not impact on downstream water quality or the easement land use. Consideration should also be given when assessing

- appropriate residual material management to potential fire hazard and impact.
- Sodic soil spoil is not to be respread over the surface during rehabilitation works unless it has been suitably ameliorated.
- Store regulated waste (e.g. hydrocarbons) in appropriately sealed containers suitably marked identifying their contents. Transfer to a waste contractor licensed to receive such waste. Regulated waste quantities over 250kg must be tracked using the methods under the Environmental Protection Act and Regulations/Policies. Records of disposal shall be maintained and be provided to the Superintendent on request.
- Refuse containers to be used and personal waste is to be found on the site. Personal waste, including food scraps, are to be removed from site at the end of each day and disposed of off site at a facility approved to take such waste.
- Collect and dispose of appropriately and regularly, all construction waste. Construction waste waiting collection is to be left in a tidy manner such that it does not impact on stock or have the potential to be wind blown otherwise it will be removed.
- Use ablution facilities/portable toilets when provided.
- Prohibit the discard of cigarette butts to ground. The contractor is to address the management of cigarette butts in the Contractor's Waste Management Plan.
- Dispose all personal and construction waste off site at a facility approved to accept such waste.

Reporting:

- Reporting as specified by Section 3.5 of this EMP.
- Landholder clearing consultation record to be completed.
- Copies of all hazardous waste disposal certificates provided to Powerlink.
- Inductions register.
- Summary of non-compliances, corrective actions and preventative actions to be recorded in the monthly compliance report.

Corrective Action:

- Clean up works in accordance with the Performance Criteria and Implementation Strategy sections of this EMP.

5.17.5 Operation and Maintenance Phase

Implementation Strategy:

- As specified for the Construction Phase of this EMP

Monitoring and Auditing:

- Monitoring will be conducted to ensure compliance with the Performance Criteria and Implementation Strategies specified in this EMP

Reporting:

- Reporting as specified by Section 3.5

Corrective Action:

- Clean up works in accordance with the Performance Criteria and Implementation Strategy sections of this EMP

5.18 Weed Management

Weeds impact on the health of native vegetation and ecosystems and need to be controlled to ensure the risk of spread is minimised. There are a number of declared weeds present on the Project site which will need to be managed to avoid being carried on and off the site. Rehabilitation works also need to be implemented to try to avoid outbreaks of both declared and other environmental weeds.

5.18.1 Policy

- o No introduction, release, movement or transportation of declared plants in accordance with the *Land Protection (Pests and Stock Route Management) Act 2002*.
- o Compliance with the *Agricultural Chemicals Distribution Control Act 1996*

5.18.2 Performance Criteria

- o No new weed outbreaks observed along the transmission line or along access tracks.
- o Compliance with Powerlink's *AM-PR-0039 Biosecurity Management – Pest and Pathogen Control Measures* (Obj. ref: A513014)
- o Powerlink's Procedure *AM-PR-0968 Vehicle and Equipment Cleandown* (Obj. ref: A256951)

5.18.3 Preconstruction Phase

Implementation Strategy:

- o Employees to attend site induction training which includes weed species identification (in particular those declared weed species known to occur on the project site i.e. Fireweed and Prickly Pear).
- o Conduct an initial weed survey (to be documented on the EWP) to identify any potential areas of concern and implement appropriate measures to prevent the spread of weeds.
- o All vehicles to be washed and certified 'clean' before mobility to site. Vehicle movements between identified 'clean' and weed infested properties to be undertaken in accordance with constraints detailed in the weed management strategy.
- o Implement Powerlink's Procedure *AM-PR-0968 Vehicle and Equipment Cleandown* (Obj. ref: A256951)
- o Control existing infestations on accesses and worksites, where practical and to assist in reducing risks, prior to the commencement of construction activities.
- o Develop a local weed management plan for declared weeds present on the site. The weed management plan will cover the following items, but not be limited to:
 - o Aim
 - o Introduction
 - o Identification / Methods section
 - o Consultation section
 - o Findings section
 - o Recommended Local Weed Management Program (including all management strategies)
 - o Any Appendices (including survey results)

Note: Management strategies may include but not be limited to:

- o Preconstruction wash downs for all equipment coming to site

- o Documentation procedure
- o Education
- o Treatment of dirty areas preconstruction
- o Specific machinery wash downs depending on risks
- o Placement and use of temporary and permanent wash down facilities (if possible wash down facilities should be located at all “dirty area” exits)
- o Monitoring
- o Continual chemical treatment
- o Response in the event of a weed outbreak
- o Work within local council pest and weed management program

Monitoring and Auditing:

- o Not applicable to this phase

Reporting:

- o Not applicable to this phase

Corrective Action:

- o Not applicable to this phase

5.18.4 Construction Phase

Implementation Strategy:

- o Implement the local weed management plan.
- o All personnel will be trained in the implementation of the Weed Management Plan during the induction.
- o All vehicles to access site along established access tracks. If new infestations identified, no vehicle/construction traffic through this area until controlled.

Monitoring and Auditing:

- o Monitoring will be conducted to ensure compliance with the local weed management plan.
- o Employees/contractors working on site to report presence of declared weeds to the supervisor by the end of the working day.
- o

Reporting:

- o Distributions of declared weeds monitored and where feasible, efforts made to eradicate or contain infestations.
- o Report any suspected weed infestations to the Project Environmental Advisor.
- o Records and reporting to be carried out in accordance with the local weed management plan.
- o Summary of non-compliances, corrective actions and preventative actions to be recorded in the monthly compliance report.

Corrective Action:

- o If new weed infestations are identified, the Project Environmental Advisor will advise on appropriate treatment this may include chemical or mechanical control.
- o Add newly identified weed contaminated properties to Powerlink’s PQ Maps.
- o Incorporate weed management measures for newly identified infestations in an update to the local weed management plan.

5.18.5 Operation and Maintenance Phase

Implementation Strategy:

- o Train personnel on the identification of common weeds (pocket guides are available) and in particular declared weed species already identified onsite (i.e. Fireweed and Prickly Pear).
- o Consult Sensitive Area Check and Property Hotspot Information (Powerlink's PQ Maps) to identify known weed contaminated properties.
- o Implement the local weed management plan.
- o All personnel will be trained in the implementation of the Weed Management Plan during the induction.
- o Implement Powerlink's Procedure *AM-PR-0968 Vehicle and Equipment Cleardown* (Obj. ref: A256951).

Monitoring and Auditing:

- o Monitoring will be conducted to ensure compliance with the Performance Criteria and Implementation Strategies specified in this EMP

Reporting:

- o Report new outbreaks to PEA in accordance with Section 3.5
- o Note locations and take photos for identification where possible

Corrective Action:

- o If new weed infestations are identified appropriate treatment and management techniques will be identified.
- o Any new infestations should be included in Sensitive Area Check/Property Hotspot information.

Appendix A – Environmental Policy



Environmental Policy

Powerlink Queensland is responsible for the operation, maintenance and development of the high voltage transmission network in Queensland.

We are committed to responsible environmental management as an integral part of our business activities. We demonstrate that commitment by:

- Consulting openly, honestly and proactively with the community and statutory authorities on the potential environmental impacts of our plans and activities. We are responsive to constructive suggestions to eliminate or minimise potentially adverse impacts.
- Recognising that environmental factors such as land use, public health and safety, noise and visual impact, protection of flora and fauna, environmentally hazardous materials management and waste management are all environmental aspects of our business.
- Maintaining a structured approach to managing our environmental aspects by implementing an Environmental Management System.
- Seeking continual improvement in the environmental performance of our operations.
- Complying with relevant environmental legislation.
- Building and encouraging ownership of environmental care among our people by providing training and support.