



QSN Link Pipeline

Statement of Environmental Objectives

(South Australia)

Document No. Q-02-102-LAE-G-002, Revision 3

March 2008



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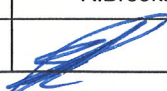
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Epic Energy Document Number: Q-02-102-LAE-G-002



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Revision	Status	Prepared by	Checked by	Approved by	Date
A	Issued to client for review	Z.Bowen/S.Milne	C.Regan	C.Regan	02/11/2007
B	Inclusion of Epic comments for final Epic review	Z.Bowen/S.Milne	S.Milne	S.Milne	15/11/2007
0	Issued to PIRSA	S.Milne	R.Brooks	R.Brooks	20/11/2007
1	Final Issued	Z.Bowen/S.Milne	R.Brooks	R.Brooks	21/12/2007
2	Inclusion of regulators comments & public issue	Z.Bowen/S.Milne	S.Milne	R.Brooks	5/03/2008
3	Revisions under goal 4.4; re-issued to PIRSA	Z.Bowen/S.Milne	S.Milne	R.Brooks	14/03/2008
					18/3/08

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1 Introduction

This Statement of Environmental Objectives (SEO) for the proposed QSN Link has been prepared by RPS Ecos on behalf of Epic Energy in accordance with the requirements of Section 99 of the South Australian *Petroleum Act 2000*.

1.1 Background

Epic Energy proposes to construct and operate an underground gas pipeline, the QSN Link, from Ballera in south west Queensland to Moomba in north-eastern South Australia. The pipeline will be approximately 180 km long. It will transport sales quality gas from the Bowen/Surat basin in eastern Queensland (via the existing South West Queensland Pipeline) and deliver it to the Moomba to Adelaide Pipeline (MAP) and the Moomba to Sydney Pipeline (MSP).

The pipeline route options are shown in **Figure 1**.

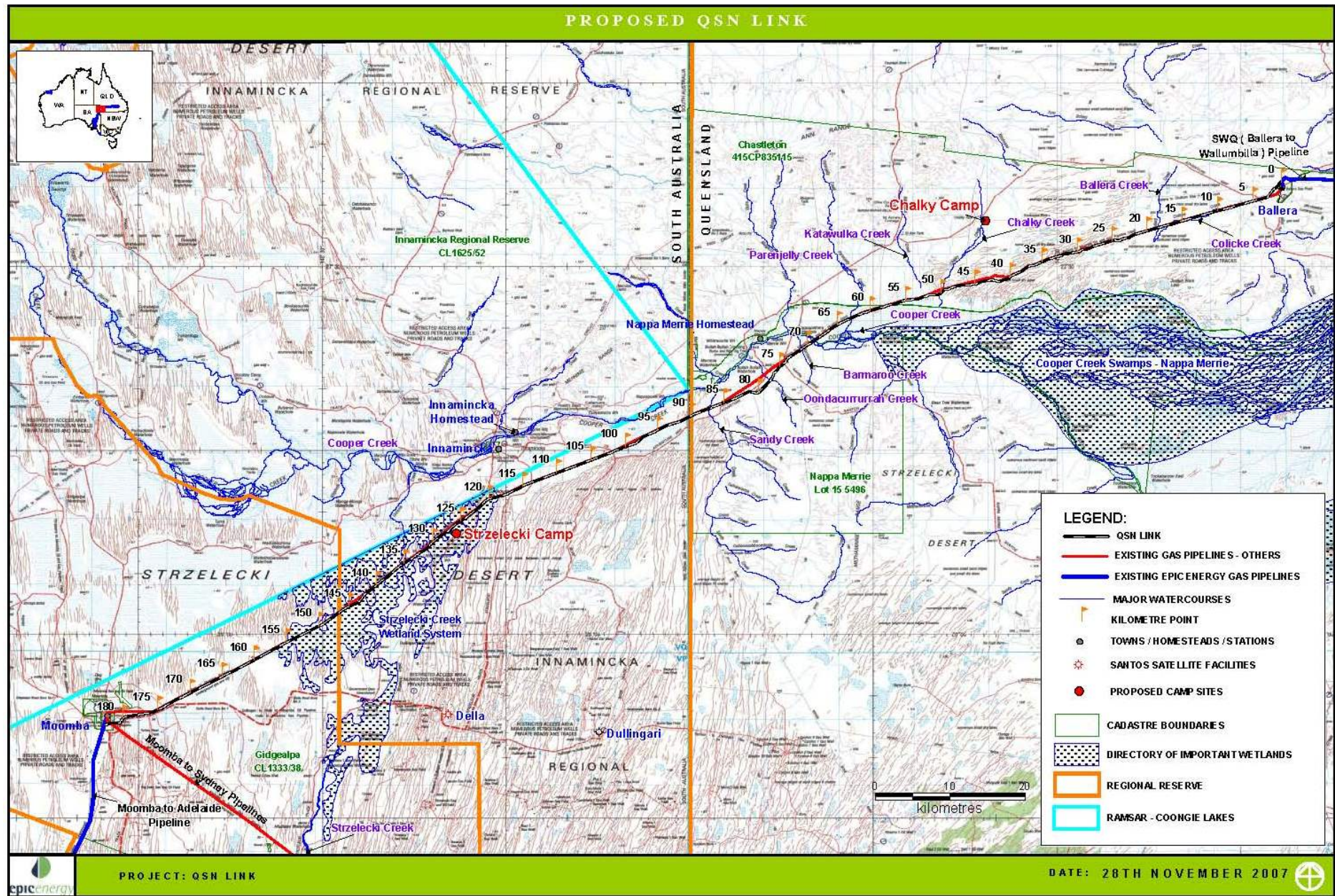


Figure 1: Location of QSN Link Pipeline

1.2 Purpose of SEO

The intent of this SEO is to outline the environmental objectives to which the pipeline construction, operation and decommissioning activities will conform and the criteria upon which the achievement of these objectives will be assessed.

The objectives of this SEO have been developed on the basis of information and issues identified in the *QSN Link Pipeline Environmental Impact Report* (Epic Energy 2007) and are in keeping with the objectives of the *Petroleum Act 2000*, which include:

- to minimise the environmental damage from the activities involved in the construction or operation of transmission pipelines for transporting petroleum
- to establish appropriate consultative processes involving people directly affected by regulated activities and the public generally
- to promote adherence to AS2885 as a primary means of achieving public, environmental and safety objectives
- to protect the public from risks inherent in regulated activities.

This SEO has been based on the following SEOs:

- Statement of Environmental Objectives for Pipeline Licence No.1 (Epic Energy 2003)
- Statement of Environmental Objectives for the SESA Pipeline (Origin Energy 2005)
- Statement of Environmental Objectives for Pipeline Licence No.2 (Epic Energy 2006).

1.3 Regulatory Definitions

Environment is broadly defined in the *Petroleum Act 2000* to include its natural, social, cultural and economic aspects. The environmental objectives outlined in the SEO incorporate these aspects.

The SEO relates to *pipelines* and *petroleum* as defined by the Act. *Pipeline* means a pipe or system of pipes for conveying petroleum or another regulated substance from place to place and includes:

- tanks, machinery and equipment necessary for, or associated with, its operation
- a part of a pipeline.

Petroleum refers to a naturally occurring substance consisting of hydrocarbon or a mixture of hydrocarbons in gaseous, liquid or solid state.

2 Environmental Objectives

Potential environmental hazards and consequences associated with the construction and operation of the QSN Link Pipeline and associated facilities have been identified in the *QSN Link Pipeline Environmental Impact Report* (Epic Energy 2007). Epic Energy is committed to achieving a range of environmental objectives in regard to these potential hazards.

2.1 Construction

The Objectives for the environmental management of the construction of the QSN Link Pipeline are:

Objective	Goal
1. To avoid or minimise adverse impacts on soils and terrain	1.1 To minimise soil erosion and sedimentation as a result of pipeline construction
	1.2 To prevent soil inversion
	1.3 To mitigate soil compaction if necessary by remedial action
	1.4 To reinstate soil and terrain as near as practicable to pre-construction contours and conditions
2. To minimise and manage impacts to water resources	2.1 To minimise short term, and prevent long-term, interruption or modification to surface drainage patterns
	2.2 To minimise the amount of sediment entering surface water features
	2.3 To minimise disruption to third party use of surface waters
3. To avoid land or water contamination	3.1 To prevent spills occurring and if they occur minimise their impact
	3.2 To ensure that rubbish and waste material are disposed of in an appropriate manner
	3.3 To prevent impacts as a result of hydrotest water, trench water and waste water (e.g. washdown water) disposal
	3.4 To ensure the safe and appropriate disposal of camp wastewater (grey water, sewage)
4. To minimise adverse impacts to vegetation and fauna	4.1 To minimise clearing of remnant vegetation
	4.2 To minimise disturbance to fauna
	4.3 To appropriately rehabilitate the easement to pre-construction condition, as reasonably practical
	4.4 To achieve a significant environmental benefit for native vegetation clearance
5. To avoid the spread of weeds and pathogens	5.1 To avoid the introduction or spread of weeds and pathogens and undertake control where required
6. To minimise and manage impacts to heritage sites and values during construction	6.1 To ensure that identified heritage sites are not disturbed
7. To minimise noise due to construction	7.1 To minimise noise impacts associated with the movement and operation of construction vehicles and equipment
8. To minimise atmospheric emissions	8.1 To minimise the generation of dust
9. To minimise disturbance to third party infrastructure, landholders and landuse	9.1 To minimise disturbance or damage to infrastructure / land use and remediate where disturbance cannot be avoided
	9.2 To minimise disturbance to landholders
	9.3 To appropriately reinstate and rehabilitate the easement to allow continuation of current land use activities post-construction

Objective	Goal
10. To minimise the risk to public health and safety	10.1 To adequately protect public safety during construction
	10.2 To avoid fires associated with pipeline construction activities

2.2 Operation

The Objectives for the environmental management of the operation of the QSN Link Pipeline are:

Objective	Goal
11. To maintain soil stability / integrity on the easement	11.1 To remediate erosion or subsidence as a result of pipeline operations in a timely manner
	11.2 To prevent soil inversion
12. To minimise and manage impacts to water resources	12.1 To maintain current surface drainage patterns
	12.2 To minimise disruption to third party use of surface waters
13. To avoid land or water contamination	13.1 To prevent spills occurring and if they occur minimise their impact
	13.2 To ensure that rubbish and waste material are disposed of in an appropriate manner
	13.3 To prevent impacts as a result of hydrotest water, trench water and waste water (e.g. washdown water) disposal
	13.4 To ensure the safe and appropriate disposal of camp wastewater (grey water, sewage)
14. To promote and maintain native vegetation cover on the easement	14.1 To promote and maintain regrowth on the easement to be consistent with surrounding area
	14.2 To minimise additional clearing of native vegetation as part of operational activities
	14.3 To ensure maintenance activities are planned and conducted in a manner that minimises impacts on native fauna
15. To avoid the spread of weeds and pathogens	15.1 To ensure that weeds and pathogens are controlled at a level that is at least consistent with adjacent land
16. To adequately protect heritage sites and values during operations and maintenance	16.1 To ensure that identified heritage sites are not disturbed
17. To minimise noise due to operations	17.1 To ensure operations comply with noise standards
18. To minimise atmospheric emissions	18.1 To eliminate uncontrolled atmospheric emissions
	18.2 To minimise the generation of dust
19. To avoid unnecessary disturbance to third party infrastructure, landholders or landuse	19.1 To minimise disturbance or damage to infrastructure / land use and remediate where disturbance cannot be avoided
	19.2 To minimise disturbance to landholders
20. To minimise the risk to public health and safety	20.1 To adequately protect public safety during operations
	20.2 To avoid fires associated with pipeline maintenance activities
	20.3 To prevent unauthorised activity on the easement that may adversely impact on the pipeline integrity

2.3 Decommissioning

A natural gas transmission pipeline can potentially have an indefinite operational lifespan, however as the pipeline ages the level of maintenance required will increase. The design life of the QSN Link has not been finalised but is expected to be in the order of 50 years. Where it is intended to operate the QSN Link beyond the design life, engineering investigation of the design, operating conditions and history of the pipeline will be undertaken to determine the condition and any limits for continued safe operation, in accordance with AS2885. The pipeline shall be operated in accordance with all State and Commonwealth legislation.

In the event that the utility is no longer required, the pipeline will be decommissioned in accordance with AS2885 and the regulatory requirements and accepted current environmental best practices of the day.

The Objectives for the environmental management of the decommissioning of the QSN Link Pipeline are:

Objective	Goal
21. To appropriately decommission the pipeline in accordance with regulatory requirements and accepted best practice environmental management	21.1 To safely decommission the pipeline and associated above-ground infrastructure in accordance with appropriate regulatory requirements
	21.2 To minimise disturbance to landholders and other stakeholders

3 Assessment Criteria

The environmental objectives identified above are subject to an assessment to measure the level of achievement. The assessment criteria for each objective will be one of the following:

- defined conditions – objectives for activities that can only be managed through the prevention of unacceptable actions (e.g. “No new outbreak or spread of weeds or pathogens as a result of pipeline activities”)
- defined requirements – the achievement of an objective can be assessed against the implementation of specific procedures or actions required for an activity (e.g. “Demonstrated compliance with AS2885”)
- Goal Attainment Scaling (GAS) Criteria – objectives requiring visual assessment can be prone to uncertainties of subjective judgement. To minimise this occurring, GAS is used to measure such objectives against a series of criteria described by a written description and/or photographically. In this SEO, GAS is applied to measuring construction and restoration of borrow pits.

Appendix 1 tabulates the objectives and the appropriate assessment criteria.

Appendix 1 also lists the controls that will be implemented by Epic Energy to ensure that environmental objectives are achieved, in the “Guide to how objectives can be achieved” column. These controls are not intended to be a mandatory regulatory requirement, but are provided to give an indication of the measures that can be implemented to ensure compliance.

4 Reporting

It is a requirement under Section 85 of the *Petroleum Act 2000* that any incidents that are determined to be 'serious' or 'reportable' incidents must be reported to the Minister.

4.1 Definitions

The following descriptions have been provided to help clarify and elaborate on the definitions given in Section 85(1) of the *Petroleum Act 2000* and Regulation 32(1) of the *Petroleum Regulations 2000*.

Serious Incidents

Section 85(1) of the *Petroleum Act 2000* defines a serious incident as an incident in which:

- (a) A person is seriously injured or killed
- (b) An imminent risk to public health or safety arises
- (c) Serious environmental damage occurs or an imminent risk of serious environmental damage arises
- (d) Security of natural gas supply is prejudiced or an imminent risk of prejudice to security of natural gas arises¹.

Regulation 12(2) of the *Petroleum Regulations 2000* requires that a statement of environmental objectives must include an identification of the events which could arise from the relevant regulated activities and (if not properly managed or avoided) cause a serious incident or a reportable incident.

Pursuant to Regulation 12(2), the events listed below could arise from pipeline construction and operation activities and cause a serious incident:

- explosion or fire at any facility or pipeline
- any spill of fuel, oil or hazardous material which encroaches into surface water or groundwater or causes serious environmental damage to land
- any unauthorized disturbance to sites of heritage significance
- any removal of rare, vulnerable or endangered flora and fauna species, without appropriate permits and approvals
- pipeline rupture or failure
- unintended contact of the pipeline
- unauthorised activity on the pipeline easement with equipment that has been identified as exceeding the pipeline penetration resistance calculations as set out in the relevant Australian Standard (currently AS 2885).

Reportable Incidents

Reportable incidents are defined under Section 85(1) of the Act as an incident (other than a serious incident) arising from activities conducted under a licence classified under the regulations of a reportable incident.

Reportable incidents are defined under Regulation 32(1) as:

- (a) an unintended escape of petroleum, a processed substance, a chemical or a fuel that affects an area that has not been specifically designed to contain such an escape;
- (b) an incident identified as a reportable incident under the relevant statement of environmental objectives.

¹ Note: As administrative policy, PIRSA interprets this as follows: after taking into account relevant factors on a day and its rights and obligations under contracts, a significant curtailment of firm service to a shipper that may be necessary and may detrimentally impact upon the gas supply to a significant number of gas users.

Pursuant to Regulation 32 (1) and Regulation 12(2), the following incidents are considered to be reportable incidents:

- any other unauthorised activity on the pipeline easement that is not covered by the serious incident definitions
- a hydrocarbon or hazardous material spill that adversely impacts on an area not specifically designed to contain such spills
- a reasonable complaint from a landholder as a result of project activities
- the introduction of weed species to the project area as a result of project activities
- detection of pipeline corrosion beyond that for which management procedures are in operation
- any other major non-compliance with SEO objectives.

4.2 Reporting Requirements

Serious Incidents must be reported to the Minister as soon as practicable after the occurrence, as per Section 85 of the *Petroleum Act 2000* and Regulation 32 of the *Petroleum Regulations 2000*.

Reportable Incidents must be reported to PIRSA on a quarterly basis within 1 month of the end of the quarter, as per Regulation 32 of the *Petroleum Regulations 2000*.

5 Definitions

Definitions of the terms used in the SEO are provided below.

Approval	Refers to approval under the relevant legislation
Consistent with surrounding land/area	A qualitative assessment of land condition on the easement to determine if condition of the easement is similar to that of adjacent land (i.e. soil, vegetation, landform).
Easement	For the purpose of this SEO, an easement is considered to be an area of land that is located directly above the buried pipeline. The width of the easement will vary depending on factors such as construction requirements and land tenure, but is typically up to 30 m.
Infrastructure	Physical assets which are built on the land (e.g. roads, power poles, fences, railway, troughs, gates, dams, other services).
Landholder	Owner or occupier of the land.
Landuse	Use of land e.g. grazing, mining, oil and gas production, access, industrial, residential, environmentally sensitive area, recreational.
Line of sight clearance	Clearing of large vegetation between pipeline markers to maintain a clear line of site between each pipeline marker e.g. for trees on easement where large trees cannot be retained, vegetation trimmed to height of 1m over pipeline and to 3m either side of centreline. This is to satisfy the operational obligations to ensure pipeline integrity and personnel safety cannot be compromised (i.e. any objective is subservient to these requirements).
Minimise	To reduce as far as possible, considering all other factors e.g. requirements for safe operations and accessibility.
Pipeline construction	<p>Any activity associated with the construction of the pipeline and associated facilities. This includes:</p> <p>Pipeline</p> <ul style="list-style-type: none"> Detailed survey Fencing Clear and grade Drilling or boring Trenching Stringing Bending Welding X-raying Joint coating Padding Lowering-in Backfilling Pressure testing Restoration and rehabilitation Installation of signage Inspection and testing <p>Facilities (main line valves, camps, access tracks, cathodic protection beds, meter stations)</p> <ul style="list-style-type: none"> Construction and commissioning of facilities Installation of cathodic protection beds Establishment, use and rehabilitation of borrow pits and material extraction sites

<p>Pipeline operations</p>	<p>Any activity associated with the operation, inspection and maintenance of the pipeline, easement and associated facilities. This includes:</p> <p>Pipeline Dig ups Pigging & integrity testing Welding Cathodic protection Inspection and testing Pipeline surveys</p> <p>Easement Patrolling / inspections (foot, vehicle, aerial) Vegetation control Erosion control</p> <p>Facilities (main line valves, compressor stations, camps, access tracks, cathodic protection beds, meter stations) Storage and use of diesels, oils and chemicals Weed control Waste treatment and disposal Inspection and testing</p>
<p>Significant environmental benefit</p>	<p>Term used in the <i>Native Vegetation Regulations 2003</i> (but not defined in the Regulations) to describe the principle that vegetation clearance must be compensated for by establishing a process to protect and manage the biodiversity in the region of clearance, over and above that lost.</p>
<p>Spill</p>	<p>Uncontrolled or unplanned release or discharge of a hydrocarbon, chemical or hazardous substance.</p>
<p>Timely manner</p>	<p>Timeframe agreeable to pipeline licensee and impacted third party, that considers all external factors e.g. weather constraints and accessibility.</p>
<p>Uncontrolled atmospheric emission</p>	<p>Discharge to air that is not planned or part of any routine operation or routine maintenance (e.g. maintenance or checks of valves and equipment).</p>

6 References

Epic Energy (2007). *QSN Link Pipeline Environmental Impact Report*. Prepared by RPS Ecos for Epic Energy, November 2007.

Epic Energy (2003) *Statement of Environmental Objectives Pipeline Licence No.1*. Prepared by Ecos Consulting for Epic Energy, March 2003.

McDonough, R. (1999). *Goal attainment scaling: a tool for evaluating pipeline environmental performance*. Primary Industries and Resources, South Australia.

Origin Energy (2005) *SESA Pipeline Statement of Environmental Objectives*. Prepared by Ecos Consulting for Origin Energy, February 2005.

7 Glossary

ANZECC	Australian and New Zealand Environment and Conservation Council
AS 2885	Australian Standard AS 2885: Pipelines - Gas and liquid petroleum
CEMP	Construction Environmental Management Plan
DEH	Department for Environment and Heritage
DWLBC	Department of Water, Land and Biodiversity Conservation
EIR	Environmental Impact Report prepared in accordance with Section 97 of the Petroleum Act 2000 and Regulation 10.
EMS	Environmental Management System
EPA	Environment Protection Authority
EWP	Environmental Work Procedure (a component of the Construction Environmental Management Plan)
NRM Board	Natural Resources Management Board
PIRSA	Department of Primary Industries and Resources, South Australia
SEO	Statement of Environmental Objectives prepared in accordance with Section 99 and 100 of the <i>Petroleum Act 2000</i> and Regulations 12 and 13.

Appendix 1: Objectives and Assessment Criteria

Construction Objectives and Assessment Criteria¹

Objective	Goal	Guide to How Objectives Can Be Achieved ²	Assessment Criteria
<p>1. To avoid or minimise adverse impacts on soils and terrain</p>	<p>1.1 To minimise soil erosion and sedimentation as a result of pipeline construction</p>	<p>Alignment selection to avoid or minimise impacts on erodible soils and steep terrain</p> <p>Construction Environmental Management Plan (CEMP) contains environmental work procedures (EWP) that specify soil management and reinstatement requirements</p> <p>Implementation specific requirements based on soil type and erosion risk e.g. in gibber, minimise gibber disturbance, roll areas rather than clearing where traffic levels will not be high, carefully stockpile gibber and replace in reinstatement</p> <p>Preventative measures implemented and monitored in susceptible areas</p> <p>Erosion and sedimentation control structures installed and maintained in susceptible areas</p> <p>Records of induction/training regarding CEMP/EWP requirements</p> <p>Regular inspections of construction areas undertaken to look for evidence of erosion</p>	<p>The extent of soil erosion on the easement is consistent with surrounding land</p> <p>0, +1 or +2 GAS criteria are obtained for borrow pit construction and restoration, as listed in Appendix 2</p>
	<p>1.2 To prevent soil inversion</p>	<p>CEMP/EWP requirements include separate stockpiling of topsoil and sub-surface material during excavation</p> <p>Records of induction/training regarding CEMP/EWP requirements</p> <p>Reinstatement of stockpiles in appropriate order during backfill</p>	<p>No evidence of subsoil on surface (colour)</p>
	<p>1.3 To mitigate soil compaction if necessary by remedial action</p>	<p>Ripping of identified compacted areas where appropriate to soil type and erosion risk (i.e. generally avoid ripping in gibber)</p> <p>Regular inspections undertaken of easement and construction areas to look for evidence of soil compaction</p>	<p>No visual evidence of soil compaction following remediation of pipeline easement (e.g. hard soil, local water pooling)</p>

¹ Assessment criteria shown have been developed to be “black and white”. Professional judgement is required to assess whether non-compliance is minor or major. It is necessary to ensure that adequate information is available to enable this judgement to be made.

² This column is provided for information only. Under the *Petroleum Act 2000*, only objectives and assessment criteria are approved.

Objective	Goal	Guide to How Objectives Can Be Achieved ²	Assessment Criteria
	1.4 To reinstate soil and terrain as near as practicable to pre-construction contours and conditions	Implement reinstatement requirements specified in CEMP and EWP Records of induction/training regarding CEMP/EWP requirements Regular inspections undertaken of easement and construction areas Installation and monitoring of photo points (environmental monitoring points)	Surface contours consistent with adjacent land 0, +1 or +2 GAS criteria are obtained for borrow pit restoration, as listed in Appendix 2
2. To minimise and manage impacts to water resources	2.1 To minimise short term, and prevent long-term, interruption or modification to surface drainage patterns	Alignment selection to minimise impacts to water resources e.g. select watercourse crossing locations that minimise erosion potential and impacts to the watercourse Management requirements specified in CEMP/EWP Records of induction/training regarding CEMP/EWP requirements Installation and subsequent removal of appropriate temporary watercourse crossing measures Regular inspections undertaken of easement and construction areas specifically to look at watercourse crossings Installation and monitoring of photo points (environmental monitoring points)	No adverse impacts (for example to downstream ecology or land use) resulting from watercourse flow reductions or diversions as a result of pipeline construction activities No evidence of altered watercourse flows following reinstatement No evidence of project related erosion of watercourses intersecting or adjacent to the pipeline easement Surface drainage profiles restored Drainage is maintained to pre-existing conditions or better
	2.2 To minimise the amount of sediment entering surface water features	CEMP/EWP specify management requirements including: <ul style="list-style-type: none"> ▪ No stockpiling of materials in watercourses/flowlines (note: trench spoil may be stockpiled in dry watercourse beds for very short periods e.g. less than a day) ▪ Use of appropriate sediment and silt capturing devices ▪ Installation of permanent berms on slopes ▪ Minimising period between clearing and reinstatement at or near watercourses ▪ Stabilisation and reinstatement of watercourses and drainage lines Records of induction/training regarding CEMP/EWP requirements	Compliance with EPA <i>Environment Protection (Water Quality) Policy 2003</i>

Objective	Goal	Guide to How Objectives Can Be Achieved ²	Assessment Criteria
	2.3 To minimise disruption to third party use of surface waters	Alignment selection to avoid or minimise disturbance to third party uses e.g. stock watering points Liaison with third party users regarding potential disruptions Minimising period of disturbance and prompt reinstatement in sections of easement intersecting or adjacent to water bodies Installation and subsequent removal of appropriate temporary watercourse/water body protection measures to prevent flow interruptions	No reasonable complaints received from landholders or third party users in relation to use of surface waters
3. To avoid land or water contamination	3.1 To prevent spills occurring and if they occur minimise their impact	Regular inspections for evidence of soil or water discolouration, vegetation or fauna death Incident / Spill reports Use of spill protection methods where work is completed within or adjacent to environmentally sensitive areas Spill response/cleanup procedures, requiring spills to be: <ul style="list-style-type: none"> ▪ reported ▪ contained ▪ cleaned-up ▪ cause investigated and corrective and/or preventative action implemented Spills/contamination remediated in consultation with regulatory agencies and landholder Ensuring personnel are trained in spill response procedures Appropriate spill response equipment is available on site Compliance with fuel and hazardous waste standards Containment of all fuel, oil, hazardous substances and liquid waste in appropriate vessels/containment areas (e.g. polythene lined, bunded areas or on bunded pallets) Bunded areas must have sufficient freeboard (e.g. to hold a 1:100 year, 24hr rainfall event) Bunded areas in accordance with EPA guidelines <i>080/07 Bunding and Spill Management</i>	No soil or water contamination as a result of pipeline activities Compliance with Environment Protection Act

Objective	Goal	Guide to How Objectives Can Be Achieved ²	Assessment Criteria
	<p>3.2 To ensure that rubbish and waste material are disposed of in an appropriate manner</p>	<p>Waste management requirements specified in CEMP/EWP, including:</p> <ul style="list-style-type: none"> ▪ Provision of covered bins for the collection, storage and transport of wastes ▪ Waste disposal at an approved waste facility <p>Regular inspection to look for evidence of rubbish, spills (soil discolouration)</p> <p>Waste disposal records, chemical manifests. Appropriately licensed contractors used for any hazardous waste disposal and records are maintained for all hazardous waste disposal</p>	<p>No pipeline related rubbish or litter on easement or at facilities or on surrounding land</p> <p>Waste material is contained and disposed of in accordance with Environment Protection Act</p>
	<p>3.3 To prevent impacts as a result of hydrotest water, trench water and waste water (e.g. washdown water) disposal</p>	<p>Water disposed of in a manner that prevented discharge or runoff to watercourses or environmentally sensitive areas</p> <p>Water discharged onto stable ground, with no evidence of erosion as a result of discharge</p> <p>Records on source of water and discharge method/location</p> <p>Investigation of water quality prior to release/disposal of trench water and waste water. Testing of hydrotest water if potentially harmful chemicals added.</p> <p>Inspection of water disposal sites for evidence of water entering a watercourse or environmentally sensitive area</p>	<p>Discharge water meets appropriate ANZECC and EPA criteria for point of disposal</p> <p>No evidence of impacts to soil, water and vegetation as a result of water disposal (e.g. soil erosion, dead vegetation, water discoloration)</p>
	<p>3.4 To ensure the safe and appropriate disposal of camp wastewater (grey water, sewage)</p>	<p>All wastewater disposed in accordance with the <i>Public and Environmental Health (Waste Control) Regulations 1995</i> (i.e. the waste water disposal system must either comply with the <i>Standard for the Construction, Installation and Operation of Septic Tank Systems in SA</i> or be operated to the satisfaction of the Department of Health)</p> <p>Treated sewage wastewater disposed of onto land, well away from any place from which it is reasonably likely to enter any waters</p>	<p>No evidence of non-compliance with local or state government regulations</p>

Objective	Goal	Guide to How Objectives Can Be Achieved ²	Assessment Criteria
<p>4. To minimise adverse impacts to vegetation and fauna</p>	<p>4.1 To minimise clearing of remnant vegetation</p>	<p>Alignment selection to minimise crossings of drainage lines and ephemeral wetlands and avoid or minimise impacts to vegetation with high habitat values (e.g. large trees) CEMP and alignment sheets identify remnant vegetation requiring management / avoidance Flagging/markings of remnant vegetation requiring management / avoidance Retain trees on ROW where possible Trim vegetation in lieu of removal where possible Restrict disturbance to the ROW and approved access and work areas Reduction of ROW width during construction in identified significant areas Obtain any permits / clearance consent required</p>	<p>Vegetation clearing is in accordance with the <i>Native Vegetation Act 1991</i> Vegetation clearance minimised No unauthorised clearance of flora identified to be retained 0, +1 or +2 GAS criteria are obtained for borrow pit construction and restoration, as listed in Appendix 2</p>
	<p>4.2 To minimise disturbance to fauna</p>	<p>Implement previous measures to minimise impacts to native vegetation Identification and flagging of significant fauna habitats (e.g. large trees) that require management/avoidance during construction and implementation of management requirements Alignment selection to minimise/avoid impacts to important habitats Provision of fauna ramps at regular intervals in open trench Daily inspection of open trenches and removal and identification recording of trapped fauna by appropriately trained and experienced biologists Prompt reinstatement of easement Borrow pits are restored to minimise water holding capacity where agreements are not in place with stakeholders No domestic pets allowed at camps or worksites No feeding of wildlife (e.g. dingoes)</p>	<p>Native fauna casualties associated with construction restricted to as low as reasonably practical</p>

Objective	Goal	Guide to How Objectives Can Be Achieved ²	Assessment Criteria
	<p>4.3 To appropriately rehabilitate the easement to pre-construction condition, as reasonably practical</p>	<p>Implement reinstatement requirements specified in CEMP and EWP Timely response to rehabilitation Installation and monitoring of photo points (environmental monitoring points)</p>	<p>Vegetation on the easement is reasonably consistent with the surrounding areas Note: assessment of the consistency with surrounding areas will take into account that regrowth is a time and rainfall dependent process 0, +1 or +2 GAS criteria are obtained for borrow pit restoration, as listed in Appendix 2 No reasonable complaints received from landholders in relation to regrowth of vegetation on the easement</p>
	<p>4.4 To achieve a significant environmental benefit for native vegetation clearance</p>	<p>Work (or payment to Native Vegetation Fund) undertaken to achieve a significant environmental benefit, as required by Native Vegetation Regulation 5(1)(zd) Significant environmental benefit requirement either:</p> <ul style="list-style-type: none"> ▪ determined using the “Methodology for calculating total SEB requirements” outlined in the Guidelines³, or ▪ negotiated with the Native Vegetation Council where SEB calculation differs from the standard methodology in the Guidelines. (Note: The Guidelines have provision for case-by-case assessment of significant environmental benefit by the NVC in some circumstances e.g. where SEB capping or additional mitigation measures apply) 	<p>Significant environmental benefit approved by PIRSA (where delegated authority applies) or Native Vegetation Council Significant environmental benefit obligation satisfied / implemented</p>
<p>5. To avoid the spread of weeds and pathogens</p>	<p>5.1 To avoid the introduction or spread of weeds and pathogens and undertake control where required</p>	<p>Vehicles and machinery cleaned and inspected before entry to project area Identification of weeds and pathogens on easement and adjacent land Implementation of control measures of weeds and pathogens on easement and liaison with the regional NRM Board and the landholder as necessary Records of outbreaks found, weed control activities and photo-monitoring of significant outbreaks Vehicle cleaning/washdown register</p>	<p>The presence of weeds on the easement is consistent with or better than adjacent land No new outbreak or spread of weeds or pathogens as a result of pipeline activities</p>

³ Guidelines For a Native Vegetation Significant Environmental Benefit Policy For the clearance of native vegetation associated with the minerals and petroleum industry

Objective	Goal	Guide to How Objectives Can Be Achieved ²	Assessment Criteria
6. To minimise and manage impacts to heritage sites and values during construction	6.1 To ensure that identified heritage sites are not disturbed	<p>Alignment selection to avoid heritage sites, including archaeological and ethnographic heritage, built heritage and culturally significant vegetation</p> <p>Identification of known heritage sites on easement prior to construction</p> <p>Measures undertaken to protect heritage sites on or near the easement</p> <p>Implement appropriate protocols for dealing with accidental discovery of cultural heritage material during construction</p> <p>Obtain all necessary approvals in the event of an accidental/unavoidable site disturbance</p> <p>Seek advice from relevant authorities for remediation of site, if required</p> <p>Induction/training to include heritage management requirements</p> <p>Incident reports</p>	<p>No impact to known sites without approval under the <i>Aboriginal Heritage Act 1998</i> or the <i>Heritage Places Act 1993</i></p> <p>Any new sites identified are reported to appropriate authority and recorded</p> <p>0, +1 or +2 GAS criteria are obtained for borrow pit construction and restoration, as listed in Appendix 2</p>
7. To minimise noise due to construction	7.1 To minimise noise impacts associated with the movement and operation of construction vehicles and equipment	<p>Regular maintenance of construction vehicles and equipment</p> <p>Incident reports</p>	No reasonable complaints received
8. To minimise atmospheric emissions	8.1 To minimise the generation of dust	<p>Management requirements specified in CEMP/EWP including use of water trucks and sprayers if necessary</p> <p>Records of induction/training regarding CEMP/EWP requirements</p> <p>Incident reports</p>	No reasonable complaints received

Objective	Goal	Guide to How Objectives Can Be Achieved ²	Assessment Criteria
<p>9. To minimise disturbance to third party infrastructure, landholders and landuse</p>	<p>9.1 To minimise disturbance or damage to infrastructure / land use and remediate where disturbance cannot be avoided</p>	<p>Alignment selection to avoid or minimise impacts to infrastructure / land use and visual impact</p> <p>Formal easement agreements outlining the legal responsibilities of Epic Energy and landholders</p> <p>Management requirements specified in CEMP/EWP</p> <p>Restrict disturbance to the ROW and approved access and work areas</p> <p>Identification of utilities present on or near the easement on alignment sheets</p> <p>Records of communications with landholders / third party prior to and during construction activities</p> <p>Incident reports</p> <p>Compliance with the <i>National Parks and Wildlife Act 1972</i> and Regulations pertaining to correct conduct in a Regional Reserve</p> <p>No pets or firearms brought into Regional Reserve</p> <p>Management of fuel, oil and spills (if they occur) to meet landholder requirements for Quality Assurance programs (e.g. Cattlecare)</p>	<p>Where disturbance is unavoidable or accidental, infrastructure or land use is restored to the satisfaction of the landholder/owner or as near as practicable to undisturbed condition</p> <p>Duration of disturbance does not exceed agreed timeframe</p> <p>No disturbance outside the ROW and approved access and work areas</p> <p>No reasonable complaints received</p> <p>Adverse impacts to Innamincka Regional Reserve operations or conservation values are minimised</p>
	<p>9.2 To minimise disturbance to landholders</p>	<p>Restrict disturbance to the ROW and approved access and work areas</p> <p>Landholder activities not restricted as a result of pipeline activities</p> <p>Records of communications with landholders / third party prior to and during construction activities</p>	<p>No reasonable landholder complaints</p> <p>Landholder activities not restricted or disturbed as a result of pipeline activities unless by prior arrangement</p>
	<p>9.3 To appropriately reinstate and rehabilitate the easement to allow continuation of current land use activities post-construction</p>	<p>Management requirements specified in CEMP and property line list</p> <p>Reinstatement of easement in accordance with CEMP/EWP</p> <p>Records of communications with landholders prior to and during construction activities</p> <p>Installation and monitoring of photo points (environmental monitoring points)</p>	<p>Species abundance and distribution on the easement is reasonably consistent with surrounding areas</p> <p>Note: assessment of the consistency with surrounding areas will take into account that regrowth is a time and rainfall dependent process</p>

Objective	Goal	Guide to How Objectives Can Be Achieved ²	Assessment Criteria
10. To minimise the risk to public health and safety	10.1 To adequately protect public safety during construction	Job Hazard Analysis Records of communications with adjacent landholder and third parties prior to and during construction work including advice of the nature and schedule of activities Use of signage or bunting to identify all potentially hazardous areas Site induction program for all personnel / visitors Adequate implementation of traffic management practices Records of Fitness for Purpose Reports, Risk Assessment and inspections Records demonstrating compliance with AS2885 Records of emergency response plan induction/training for construction personnel Incident Reports	No injuries or incidents involving the public
	10.2 To avoid fires associated with pipeline construction activities	Records of regular fire safety and emergency response training for construction personnel Appropriate fire prevention/control equipment on site Incident Reports	No pipeline construction related fires

Operations Objectives and Assessment Criteria⁴

Objective	Goal	Guide to How Objectives Can Be Achieved ⁵	Assessment Criteria
11. To maintain soil stability / integrity on the easement	11.1 To remediate erosion or subsidence as a result of pipeline operations in a timely manner	Timed photo points or regular land survey, specifically to look at evidence of erosion, subsidence, vegetation loss on easement & compare to adjacent land Inspections undertaken as part of regular patrols, following specific works, following significant storm events Preventative measures implemented and monitored in susceptible areas	No unremediated subsidence The extent of soil erosion on the easement is consistent with surrounding land No excessive erosion on areas adjacent to corridor as a result of easement 0, +1 or +2 GAS criteria are obtained for borrow pit restoration, as listed in Appendix 2
	11.2 To prevent soil inversion	Annual land survey to look for soil discolouration, success of vegetation return as an indicator. Disturbance checklist signed off to indicate top soil/subsoil are stockpiled separately and soil profiles appropriately reinstated following the re-instatement of works/excavations	Vegetation cover is consistent with surrounding land No evidence of subsoil on surface (colour)
12. To minimise and manage impacts to water resources	12.1 To maintain current surface drainage patterns	Regular patrols and survey undertaken to look for evidence of erosion, windrow development, abnormal vegetation growth or death or any changes to the easement which could change surface hydrology conditions, particularly in the Strzelecki Creek wetland area Observations also to be undertaken following significant storm events Use of disturbance checklist and photo points before, during & after excavations, CP installation, construction activities, etc	For excavations, surface drainage profiles restored For existing easement, drainage is maintained to pre-existing conditions or better
	12.2 To minimise disruption to third party use of surface waters	Minimising period of disturbance for any excavation or land disturbance and prompt reinstatement of easement in sections of easement intersecting or adjacent to water bodies Installation and subsequent removal of appropriate temporary watercourse/water body protection measures to prevent flow interruptions	No reasonable complaints received from landholders or third party users in relation to use of surface waters

⁴ Assessment criteria shown have been developed to be “black and white”. Professional judgement is required to assess whether non-compliance is minor or major. It is necessary to ensure that adequate information is available to enable this judgement to be made.

⁵ This column is provided for information only. Under the *Petroleum Act 2000*, only objectives and assessment criteria are approved.

Objective	Goal	Guide to How Objectives Can Be Achieved ⁵	Assessment Criteria
<p>13. To avoid land or water contamination</p>	<p>13.1 To prevent spills occurring and if they occur minimise their impact</p>	<p>Prevention program including pigging, intelligent pigging and pipe maintenance</p> <p>Regular patrols undertaken to look for evidence of soil or water discolouration, vegetation or fauna death</p> <p>Incident / Spill reports</p> <p>Use of spill protection methods where work is completed within or adjacent to environmentally sensitive areas</p> <p>Spill response/cleanup procedures, requiring spills to be:</p> <ul style="list-style-type: none"> ▪ reported ▪ contained ▪ cleaned-up ▪ cause investigated and corrective and/or preventative action implemented <p>Spills/contamination remediated in consultation with regulatory agencies and landholder</p> <p>Ensuring personnel are trained in spill response procedures</p> <p>Appropriate spill response equipment is available on site</p> <p>Compliance with fuel and hazardous waste standards</p> <p>Containment of all hazardous substances and liquid waste in appropriate vessels/containment areas</p> <p>Bunded areas in accordance with EPA guidelines <i>080/07 Bunding and Spill Management</i></p>	<p>No soil or water contamination as a result of pipeline activities</p> <p>Compliance with Environment Protection Act</p>
	<p>13.2 To ensure that rubbish and waste material are disposed of in an appropriate manner</p>	<p>Regular patrols or annual survey undertaken to look for evidence of rubbish, spills (soil discolouration)</p> <p>Waste disposal records, chemical manifests. Appropriately licensed contractors used for any hazardous waste disposal and records are maintained for all hazardous waste disposal</p> <p>Use of photo points before, during & after excavations, CP installation, construction activities etc</p>	<p>No pipeline related rubbish or litter on easement or at facilities or on surrounding land</p> <p>Waste material is contained and disposed of in accordance with Epic approved procedures and Environment Protection Act</p>

Objective	Goal	Guide to How Objectives Can Be Achieved ⁵	Assessment Criteria
	<p>13.3 To prevent impacts as a result of hydrotest water, trench water and waste water (e.g. washdown water) disposal</p>	<p>Water disposed of in a manner that prevented discharge or runoff to watercourses or environmentally sensitive areas</p> <p>Water discharged onto stable ground, with no evidence of erosion as a result of discharge</p> <p>Records on source of water and discharge method/location</p> <p>Investigation of water quality prior to release/disposal of trench water and waste water. Testing of hydrotest water if potentially harmful chemicals added.</p> <p>Inspection of water disposal sites for evidence of water entering a watercourse or environmentally sensitive area</p>	<p>Discharge water meets appropriate ANZECC and EPA criteria for point of disposal</p> <p>No evidence of impacts to soil, water and vegetation as a result of water disposal (e.g. soil erosion, dead vegetation, water discoloration)</p>
	<p>13.4 To ensure the safe and appropriate disposal of camp wastewater (grey water, sewage)</p>	<p>All wastewater disposed in accordance with the <i>Public and Environmental Health (Waste Control) Regulations 1995</i> (i.e. the waste water disposal system must either comply with the <i>Standard for the Construction, Installation and Operation of Septic Tank Systems in SA</i> or be operated to the satisfaction of the Department of Health)</p> <p>Treated sewage wastewater disposed of onto land, well away from any place from which it is reasonably likely to enter any waters</p>	<p>No evidence of non-compliance with local or state government regulations.</p>
<p>14. To promote and maintain native vegetation cover on the easement</p>	<p>14.1 To promote and maintain regrowth on the easement to be consistent with surrounding area</p>	<p>Annual land survey to assess vegetation rehabilitation and look for evidence of disturbance to vegetation on easement (apart from access tracks)</p> <p>Disturbance Checklist (including timed and photos) signed off to indicate adequate steps taken to facilitate regrowth</p> <p>Follow-up rehabilitation work undertaken where natural regeneration is inadequate</p>	<p>Species abundance and distribution on the easement is reasonably consistent with surrounding areas</p> <p>Note: assessment of the consistency with surrounding areas will take into account that regrowth is a time and rainfall dependent process</p> <p>0, +1 or +2 GAS criteria are obtained for borrow pit restoration, as listed in Appendix 2</p>
	<p>14.2 To minimise additional clearing of native vegetation as part of operational activities</p>	<p>Annual land survey to look for evidence of disturbance to vegetation on easement (apart from access tracks)</p> <p>Use of Disturbance Checklist and photo points before, during & after any excavation or land disturbance activity</p> <p>Vegetation trimmed rather than cleared where possible</p> <p>Consideration of sensitive vegetation, including large old trees, during vegetation trimming and / or clearing activities</p> <p>Obtain any clearance consent required</p>	<p>Vegetation clearing within the easement or on land adjacent to the easement is limited to previously disturbed areas, unless prior regulatory approval obtained under the <i>Native Vegetation Act 1991</i></p>

Objective	Goal	Guide to How Objectives Can Be Achieved ⁵	Assessment Criteria
	14.3 To ensure maintenance activities are planned and conducted in a manner that minimises impacts on native fauna	Use of Disturbance Checklist and photo points before, during & after any excavation or land disturbance activity In the event of excavations, open trenches monitored regularly and left open for the minimum time practical Procedures or management plans implemented for significant fauna species Provision of fauna ramps at regular intervals in open trench Daily inspection of open trenches in areas adjacent to remnant vegetation Prompt reinstatement of easement	Native fauna casualties associated with operations restricted to as low as reasonably practical
15. To avoid the spread of weeds and pathogens	15.1 To ensure that weeds and pathogens are controlled at a level that is at least consistent with adjacent land	Regular patrols undertaken to look for evidence of weeds on easement and adjacent land (if weeds on easement but not adjacent land must implement control to prevent spread) Implementation of control measures of weeds and pathogens on easement in consultation with the regional NRM Board and the landholder as necessary Records of any outbreaks found, weed control activities and photo-monitoring of significant outbreaks Vehicle cleaning/washdown register	The presence of weeds on the easement is consistent with or better than adjacent land No new outbreak or spread of weeds or pathogens as a result of pipeline activities
16. To adequately protect heritage sites and values during operations and maintenance	16.1 To ensure that identified heritage sites are not disturbed	Consultation with relevant heritage groups if operations occurring outside known surveyed areas Site examined for cultural heritage material prior to work involving disturbance outside known surveyed areas Records of site locations in Operations GIS Use of Disturbance Checklist and photo points before, during & after any excavation or land disturbance activity Measures undertaken to protect heritage sites on or near the easement Implement appropriate protocols for dealing with accidental discovery of cultural heritage material during operations	No impact to known heritage sites without approval under the <i>Aboriginal Heritage Act 1998</i> or the <i>Heritage Places Act 1993</i> Any new sites identified are reported to appropriate authority and recorded
17. To minimise noise due to operations	17.1 To ensure operations comply with noise standards	Design any facilities to meet the noise requirements under the Environment Protection Act Incident reports Monitoring results, where deemed necessary (e.g. frequent complaints)	No reasonable complaints received

Objective	Goal	Guide to How Objectives Can Be Achieved ⁵	Assessment Criteria
18. To minimise atmospheric emissions	18.1 To eliminate uncontrolled atmospheric emissions	Maintenance procedures Incident reports	No uncontrolled atmospheric emissions (e.g. due to malfunction or mis-operation)
	18.2 To minimise the generation of dust	Compliance with EMS and operations procedures Incident reports	No reasonable complaints received
19. To avoid unnecessary disturbance to third party infrastructure, landholders or landuse	19.1 To minimise disturbance or damage to infrastructure / land use and remediate where disturbance cannot be avoided	Incident reports Records of communications with adjacent landholders / third party prior to and during maintenance work Landholder contact records database Use of Disturbance Checklist (including photo points) or inspection reports, specifically to look at: removal of waste products, re-instatement of soil profiles, adequate re-contouring of surface profile, return of land use Compliance with the <i>National Parks and Wildlife Act 1972</i> and Regulations pertaining to correct conduct in a Regional Reserve Measures undertaken to minimise third party use right-of-way where necessary No pets or firearms brought into Regional Reserve Management of fuel, oil and spills (if they occur) to meet landholder requirements for Quality Assurance programs (e.g. Cattlecare)	Where disturbance is unavoidable or accidental, infrastructure or land use is restored to the satisfaction of the landholder or as near as practicable to undisturbed condition Duration of disturbance does not exceed agreed timeframe No reasonable complaints received
	19.2 To minimise disturbance to landholders	Records of communications with adjacent landholders / third party prior to and during maintenance work Landholder contact records database Landholder activities not restricted as a result of pipeline activities Use of Disturbance Checklist and photo points	No reasonable landholder complaints Landholder activities not restricted or disturbed as a result of pipeline activities unless by prior arrangement

Objective	Goal	Guide to How Objectives Can Be Achieved ⁵	Assessment Criteria
20. To minimise the risk to public health and safety	20.1 To adequately protect public safety during operations	Job Hazard Analysis Records of Annual Reports, Fitness for Purpose Reports, Risk Assessments and inspections Records of communications with adjacent landholder prior to and during maintenance work including advice of the nature and schedule of maintenance activities Adequate implementation of traffic management practices Records demonstrating compliance with AS2885 Use of signage or bunting to identify all potentially hazardous areas Records of regular emergency response training for employees and review of procedures Incident Reports	No injuries or incidents involving the public
	20.2 To avoid fires associated with pipeline maintenance activities	Incident reports Records of regular fire safety and emergency response training for all operations personnel and review of procedures Established procedures for minimising fire risk during maintenance	No pipeline related fires
	20.3 To prevent unauthorised activity on the easement that may adversely impact on the pipeline integrity	Inspection / Patrol reports and records Comprehensive landholder liaison program and records of communications with landholders Community education program and 'Dial before you dig' number available and widely advertised Clear identification of the pipeline by signs installed in accordance with AS2885 All reports of unauthorized activity are reported and investigated	No unauthorised activity on the easement that has the potential to impact on the pipeline integrity

Decommissioning Objectives and Assessment Criteria⁶

Objective	Goal	Guide to How Objectives Can Be Achieved ⁷	Assessment Criteria
21. To appropriately decommission the pipeline in accordance with regulatory requirements and accepted best practice environmental management	21.1 To safely decommission the pipeline and associated above-ground infrastructure in accordance with appropriate regulatory requirements	Records of consultation with appropriate regulatory authorities and industry associations Incident reports No above-ground infrastructure evident	Pipeline and associated above-ground infrastructure decommissioned to an appropriate standard as required by the legislation and standards of the day
	21.2 To minimise disturbance to landholder and other third party stakeholders	Records of communications with adjacent landholders / third parties prior to and during maintenance work Landholder activities not restricted as a result of pipeline activities	No reasonable landholder complaints Landholder activities not restricted or disturbed as a result of pipeline activities unless by prior arrangement

⁶ Assessment criteria shown have been developed to be “black and white”. Professional judgement is required to assess whether non-compliance is minor or major. It is necessary to ensure that adequate information is available to enable this judgement to be made.

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Appendix 2:

Goal Attainment Scaling Criteria for Borrow Pit Construction and Restoration

Table 2-1: Goal Attainment Scaling (GAS) Criteria for Borrow Pit⁹ Construction and Restoration

Objectives	Goals	Goal Exceeded +2	Goal Exceeded +1	Goal Attained 0	Minor Shortfall - 1	Significant Shortfall - 2
CONSTRUCTION						
Minimise impacts on vegetation	Perennial vegetation clearance minimised	No trees or other vegetation removed	No trees were removed, only other vegetation	Trees and other vegetation were removed where removal could not have been avoided	Trees with trunk diameters between 20 & 50cm were removed	Trees with trunk diameters >50cm were removed
Protect sites of natural, scientific, or heritage significance	Avoid sites	Sites identified, flagged and avoided by 100m	Sites identified, flagged and avoided by 30m	Sites identified, flagged and avoided		Sites disturbed
Minimise visual impacts	Site pit appropriately	Borrow pit not visible from road	Borrow pit shielded from road by utilizing screening vegetation or landform	Borrow pit more than 10m from track or 50m from public road Visible from road due to lack of screening vegetation	Borrow pit less than 10m from track or less than 50m from public road	Borrow pit less than 5m from track or less than 20m from public road
RESTORATION						
Minimise impacts on vegetation	Acceptable revegetation after rainfall	Vegetation type and density indistinguishable from surrounding landscape	Vegetation type and density only slightly distinguishable from surrounding landscape	Perennial grasses and shrubs revegetated, type consistent with surroundings. Some bare patches still present Vegetation cover uniform over base and sides of pit	Revegetation localised on the base of the pit but none or very little on the sides of the pit	No revegetation evident
Minimise impact on soil	Minimise erosion	No erosion anywhere on the pit	Insignificant erosion along the sides of the pit	Minor erosion along the sides of the pit	Moderate erosion	Severe erosion evident
Minimise visual impacts	Borrow pit effectively re-contoured and ripped	Pit contours indistinguishable from surrounding landscape. Access ripped	Pit contours blend well into surrounding landscape, although still evident	Pit sides battered and ripped along the contour, but pit outline visible Topsoil and vegetation respread over disturbed area	Pit sides battered but not ripped	No re-contouring of pit has occurred – pit sides are very steep Topsoil and vegetation not respread
Site to be left in a clean and tidy condition	Rubbish removed			No evidence of litter	Small items of litter present on site	Large items of litter present

⁹ Borrow pit refers to excavations for extracting material which occur in relatively flat areas as well as excavations for sand extraction on dune slopes