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1 Introduction

1.1 Background

AGI Operations Pty Limited propose to construct and operate of a gas processing plant and pipeline near Dongara, Western Australia collectively referred to as the West Erregulla Gas Project (WER). The gas processing plant will process gas produced by Warrego Energy and Strike Energy from upstream wells. The processed gas will then be transported via a new interconnecting pipeline to tie into the Dampier to Bunbury Natural Gas Pipeline (DBNGP). The Proposed Action includes:

- A West Erregulla gas processing facility (WEF), with a nominal design flow capacity of 87 terajoules per day (TJ/d);
- A 16.5 km interconnecting buried gas pipeline between the WEF and the DBNGP tie-in point (WEP);
- A West Erregulla Custody Transfer metering facility (WEM) located at the Main Line Valve Compound MLV93 on the DBNGP approximately 400km North of Perth;
- Supporting infrastructure proposed to include but not limited to power generation, flare system, water treatment package, water evaporation pond, back-up diesel system, and communications within the WEF; and
- An onsite office facility and small self-contained accommodation unit to be installed as part of the project to support the plant operational needs.

A Development Envelope of 213 ha was surveyed to ensure siting to minimise environmental impacts. Total proposed disturbance is 90 hectares (ha). A breakdown of the disturbance footprint is outlined in Table 4-1.

A Construction Environmental Management Plan (CEMP - this plan) has been developed as part of the referral of the project for approval under the *Environmental Protection Act 1986*.

A pipeline license will also be requested under the Western Australian (WA) *Petroleum Pipelines Act 1969* (PP Act) to allow the pipeline to be operate.

The *Petroleum Pipelines (Environment) Regulations 2012* (the Regulations) require the development and implementation of an Environment Plan (EP) to the satisfaction of the Department of Mines, Industry Regulation and Safety (DMIRS). This Plan has been prepared to satisfy this requirement.

1.2 Proponent

The proponent and nominated operator is AGI Operations Pty Limited (AGIO), a related company to DBNGP Nominees (WA) Pty Ltd, the owner of the DBNGP. In future AGIO may nominate a related entity to own and operate the pipeline, which will also be the pipeline licence holder (pending DMIRS approval) and the grantee of all relevant land tenure and other licences or permits required for the Project.

AGIO is part of the Australian Gas Infrastucture Group (AGIG) and is a wholly owned subsidiary of a consortium comprising CK Infrastructure Holdings Limited, CK Asset Holdings Limited and Power Asset Holdings Limited, all of which are listed companies on the Hong Kong Stock Exchange having a combined market capitalisation of approximately A$84 billion (together the CKI Consortium) (refer Figure 1-1).

AGIO relies on the services of DBNGP (WA) Nominees Pty Ltd (DBP), the owner of the DBNGP, for the provision of labour and equipment to undertake its business. In this regard, AGIO adopts all AGIG and DBP policies and procedures across the operation of its business. The AGIG Vision and Values are incorporated in Figure 1-2.

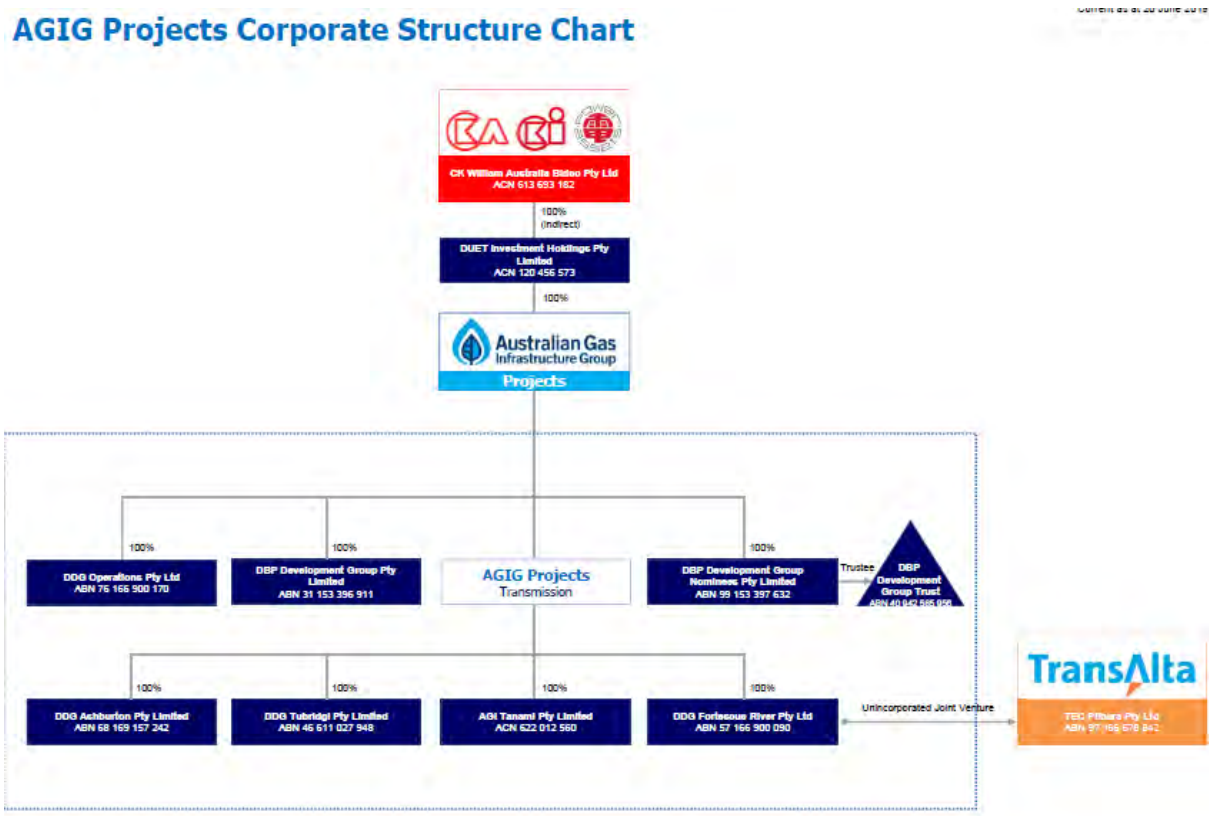

Figure 1-1 AGIG Projects Corporate Structure

Figure 1-2 AGIG Vision and Values

1.3 Objective

The objective of the WER CEMP is to demonstrate that AGIO provides and maintains an effective environmental management system that is capable of systematically and continually identifying, assessing and managing environmental aspects arising from the operation of the WER. The CEMP aims to establish suitable controls so as to eliminate or minimise the risks to environment to a level that is low, negligible or reduced to as low as is reasonably practicable (ALARP). The CEMP further seeks to provide a framework for measuring environmental performance against legislative requirements and internal policies and standards.

In order to achieve this overarching objective, the CEMP specifically aims to:

- Establish a set of performance standards and associated measurement criteria to inform the development of specific environmental controls procedures;
- Provide rational and practical environmental guidelines for the construction and operation of the WER, to ensure activities do not adversely affect adjacent environmental values;
- Ensure that any potential environmental impacts from the WER are managed in accordance with legislative requirements; and
- Develop environmental guidelines for conducting staff induction and training.

This CEMP is a dynamic document and when necessary it will be updated in consultation with the relevant regulatory authorities to account for changes in:

- Organisational structure and responsibility;
- Environmental management and standard operating procedures;
- New technologies;
- Legislation; and the
- AGIG Environmental Policy (Appendix A)

1.4 Scope

The scope of this CEMP includes all activities conducted by AGIO and its contractors in conducting pipeline operations under the relevant approvals. This CEMP has been developed to meet requirements of a CEMP assessed by the Environmental Protection Authority (EPA) under the Environmental Protection Act 1986 (EP Act), and an Environment Plan (EP) assessed by DMIRS under the *Petroleum Pipelines Act 1969.*

This CEMP also includes operational activities and controls (Sections 4 and 6) to outline the controls used throughout construction and operations.

In summary, this CEMP has been prepared in accordance with the following legislation and guidelines:

- *Guideline for the Development of Petroleum and Geothermal Environment Plans in Western Australia* (November 2016)
- *Instructions on how to prepare Environmental Protection Act 1986* (EP Act) *Part IV Environmental Management Plans* (September 2020)
- *Petroleum and Geothermal Resources (Environment) Regulations 2012*
- *Petroleum (Submerged Lands) (Environment) Regulations 2012*
- *Petroleum Pipelines (Environment) Regulations 2012*
- *Environmental Protection Act 1986.*

The CEMP should be read in conjunction with the following AGIO WER key management documents:

- WER Safety Report (Major Hazard Facility)
- WER Safety Case
- WER Asset Management Plan
- WER Asset Maintenance Plan
- WER Emergency Response Manual

For the purposes of this CEMP, DMIRS shall be advised at the commencement of operations (when this plan comes into effect) and at the cessation of activities. The design life of the pipeline is 60 years and the plant is 20 years. An Operations Environment Plan shall be developed for DMIRS approval towards completion of construction to ensure all operational environmental risks are minimised and controlled.

The Proposed Action is associated with the existing West Erregulla gas field activities and will operate within the same environment however this is not included in the Scope of this CEMP as this will be constructed and operated by a third party.

1.5 Location

Figure 1-3 outlines the location of the proposed project. The Proposed Action is located in the mid-west region of Western Australia approximately 350 km north of Perth and within the Shire of Irwin and the Shire of Three Springs. The Proposed Action is predominately situated in parcels of coastal scrub heath on sandplains. The Yardanogo Nature Reserve (approximately 4 km) and Beekeepers Nature Reserve (approximately 15 km) are located to the southwest of the Development Envelope.

The nearest population centres include Mingenew and Dongara, located approximately 25 km north-east (approximately 35 km by road) and approximately 30 km north-west (approximately 70 km by road) from the Proposed Action respectively.

Existing land uses in the region are petroleum and mineral exploration and operations, conservation, tourism and agricultural activities.

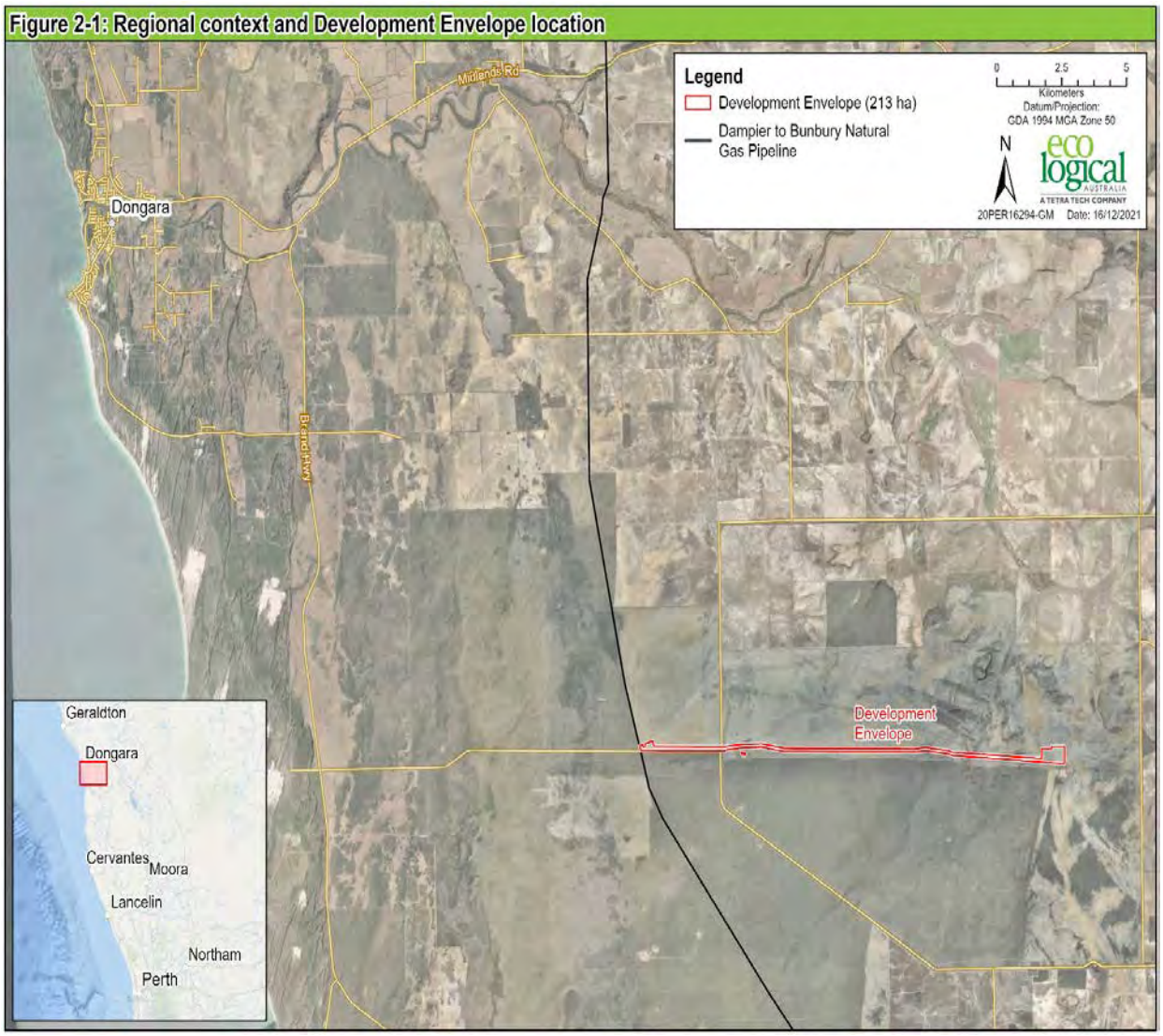

Figure 1-3 Location Map of the West Erregulla Gas Processing Plant and Pipeline

2. Environmental Management Framework

2.1 Policy

AGIG has a corporate culture which strives for Health, Safety and Environment (HSE) excellence driven by a corporate commitment to protect people and the environment. Central to this are the AGIG Health and Safety Policy and the Environmental Policy which are signed and endorsed by the Chief Executive Officer (CEO). This is supported by a Statement of Commitment signed by the AGIG Executive Team, and a set of core principles, called Zero Harm Principles which are aimed at establishing principles for undertaking activities that have been assessed as having the highest risk to AGIG and its workforce.

The relevant goals of the Environmental Policy are to:

- Conduct environmentally responsible operations to minimise environmental harm wherever possible;
- Create a culture and environment where every employee is personally committed to managing impact to the environment; and
- Act consistently with AGIG's values, including working in a safe and professional manner.

AGIG seeks to achieve these goals by:

- Embedding environmental considerations into business decisions and processes.
- Promoting environmental awareness and fostering a culture of respect for ecological values.
- Effectively consulting with our employees, contractors and key stakeholders on environmental matters and establishing an escalation mechanism for matters requiring management intervention.
- Driving a culture where employees and contractors take ownership and are accountable for environmental performance.
- Developing processes and systems to identify, assess and control environmental risks and to ensure the management of risk to as low as reasonably practicable.
- Establishing and maintaining pragmatic and flexible environmental management systems that are tailored to our risks, drives achievement of our vision and are regularly reviewed for currency, relevance and effectiveness.
- Allocating the appropriate resources and providing the necessary information, instruction, training and supervision to enable implementation of the environmental management systems.
- Effectively reporting, recording and investigating environmental incidents and near misses in the workplace and taking proactive measures to prevent recurrence.
- Maintaining preparedness to respond promptly to environmental incidents to mitigate the nature and scale of unintended impacts.
- Setting, monitoring and communicating meaningful performance measures to drive continuous improvement.
- Regularly auditing our operations to monitor compliance with statutory obligations and conducting accurate and transparent reporting on any findings.

A copy of the AGIG Environmental Policy and Statement of Commitment is provided in Appendix A.

The AGIG Environmental Policy is reviewed every two years, or when there is a significant change to the organisation or its activities, to ensure that the policy remains comprehensive

and current. Employees are consulted during the review process through a number of mechanisms including HSE Committees.

2.2 Structure and Responsibility

All staff are responsible for the environmental performance of their activities and for reporting any environmental hazards and incidents. Environmental responsibilities for staff and contractors are contained within position descriptions, relevant procedures and work instructions. Overarching environmental roles are described in Table 2-1 below and specific environmental responsibilities are addressed in Section 6. Although subject to change from time to time, a copy of the organisational structure current at the time of document submission is contained in Appendix B.

Table 2-1 Key Environmental Responsibilities

Position Title	Environmental Responsibilities
Executive Management Team	▪ Hold overall responsibility for environmental management of the WER ▪ Review, understand, approve and support implementation of this plan ▪ Ensure adequate resources are provided for the implementation of this plan
Executive General Manager Transmission Asset Management (EGM TAM)	▪ Ensure that environmental obligations are embedded into design of the WER and AGIG's systems and processes for satisfying compliance and due diligence requirements ▪ Ensure that proposed project additions and alterations obtain all necessary environmental approvals ▪ Manage and coordinate emergency response in accordance with the WER Emergency Response Plan
Executive General Manager Transmission Operations (EGM TO)	▪ Ensure that environmental obligations are embedded into the DBNGP and DBP's systems and processes for satisfying compliance and due diligence requirements ▪ Ensure operations personnel are adequately trained to carry out their environmental duties ▪ Facilitate the implementation of this plan in relation to operational activities ▪ Ensure incident reporting protocols are communicated and adhered to ▪ Respond to environmental incidents as required ▪ Remediate contaminated sites ▪ Maintain the corridor in accordance with this CEMP and relevant Pipeline Operating Polices and Standard Operating Procedures. ▪ Conduct Pipeline Ground Patrols ▪ Oversee completion of emergency response exercises annually ▪ Maintain spill response and emergency equipment ▪ Maintain full written records of all inspections, corridor works, surveys and checks ▪ Ensure Aerial Surveillance activities are undertaken as per CEMP requirements
Executive General Manager Commercial (EGM Comm)	▪ Ensure environmental obligations are embedded into the operation and despatching of the plant ▪ Control Room operators are adequately trained to carry out the despatching of the plan efficiently ▪ Manage and coordinate the emergency responses from the control room in support of the ERP and CMT ▪ Drive fuel efficiency operation of the plant ▪ Conduct operations in line with commitments in the GHG Management Plan
Relevant Managers	▪ Ensure operations personnel training plans reflect the environmental duties and the training is carried out ▪ Ensure this plan is embedded in an Asset Management tool

Position Title	Environmental Responsibilities
	▪ Ensure incident reporting protocols are followed and that all personnel report Events/Hazards and near misses ▪ Respond to environmental incidents as required
HSE Manager - Transmission	▪ Monitor implementation of and compliance with the CEMP and environmental risk assessment recommendations ▪ Facilitate and monitor EP Reviews ▪ Coordinate, undertake and conduct reviews of audit reports and monitor completion of required corrective actions ▪ Report significant environmental non-compliances with the CEMP and legislation internally to the DBP Executive Management Team and externally to regulatory authorities, as required ▪ Ensure all environmental obligations are added to the DBNGP Master Obligations Register and are kept current in that register ▪ Monitor compliance against environmental obligations ▪ Manage the Authorisation to Clear Vegetation permit process ▪ Assess changes to legislation and regulatory requirements and update the CEMP as required to ensure ongoing compliance ▪ Identify changes to operations and update the CEMP to address and manage any new environmental risks ▪ Review and maintain the CEMP to incorporate any internal changes including organisational and process changes ▪ Provide assistance and/or advice regarding implementation of the CEMP and any other environmental management concern ▪ Liaise with government agencies regarding environmental issues ▪ Assess environmental incidents to determine regulatory reporting requirements
Head of Transmission Engineering	▪ Ensure that any engineering works are undertaken in compliance of the requirements of the CEMP ▪ Ensure the Project Management Office conducts works in compliance to the CEMP ▪ Ensure the Project handover process has the CEMP obligations embedded into the handover
Head of Land Management	▪ Liaise with landholders, traditional owners, community representatives, contractors, councils, planning and local government authorities as well as utilities and infrastructure owners on land management and environmental matters as required ▪ Report on, and address as required, existing and emerging Native Title and Cultural Heritage issues
Person In Charge (PIC)	▪ PIC is the onsite role to manage and conduct onsite works including inspections, permitting, daily rounds and planned and corrective maintenance tasks ▪ Ensure all personnel working onsite aware of Stop Work Authority ▪ Ensure risk assessment processes are implemented prior and during work activities ▪ Onsite leadership and management for personnel, contractors and visitors ▪ Conduct or delegate site specific induction requirements ▪ Conduct or delegate site testing / sampling requirements in line with approved plans and procedures ▪ Provide incident management and reporting advise to personnel ▪ Participate in annul environmental review process (e.g. GHG)
Training Manager	▪ Facilitate the maintenance, implementation and ongoing improvement of training and induction programs
All Personnel	▪ Read, understand and implement the control measures detailed within Section 6 of this plan ▪ Report all observed non-compliances to a supervisor ▪ Report all observed incidents, hazards and near misses

Position Title	Environmental Responsibilities
	▪ Understand requirements for response to an environmental incident or hazard ▪ Participate in environmental training and emergency response exercises. ▪ Continually seek to identify areas for improvement of environmental management and report these to the HSE Manager

2.3 Legislation

Key environmental legislation and other requirements that may apply to the WER are presented in Table 2-2 below.

Table 2-2 Associated Environmental Legislation and Other Requirements

Commonwealth Legislation	
Aboriginal and Torres Straits Islander Heritage Protection Act 1984	An Act to ensure the protection of Cultural Heritage which requires that any new development in previously undisturbed areas is reviewed to assess potential heritage impacts and ensure appropriate approvals are in place prior to commencing works. Any modifications or enhancements (projects) include a heritage impact assessment. Awareness of the requirements under this Act and the State Act ensure knowledge of assessment requirements and identification of heritage artifacts and Native Title aspects of the local area.
Environmental Protection and Biodiversity Conservation Act 1999	An Act to identify and ensure the protection of Matters of National Environmental Significance (MNES). Approval requirements are set out for any new developments either undertaken on Commonwealth Land or considered to have potential to impact upon MNES. A Referral has been submitted to the relevant Department under the EPBC Act for the project due to the potential impacts to MNES species (Carnaby's Cockatoo).
National Greenhouse and Energy Reporting Act 2007	This Act requires the monitoring and if required, reporting of greenhouse gas and energy production / consumption. This is completed annually and relates to fuel gas use, gas venting and diesel fuel use. Additionally this Act sets out the definition of emissions scopes (i.e. Scope 1 emissions).
Native Title Act 1993	An Act to ensure Native Title holders' rights are protected throughout development within proclaimed areas. Any modifications or enhancements (projects) include a heritage impact assessment and respect for the local Native Title requirements.
Western Australian Legislation and Associated Regulations	
Aboriginal Heritage Act 1972	All sites of Aboriginal archaeology are protected and will require pre-clearance survey and permit if materials are to be disturbed. Declared heritage places are protected and will need to be avoided or consent obtained if site is to be disturbed. The WER included a heritage impact assessment as well as ensuring personnel are aware of their requirements to protect any heritage identified.
Biodiversity Conservation Act 2016	Supersedes Wildlife Conservation Act and requires management of impacts to threatened species, ecological communities and conservation reserves. Includes requirements under regulations

	for licensing to take or impact native flora and fauna as will be required during construction of the WER. Clearing, operational and vegetation maintenance activities can impact on rare flora or fauna but these are limited in the proposal area.
Biodiversity Conservation Regulations 2018	Fauna licensing for any fauna handling along the pipeline route or in the compounds. Additionally includes threatened flora and communities licensing requirements for impacts to conservation significant species. The WER does not impact any TEC areas but Fauna licenses will be required for fauna handlers on the project.
Biosecurity and Agriculture Management Act 2007	Includes obligations for the management of declared weeds within WA and the need for the identification and management of weed species. Declared weeds may occur along the pipeline route or in the plant area and require management and landholder consultation for best management practices.
Bushfires Act 1954	Sets out requirements for fire protection matters including firebreaks around compounds and fire ban controls. Total Fire Ban exemptions and conditions for work have been built into hot works and other fire prevention controls. Recent updates to the regulations also include no hot works during catastrophic fire rating days and this is discussed in Section 6.4.
Dampier to Bunbury Pipeline Act 1997	An Act that sets out the controls and responsibilities for access to the Dampier to Bunbury pipeline corridor (easement) including access authority and granting of access for third parties. The West Erregulla meter station shall meet these requirements as part of connection to the DBNGP.
Dangerous Goods Safety Act 2004	An Act that outlines the management of Major Hazard Facilities which includes the WER Plant. The Act also outlines requirements for the storage, handling and transport of dangerous goods and reference to the Australian Dangerous Goods Code.
Environmental Protection Act 1986	Act to ensure the protection of the Environment. Includes requirements for referral of projects, licensing of scheduled activities and obligation to prevent pollution and minimise impacts to the environment. This includes the reporting of any pollution. Section 2.4 sets out the current related approvals.
Environmental Protection Regulations 1987	Regulations (including sub regulations) in terms of the management of noise, clearing of native vegetation, controlled wastes, unauthorised discharges and litter is managed on site. Main interaction is the Ministerial approval or clearing permit used for activities to ensure safe pipeline operations and included in Section 2.4 and 6.2. Management of noise and discharge of wastes is also required under this Act to ensure no negative impacts to receptors.
Environmental Protection Regulations (Abrasive Blasting) 1988	Management of environmental risks relating to abrasive blasting activities including noise, dust and waste management. Abrasive blasting may occur occasionally during construction or operations but is restricted to construction or compound areas.
Environmental Protection Regulations (Clearing of Native Vegetation) 2004	Regulations specific to the clearing of native vegetation and includes potential exemptions under Petroleum related legislation and activities.
Environmental Protection Regulations (Noise) 1997	Controls in relation to noise levels at environmental receptors. Includes management of activities that could breach levels including timing of activity, duration, notification to stakeholders and noise monitoring.

Petroleum Pipelines Act 1969	Manages the pipeline license area for operations and includes pipeline safety and Safety Case obligations and the obligation to minimise environmental impacts.
Petroleum Pipelines (Environment) Regulations 2012	Sets out specific requirements including the development and approval of the CEMP and the need to manage environmental impacts.
Rights in Water and Irrigation Act 1914	Requirements for management of impacts to water bodies including surface and ground water. Specific to WER can include the construction of a well (bore) and abstraction of water from the well for use in the facility as per the regulations.
Rights in Water and Irrigation Regulations 2000	Includes the licensing and management requirements for the construction of a well/bore, abstraction of water and any impacts to beds and banks. Water abstraction may be required during operations and as such the relevant licenses will be applied for, however no Beds and Banks permit is currently planned due to lack of surface water impacts in the project area.
International Conventions	
Convention on Biological Diversity	International agreement which obliges the Australian Government to have policies and procedures to protect biodiversity and plan for biological conservation outcomes.
Migratory Birds – China	International agreement to provide an important mechanism for pursuing conservation outcomes for migratory bird species with China. Refer to Section 3.1
Migratory Birds – Japan	International agreement to provide an important mechanism for pursuing conservation outcomes for migratory bird species with Japan. Refer to Section 3.1
Migratory Birds – Republic of Korea	International agreement to provide an important mechanism for pursuing conservation outcomes for migratory bird species with the Republic of Korea. Refer to Section 3.1
Standards	
AS2885 Pipelines – Gas and Liquid Petroleum	Pipeline design requirements as well as specific to line of sight clearing requirements (vegetation maintenance) and pigging requirements.
AS1940:2017 The storage and handling of flammable and combustible liquids	Ensure the bunding of hydrocarbons and odorant on site is managed according to this standard.
AS1697: 2005 Installation and maintenance of steel pipe gas systems	Installation and maintenance of steel pipe systems including design criteria to ensure containment.
AS1692:2006 Tanks for flammable and combustible liquids	Pressure vessel requirements for waste oil, oil and the odorant tanks to ensure design and maintenance to ensure containment.
AS3780:2008 The storage and handling of corrosive substances	Any minor storage of corrosives on site will meet this standard.
AS2507 :1998 The storage and handling of pesticides	Any minor / temporary storage of pesticides and herbicides will meet this standard.
Codes and Guidelines	
Australian Pipeline and Gas Association (APGA) Code of Environmental Practice	Code for the implementation of environmental controls during construction and operations of pipelines.
Australian Dangerous Goods Code	Code that defines what is a Dangerous Good and requirements for the transport, storage and handling applicable to chemicals and odorant utilised for this activity.

Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000) ANZECC.	Guideline that provides values for water discharge levels to the environment under the National Water Quality Strategy. See Section 6.8
Guideline – Treatment and Management of soil and water in ASS landscapes (DWER, 2015).	Department of Water and Environmental Regulation (DWER) Guideline in relation to management and treatment of Acid Sulphate Soils (ASS). The WER is unlikely to intersect with areas of potential ASS but may conduct excavation activities in these areas periodically. See Section 6.1
Identification and investigation of acid sulphate soils and acidic landscapes (DEC, 2013).	Guidelines that sets out the requirements for assessing ASS presence, likelihood of impacts and triggers for treatment. This links to the above Guideline in developing an ASS Management Plan. See Section 6.1
Water Quality Protection Note 13 – Dewatering of soils at construction sites	DWER Guidance Note on how to minimise impacts from dewatering and outlines approval requirements, discharge management and sets out an indicative water quality for discharge. See Section 6.8.

2.4 Project Approvals

The anticipated approval requirements for the project are set out in Table 2-3.

The Proposal has not yet been assessed under Part IV of the EP Act or the EPBC Act. The referral process is currently in progress.

This CEMP outlines the management approach to the construction and operation of the Proposal with the proposed conditions (Section 6) to ensure environmental outcomes and objectives are achieved.

Table 2-3 Summary of environmental approvals

Approval	Activity	Description
Pipeline Licence	Construction and Operation of a gas pipeline	As part of issuing a Pipeline Licence, DMIRS requires an approved Environment Plan to be in place for the management of environmental risks and impacts of the project.
Environmental Protection Act Approval	An activity that may have significant environmental impacts	Referral to the Environmental Protection Authority for the project based on potential significant impacts.
EPBC Act Approval	Activity that significantly impacts Matters of National Environmental Significance (MNES)	Referral made 24 February 2021 for assessment under the Act for impacts to MNES species (*Paracaleana dixonii.* and Carnaby's Cockatoo)
Major Hazard Facility	Construction and Operation of a gas processing plant	Requirement under the Dangerous Goods Act to have the plant location licensed as a major hazard facility.
DWER Works Approval and Prescribed Premises Licence	Construction and Operation of a gas processing plant	Works Approval and license for the WER where it meets the threshold levels for emissions from the plant above those set out in Schedule 1 of the Regulations.
Licence to Take Fauna	Construction works	Requirements for DPAW and DWER to ensure all fauna handling is conducted under a license.

3. Existing Environment

3.1 Surveys and study findings

A number of studies have been undertaken of the Development Envelope to assess the key environmental factor (see Section 1.4) baseline conditions. These studies and results are summarised in Table 3-1.

Table 3-1 Overview of studies undertaken in proximity to the Development Envelope

Reference	Survey type and location	Key Outcomes
West Erregulla Targeted Flora Survey (Mattiske December 2021 survey)	A targeted flora survey of the West Erregulla Pipeline Project to identify the location of threatened and priority flora, with particular focus on the presence of *Paracaleana dixonii.*	One individual *Paracaleana dixonii* was recorded within the Development Envelope. The survey also identified a number of Priority flora taxa.[1]
West Erregulla Pipeline Flora and Fauna survey (ELA 2020a).	Detailed and Targeted flora survey and vegetation condition assessment, Basic fauna survey, Targeted Black Cockatoo habitat assessment and Targeted Malleefowl survey (of the Development Envelope).	No individuals of the targeted threatened taxa *Paracaleana dixonii.* No individuals of the targeted threatened species Carnaby's Cockatoo (*Calyptorhynchus latirostris*) and Malleefowl (*Leipoa ocellata).* **Priority flora:** 8 confirmed taxa. No Threatened Ecological Communities (TECs) and Priority Ecological Communities (PECs) were recorded.
West Erregulla Plant and Pipeline Hydrology Survey (ELA 2020b)	Baseline and Preliminary Impact Assessment Survey including flood monitoring, surface water features, current bore network and groundwater depth.	No significant surface water features in development envelope. Groundwater was >100 m below ground level (mbgl) and would not be impacted by the project.
Review of key potential flora, vegetation and fauna values on the proposed pipeline for Strike Energy near Dongara (Mattiske 2020)	Desktop assessment of the potential flora, vegetation and fauna values present (within the ELA 2020a survey area).	12 threatened and 18 priority flora species have the potential to occur. 4 TECs and 6 PECs have the potential to occur. 10 threatened fauna species have the potential to occur.
West Erregulla targeted threatened flora survey (ecologia 2018)	Targeted threatened flora survey (within the current survey area)	No individuals of the targeted threatened taxa *Thelymitra stellata, Paracaleana dixonii* and *Eucalyptus crispata*. No TECs and PECs were recorded.

[1] Due to the date of the survey, the full survey report is not yet available and a brief outline has been provided above to assist the assessment process. The full survey report will be available in February/March 2022.

West Erregulla Project Flora and Vegetation Assessment (Woodman 2013)	Detailed flora and vegetation survey (within the current survey area)	Threatened (Declared Rare Flora) flora: *Thelymitra stellata*, *Paracaleana dixonii*, *Eucalyptus crispata.* Priority flora: 23 confirmed taxa. No TECs and PECs were recorded.

The following sections provide a description of the local and regional existing environment.

3.2 Climate

The region experiences a warm, Mediterranean climate with hot dry summers and mild wet winters (Mitchell et al. 2002). Based on climate data from the nearby Bureau of Meteorology (BoM) Dongara weather station (station number 8044; climate data 1844 – current; located approximately 50 km north-west km of the Development Envelope), the area receives an annual average rainfall of 454.4 mm, most of which occurs during late autumn and winter (May – August) (BoM 2020; Table 3-2).

Table 3-2: Long-term rainfall recorded at the Dongara weather station (8044)

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean	5.4	10.6	13.8	22.3	68.1	108.3	91.8	66.3	35.2	18.7	8.7	4.3	**454.4**
Highest	64.0	156.2	185.5	105.2	268.6	356.1	244.1	175.3	125.0	111.8	57.0	44.0	**953.2**
Lowest	0.0	0.0	0.0	0.0	0.5	11.4	14.2	4.8	1.4	0.0	0.0	0.0	**243.6**

Source: BoM 2020 (1896 – current)

3.3 Landforms, geology and soils

The Interim Biogeographic Regionalisation for Australia (IBRA) currently classifies 89 bioregions across Australia, based on a range of biotic and abiotic factors such as climate, vegetation, fauna, geology and landform (Thackway and Cresswell 1995; DAWE 2020). The Development Envelope is located in the Geraldton sandplain bioregion (Lesueur sandplain subregion, GS3). The Geraldton sandplain bioregion that comprises mainly proteaceous shrub-heaths on extensive, undulating and lateritic sandplain (Desmond and Chant 2001).

3.3.1 Geology

The Proposal is located within the north to north-west trending onshore Northern Perth extensional Basin, comprising predominantly Permian to Jurassic continental clastic rocks (Geoscience Australia 2021). The Northern Perth Basin represents a deep, 12 km thick trough (Dandaragan Trough) that rises gently northwards towards the Allanooka High to then step up via a series of terraces at its northern and western margins. In the east the Basin warps against the regional north-south trending Darling Fault System (Geoscience Australia 2021).

3.3.2 Landforms and soils

The Lesueur sandplain subregion comprises coastal Aeolian and limestones, Jurassic siltstones and sandstones of central Perth Basin. Alluvials are associated with drainage systems and there

are extensive yellow sandplains in south-eastern parts. Shrub-heaths rich in endemics occur on a mosaic of lateritic mesas, sandplains, coastal sands and limestones, and heath on lateritised sandplains along the subregions north-eastern margins (Desmond and Chant 2001).

Soils in this region are described as yellow sands inland and leached sandy soils near the coast, which overlay laterite. Four broad geology soil units (Table 3-3) and two soil units (Table 3-4) have been mapped across the Development Envelope.

The Development Envelope has not been assessed nor classified under the WA Acid Sulfate Soil (ASS) Risk Assessment Framework (DWER 2021a). From previous site inspections no ASS materials have been identified.

Table 3-3 Broad geology soil units of the Development Envelope

Unit	Type	Description
Czl	Lateritic duricrust	Pisolitic, nodular or vuggy ferruginous laterite; some lateritic soils; ferricrete; magnesite; ferruginous and siliceous duricrusts and reworked products, calcrete, kaolinised rock, gossan; residual ferruginous saprolite
Czs	Sand - residual	Sand or gravel plains; quartz sand sheets commonly with ferruginous pisoliths or pebbles, minor clay; local calcrete, laterite, silcrete, silt, clay, alluvium, colluvium, aeolian sand
Jsya	Sandstone, siltstone, shale, conglomerate, coal	Variegated sandstone, feldspathic sandstone, siltstone, shale, conglomerate, coal
Qd	Sand - aeolian, sand - residual	Dunes, sandplain with dunes and swales; may include numerous interdune claypans; residual and aeolian sand with minor silt and clay; aeolian red quartz sand, clay and silt, in places gypsiferous; yellow hummocky sand

Table 3-4 Soil units of the Development Envelope

Unit	Description
Wd9	Broad valleys and undulating interfluvial areas with some discontinuous breakaways and occasional mesas; lateritic materials mantle the area: chief soils are sandy acidic yellow mottled soils, (Dy5.81) containing much ironstone gravel in the A horizons, and (Dy5.84), both forming a complex pattern with each other and with lateritic sandy gravels (KS-Uc2.12). Associated are leached sands (Uc2.21) underlain by lateritic gravels and mottled clays that occur at a progressively greater depth down slope
Ca27	Sandy plains with occasional pockets of sand dunes, a few small swamps, and stream courses: chief soils are leached sands (Uc2.21), often with a sandy clay substrate

	between 3 and 6 ft in depth. Associated are (Dy5.61) and gravelly (Dy5.81) soils with (Uc1.22) soils on the dunes

3.3.3 Land Systems

Land systems traversed by the Pipeline corridor are outlined in Table 3-5.

Table 3-5 Land systems traversed by the Proposal

Land system	Land system description
Mount Adams System (224Ma)	Gently undulating sandplain with low gravel ridges and occasional laterite breakaways.
Correy System (221Cy)	Broad sandy alluvial fan of the lower Arrowsmith River. Pale deep sands predominate, with grey shallow sandy duplexes, moderately deep sandy gravels and yellow deep sands less common. Banksia woodlands and heathlands.

3.4 Flora and vegetation

Vegetation condition within the Development Envelope is excellent. Minor disturbances include minimal presence of weeds and feral fauna (rabbit diggings, scats) (ELA 2020a). The majority of the Development Envelope was impacted by a fire in April 2019. On ground surveys revealed that the fire has altered the structural elements of vegetation communities present within the Development Envelope; although, a strong post-fire recovery was observed, with the majority of flora species expected to occur being present. Flora species with more rapid post-fire recovery strategies were naturally more dominant than those which take longer to re-establish (ELA 2020a).

3.4.1 Vegetation associations

The pre-European vegetation of the Development Envelope was defined and mapped by Beard (1976) and within the broader region by Beard (1990) in the Irwin Botanical District as coastal scrub heath on sandplains, with *Acacia* and *Allocasuarina* thickets further inland, and hard-setting loams with *Acacia* scrub and scattered *Eucalyptus loxophleba*.

Three vegetation associations occur within the Development Envelope, as outlined in Table 3-6.

Table 3-6 Beard (1976) vegetation associations of the Development Envelope

Vegetation association	Description	% coverage of 213 ha Development Envelope
49	Shrublands; mixed heath	6%
378	Shrublands; scrub-heath with scattered *Banksia* spp., *Eucalyptus todtiana* and *Xylomelum angustifolium* on deep sandy flats in the Geraldton sandplains bioregion	22%
379	Shrublands; scrub-heath on lateritic sandplain in the central Geraldton sandplains bioregion	72%

3.4.2 Vegetation communities

Six vegetation communities were mapped within the Development Envelope during on-ground surveys (ELA 2020a). An overview of these communities is provided in Table 3-7 and depicted in Figure 3-1.

Table 3-7 Vegetation communities recorded within the Development Envelope

Vegetation community	Vegetation description
AcEbHh	*Allocasuarina campestris* tall sparse shrubland over *Eremaea beaufortioides*, *Calothamnus quadrifidus* subsp. *angustifolius*, *Isopogon tridens* mid sparse shrubland over *Hibbertia hypericoides*, *Melaleuca leuropoma* low open shrubland and *Ecdeiocolea monostachya* low open sedgeland.
EtAhHh	*Eucalyptus todtiana* mid open woodland over *Allocasuarina humilis*, *Banksia scabrella* (P4), *Calothamnus sanguineus* mid open shrubland over *Hibbertia hypericoides*, *Melaleuca leuropoma* low open shrubland and *Caustis dioica* low open sedgeland.
BpDdHh	*Banksia prionotes* mid open woodland over *Daviesia divaricata*, *Conospermum boreale*, *Allocasuarina humilis* mid open shrubland over *Hibbertia hypericoides* low open shrubland and *Ecdeiocolea monostachya*, *Mesomelaena pseudostygia* low open sedgeland.
AcAhGp	*Allocasuarina campestris* tall sparse shrubland over *Allocasuarina humilis*, *Hakea auriculata*, *Petrophile shuttleworthiana* mid open shrubland over *Gastrolobium plicatum* low open shrubland and *Ecdeiocolea monostachya*, *Schoenus armeria* low open sedgeland.

AcDdMl	*Allocasuarina campestris* tall isolated shrubs over *Daviesia divaricata*, *Conospermum boreale*, *Beaufortia elegans* mid open shrubland over *Melaleuca leuropoma*, *Hibbertia hypericoides* low open shrub over *Ecdeiocolea monostachya* low open sedgeland.
EtBaHh	*Eucalyptus todtiana* mid open woodland over *Banksia attenuata*, *Calothamnus blepharospermus*, *Eremaea beaufortioides* mid open shrubland over *Hibbertia hypericoides*, *Melaleuca leuropoma* low open shrubland and *Ecdeiocolea monostachya* low open sedgeland.

3.4.3 Threatened Ecological Communities and Priority Ecological Communities

No TEC or PEC were identified during on-ground surveys conducted by ELA in September 2020 (ELA 2020a). There are two TECs listed at State level that occur 10 km to the east of the Development Envelope (DBCA 2020):

- Mound Springs (Three Springs area) (Endangered (EN))
- Ferricrete floristic community (Rocky Springs Type) (Vulnerable (VU)).

3.4.4 Flora

A total of 166 taxa (165 native and one introduced) from 90 genera and 37 families were recorded within the Development Envelope (ELA 2020a).

Figure 6-2: Vegetation communities mapped within the Development Envelope (Page 1 of 3)

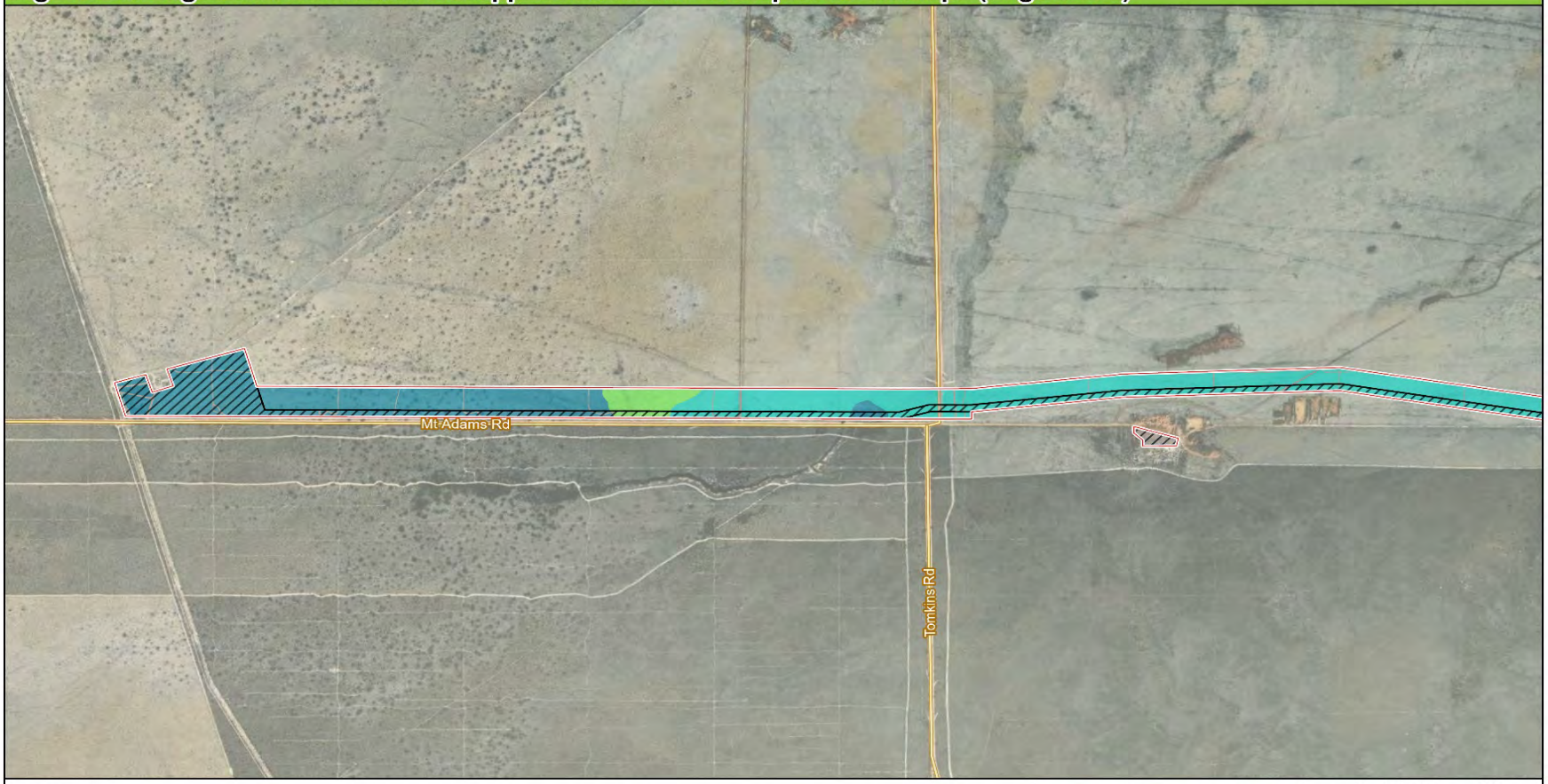

Figure 6-2: Vegetation communities mapped within the Development Envelope (Page 2 of 3)

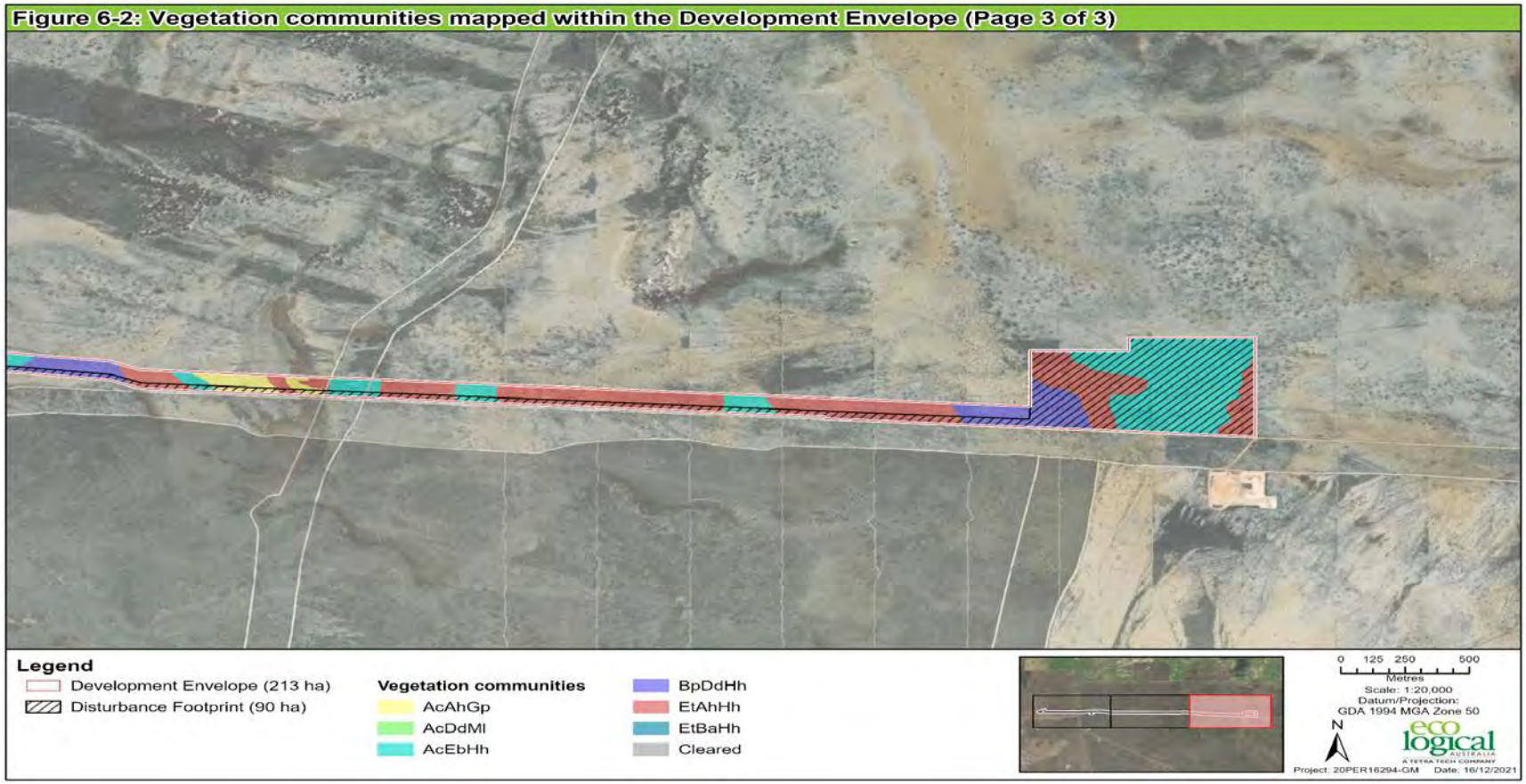

Figure 3-1 Vegetation communities within the Development Envelope

3.4.5 Conservation significant flora

One Threatened flora species, *Paracaleana dixonii* (Endangered under the EPBC Act and Vulnerable under the BC Act) was previously recorded within the Development Envelope from a database search (2011 record); however, this species was not recorded in the recent targeted flora survey (ELA 2020a). An additional survey was conducted in December 2021, which located one individual within the pipeline route. This individual will be managed for avoidance through the construction and operations phases by delineation, barriers, signage and awareness for all personnel.

Eight flora species listed as Priority by DBCA were recorded within the Development Envelope from the 2020 field survey, including:

- *Micromyrtus rogeri* (P1)
- *Lasiopetalum ogilvieanum* (P1)
- *Guichenotia alba* (P3)
- *Mesomelaena stygia* subsp. *deflexa* (P3)
- *Stylidium drummondianum* (P3)
- *Banksia scabrella* (P4)
- *Eucalyptus macrocarpa* subsp. *elachantha* (P4)
- *Stawellia dimorphantha* (P4).

The location and details of conservation significant flora recorded in the Development Envelope are provided in ELA 2020a.

3.4.6 Weeds

One introduced (weed) flora species is present at a low density in the Development Envelope within the AcEbHh, EtAhHh and EtBaHh vegetation communities. It is likely this weed is being spread via the movement of cattle and other introduced fauna species (ELA 2020a).

3.5 Terrestrial fauna

Three fauna habitats were mapped within the Development Envelope, covering a total of 199.6 ha (98.47% of the Development Envelope). The remaining 3.1 ha (1.53% of the Development Envelope) was described as Cleared. Habitat types include:

- **Fauna habitat 1:** *Allocasuarina campestris* tall sparse shrubland over shrubs and sedgeland on sandy plains (69.3 ha; 34.19% of the Development Envelope)
- **Fauna habitat 2**: *Banksia* spp. and occasional *Eucalyptus todtiana* mid open woodland over shrubs and sedgeland on sandy plains (89.5 ha; 44.15% of the Development Envelope)
- **Fauna habitat 3**: *Allocasuarina campestris* tall sparse shrubland over shrubs and sedgeland on stony rises (40.8 ha; 20.13% of the Development Envelope).

Further details and mapping of these habitats is provided in Figure 3-2.

A total of 46 fauna species were identified from the desktop assessment as possibly occurring within the Development Envelope. Of the 46 species, 35 fauna species (31 native and four

introduced) were recorded within the Development Envelope during recent surveys (ELA 2020a). This included 28 bird species, five mammal species and two reptile species.

3.5.1 Conservation significant fauna

The Proposal is in the non-breeding range of the Carnaby's Cockatoo (*Calyptorhynchus latirostris*); however, the Development Envelope potentially provides low quality foraging habitat due to the presence of *Banksia* spp. and *Hakea* spp. (DSEWPaC 2012; DotEE 2017). The recent fire has decreased the likelihood of the species utilising the Development Envelope in the immediate future (ELA 2020a). No direct or indirect observations of the species have been recorded in the Development Envelope.

3.5.2 Introduced fauna

Evidence of four introduced fauna species (mainly scats and tracks) has been recorded within the Proposal area including Cattle (*Bos taurus*), Domestic Dog (*Canis lupus familiaris*), Goat (*Capra hircus*) and European Rabbit (*Oryctolagus cuniculus*) (ELA 2020a).

3.5.3 Conservation areas

Two reserves, Yardanogo Nature Reserve (R36203) and Beekeepers Nature Reserve (R24496), are located approximately 4 km and 15 km to the southwest of the Development Envelope respectively. These will not be impacted by the proposed works.

Figure 7-1: Fauna habitat recorded within the Development Envelope (Page 1 of 3)

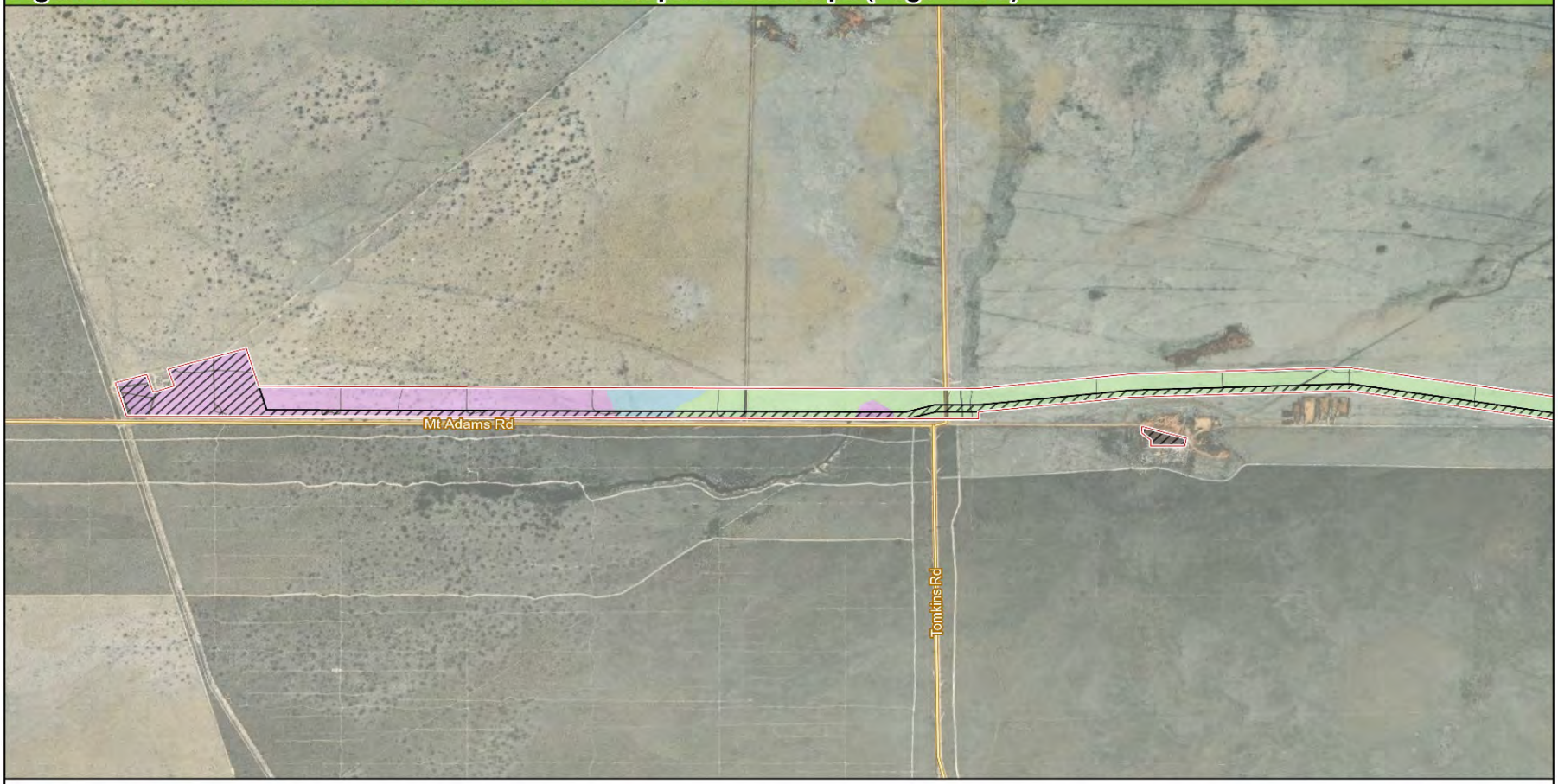

Figure 7-1: Fauna habitat recorded within the Development Envelope (Page 2 of 3)

Figure 3-2 Potential fauna habitat within the Development Envelope

3.6 Hydrology and hydrogeology

3.6.1 Hydrology

The Development Envelope does not contain any significant permanent surface water features; however, it is encompassed by two regional drainage systems, the Irwin and Lockier Rivers 22 km to the north and the Arrowsmith River 15 km to the south (ELA 2020b). Numerous small watercourses dissect the surrounding area, draining either westwards from the Arrowsmith Region onto the Swan Coastal Plain, or north or south towards the two river systems (RPS 2011). The nearest watercourse is Sand Plain Creek, located approximately 6 km north of the Development Envelope.

3.6.2 Hydrogeology

The Development Envelope is located within the Twin Hills Groundwater subarea where two major regional groundwater resources exist; the Yarragadee Formation (the largest aquifer in the Perth Basin) and the underlying Lesueur Sandstone (ELA 2020b). The Cattamarra Coal Measures and the Eneabba Formation host smaller, localised aquifers.

Yarragadee Formation

The Yarragadee Formation is present at surface within the Development Envelope and unconfined in its upper parts; becoming increasingly confined at depth due to the layered nature of the formation. The upper water table in the Yarragadee Formation is more than 100 m below ground level and given the layered nature, little direct rainfall recharge is expected to reach the regional water table. RPS (2011) reported recharge rates for the Yarragadee Formation (based on a rainfall infiltration study of the Parmelia Formation, 20 km northeast of the Development Envelope) to be in the region of 4% to 11% of annual rainfall (RPS 2011). Minor recharge from stream flow infiltration in the upper reaches of the Irwin River is also expected.

The water quality in the Yarragadee Aquifer is fresh to brackish, with salinity in the aquifer ranging between 500 to 1,000 mg/L and increasing with depth (RPS 2011).

Cadda Formation

The Cadda Formation underlies the Yarragadee Formation at around 1,700 mAHD. It hosts minor permeable horizons but is generally of very low permeability and acts as a regional aquiclude, separating the Yarragadee Formation above from the Cattamarra Coal Measures below.

Lesueur Sandstone

The Lesueur Sandstone within the Development Envelope is beyond economic exploitation and is also likely to contain hypersaline groundwater. The Lesueur

Sandstone subcrops to the south of the Proposal area from Leeman to Wedge Island and is overlain by Cainozoic sediments (RPS 2011).

Cattamarra Coal Measures and the Eneabba Formation

The Cattamarra Coal Measures and the Eneabba Formation both contain groundwater but are understood to be internally confined by coal seams and thick mudstone sequences respectively. The Eneabba Formation is likely to be hypersaline and isolated from the upper Cattamarra Coal Measures.

3.6.3 Regional groundwater levels and groundwater flow

A generalised overview of the dominant groundwater flow patterns for the upper Yarragadee indicate flow in a general westerly direction beneath the Development Envelope. The water table is mostly flat above the 80 m contour but drops off significantly to the west towards the Swan Coastal Plain.

According to RPS (2011), while the limited data available precludes the identification of local influence of structural control on groundwater flow in the Development Envelope, detailed studies elsewhere in the region have shown a close correlation between the regional water table configuration and the major regional faults. This suggests that the major faults may inhibit groundwater flow and compartmentalise the main aquifers with water levels 'stepping down' to the west (RPS 2011).

3.7 Heritage

3.7.1 Aboriginal Heritage

No Aboriginal Heritage Sites were detected in the Development Envelope through a search of the Registrar of Aboriginal Sites on NationalMap (Department of Planning, Land and Heritage (DPLH) 2021a). The closest site is the Irwin River approximately 10 km to the north of the Development Envelope, registered as a Historical, Mythological, Camp Natural Feature and Water Source by DPLH.

AGIO has identified and consulted with the Traditional Owner group with management control over the development envelope area. This changed during the planning process from Yamatji Marlpa Aboriginal Corporation (YMAC) to Bundi Yamatji Aboriginal Corporation (BYAC).

In December 2020, in consultation with YMAC and BYAC a heritage and ethnographic survey was conducted on the development envelope (Extent Heritage, 2021). The survey concluded that no Registered Sites or Other Heritage Places are within the project area. No archaeological or ethnographic sites were identified or reported within the project area.

The development envelope is part of the Yamatji Nation Native Title Claim (WAD345/2019) area. The Yamatji Nation was granted Native Tile on 7 February 2020. The survey was conducted with the full involvement and participation of endorsed representatives of Southern

Yamatji. BYAC have approved of the project proposal through a Board endorsement in August 2021.

3.7.2 European and State Heritage

No registered European heritage values were detected in the Development Envelope through a search of the WA Heritage Council Database – inherit (DPLH 2021b). The closest sites of European Heritage; Shady Grove Homestead (place number 12315) and Willow Green (place number 18091) are both located approximately 15 km northeast and north respectively from the Development Envelope.

3.7.3 GeoHeritage

No registered GeoHeritage sites were detected within the Development Envelope through a search of the DMIRS GeoView database (DMIRS 2021). The closest site of GeoHeritage is Enokurra Hill (GeoHeritage site 41) located approximately 33 km east of the Development Envelope.

4. Activity Description

AGIO proposes to construct and operate of a gas processing plant and pipeline near Dongara, Western Australia collectively referred to as the West Erregulla Gas Project (WER). The project includes the processing of gas from upstream wells (third party) and transport of the gas to the Dampier to Bunbury Natural Gas Pipeline (DBNGP). The Proposed Scope of Work includes:

- A West Erregulla gas processing facility (WEF), with a nominal design flow capacity of 87 terajoules per day (TJ/d);
- A 16.5 km interconnecting buried gas pipeline between the WEF and the DBNGP tie-in point (WEP);
- A West Erregulla Custody Transfer metering facility (WEM) located at the Main Line Valve Compound MLV93 on the DBNGP approximately 400km North of Perth;
- Supporting infrastructure proposed to include but not limited to power generation, flare system, water treatment package, water evaporation pond, back-up diesel system, and communications within the WEF; and
- Onsite office and 4 bed self-contained accommodation unit.

An outline of the project is included in Figure 4-1.

Table 4-1 Proposed Disturbance Footprint

Item	*Proposed Disturbance*	*Proposed Rehabilitation*
Gas processing plant: ▪ gas plant ▪ evaporation pond ▪ evaporation pond piping ▪ potential construction camp ▪ connecting track to wellheads ▪ accommodation block	42 ha	5 ha
Gas Pipeline – 16.5 km ▪ 6 m restricted rehabilitation over pipeline (no trees) ▪ 3 m permanent access track ▪ 21 m temporary disturbance for construction only	43 ha (30 m wide right of way)	38.7 ha including restricted rehabilitation area 30.1 ha full rehabilitation area
Custody Transfer Meter Station at DBNGP MLV93 (WEM)	1 ha	0.5 ha

Access tracks *(construction only)*	1 ha	1 ha
Ancillary works *(pond, access, permanent access tracks)*	3 ha	0
TOTAL	**90 ha**	45.2 ha (including restricted area) 36.6 ha full rehabilitation

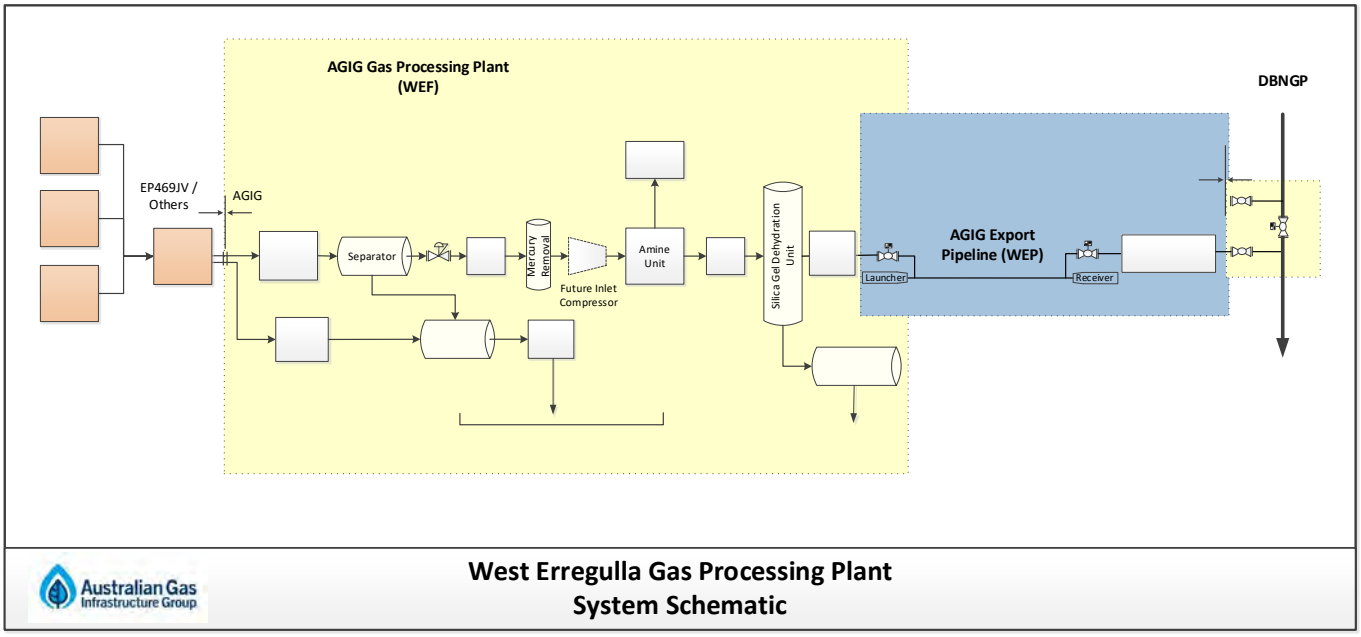

Figure 4-1 Overview of the WER

4.1 Pipeline

This section provides an overview of the pipeline route construction and operational process.

The pipeline is a high pressure 16" (DN400) Class 600, 10.2 MPa pipeline approximately 16.5 km in length. The pipeline shall include pig launcher and receiver facilities to enable future internal (in-line) inspections to occur.

Activities completed as part of construction of the pipeline are detailed below in Table 4-2

Table 4-2: Pipeline construction activity descriptions

Activity	Description
Detailed Survey	Engineering, environmental and cultural heritage surveys are used both in route selection and to determine if any special construction techniques or mitigation measures are

Activity	Description
	required. Once the preferred pipeline route has been determined, the centreline is surveyed and engineering aspects are finalised. Markers (pegs) are placed to identify the pipeline route and corridor.
Fencing	Where required and in consultation with landholders, fences are severed and construction gates installed to allow access for both property boundary and internal fences.
Clear and Grade	Graders and bulldozers are used to clear the area to provide for construction activities. This clearing will be within the permitted area as per the Authorisation to Clear Vegetation (or an alternative equivalent process) and will include pipelaying area (corridor) and the location of the permanent facility. The cleared area may include excavations through sand dunes and watercourse beds and banks to establish a construction corridor. For safety reasons, dependent on soil type (eg heavy sand), an additional area may need to be cleared in limited areas to allow for trench and stockpile stability. Topsoil will typically be graded to a depth of 100 to 150 mm for a blade-width over the trench line, or the entire working side or the full construction corridor, depending on factors such as the soil type, terrain, construction requirements and weather conditions. Topsoil will be stockpiled separately. Overburden related to dune and river crossings will be stockpiled adjacent to the excavation, in areas with no, or limited vegetation cover, where practicable. Fauna controls will be implemented as outlined in this plan.
Trenching	After the route is cleared, a trench (generally 1.5-2 m deep) is dug for the pipeline by either a trenching machine or an excavator in accordance with pre-defined depths of burial. The required depths are determined by the AS2885.1 risk assessment process and recorded on construction alignment sheets. Trench spoil is stockpiled on the right-of way, usually on the non-working side. Trench spoil is stockpiled separately to topsoil. The trench will be monitored daily for fauna entrapment and refuges (hessian bags or similar) placed in the trench to provide protection for fauna that temporarily occupy the trench. The trenches will be ramped at regular intervals to allow larger fauna to escape. The period that any part of a trench will be left open will be minimised. The maximum amount of time a trench will remain open is 21 days which may be extended with an approved risk assessment review. Trenches will be stopped and started at regular intervals with “plugs” between these sections to allow for unimpeded movement of livestock and fauna. Where possible, trenching will be delayed until completion of the welding and joint coating as part of ensuring that the trench will be open for the minimum amount of time.
Hand Digging	In areas that are within 1(m) to any known buried service, machine excavation is not allowed. Hand digging shall be used to positively identify the service (s)
Stringing	Steel pipe is trucked to the construction site and sections, each approximately 18 metres long, are laid end-to-end next to the trench. The sections are placed on sandbags and raised on blocks of wood (timber skids) to protect the pipe from corrosion and coating damage.
Bending	Where required, pipe sections are bent to match changes in either elevation or direction of the route.
Welding	Pipe sections are welded together.
Non-destructive weld testing	The pipe welds are inspected using x-ray or ultrasonic equipment as per AS 2885.2.
Joint coating	The area around the weld is grit blasted and then coated with a protective coating to prevent corrosion.

Activity	Description
Padding	Where required, padding machines are used to sift the excavated subsoil to remove coarse materials to prevent damage to the pipe coating. The remaining fine material is used to pad beneath and on top of the buried pipe. In some instances (e.g. rocky soils), imported sand or foam pillows are used for padding.
Lowering-in	Side booms (bulldozers with cranes) or excavators are used to lower the welded pipe into the trench.
Backfilling	Trench spoil is returned to the trench and material compacted to minimise the likelihood of subsidence of material over the pipe.
Watercourse Crossings	The pipeline alignment may cross watercourses of varying size, some of which are ephemeral. The ephemeral streams are expected to be dry during construction and crossings will be constructed using standard open cut (trenching) construction. Erosion and sediment control measures will be implemented to ensure there are no significant impacts at these crossings. Perennial river crossings may require construction by horizontal directional drilling, to be used under the riverbed to minimise disturbance. Permits will be obtained from the DoW where crossings involve any interference to bed or banks.
Install temporary infrastructure	Temporary infrastructure may include, but is not limited to, rubbish bins, ablutions, site office and lay down area.
Set up small mechanical workshop/work area	A small area away from the facility pad is cleared to allow for use as a workshop for welding, non-destructive testing, hydrostatic testing and sandblasting. The workshop may be located next to the site sea containers with tarpaulins extended to offer shade.
Install facility foundations, cables and conduits (electrical and fibre optic) and electrical earthing	Excavate for meter station foundations and cable trenches: Foundations are compacted and tested for compaction. Smaller pre-cast foundations are installed, however larger foundations may be site poured. In this case formwork, reinforcing and a concrete truck is used. Electrical cables are typically installed in conduits to avoid the requirement for termite treatment and are backfilled. However, if direct cable burial cannot be avoided termite treatment is used before backfilling.
Install facility, filtration and pressure reduction valves if required	The facility skid, filter and pressure reduction valves are installed onto the foundations. Pipe supports and filter are levelled and grouted.
Install remote terminal unit (RTU), communications mast, instrumentation and control equipment	RTU, communications mast (if required), instruments and control equipment are installed.
Complete electrical installation	Termination of electrical wiring in the control hut or box.
Pressure testing	Pipeline integrity is verified using hydrostatic testing in accordance with AS 2885.5. During hydrostatic testing the pipeline is capped with test manifolds, filled with water and pressurised up to a minimum of 125% of design maximum operating pressure for a minimum of two hours. A minimum 24-hour duration leak test then follows. Providing it

Activity	Description
	meets DWER water quality guidelines and has landholder approval, hydrotest water is discharged to the surrounding environment. Hydro-test water will be sourced from a variety of sources, including public water supply system standpipes, dams, local groundwater or streamflows, subject to licensing from the DWER. In general, it is expected that no chemicals will be added as the pipeline is internally coated. However, in some locations chemicals may need to be added if there is danger of aggressive water affecting the integrity of the internal coating. In these cases and where necessary, the water will be treated to neutralise alkaline elements to an appropriate standard before discharge to the environment. This discharge is a once-off discharge during commissioning of the pipeline and will be undertaken to the requirements of DWER. Should chemicals be required, details of these chemicals will be included in Bridging Documents submitted to DMIRS for approval.
Restoration and Rehabilitation	The corridor is re-contoured to match surrounding landform, and erosion controls constructed where necessary. Separately stockpiled topsoil is then respread evenly across the corridor and any stockpiled vegetation placed across the easement, to assist in soil retention, provision of seed stock and fauna shelter. Reseeding or revegetation of the corridor, using appropriate species (i.e. crops/pasture or indigenous native species of the right provenance), will be undertaken to restore vegetation cover.
Signage	Information signs on the presence of the buried pipeline are erected in line of sight along the corridor as per AS 2885.1.
Fencing	Fencing is installed around the additional area.
Commissioning	The piping is vented with compressed air to check for leaks, natural gas is then used to ensure cleanliness and to gas up the system. A vent pipe with an outlet >2.2m above ground level is used to release the compressed air and any overpressure of gas. The station pipe work is pressurised to line pressure, pressure reduction valves set (if installed) and electrical equipment energised and tested. Following successful commissioning first gas is allowed to flow through the system.
Site clean up and rehabilitation	Removal of site office, ablutions, accommodation and surplus materials. Any areas outside that are not to remain permanently will be rehabilitated. Areas which may remain include the access track and skid. Where necessary ground is re-contoured and topsoil re-spread.

Pipeline operations including regular and frequent maintenance as outlined in the Asset Management Plan, Safety Case and Environment Plan approved by DMIRS. Activities such as vegetation maintenance, pigging, minor upgrades, electrical and mechanical maintenance and cathodic protection surveys will be undertaken as set out in the above plans. These activities and their controls are included in Section 6 of this plan.

4.2 Processing Plant

The plant construction will include the following key processes:

- Survey and mark out
- Clear, level, cut and fill as required (bulk earthworks)
- Civil and foundation works
- Evaporation pond and infiltration pond layout and construction
- Mechanical package assembly
- Structural and piping assembly

- Electrical installations
- Final civil and structural construction works
- Pre-commissioning
- Commissioning

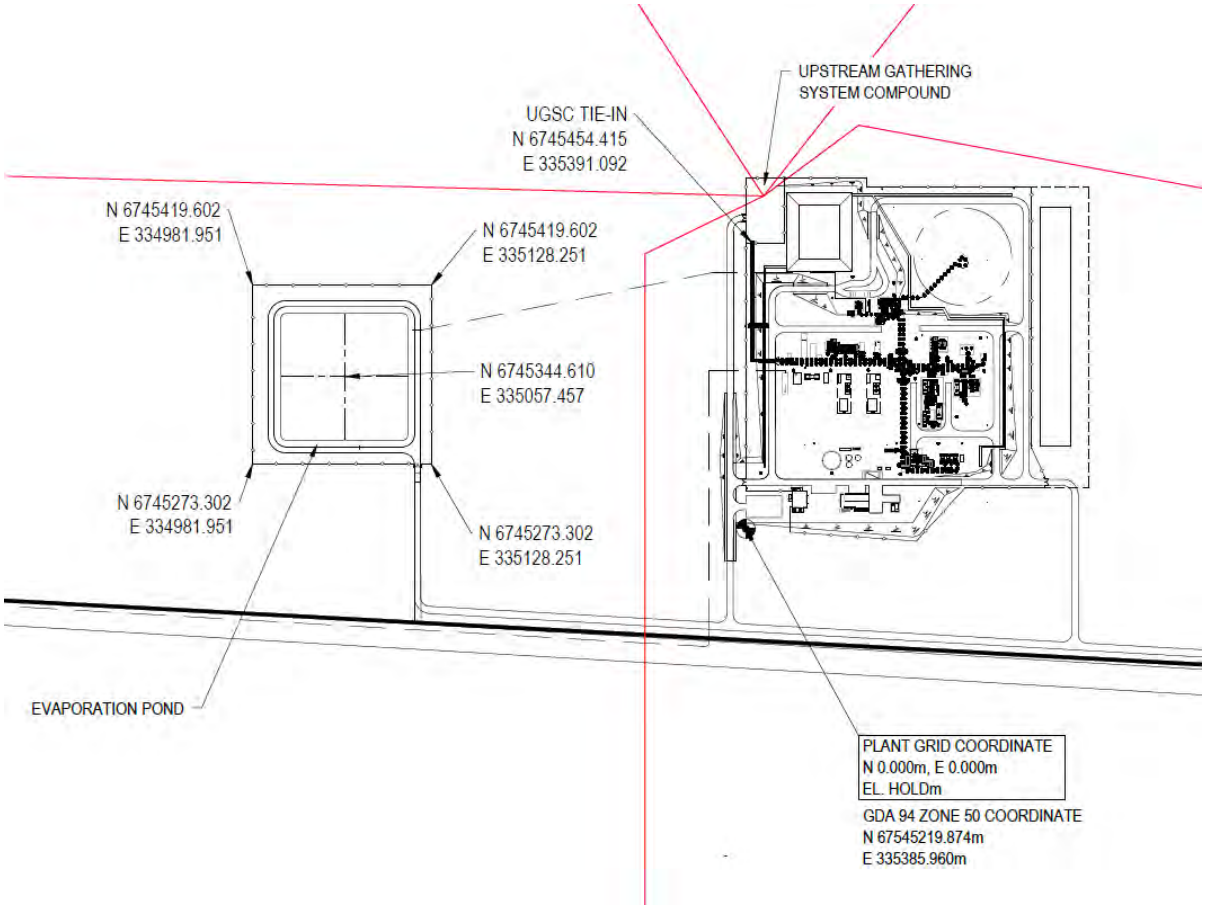

Figure 4-2 Proposed Gas Plant Layout (design subject to change)

Processing plant construction and operation description are detailed below in the following subsections. Section 6 outlines the hazards and controls for both construction and operations.

4.2.1 Station Flare and vents

A station flare unit will be installed to burn off any hydrocarbons remaining in the gas after removal from the amine package and other captured releases. Volumes of gas being flared shall be monitored as required under the Greenhouse Gas Management Plan (GHGMP). The location of the flare is outlined in Figure 4-2.

- All blowdowns within the WEF will be directed to the flare.
- Blowdown times to be designed to comply with API RP 521 requirements.
- The flare has been designed with a 50m exclusion zone, and the height minimised as far as practicable to minimise light pollution
- Process PSVs will be directed to the flare.
- Fire case PSVs will discharge to atmosphere, but not expected to be utilised within the life of the facility.

Pressure relief vents exist through the Custody Transfer Meter Station (WEM) to meet safety requirements. Vent systems at the meter station have been designed to the following requirements:

- Noise attenuators have been installed on the vents to ensure compliance with *Environmental Protection (Noise) Regulations 1997*.
- Vent height designed to safely disperse vented gas with safe gas concentration at ground level.
- Vent height minimised to reduce light impacts to surrounding area.
- Station vents located such that there are no high sources of ignition within 10m of the vent.
- Vents separated from the nearest working area based on safe heat radiation level under full flow conditions, should the vented gas be ignited.

4.2.2 Power Generation

Three Gas Engine Alternators (GEAs) (required duty being approximately 1800 kVa) will be installed and a backup Diesel Engine Alternator (DEA) of 1600 kVa to ensure power supply to the plant. The GEAs will be fed from a fuel gas skid using natural gas with a minor amount of diesel stored on site for the DEA and for vehicle refuelling.

An Uninterrupted Power Supply (UPS) system shall provide both 24 VDC and 230 VAC 50 Hz essential power for a full rating of 30 minutes or 48 hours (critical services only). The UPS system shall be through a battery bank set up.

4.2.3 Gas Processing:

The Gas Processing system will include the following:

- Inlet gas metering
- Separator (to Gas breakout tank)

- Inlet Cooler
- Mercury Removal Unit
- Amine Package (AGRU)
- Silica Gel Package (Dehydration)
- Thermal Oxidiser Gas Heater
- H_2S Guard Bed package
- Aftercoolers
- Condensate stabilization
- Hot Oil Package

4.2.4 Communication System

The communications network provides Supervisory, Control and Data Acquisition (SCADA) for the plant and links to the DBNGP communication network. It provides all telephony, Mobile Voice Radio, Corporate Ethernet and Control Local Area Network (LAN) connections between the site facilities and to the DBNGP Gas Control centre.

4.2.5 Maintenance Facilities, Storage and Logistics

Facilities on site shall include suitable sheds, storage and tanks to ensure containment of materials, equipment and waste. Where required, this will include the storage of dangerous goods in compliance with the Australian Dangerous Goods Code.

A vehicle washdown facility, workshop, lighting, fire-fighting and detection capability and other plant requirements will be installed to assist in operations of the plant. All facilities shall be air-conditioned and include adequate parking facilities.

4.2.6 Oily water system

The Oily water system is designed to capture any potential leaks, spills or washdown liquids that may contain contaminants (focused in on hydrocarbons) to ensure these do not interact with soil and are held within containment. This includes bunds, drainage and oily water separator units. Hydrocarbon wastes will be treated and then disposed of as oil and water will be discharged to the site evaporation pond.

4.2.7 Accommodation / Office

A site office will be constructed onsite as part of the overall site management and control room.

There will be construction accommodation onsite which will be temporary during the construction, commissioning and initial operations period.

Permanent accommodation is motel style, air-conditioned, capable of accommodating between 4 to 12 people, and equipped with cooking, washing, sleeping and recreational facilities. Additional accommodation may be included for specific work activities such as shutdowns or where there is an operational need identified. This would all be within the approved plant footprint and no additional clearing would be required.

4.2.8 Water Management

Water management for the site includes:

- Raw water provision to site (local bore/s);
- Reverse Osmosis (RO) Unit;
- Open drains tank;
- Waste water management from accommodation and ablution facilities;
- Evaporation Pond (see 4.2.9);and
- Surface Water Infiltration Pond.

Raw water supply for the plant is through the use of a local bore and regulated standpipes. Potable water will be via a reverse osmosis (RO) unit onsite. During construction, raw and potable water may be transported in from local water supply agents.

Water use for the operations of the plant is calculated at 16 kL per day. This equates to 5,840 kL per annum. The current bore proposed for use has a licensed limit of 20,000 kL per annum.

The RO unit will supply water via potable, demineralised and de-ionised water with an associated tank for each stage of purification. Each tank will include associated pumps (generally two pumps for a duty/standby configuration) and distribution lines with. Waste water from the RO unit (approx. 33%)

Water is drawn from the bore by electrical submersible pumps to the raw water storage tank. Alternatively water can be sourced from nearby regulated stand pipes in line with commercial limits as set out by Water Corporation. The raw water is treated by a reverse osmosis unit and the product fed into the potable water tank. Microbiological growth in the stored potable water is controlled by the installation of UV Sterilising Units that circulate water to ensure that bacteria levels are maintained within acceptable standards. The potable water passes through an activated carbon filter unit to usage.

Both raw and potable water are circulated around the station according to the specific requirements via a water treatment skid located in the Water Treatment building.

Waste water from the reverse osmosis (RO) units is pumped directly into the lined evaporation pond. Based on a 70% efficiency of the RO units, this equates to approximately 1,752 kL per annum.

Waste water from the accommodation and control room facilities will be directed to a leach drain where it mixes with septic waste water from the accommodation and control room facilities.

Where demineralised water facilities are provided, a proportion of potable water is pumped into another reverse osmosis unit to provide demineralised water that is then stored within a fibreglass tank. This water is pumped through to the GEA Radiator Water Treatment Tank, to standpipes that service the GEA Head Tanks.

Surface water (rainfall) is designed to be captured and channelled through the plant to the infiltration pond to allow for controlled infiltration back into the local water system. The infiltration pond is designed to a 1 in 100 year rainfall event for the region. Bunds that collect water will have a controlled, locked, manual release (drain valve) to ensure potentially contaminated water is prevented from entering the infiltration pond system.

Construction water will be used for dust suppression, temporary offices and crib rooms, hydrotesting and general construction activities (wash down etc.). The predicted total volume of the work in 18,500 kL. Depending on timing and use of the proposed bore, regulated sources nearby (standpipes) will be used for either the majority of works or the residual need. No new groundwater bores are proposed and therefore no groundwater modelling was undertaken.

4.2.9 Evaporation Pond

A 170 m x 170 m evaporation pond shall be constructed to manage produced water and inflows from processing. The pond shall be double lined to prevent any potential contamination from entering the local soil or groundwater. Design factors have been included to ensure pond provides a high level of containment of all process water.

The Evaporation Pond has been designed with the following controls:

- 2 mm HDPE Primary Liner;
- HDPE Drainage mat;
- 2 mm HDPE Secondary Liner;
- 500 mm freeboard design above maximum predicted water level;
- Worst case scenario using 3 year maximum year precipitation (surge storage);
- RO, waste production water (plus 20% design factor) and demineralised water consumption in aftercoolers accounted for, plus rainwater collection;
- Pond depth includes a 1 in 100 year event plus unseasonal weather; and
- Leak monitoring – HDPE monitoring pipe with capped end and 6 mm drain holes over a 1 m length.

4.3 Meter Station Construction

The following outlines the construction methodology for the Meter Station.

Activity	Description
Survey and peg out site	Engineering and, if necessary, environmental and cultural heritage surveys are used to select the site and to determine if any special construction techniques or mitigation measures are required. Once the preferred site has been determined, the station boundary, hot tap location, custody transfer point and engineering aspects are finalised. Marker points are placed to identify the project area.
Clear and grade	Minor clear and grade operations may be required for the meter station to ensure a clear area for extension of the existing compound. Graders and/or bulldozers are used to clear an area for new facilities, access, site facilities area and a lay down area. The clearing is targeted within the DBNGP corridor; however some area may also be cleared outside the corridor. Topsoil is stripped for the width and length of the meter station pad. The pad is then in-filled with imported, free draining soil and compacted and filled to the design level.
Install temporary infrastructure	Temporary infrastructure may include, but is not limited to, rubbish bins, ablutions, site office and lay down area.
Set up small mechanical workshop/work area	A small area away from the meter station pad is cleared to allow for use as a workshop for welding, non-destructive testing, hydrostatic testing and sandblasting. The workshop may be located next to the site sea containers with tarpaulins extended to offer shade.

Activity	Description
Install meter station foundations, cables and conduits (electrical and fibre optic) and electrical earthing	Excavate for meter station foundations and cable trenches: Foundations are compacted and tested for compaction. Smaller pre-cast foundations are installed, however larger foundations may be site poured. In this case formwork, reinforcing and a concrete truck is used. Electrical cables are typically installed in conduits to avoid the requirement for termite treatment and are backfilled. However, if direct cable burial cannot be avoided termite treatment is used before backfilling.
Install meter skid, filtration and pressure reduction valves if required	The meter skid, filter and pressure reduction valves are installed onto the foundations. Pipe supports and filter are levelled and grouted.
Install remote terminal unit (RTU), communications mast, instrumentation and control equipment	RTU, communications mast (if required), instruments and control equipment are installed.
Complete electrical installation	Termination of electrical wiring in the control hut or box.
Install dewatering (if required)	Excavation dewatering may be required in areas of shallow groundwater. To minimise the cone of depression, multiple dewatering spears will be inserted around the excavation.
Excavation for tie-in line	A trench (minimum 1.5 m deep) is dug for the tie-in line in accordance with DBP Excavation Procedure and Permit to Work System. Trench spoil is stockpiled within the corridor usually on the non-working side.
Complete fitted welds	The tie-in and site field welds are completed in-situ or in the temporary workshop. During welding a humpy or tent is used to cover the weld and welder.
Non-destructive weld testing	The pipe welds are inspected using Magnetic Particle Inspection (MPI), X-ray, gamma or ultrasonic equipment.
Hydrostatic testing	Pipework integrity is verified using hydrostatic testing in accordance with ASME B31.3 Code – Process Piping. During hydrostatic testing the pipework is capped or blind flanged, filled with water and pressurised up to 150% of design maximum operating pressure for a minimum of two hours. A minimum 24 hour duration leak test then follows. In general it is expected that no chemicals will be added to the test water as the pipeline is internally coated. However, in some locations chemicals may need to be added if there is danger of aggressive water affecting the integrity of the internal coating. In these cases and where necessary, the water will be treated to neutralise alkaline elements to an appropriate standard before discharge. Should chemicals be required, details of these chemicals will be included in Bridging Documents submitted to DMP for approval. Where possible pipe spools are moved away from the meter station pad for hydrostatic testing.
Touch up paint/wrapping	Minor paint chips etc. are touched up with a paintbrush. Larger areas to be painted are spray painted with careful consideration to the wind direction and intensity, proper masking of nearby pipe and equipment and storage of paint. All below ground field joints are wrapped in denso tape. All below ground pipe is jeep tested to ensure paint integrity. Jeep testing involves placing an electrical charge on the steel pipe then using a steel brush on the pipe coating. If a jeep noise is heard then it is an indicator of electrical continuity between the brush and the steel pipe and indicates a paint defect (i.e. crack). Any below ground paint defects are wrapped.

Activity	Description
Backfill	Imported clean sand is used around and 200 mm below any below ground piping. Common fill is used for the remaining fill. Common fill will be certified weed and disease free as well as non-acid sulphate soil.
Remove dewatering (if installed)	Turn off pump and remove dewatering spears. Pump settling pond dry and remove plastic liner. Ensure that any settled material remains in the liner and is disposed of at an approved location.
Fencing	Fencing is installed around meter station and blue metal is placed on ground in meter station compound.
Commission meter station	The station piping is vented with natural gas to ensure cleanliness. A vent pipe with an outlet 2.2m above ground level is used. Estimated volumes of natural gas to be vented to the atmosphere will be included in project specific Bridging Documents submitted to DMP for approval. The station pipe work is pressurised to line pressure, pressure reduction valves set (if installed) and electrical equipment energised and tested. Following successful commissioning first gas to the client can be delivered.
Site clean up and rehabilitation	Removal of site office, ablutions, workshop and surplus materials. Any areas outside that are not to remain permanently will be rehabilitated. Areas which may remain include the access track and meter skid. Where necessary ground is re-contoured and topsoil re-spread.

4.4 Operations

The gas processing plant and pipeline will operate under DMIRS regulatory requirements as a Major Hazard Facility (MHF) and Petroleum Pipeline. This includes requirements for environmental and safety requirements to be met throughout operations.

Activities during operations are set out in an Asset Management Plan (AMP) which details the inspection, maintenance and activities required to ensure the safe, efficient and environmentally sound operations. The AMP includes set frequency and timings to minimise risk of failure as well ensuring efficient operating status. Communications maintenance, remote operability, leak detection and testing of emergency processes are all included in the AMP.

The AMP includes all requirements as set out in the relevant Safety Report (MHF) or Safety Case (Pipeline) and the linked Environment Plan. An Operations Environment Plan shall be developed for DMIRS approval for the ongoing management of the pipeline which will also be included the AMP.

In particular operations shall include the following:

- Annual HSE Audit against criteria including the environment plan
- 6 monthly facility HSE inspection
- Daily inspections including bunds and evaporation pond
- Emissions monitoring and measurement
- GHG MP efficiency and feasibility of new technology reviews

- Maintenance and shutdown tasks as per AMP including calibration works, filters, pressure monitoring, electrical and mechanical maintenance
- Communication and SCADA data sharing, maintenance and upgrades
- Water management through Reverse Osmosis system

Activities outlined in section 4.1 and 4.2 may also be applicable to operations (i.e. Evaporation pond, water management and accommodation).

4.4.1 Vegetation Maintenance

As required under AS2885.3, the WER pipelines will undergo regular vegetation management to ensure Line of Sight (LOS) between pipeline signs and access to pipeline corridors is maintained. This process is undertaken in accordance with statutory clearing approvals and managed internally under an internal permit process, referred to as an Authorisation to Clear Vegetation (ACV). The ACV process conducts a pre-clearing review of the specific area to be cleared, reviews environmental aspects in the area (i.e. DRF, ESAs, TEC's) and a review of the clearing process to be used. The ACV establishes any specific controls (i.e. hand clearing only) in areas of particular value and provides information on these aspects to the field team. The ACV also enables the tracking of clearing volumes (area), dates completed and location to assist in the reporting process. Section 6 outlines the use of the ACV as a control for environmental impacts identified.

4.4.2 Pigging

The pipeline has been designed to enable the internal clearing of the pipeline. Facilities are included with installations for the launching and receival of in line inspection tools and cleaning via pigging. Pigging is conducted in line with the approved Asset Management Plan and conducted on average every five years depending on cathodic protection results.

5. Environmental Risk Identification and Assessment

5.1 Key assumptions and uncertainty

A number of factors that represent risk to the success of this CEMP are described below. The objectives, management targets and actions are summarised in Section 5 have been designed to try to minimise these risks wherever possible.

AGIG are ultimately responsible for successful construction, operation and rehabilitation of the Proposal to meet the specific completion criteria outlined in this CEMP and the corresponding Rehabilitation Management Plan (RMP); however, there are actions that will be implemented by third parties where relevant (e.g. the Construction Contractor will implement the majority of actions based on a standard pipeline reinstatement and rehabilitation approach). Issues associated specifically with heritage values will be addressed in consultation with the Traditional Owners.

5.2 Risk assessment process

AGIG ensures the effective management of risk across its business through implementation of their Risk Management Policy. The AGIG Risk Management Policy makes a commitment to ensure that:

- Systems are in place to identify (as fair as reasonably practicable) risks faced by the business
- The impact of identified risks is understood
- Risk treatment owners are nominated to manage the identified risks
- Assurance is provided on the effectiveness of the risk management system and risk controls.

In order to identify understand and manage all environmental sources of risk and consequent impacts associated with the construction of the Proposal, a comprehensive Environmental Risk Assessment (ERA) was undertaken as part of the development of this plan to identify the potential impacts with a greater environmental risk and where assessment and management controls should be focused (Appendix D). The ERA included a multidisciplinary team of in-house personnel following a structured process to:

- Outline key construction activities
- Identify, analyse and evaluate associated hazards and corresponding environmental impacts
- Where necessary, establish suitable controls
- Systematically assess the residual associated environmental risk.

The risk assessment was undertaken using a systematic risk-based approach based on international best practice standards, including:

- AS/NZS ISO 31000:2018: Risk management - Principles and Guidelines (Standard)

- HB 158:2010: Delivering assurance based on ISO 31000:2009 Risk management – Principles and Guidelines (Handbook)
- HB 203:2012: Managing environment-related risk (Handbook)
- HB 436:2004: Risk Management Guidelines Companion to AS/NZS 4360:2004 (Handbook).

This approach is summarised in Figure 4-1.

The risk assessments were conducted collaboratively between the consultant (ELA) and AGIG to identify the objectives, scope and risk criteria for the Proposal. The risk assessment for the biophysical factors and socio-economic factors required different specialist expertise and were conducted separately. The ERA methodology employs a structured workshop which completes the below key steps:

a. Definition of the study objectives and area to be studied.
b. Identification of activities involved in operation and maintenance of the assets.
c. Brainstorming of the hazards and their causes.
d. Assessment of the risk associated with the identified hazards including:
    i Determination of worst-case credible consequences
    ii Identification of the existing safeguards (management control and mitigation systems and procedures)
    iii Determination of the likelihood of the consequence occurring
    iv Categorization of the risk utilizing the AGIG Operational Qualitative Risk Analysis Matrix (Appendix C).
e. Development of control measures (where deemed appropriate) to address the risks deemed unacceptable or not ALARP. Consideration of not just the proposed risk control action but also the accountability, resource requirements, timing, performance measures, monitoring and reporting requirements.
f. Evaluation of the residual risk as per the methodology outlined in Step 4.
g. Documentation of all findings within the Project Environmental Aspects and Impacts Risk Register.

ALARP and Acceptability is managed through the risk workshop process. AGIG implements a process based on risk with all risks intermediate and above assessed during the risk workshop for ALARP.

Risks that are low and negligible residual impact are not assessed for ALARP. This is due to these risks being of low consequence or highly unlikely to occur and are generally well known to the industry and part of everyday activities. Controls for these are common and form part of normal work practices.

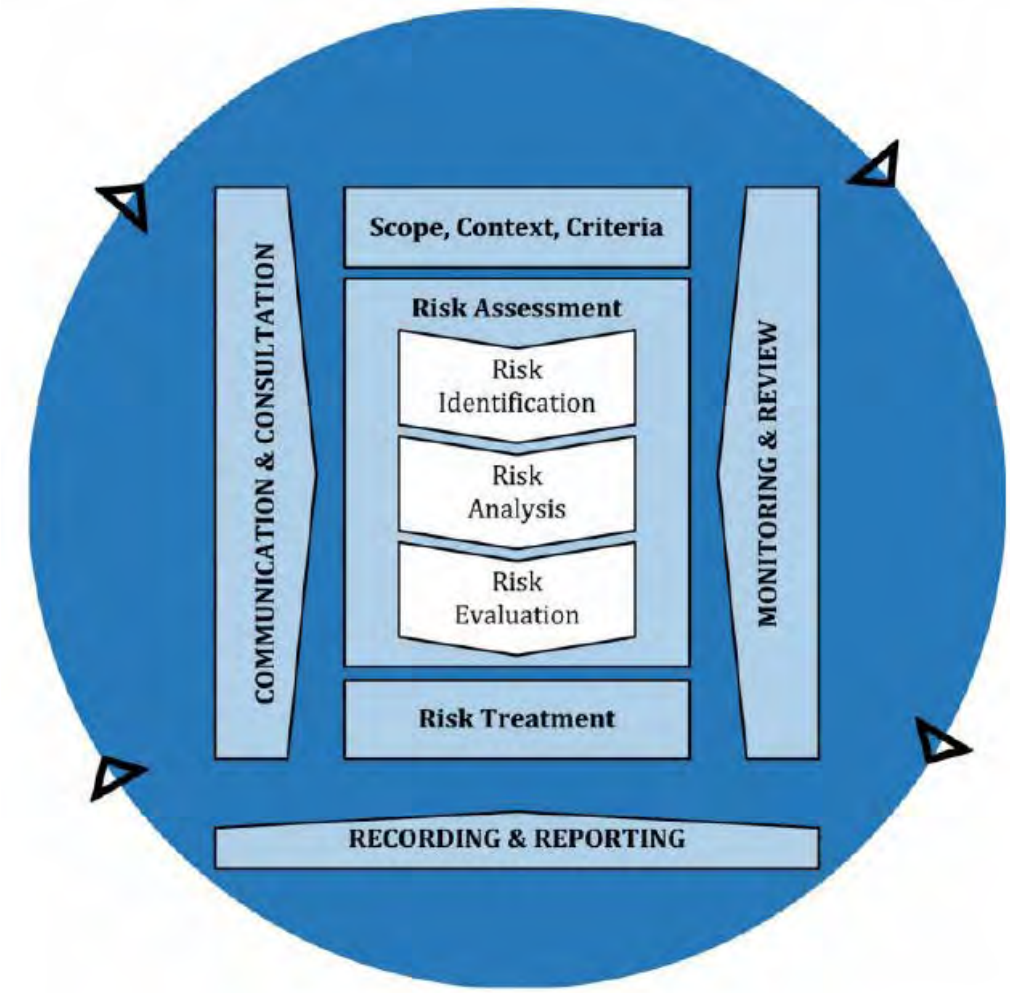

Figure 5-5-1 AS/NZS ISO 31000:2018 Risk Management Process

The scope of the risk assessment included all activities directly related to the construction and operation of the Proposal. Environmental aspects relevant to the Proposal and considered in the risk assessment were:

- Vegetation clearing
- Excavation
- Water use/groundwater extraction
- Energy/electricity use
- Physical presence of infrastructure
- Vehicle movements
- Fire ignition
- Liquid (including septic) and solid waste disposal
- Spills and leaks
- Atmospheric emissions (excluding dust)
- Dust emissions

- Light emissions
- Noise and vibration emissions.

The risk ratings were determined for each combination of aspect and factor, using the definitions of consequence and likelihood and applying the risk matrix (Appendix C).

Inherent risk ratings were determined with the assumption that minimum standards would be met without the implementation of additional management controls or risk assessment. Minimum standards would include compliance with legislative and corporate requirements or with operating practices commonly used for construction, operation and decommissioning of gas pipelines in WA. Knowledge of the likely occurrence of flora and fauna species (particularly threatened species and ecological communities) was addressed in the initial (pre-mitigation) risk assessment.

Management controls relevant to each inherent risk were identified, applying the management response criteria (Figure 4-1) and particularly focusing on those inherent risks rated as 'intermediate' and above. Standard controls employed by the proponent in their pipeline operations were applied initially to determine initial residual risk ratings. These ratings were further informed by impact analysis and specific Proposal controls developed within the CEMP. The ratings were revised iteratively to reduce the residual risks to as low as reasonably possible.

The full environmental risk assessment for the Proposal is outlined in Appendix D.

ALARP and Acceptability assessments were conducted for each of the environmental risks identified. These assessments were carried out by a group of multidisciplinary professionals with relevant industry experience calling upon their knowledge and awareness of internal and external scenarios where similar risks have been successfully controlled; and internal and external incidents where similar risks have failed to be adequately controlled. Comparison was made against documented industry standards when identifying the minimum standard to be achieved at all times. Specifically, the APGA Code of Environmental Practice was used for this purpose. Importantly, all assessments undertaken had regard for the inherent environmental risk of the subject area, acknowledging that ALARP would not always equate to acceptable.

6. Implementation Strategy – Construction and Operations

Each hazard and associated impact identified during the ERA has been attributed to at least one of the below environmental interactions (refer Appendix D):

- Soils and Sediment
- Flora
- Weeds and Pathogens
- Bushfire
- Fauna
- Cultural Heritage and Stakeholders
- Air Emissions / Dust / Noise
- Surface and Ground Water
- Hazardous Materials Storage and Handling and Spill Response
- Waste

Within each interaction sub group, each group of impacts and risks has been addressed with an objective to:

- Define the environmental performance objectives that will be required to be achieved in order to ensure environmental protection
- Define the environmental performance standards that relate to the quality of the performance
- Define the measurement criteria for determining whether the objectives and standards have been met for the activity

This section further establishes an implementation strategy such that the established objectives and standards may be met over the life of the WER.

To monitor the effectiveness of the set standards, targeted monitoring commitments have been specified where relevant. This details a measurement criteria against each standard to measure the implementation and effectiveness in achieving the objective against specific environmental interaction.

Rehabilitation for the WER is covered under a separate Rehabilitation Management Plan.

6.1 Soil and Sediments

Table 6-1 Soil and sediment; environmental objectives, standards, management controls, measurement criteria and monitoring

Soil and sediment							
Activities	Vehicle usage, pipeline maintenance, access track maintenance, clear and grade, trenching and excavation.						
Hazard	Poor stockpiling of topsoil, vehicle and earthmoving equipment movements, mixing of topsoil and subsoil and environmental conditions.						
Measurement of Environmental Performance							
Potential Environmental Impact	**Inherent Risk**	**Management Objective**	**Standard/ Management Action**	**Residual Risk**	**Responsibility**	**Monitoring**	**Measurement criteria**
Loss or negative impacts to topsoil	High	Minimise change to soil profile from excavation activities	Any works impacting the topsoil or soil profile shall abide by the Native Vegetation Clearing Procedure (E-PRO-002) [or an equivalent procedure] which shall ensure at a minimum the: • Rehabilitation and reinstatement of non-operational areas • Segregation of topsoil and subsoil • Topsoil stockpiles to not exceed 2 m in height • Reinstatement of soil profile following excavation • Ripping of compacted subsoil before reinstating topsoil • Authorisation to Clear Vegetation (ACV) or an equivalent process is implemented • Dust suppression to control soil loss.	Low	Project Manager (Construction) Executive General Manager Transmission Operations (Operations)	HSE System Audit Facility HSE Inspection	All corrective actions identified in the HSE System Audit or Facility HSE Inspection in relation to erosion are closed out within the due date.
Erosion and sedimentation	High	Prevent occurrence of soil erosion	If erosion is identified associated with AGIO activities, erosion repairs shall be undertaken and if warranted, erosion and sediment control structures shall be constructed. The Procedure for Management of Erosion Risk Areas (E-PRO-003) shall be implemented including: • Sticking to existing tracks • Rehabilitation of non-operational areas • Erosion controls implemented on stockpiles (where required) or discharge points.	Low		Event Report Review Facility HSE Inspection	All corrective actions for erosion inconsistent with surrounding areas area closed out within the due date.
Exposure of potential ASS	Intermediate	Prevent acidification of potential ASS	Conduct ASS investigations where required and implement appropriate management measures, in consultation with relevant agencies.	Negligible		HSE System Audit	No non-compliances identified against objective.
ALARP and Acceptability							
ALARP	Risk of soil loss and erosion is minimal during operations as excavation of soil and vegetation maintenance activities are well controlled and have minimal impacts. For example, pipeline dig ups are minimal in size (<20 m) and vegetation maintenance does not impact root stocks and adds mulch back to affected areas. Reinstatement and rehabilitation works assist is ensuring drainage lines and erosion are assessed and controls implemented to prevent ongoing impacts. The controls in place for management of soils removed during excavation are suitable to manage the minimal impacts. Additional controls are implemented for any identified areas of erosion or potential ASS and inspections processes are in place to identify these.						
Acceptability	The risk for operations from soil loss and erosion is low. Erosion is more likely from an external source (regional flooding) and is managed through ongoing surveillance activities and consultation with landholders. AGIG accepts these risks as low and negligible as the controls are well known, industry wide accepted practices and pose little offsite risk. Development of potential ASS management measures, in line with the DWER guidelines will assist with managing discrete local impacts at the time of the activity and is aimed at minimising duration of works to reduce the potential for impact.						

Soil and sediment				
Systems and Procedures				
Risk Assessment Processes Native Vegetation Clearing Procedure (E-PRO-002) Management of Erosion Risk Areas Procedure (E-PRO-003) Driving Procedure (S-PRO-024) Work Order System (operations) INX InControl (Event Management System) HSE Audit and Evaluation Procedure (S-PRO-054) Corrective Action Register (CAR)				
Monitoring	**Details**	**Responsibility**	**Records**	**Timing**
HSE System Audit	A HSE Audit will be undertaken against the Native Vegetation Clearing Procedure (E-PRO-002) and evidence of ASS to assess implementation and effectiveness.	HSE Manager	HSE Audit Report	Once during the Proposal and annually during operations
Event Report Review	Incident or event information reviewed in relation to erosion or soil quality. Trend Analysis is conducted to ensure ongoing identified of trends.	HSE Manager	INX – Event Reports Trend Analysis	Opportunistic Annual – Trend Analysis
Facility HSE Inspection	Facility HSE inspections include a checklist approach to identify any areas of concern or potential environmental hazards; in this case specific to erosion or potential for erosion.	Person In Charge	Facility HSE Inspection Report	6 monthly (includes plant and meter station)

6.2 Flora including weed and pathogens

Table 6-2 Flora and vegetation; environmental objectives, standards, management controls, measurement criteria and monitoring

Flora and vegetation							
Activities	Vegetation and line of sight clearing, trenching and excavation, vehicle/machinery usage, maintenance activities, increased fire risk from machinery and vehicle movement, spills of hydrocarbons, hazardous materials or liquids and solid waste.						
Hazard	Clearing activities, unapproved disturbance to declared rare flora or conservation significant species, excessive clearing, vehicle and earthworks machinery movements, increased presence of weeds, contamination from waste or spills, import of contaminated fill and poor weed control program. Bushfire impacts to flora and vegetation are outlined in Table 5-3.						
Measurement of Environmental Performance							
Potential Environmental Impact	**Inherent Risk**	**Management Objective**	**Standard / Management Action**	**Residual Risk**	**Responsibility**	**Monitoring**	**Measurement criteria**
Direct loss of conservation significant flora and vegetation Degradation of vegetation conditions	High	Minimise and manage the disturbance to remnant native vegetation	All clearing is managed through an internal authorisation process which facilitates preclearing checks by a competent person to: • ACV is implemented to obtain any regulatory approvals prior to clearing • Delineation of approved area prior to clear and grade (pegging) • Review the proposed location and method of clearing and conduct impact assessment • Obtain any approvals required to ensure compliance to all relevant laws • Establish any conditions necessary in order to minimise impact (including at a minimum the segregation and stockpiling of soil to enable reinstatement) • Vehicle movements to be limited to established tracks. The single individual *Paracaleana dixonii* shall be identified prior to any ground disturbance. The individual shall then be delineated through rope barriers, signage and the location marked. This information will be provided in the site project induction and to all ground disturbance works. The ACV shall include all controls and conditions to avoid disturbance to this individual. A Pre-clearance inspection shall also be completed ahead of clear and grade activities (ground disturbance) to identify any additional individuals in the disturbance footprint.	Low	Project Manager (Construction) Executive General Manager Transmission Operations (Operations)	Project Environmental Inspections	No clearing conducted outside the internal authorisation process.
						HSE System Audit	100% compliance to regulatory approval conditions
			Areas of vegetation disturbance not required for future operational use shall be rehabilitated in accordance with the RMP.		Project Manager (Construction) Executive General Manager Transmission Operations (Operations)	Project Environmental Inspections	Project Environmental Inspections verify 100% compliance with rehabilitation requirements.
						Vegetation Clearing Review	All vegetation clearing conducted in compliance with internal authorisation process.

Flora and vegetation							
			Maintain a GIS Environmental Database to present up to date publicly available information regarding the location of conservation significant and environmentally sensitive areas.		GIS Manager	GIS Review	GIS database is up to date and contains all relevant Proposal environmental information
Introduction of new weeds Spreading of existing weeds or pathogens Impact on native vegetation through use of herbicides for weed management	High	Minimise the potential for new weeds to be introduced from external sources. Minimise the risk of spreading existing weeds or pathogens.	Targeted weed management including: • Vehicles to remain on existing tracks • Targeted control of infestations • Identification and management of Weeds of National Significance (WONS) • Keeping records of new or previously unreported weed areas. Clean on Entry (CoE) Procedure including: • The delineation and demarcation of locations of infestation, high sensitivity to weeds or pathogens (i.e. COE areas) • The preferential scheduling of work for drier periods • The clean down of vehicles, including frequent visual inspections prior to entering or exiting COE areas (as per GIS database) • All fill is certified weed and seed free prior to use. A Dieback survey shall be completed prior to any ground disturbance and if located all areas shall be flagged and hygiene stations installed at each egress point.	Low	Project Manager (Construction) Executive General Manager Transmission Operations (Operations)	Project Environmental Inspections Facility HSE Inspection Dieback Survey results	Project Environmental Inspections or Facility HSE Inspections verify 100% compliance with weed and seed requirements including implementation of dieback survey controls.
Demonstration of ALARP and Acceptability							
ALARP	Vegetation maintenance activities are reduced as much as possible in terms of frequency and area impacted to minimise impacts to native flora. By minimising this clearing and having an internal and external approval process the impacts are reduced to ALARP. These activities are undertaken to meet recognized standards for safety and pipeline operation and are required under the pipeline Safety Case. Vehicle movements are minimised where possible but are required to ensure safe and effective management of the pipeline. Rehabilitation and reinstatement of non-operational areas assists in re-establishing areas required for projects or previous activities. Maintenance of tracks, fire break etc. are required to ensure safe access and controls for operations. Additionally, the review process through HSE System Audits and the Vegetation Clearing Register assist in monitoring and reviewing impacts from the above activities. The above controls have reduced this risk to an ALARP level.						
Acceptability	By minimising vegetation maintenance activities and requirements for internal approval for clearing works, AGIG has reduced the risk to an acceptable level. By utilising established tracks and maintaining vegetation this meets regulatory requirements for pipeline safety while reducing the ongoing risk to flora. By implementing the above controls this reduces the potential impacts to an acceptable level.						
Systems and Procedures							
Risk Assessment Processes Native Vegetation Clearing Procedure (E-PRO-002) Procedure for Maintenance of the DBP Environmental GIS Database (E-PRO-001) INX InControl (Event management system) GIS and aerial surveillance Land Management System (LMS) Driving Procedure (S-PRO-024) Ministerial Statement – Regulatory Approval Driving Procedure (S-PRO-024) Clean on Entry Procedure (E-PRO-014)							
Monitoring	**Details**			**Responsibility**		**Records**	**Timing**

Flora and vegetation				
Project Environmental Inspections	Inspections against a pre-determined checklist to review environmental management of key risk areas including clearing permit rehabilitation and weed and pathogen controls installed and implemented.	Project Manager	Project Environmental Inspection Checklist Weed Hygiene Certificates Wash down logs GIS mapping of dieback locations if identified.	Weekly during construction activities
Vegetation Clearing Review	Review of all vegetation clearing to ensure compliance to regulatory approval conditions.	HSE Manager	Vegetation Clearing Register Completed clearing records (survey records)	At end of clear and grade and end of Proposal Annual during operations
HSE System Audit	A HSE Audit will include: • The Native Vegetation Clearing Procedure (E-PRO-002) or equivalent Proposal procedure to assess implementation and effectiveness.	HSE Manager	HSE Audit Report	Once during the Proposal, annual audit during operations
GIS Review	Review GIS data for relevancy and ensure data is up to date	GIS Manager	GIS databases	Biannually (every two years)
Facility HSE Inspection	Facility HSE inspections include a checklist approach to identify any areas of concern or potential environmental hazards; in this case specific to flora and clearing processes.	Person In Charge	Facility HSE Inspection Report	6 monthly (includes plant and meter station)

6.3 Bushfire

Table 6-3 Bushfire; environmental objectives, standards, management controls, measurement criteria and monitoring

Bushfire							
Activities	Vehicle usage, line of sight clearing, pipeline maintenance, maintenance of supporting infrastructure including hot works, construction operations.						
Hazard	Ignition from vehicles, hot works (grinding, welding, etc.) or other activities (smoking etc.)						
Measurement of Environmental Performance							
Potential Environmental Impact	**Inherent Risk**	**Management Objective**	**Standard/ Management Action**	**Residual Risk**	**Responsibility**	**Monitoring**	**Measurement criteria**
Direct loss or fragmentation of native vegetation and/or fauna habitat from increased fire frequency	High	No pipeline operation caused bushfire To prevent bushfires as a result of construction or operational activities	Abide by all Bushfire Regulations including total fire ban requirements (conduct daily checks on fire danger rating for daily prestart) All activities are conducted in accordance with relevant fire restrictions (local, state), notifications and permitting procedures. This includes: • Designated smoking areas • All plant and equipment comply to fire safety standards • Fire breaks are in place and maintained • High gas risk areas are demarcated and signed • Inductions include fire risks (hot works and smoking) • Selected personnel are trained in responding to fires • Appropriate, maintained firefighting equipment is available at all times; • All prohibited items are kept away from hazardous areas. Permit to Work and Hot Works Certificate including gas testing for hazardous areas as per the Hot Works Procedure	Low	Project Manager Executive General Manager Transmission Operations (Operations)	HSE System Audit Project Environmental Inspections Facility HSE Inspections	HSE Audit verifies all conditions for firefighting equipment, notifications and total fire ban monitoring are implemented. Project Inspections or Facility HSE Inspections verify firefighting equipment in place and 90% tagged in date.

Bushfire				
Demonstration of ALARP and Acceptability				
ALARP	While utilizing industry standard practices and implementing requirements from the recent Bushfire Regulations amendments this risk has been reduced to an ALARP level. This includes ensuring daily understanding of the fire risk, ensuring first response equipment is available and the training of selected personnel. Where possible works are taking place offsite (in workshops, laydown yards) to reduce the amount of welding or ignition sources near gas risk areas. The Permit to Work System includes requirements for Hot Work Certificates to manage this activity including vehicle movement in hazardous areas. Additional legislative requirements including fire mitigation requirements such as fire breaks. With these controls this risk has been reduced to ALARP.			
Acceptability	The risk of starting a bushfire is limited due to the above controls and the fact that hot work risks are well known to the industry and controls are general practices implemented for all projects. Internal approvals through the Permit to Work System and training of personnel helps to minimise the risk. Major operational sites are equipped with fire-fighting capability to minimise this risk and the likelihood of occurrence has been reduced to an acceptable level.			
Systems and Procedures				
Risk Assessment Processes Driving Procedure (S-PRO-024) *Bushfire Act 1954* Hot Work Procedure (S-PRO-032) HSE Audit and Evaluation Procedure (S-PRO-054) Risk Assessment processes INX InControl (Event Management System)				
Monitoring	**Details**	**Responsibility**	**Records**	**Timing**
Project Environmental Inspections	Inspections against a pre-determined checklist to review environmental management of key risk areas including firefighting equipment.	Project Manager	Project Environmental Inspection Checklist	Weekly during activities
HSE Audit	Review of all Bushfire Act conditions and specifically work on total fire ban days.	HSE Manager	HSE Audit Report Notification Correspondence Pre-start minutes	Once during the Proposal, annually during operations
Facility HSE Inspection	Facility HSE inspections include a checklist approach to identify any areas of concern or potential environmental hazards; in this case specific to bushfire risk and controls.	Person In Charge	Facility HSE Inspection Report	6 monthly (includes plant and meter station)

6.4 Fauna

Table 6-4 Terrestrial fauna environmental objectives, standards, management controls, measurement criteria and monitoring

Fauna							
Activities	Habitat and line of sight clearing, waste disposal and storage, vehicle use, construction of pipeline, maintenance activities, excavation, clear and grade, trenching, lowering in						
Hazard	Trench or excavation fauna entrapment, vehicle and earthworks machinery movements, attraction of fauna to temporary facilities, gates left open (livestock)						
Measurement of Environmental Performance							
Potential Environmental Impact	**Inherent Risk**	**Management Objective**	**Standard/ Management Action**	**Residual Risk**	**Responsibility**	**Monitoring**	**Measurement criteria**
Direct loss or fragmentation to fauna habitat Direct injury or mortality of individuals as a result of entrapment or interaction with vehicles/machinery Indirect impact from introduction or spread of feral predators Indirect impact to fauna habitat from fire ignition Indirect impact to fauna and their habitat from dust, light noise and vibration.	Intermediate	To minimise temporary or permanent reduction in fauna habitat. To minimise direct impacts to fauna including injury and mortality to fauna from entrapment in excavation works, collision with vehicles or machinery. To minimise changes to pest predator abundance within and adjacent to the Development Envelope.	All personnel shall abide by the requirements of the Fauna Interaction Procedure (E-PRO-004) or equivalent procedure including: • Planned interactions in consultation with trained and licensed personnel • All fauna handling to be conducted by a licensed fauna handler • Fauna interaction controls (minimise handling, release ASAP to safe location, report all handling events) • Speed limits (80km/h unsealed roads) • Reduce speeds / minimise travel in dawn and dusk periods • Vehicles to remain on existing tracks • Inspection of habitat trees prior to felling • Recording of all fauna interactions including location data and date • Capturing all fauna interactions (injury, relocation or fatality) data.	Low	Project Manager - Construction Contractor Project Manager (AGIO) Executive General Manager Transmission Operations (Operations)	Fauna Licence Review	No non-compliances to the Fauna Licence
						Event Report Review	All fauna injuries or fatalities are captured as an event and reported InControl
			AGIG shall implement the Native Vegetation Clearing Procedure (E-PRO-002) or equivalent procedure in relation to: • Authorisation to Clear Vegetation (ACV) or an equivalent process is implemented • Delineation of approved area prior to clear and grade (pegging) • The identification of potential conservation significant fauna species • Pre-clearance inspection to identify fauna present in order to avoid impact • Undertaken in stages (to allow for progressive movement of fauna outside of disturbance area) • Conducting clearing in a manner that does not trap fauna.		Project Manager Executive General Manager Transmission Operations (Operations) Executive General Manager Transmission Asset Management (Operations)	HSE System Audit	All activities to be conducted to confirm compliance to procedural controls and environmental approval conditions (e.g. clearing limits of the NVCP).
			Any open trench (outside of a fenced facility) shall require at a minimum the: • Twice daily completion of trench inspections within 3 hours of sunrise and within 4 hours of sunset • Installation of fauna egress from excavations or trenches (i.e. exit ramps every 500m of trench at a minimum and each excavation) • Inspection of pipework for fauna prior to welding, including use of caps for pipe sections • Installation of fauna shelters every 100m if trench is >500m in length • Fauna ramps to be placed at both ends of trenches (intervals not to exceed 1 km)			Project Environmental Inspections Facility HSE Inspection	Project Environmental Inspections verify completion of daily fauna trench clearance reports Facility HSE Inspections include potential impacts of fauna, evidence of fauna in compounds and fauna controls are implemented. Any corrective actions are closed out by due dates.

Fauna							
			• Completion of a fauna inspection within 30mins prior to lowering in/backfill operations commencing.				
Attraction of pest predators			• Site hygiene (waste management and food hygiene) measures will be implemented during construction and operation so as not to attract pest predators • The plant facility including the evaporation pond and infiltration pond will be fenced so as not to attract pest predators to sources of permanent water. • Where there is a measurable increase in observations of pest predators within the Development Footprint, pest predator control will be undertaken within and adjacent to the Development Envelope in co-operation with regional control programs.		Project Manager, Construction Contractor	Project Environmental Inspections Opportunistic observations	Site hygiene measures adhered to, including all waste non accessible to pest predators.

ALARP and Acceptability	
ALARP	Due to its operations over time, AGIG has a proven record of minimal impacts to species through operations. The management of vegetation maintenance activities including the minimisation of clearing and frequency of activity reduces the potential impacts to fauna. Fauna interaction controls, including the training of selected personnel, reduces impacts during any relocation and the fencing of compounds and reduction or management of items that would attract fauna (waste management, water management and pest control) keeps interactions to a minimum. Fauna controls are well known to the industry and controls over trenching and excavations are well implemented during enhancement projects. This minimises the impact to ALARP.
Acceptability	Fauna impacts, especially to conservation fauna are limited during operations and the buried nature of the pipeline. The main risk is through vehicle use and controls are in place to ensure this is minimised wherever possible. Controls during trenching or excavation also reduce the potential for impact to fauna. This is an acceptable risk based on the above controls.
Systems and Procedures	
Risk Assessment Processes Driving Procedure (S-PRO-024) HSE Audit and Evaluation Procedure (S-PRO-054) Native Vegetation Clearing Procedure (E-PRO-002) Fauna Interaction Procedure (E-PRO-004) INX InControl (Event Management System) INX InTuition (Training System)	

Monitoring	**Details**	**Responsibility**	**Records**	**Timing**
Project Environmental Inspections	Inspections against a pre-determined checklist to review environmental management of key risk areas including fauna inspections and access and egress controls and waste management	Project Manager	Project Environmental Inspection Checklist Fauna Interaction records/data	Weekly during construction activities
Event Report Review	Incident or event information reviewed in relation to fauna interactions. Trend Analysis is conducted to ensure ongoing identification of trends.	HSE Manager	INX Event Reports	Opportunistic
Fauna Licence Review	A review to document all details of fauna interactions including personnel involved, the date, location, species and release details.	HSE Manager	Fauna Licence Return INX Event Reports	At completion of the Proposal
Facility HSE Inspection	Facility HSE inspections include a checklist approach to identify any areas of concern or potential environmental hazards; in this case specific to evidence of fauna onsite and waste controls.	Person In Charge	Facility HSE Inspection Report	6 monthly (includes plant and meter station)

Fauna				
HSE System Audit	HSE System Audit reviews fauna control implementation to ensure risk to native fauna is minimised and the prevention of pest fauna is maximized.	HSE Manager	HSE Audit Report	Once during the Proposal, annually during operations

6.5 Heritage and Stakeholder Management

Table 6-5 Cultural heritage and stakeholder objectives, standards, management controls, measurement criteria and monitoring

Cultural heritage and stakeholder							
Activities	Vehicle use, maintenance of pipeline, pipeline excavation, clear and grade, trenching, access track maintenance, line of sight clearing						
Hazard	Clearing in unapproved areas, vehicle and earthmoving equipment movement, dust or vibration impacts to cultural sites						
Measurement of Environmental Performance							
Potential Environmental Impact	**Inherent Risk**	**Management Objective**	**Standard/ Management Action**	**Residual Risk**	**Responsibility**	**Monitoring**	**Measurement criteria**
Impacts to known or unrecorded Aboriginal Heritage Sites	Intermediate	To avoid disturbance to Aboriginal heritage sites identified for protection near the pipeline corridor. To manage new Aboriginal heritage sites/artefacts uncovered or identified in accordance with the requirements of the *Aboriginal Heritage Act 1972.*	The induction sets out AH Act controls (includes all AGIG personnel) All clearing is managed through an internal authorisation process which facilitates preclearing checks by a competent person to: • Review the proposed location of clearing and conduct cultural impact assessment • Identify sites via the GIS system • Obtain any approvals required to ensure compliance to all relevant laws • Establish any conditions necessary in order to minimise cultural impact.	Low	Project Manager Executive General Manager Transmission Operations	Project Environmental Inspections	Any identified non compliances to the AH Act or these controls are reported as an event and any actions arising are closed out within due dates
						Event Report Review	Any identified non compliances to the AH Act or these controls are reported as an event and any actions arising are closed out within due dates
			All relevant personnel working on or near an Aboriginal site shall be made aware of their responsibilities under the *Aboriginal Heritage Act 1972.* This includes: • No clearing outside of approved areas If a previously unidentified cultural heritage site is uncovered then a 30m buffer must be established around the new site within which work must cease.			HSE System Audit	All activities to be conducted to confirm compliance to procedural controls and environmental approval conditions (e.g. AH Act, this plan).
Impacts to other land users (including farmers) including clearing outside of approved areas, use of gates etc.		Avoid impacts to landholder including livestock, access, water and weeds	Landholders are communicated with at least annually and complaints responded to within 14 days	Negligible	Land Manager	LMS Review	LMS verifies the 100% response within timeframe
ALARP and Acceptability							
ALARP	Using standard approvals, GIS information, the Registered Sites Database and consultation with Traditional Owners AGIG is well aware of the location of known sites and previous approvals (initial construction and loop line projects) ensures approved access to the corridor. During operations these potential impacts are reduced even further as personnel stick to existing tracks and avoid heritage locations at all times. Heritage agreements are in place along the pipeline route. Awareness programs for personnel (i.e. the induction) include the potential for artefacts to occur and what is required if discovered. This has reduced this risk to ALARP levels. Impacts to Landholders is managed through landholder agreements established prior to construction and ongoing consultation (at least once annually).						
Acceptability	A negligible or low risk ranking is fully acceptable to the business and through ongoing consultation and approved management of the pipeline the risk of any damage or discovery of new sites is minimised. Land user impacts are limited due to prior notification of activities, ongoing consultation and aerial surveillance techniques. By entering into Heritage Agreements, ongoing consultation with Traditional Owners and landholders and a process for managing complaints these risks are at an acceptable level.						
Systems and Procedures							
Risk Assessment Processes Native Vegetation Clearing Procedure (E-PRO-002)							

Cultural heritage and stakeholder				
HSE Audit and Evaluation Procedure (S-PRO-054) *Aboriginal Heritage Act 1972* Land Management System (LMS) INX InControl (Event Management System) INX InTuition (Training System)				
Monitoring	**Details**	**Responsibility**	**Records**	**Timing**
Project Environmental Inspections	Inspections against a pre-determined checklist to review environmental management of key risk areas including CHMP conditions.	Project Manager	Project Environmental Inspection Checklist	Weekly during construction activities
Landholder Management System	Notification to landholders, stakeholders and Heritage groups/Traditional Owners and the response to any complaints	HSE Manager	INX Event Reports Land Management System	Opportunistic
HSE System Audit	A HSE approach to assess procedural controls are implemented including Cultural Heritage requirements	HSE Manager	HSE Audit Report CHMP	Once during the Proposal and annually during operations
Event Report Review	Incident or event information reviewed in relation to heritage and landholder interactions. Trend Analysis is conducted to ensure ongoing identification of trends.	HSE Manager	INX Event Reports	Opportunistic and on completion of monthly event reporting requirements to DMIRS. Also part of Annual Compliance Reporting to DMIRS and DWER.

6.6 Air, Dust and Noise Emissions

Table 6-6 Air, dust and noise emissions objectives, standards, management controls, measurement criteria and monitoring

Dust and noise emissions							
Activities	Vehicle use, venting and purging, failure of relief valves and commissioning pipeline operation and construction plant and equipment.						
Hazard	Vehicle and earthworks machinery movements, noise from construction and operational equipment, including mobile plant. All GHG and air emissions are accounted for in the GHGMP.						
Measurement of Environmental Performance							
Potential Environmental Impact	**Inherent Risk**	**Management Objective**	**Standard/ Management Action**	**Residual Risk**	**Responsibility**	**Monitoring**	**Measurement criteria**
Dust – impacts offsite to stakeholders, visual amenity and coverage of flora	Intermediate	Minimise disturbance to flora, fauna or sensitive receptors (i.e. residential locations) from dust or noise emissions	Where excessive airborne dust is generated or a substantiated landholder complaint received, any combination of one or more of the following shall be implemented as required. This includes: • Reduced speed limited on unsealed roads and right of way • Minimise time between clear and grade (stripping) and backfill / reinstatement • SWMS/ JHA to identify dust risk at time of activity and apply controls (i.e. water cart/ truck) • Minimise grit blasting through other techniques (wire brush) where possible. Install enclosures and containment of overspray particles • The application of water or stabilisers via water trucks and sprayers to dampen down soil. No run-off should be generated from application. Applications shall be frequent enough to provide persistent dust suppression • Ensuring vehicles with dust emitting loads must be covered (except when loading and unloading) • The potential use of dust stabilisers, water, tarps or geo-textile materials to suppress dust generated from stockpiles.	Low	Project Manager Executive General Manager (TO)	Event Report Review LMS Facility HSE Inspection Project Environmental Inspections	All corrective actions for dust complaints are closed within the due date.
Noise impacts to residents/ neighbours/ other stakeholders	High		Project work times (no night works unless authorised through project risk assessment) Reduce pressure to as low as possible prior to venting (minimise noise) Standard design and operating procedures to minimise noise including mobile plant and blasting Noise controls are implemented as required to minimise noise impacts including notification to landholders/ stakeholders prior to commencement of potentially noisy activities Noise modelling (no impact assessed against Guidance Statement No.3 – Separation Distance Between Industrial and Sensitive Land Uses (EPA, 2005))	Low	Project Manager Executive General Manager (TAM)	LMS Event Report Review	All corrective actions for noise complaints are closed within the due date.
Greenhouse Gas (GHG) Emissions / Air Emissions	Intermediate	Minimise GHG emissions and meet requirement of the approved GHG Management Plan	Meet Greenhouse Gas Management Plan (GHGMP) emission targets Implement ongoing controls to minimise plant emissions Respond in a timely manner to all gas leaks and uncontrolled emissions Complete all regulatory reporting in relation to GHG emissions Abide by any DWER prescribed premises license conditions	Low	Project Manager Executive General Manager (TAM)	Emissions data - NGERS Annual Report DWER license returns	All GHGMP emission targets are met. All DWER prescribed premises licenses conditions are reported on annually and any actions arising from non-compliances are closed within the due date.
ALARP and Acceptability							

Dust and noise emissions				
ALARP	Controls for emissions, dust and noise are all well known, industry standard controls that act to reduce potential impacts. In addition, the remote nature of the Development Envelope and above controls minimises the creation and impact of dust and noise on sensitive receptors. By ensuring ongoing risk assessment for each task, risks such as noise and dust can be managed onsite by personnel. The design of the plant also utilises equipment to minimise noise creation or odour. Maintenance and other procedural controls ensure the risk of uncontrolled venting of gas is also minimised to ALARP while maintaining safe operational control of the pipeline.			
Acceptability	The minimal impacts that any noise during operations has on environmentally sensitive receptors is limited. With major operational sites located outside the metropolitan area the Proposal has limited impacts from noise and dust. Management of odorant to prevent leaks and utilising a closed system enables a high level of control of odorant use. Training in spill response also mitigates impacts from odorant spills. Timing of works for maintenance activities and enhancement projects (i.e. during workdays) also minimises impacts across all locations. The management of pipeline safety and prevention of leaks also reduces the chances of uncontrolled venting and these risks are at an acceptable level. Emissions modelling completed and design inputs indicate that emission levels are below industry standard levels.			
Systems and Procedures				
INX InControl (Event Management System) Noise Management Procedure (E-PRO-018)				
Monitoring	**Details**	**Responsibility**	**Records**	**Timing**
Project Environmental Inspections	Inspections against a pre-determined checklist to review environmental management of key risk areas including emissions especially dust management and noise controls.	Project Manager	Project Environmental Inspection Checklist	Weekly during construction activities
Facility HSE Inspections	Inspections against a pre-determined checklist to review environmental management of key risk areas including emissions especially dust management and noise controls.	PIC	Facility HSE Inspection Checklist	6 monthly
Event Report Review	Incident or event information review in relation to unplanned emissions, odorant release or dust complaints and trend analysis process to capture ongoing event trends.	HSE Manager	INX – Event Reports Trend Analysis Report	Opportunistic Annual – Trend analysis
LMS	The LMS assists in identifying local landholders/ stakeholders and captures ongoing consultation and notifications	Land Manager	LMS	Annual and opportunistic
Emissions data	All GHG or DWER conditioned emissions are monitored and measured to enable reporting as required under NGER Act or DWER license and to meet requirements of the WER GHGMP.	HSE Manager	Emissions data	Quarterly DMIRS Reporting Annual NGER reporting Annual DWER reporting (as required) under GHGMP and prescribed premises license

6.7 Surface and Groundwater

Table 6-7 Surface and groundwater objectives, standards, management controls, measurement criteria and monitoring

Surface and groundwater							
Activities	Water use, excavation, waste water disposal, pipeline and corridor maintenance, maintenance of drainage lines (access roads and tracks) and hazardous substance use. Note: Erosion and sedimentation shall be managed in accordance with Table 6-1. Hazardous Materials and Spill Response shall be managed in accordance with Table 6-8 respectively.						
Hazard	Disposal of brine from water treatment plan Stormwater management to prevent flooding or erosion Waste water disposal Produced water disposal						
Measurement of Environmental Performance							
Potential Environmental Impact	**Inherent Risk**	**Management Objective**	**Standard/ Management Action**	**Residual Risk**	**Responsibility**	**Monitoring**	**Measurement criteria**
Water quality decrease (pollution)	Low	To prevent contamination of surface and groundwater	Stormwater Management Plan including diversion to infiltration pond and erosion controls Installation of erosion controls to prevent sedimentation offsite Capture of site stormwater in infiltration basin Temporary controls installed during construction Evaporation and infiltration pond controls	Negligible	Project Manager Executive General Manager TO	HSE System Audit	Any actions identified from HSE System Audit are closed out within due dates.
			Waste water disposal shall be managed as per design and threshold levels for onsite disposal of water All other waste liquids to be disposed of by a licensed waste contractor	Negligible	Construction Contractor	Project Environmental Inspections Waste Transfer Monitoring	Any actions identified from Project Environmental Inspections are closed out within due dates.
				Negligible	Executive General Manager TO	Facility HSE Inspections Waste Transfer Monitoring	Any actions identified from Facility HSE Inspections are closed out within due dates
Water quantity decrease	Low	Minimise impacts from abstraction of groundwater	Minimise water use for construction and operations Maintain water abstraction within all license / regulated volumes Water abstraction / use only from regulated sources (licensed bores or existing standpipes)	Negligible	Project Manager PIC	Water use volume register	All water use is tracked, reported and in line with license requirements.
Impacts to surface water flow patterns	Low	To ensure that natural surface water flow patterns are not detrimentally impacted	Site designed to capture all stormwater for controlled release (infiltration basin) Maintain drainage lines in a stable condition	Negligible	Project Manager Executive General Manager TAM	Project Environmental Inspections / Facility HSE Inspection	Any impacts to surface water flows are identified and any corrective actions completed within due dates
					Executive General Manager TO	Aerial surveillance	No impacts to surface water flows due to plant or pipeline operations inconsistent with surrounding lands

Surface and groundwater				
ALARP and Acceptability				
ALARP	Controls for surface and groundwater management are all well known, industry standard controls that act to reduce potential impacts. By ensuring ongoing risk assessment for each task, risks such as water quality can be managed onsite by personnel. Reinstatement and rehabilitation works further assist in ensuring drainage lines and erosion are assessed and controls implemented to prevent ongoing impact.			
Acceptability	The risk for operations to adversely impact surface and groundwater is low. AGIG accepts these risks as low and negligible as the controls are well known, industry wide accepted practices and pose little offsite risk. Development of a Stormwater Management Plan, in line with the DWER guidelines will assist with managing local impacts at the time of the activity and is aimed at minimising duration of works to reduce the potential for impact.			
Systems and Procedures				
INX InControl (Event Management System) HSE Audit and Evaluation Procedure (S-PRO-054) Management of Erosion Risk Areas Procedure (E-PRO-003) Stormwater Management Plan				
Monitoring	**Details**	**Responsibility**	**Records**	**Timing**
HSE System Audit	A HSE Audit shall be undertaken during construction against the CEMP controls to assess implementation and effectiveness especially in regards to water use efficiency and water volume against license requirements	HSE Manager	HSE Audit report	Once during construction; Annually during operations
Project Environmental Inspections	Inspections against a pre-determined checklist to review environmental management of key risk areas including waste water management. A record of water use is required to ensure accurate records of water volume usage during construction. Tracking of water volumes abstracted and used	Project Manager	Project Environmental Inspection Checklist Water Volume Tracking Register	Weekly during construction activities
Facility HSE Inspection	HSE inspections using a pre-determined checklist to review environmental hazards and controls onsite including water management and water disposal.	PIC	Facility HSE Inspection Report	6 monthly
Waste Transfer Monitoring	Records of waste liquid, including hazardous wastes removed from site from waste contraction including disposal locations.	Project Manager	Quarterly Emissions Report Contractor supplied waste records/receipts	Quarterly
Water use volume register	Abstraction monitoring data reviewed quarterly to ensure adherence and compliance to license requirements	PIC / Project Manager	Water Use Register	Quarterly reporting on license (DWER – Water Online)

6.8 Hazardous Materials handling; Spills

Table 6-8 Hazardous waste, contamination and spill objectives, standards, management controls, measurement criteria and monitoring

Hazardous materials storage and handling, spill response							
Activities	Weed control, fuel and oil storage and use, painting, cleaning and maintenance, welding and hot works, repairs, construction (concreting and setting agents), storage and use, spill response neutralisers and the transmission of natural gas.						
Hazard	Hazardous chemical use including diesel, oils, herbicides and sewerage, hazardous waste storage and transport of hazardous chemicals						
Measurement of Environmental Performance							
Potential Environmental Impact	**Inherent Risk**	**Management Objective**	**Standard/ Management Action**	**Residual Risk**	**Responsibility**	**Monitoring**	**Measurement criteria**
Degradation of vegetation from contamination Soil contamination Stormwater run off Loss of crop/ impacts to neighbours Bushfire	Intermediate	Prevent the contamination of soil due to accidental spills of hazardous materials Prevent contamination of proximal watercourses by stormwater runoff	Minimise amount of chemicals stored onsite All chemicals used shall be transported, stored and handled and disposed of in accordance with the requirements of the relevant legislation and industry standards and S-PRO-016 Hazardous Materials Storage and Handling Procedure. This includes: • SDS available onsite • Chemical register available onsite • Spill kits in heavy vehicles and at all storage locations • Use of drip trays during refuelling / vacuum removal from tanks • Bunding/self-containment of fixed plant and equipment (i.e. Generators) • All liquid chemical waste disposal includes bunding during storage. • Ensuring secondary containment is in place • Labelling all containers • ChemAlert subscription including risk assessment, max storage volumes and approval process • Project HSE Inspections. Frequent removal of waste product to minimise waste hydrocarbon storage time onsite (vacuum truck) Bund valves locked in closed position (default position) Onsite storage is located > 100m away from surface watercourses E-PRO-015 Waste Management Procedure sets out the controls for waste onsite and the disposal process including the: • Licensing of waste contractor • Segregation of waste streams including hydrocarbon waster and batteries • Collection of all pigging waste in sealed containers • Bunding or containment of liquid wastes. Asset Management Plan requires five-year assessment of soils adjacent to underground petroleum storage tanks	Low	Project Manager HSE Manager PIC Executive General Manager TO	Project Environmental Inspections Facility HSE Inspections	Verify the implementation of hazardous substances controls with any non-conformances actioned within one week.
						HSE System Audit	All corrective actions relating to hazardous substances are closed out within the due date
		Minimise the residual impacts to soil associated with accidental spills	Appropriate spill response equipment, including containment and recovery equipment, shall be available on site and in vehicles undertaking work where there is the potential for fuel or chemical spillage			Project Environmental Inspections	Suitable spill response equipment is in place with any non-conformances actioned within one week.

						Facility HSE Inspections	
			Any spills shall be contained as soon as possible and clean up actioned as soon as feasible			Event Report Review Corrective Action Register	Verifies the completions of actions associated with any spills and 100% close out of actions by the due date.
			Personnel shall be aware of and abide by requirements of the Oil Spill Response Procedure (E-PRO-016) that sets out: • Response to spills, the 3C approach – control, contain, cleanup • Escalation requirements for emergency level spills • Alarms on waste oil storage units (above ground).		Executive General Manager TO PIC	Emergency Exercise Evaluation	An oil spill (or equivalent scenario) drill is completed annually with documented report on outcomes and 100% close out of actions.

Demonstration of ALARP and Acceptability	
ALARP	The ongoing management, including an approval process for chemicals, allows AGIG to minimise onsite storage and ensure handling and transport of chemicals is well understood and controlled. By reducing amounts onsite, providing mitigation measures and training as well as frequent reviews of controls the risk of a large spill to a sensitive receptor is low. The risk of fire is also minimised due to pipeline integrity (leak checks) in place for hot works, gas monitoring and ensuring ignition sources are controlled. This reduces this risk to ALARP.
Acceptability	The risk of spills, fire and contamination are minimised, and controls are well established, industry-based controls to ensure risks of spills are minimised or eliminated onsite. Ongoing monitoring (tanks) and inspections of bunding minimises the risk associated with onsite storage. These controls ensure this risk is at an acceptable level.

Systems and Procedures

Risk Assessment Processes

Hazardous Materials Handling and Storage Procedure (S-PRO-016)

Oil Spill Contingency Plan (as per the Emergency Response Plan (E-PRO-016))

INX InControl (Event Management System)

HSE Audit and Evaluation Procedure (S-PRO-054)

ChemAlert (MSDS Register System) / or equivalent

Waste Management Procedure (E-PRO-015)

Monitoring	**Details**	**Responsibility**	**Records**	**Timing**
Project Environmental Inspections	Inspections against a pre-determined checklist to review environmental management of key risk areas including storage of hazardous goods, spill kits and MSDS.	Project Manager	Project Environmental Inspection Checklist	Weekly during activities
Event Report Review	Incident or event information reviewed in relation to spills including annual trend analysis information for historical trending of events.	HSE Manager	INX Event Reports Trend Analysis Report	Opportunistic
HSE System Audit	System Audit conducted to confirm compliance to the Hazardous Materials Handling and Storage procedure.	HSE Manager	HSE System Audit Report Dangerous goods training records Dangerous goods licenses (transport)	Once every three years
Corrective Action Register	Register that includes hazards, audit and inspection actions and tracks close out	Construction Contractor	Corrective Action Register	Updated weekly at a minimum
Facility HSE Inspections	Inspections against a pre-determined checklist to review environmental management of key risk areas including handling and storage of hazardous materials	PIC	Facility HSE Inspection Checklist	6 monthly

Emergency Exercise Evaluation	Completion of annual spill drill (or equivalent process) to ensure awareness and knowledge of spill response requirements and escalation.	Executive General Manager TO Project Manager	Emergency Exercise Evaluation Report	Annual (or as per project specifications)

6.9 Waste

Table 6-9 Waste objectives, standards, management controls, measurement criteria and monitoring

Waste							
Activities	Domestic waste from crib rooms and offices, hazardous waste (contaminated material and containers), sewage, general pipeline construction and demolition waste, pigging wastes and excess materials						
Hazard	Production of waste from activities, production of food/ personal wastes, littering, minimal segregation and recycling opportunities onsite, storage of liquid wastes. All Hazardous Wastes are accounted for in Table 5-8.						
Measurement of Environmental Performance							
Potential Environmental Impact	**Inherent Risk**	**Management Objective**	**Standard/ Management Action**	**Residual Risk**	**Responsibility**	**Monitoring**	**Measurement criteria**
Attraction of feral fauna Odour (including associated public complaints) Excess waste	Low	Prevent contamination, harm to fauna or environmental harm due to inappropriate storage or disposal of waste	All personnel shall abide by the Waste Management Procedure (E-PRO- 015). This includes requirements for: • Segregation of waste streams as far as possible • Covering over skip bins (except scrap metal) to prevent fauna attraction • Minimisation of wastes where possible (reduce, reuse) • Ensuring the labelling of receptacles • Frequent waste contractor removal of wastes to prevent build up • Additional waste storage available in case of severe weather Aerial Surveillance and road patrols identify third party waste in the pipeline corridor. Management of any discharge of water to land.	Negligible	Project Manager Executive General Manager TO PIC	HSE System Audit	Compliance to the Waste Management Procedure shall be verified through a HSE Audit or Inspections with close out of actions 100% by due date.
						Project Environmental Inspections Facility HSE Inspections	
			All waste shall be captured and stored and then disposed of in a licensed contractor to a licensed waste facility.			Waste Transfer monitoring	All waste records are captured and reported quarterly
			Sewerage shall be stored in a portable tank where sludge is retained for collection and offset disposal by a licensed contractor. Operational sewage shall be managed through leach drain and septic system.			Project Environmental Inspections Facility HSE Inspections	Project Environmental Inspections verify the capture, treatment and containment of all sewerage waste
Demonstration of ALARP and Acceptability							
ALARP	Waste management for operations is a broad, industry known risk with controls implemented through all previous activities and well embedded process to ensure risks associated with waste are managed and minimised. Segregation and ongoing programs to reduce, reuse and recycle waste are in place to minimise any potential impacts. Incineration of waste is only approved at a single location where controls are implemented to minimise impacts to sensitive receptors. Awareness, frequent inspections and increasing opportunities for recycling reduce this risk to ALARP.						
Acceptability	Waste facilities across the Development Envelope are sited to minimise impacts and ensure that where possible segregation of waste streams occurs. Controls to prevent leaks, windblown litter and fauna attraction ensure impacts are minimised to an acceptable level. Management of third-party impacts remains an ongoing issue and frequent inspections, awareness presentations and landholder consultation ensure ongoing waste management along the pipeline corridor						
Systems and Procedures							
Risk Assessment Processes Waste Management Procedure (E-PRO-015) HSE Audit and Evaluation Procedure							
Monitoring	**Details**			**Responsibility**		**Records**	**Timing**
Project Environmental Inspections	Inspections against a pre-determined checklist to review environmental management of key risk areas including waste management.			Project Manager		Project Environmental Inspection Checklist	Weekly during activities

Waste				
HSE System Audit	A HSE Checklist approach to assess procedural controls are implemented including waste receptacles being lidded and labelled, segregation, bunding for hazardous liquid wastes and adequacy of disposal.	HSE Manager	Evaluation Reports	Opportunistic
Facility HSE Inspections	Inspections against a pre-determined checklist to review environmental management of key risk areas including waste management	PIC	Facility HSE Inspection Checklist	6 monthly
Waste Transfer monitoring	Reporting of waste amounts including type and volume	Project Manager Construction Contractor HSE Manager	Quarterly Emissions Report Contractor supplied waste records/ receipts	Quarterly

7. Environmental Management System

This section describes the documented systems and processes of the EMS used for the safe construction and operation of the Proposal. AGIG will implement the EMS to conform with the overarching DBNGP construction and operations managed by DBP. The EMS ensures that hazards are identified and assessed to eliminate or minimise the risk to the environment to a level that is ALARP throughout construction of the Proposal.

7.1 Induction and Training

All staff and contractors shall be required to undertake an environmental awareness induction prior to commencement of works on the WER. The environmental awareness induction is targeted to educate staff and contractors regarding AGIG's environmental objectives and their individual responsibilities for environmental management. The environmental awareness induction covers off on the following key topics:

- Soil and Sedimentation
- Flora and Vegetation
- Weeds
- Fauna
- Bushfire
- Hazardous Chemical and Spill Response
- Cultural Heritage and Communities
- Waste
- Emissions; and lastly
- Water

The DBP induction additionally ensures that all personnel are capable of implementing the JHA process to identify and manage risks.

All visitors or short term workers to a location receive a site-specific induction appropriate in length and content for the type of work being undertaken.

Employees will be trained and provided with appropriate resources to ensure compliance with environmental laws, codes and standards and company policies. These additional specific training needs are addressed on an as needs basis. DBP will maintain a record of training for all personnel.

7.2 Job Hazard Analysis and Take 5

AGIO enable site based risk assessment via the use of either one of two tools: Take 5 (a mini risk assessment) or JHA (a detailed risk assessment). The appropriate tool to use will vary dependent upon the number of job steps and hazards requiring assessment and control.

Both the Take 5 and JHA tools require Personnel to:

- Communicate as a work party;
- Discuss the task to ensure a common understanding;
- Identify hazards with potential for an adverse impact;
- Establish and implement controls to mitigate risk of harm;
- Evaluate residual risk and agree as a work party that it is acceptable;

- Consider the risk assessment regularly throughout the delivery of the task, especially after breaks; and
- Revise the risk assessment whenever a new job step or hazard is identified.

The JHA and Take 5 Procedure (S-PRO-004) sets out the protocol for the completion of a JHA or Take 5. All personnel conducting work at any WER site must be inducted regarding these key risk management tools.

On completion of the job, the JHA is to be sent to the DBNGP Planning department for filing within a work order tracking system, so it can be referred to in the future when the job, or a similar type of job, occurs again.

7.3 Incident Management

It is a mandatory requirement for any and all personnel working for or on behalf of DBP to respond to all hazards and events that have affected or have the potential to adversely affect the environment.

Examples of such events include: odour emissions, accidental gas releases (e.g. leaks), fuel spillage, excessive noise incidents, chemical spills or a complaint from a neighbour.

The first line of response is to take immediate actions to minimise risks to persons, plant, equipment and the environment. These actions may include:

- stop work,
- assess site and make the area safe,
- notify other parties that may be affected by the Hazard / Event

Following this, incidents must then be classified and reported on in accordance with the Risk Classification Matrix contained within the HSE Event Reporting and Investigation (S-PRO-014). The level of analysis required will vary dependent upon the level of risk associated with the event.

At a minimum reporting will require documentation of all details, notification of key stakeholders in accordance with the event classification and determination of corrective actions with due dates and accountabilities.

Event reporting is conducted and recorded via InControl a tailored software system purchased from INX Cube Consulting. InControl facilitates the communication of events, tracking of corrective actions and the analysis of trends. All significant events may be subject to a TAPROOT investigation, led by a suitably qualified Lead Investigator, as mandated by the HSE Event Reporting and Investigation Procedure (S-PRO-014).

Actions arising from incident reports and TAPROOT investigations shall be monitored (via InControl) to ensure their adequate and timely implementation.

The findings of all incident investigations shall be communicated to the business where appropriate to increase awareness and prevent recurrence.

DBP shall annually conduct a targeted review (Trend Analysis) of all events to identify recent and historical trends. Preventative actions shall be instigated where necessary based upon the outcomes of this annual review

7.3.1 External Reporting

The requirements for external reporting of incidents is summarised in Table 7-1. DBP shall ensure that all relevant parties are informed of any significant incident verbally within 2 hrs (or as early as possible) and then in writing within 3 days.

A Significant Environmental Incident is an event which:

- may but does not necessarily result in any permanent damage to the environment but requires the use of additional personnel or contractors external to the site and additional remediation equipment; or
- the regulatory authority deems as notifiable; or
- is likely to result in wide spread public complaints and anger.

External notifications of significant incidents shall be carried out by the designated responsible person in accordance with the Event Reporting and Investigation Procedure (S-PRO-014).

The DMIRS may be contacted via the petroleum environment email address petroleum.environment@dmirs.wa.gov.au.

Additionally, where an incident impacts on a reserve set aside for conservation purposes or a national park, or may have significant or material environmental impact the appropriate regional office of the Department of Water and Environmental Regulation is to be informed.

If an incident occurs contrary to conditions set out in any of the Ministerial Statements DWER shall also be notified.

Contact details for all agencies, including regional offices, that may need to be contacted in the event of an emergency, are specified within the DBNGP Emergency Response Plan.

Table 7-1 DBNGP External Incident Reporting/ Notification Requirements

Requirement	Reference	Agency	Timeframe
Where an incident causes or threatens to cause serious[2] or material[3] environmental harm.	*EP Act*	DWER	As soon as practicable

2 **Serious Environmental Harm**: environmental harm that:

(a) is irreversible, of a high impact or on a wide scale

(b)is significant or in an area of high conservation value or special significance
(c) results in actual or potential loss, property damage or damage costs of an amount, or amounts in aggregate, exceeding 5 times the threshold amount (i.e. $100,000).
[Environmental Protection Act 1986, s 3A(1)]

3 **Material Environmental Harm**: environmental harm that:

(a) is neither trivial nor negligible; or
(b) results in actual or potential loss, property damage or damage costs of an amount, or amounts in aggregate, exceeding the threshold amount ($20,000);
[Environmental Protection Act 1986, s 3A(1)]

Recordable Incidents: Any incident arising from the activity that breaches a performance objective or standard identified in the EP (and is not a reportable incident) shall be reported monthly, on or prior to the 15th day of each month.	*PP Act and PPE Regs* *PGER Act and PGERE Regs*	DMIRS	Monthly, on or prior to the 15th day of each month. A Nil report shall be provided where no events occur.
Reportable Incidents: *Consequence based:* Where an unplanned event is identified to have caused (or have potential to cause) an adverse environmental impact where that impact has a consequence rating of 'moderate or more serious than moderate' (NOTE: With reference to the ERA this includes risks with a consequence level of severe, major or catastrophic, refer Appendix D).	*PP Act and PPE Regs* *PGER Act and PGERE Regs*	DMIRS	As soon as practicable but not later than 2 hours after the operator becomes aware of the reportable incident. A written report shall be submitted within 3 days after the first occurrence of the reportable incident
Reportable Incidents: *Additional Reporting Requirements:* – Spills of hydrocarbons or hazardous materials in excess of 80 L to the sea or inland waters; Spills of hydrocarbons or hazardous materials in excess of 500L in other areas; – Spills of hydrocarbons or hazardous materials that affect a ground surface area greater than 100m2; – An unplanned gaseous release to atmosphere 500m3 or more; – Death or injury to individual(s) from a Listed Species during an activity; – Unplanned impact caused to a matter of national environmental significance (NES) during an activity (as per the EPBC Act).	*PP Act and PPE Regs* *PGER Act and PGERE Regs*	DMIRS	As soon as practicable but not later than 2 hours after the operator becomes aware of the reportable incident. A written report shall be submitted within 3 days after the first occurrence of the reportable incident
Known contaminated sites	*Contaminated Sites Act 2003*	DWER	Within 21 days of first knowing the site is contaminated
Suspected contaminated sites	*Contaminated Sites Act 2003*	DWER	As soon as is reasonably practicable

Recordable incidents shall be reported on a monthly basis and the following details shall be provided:

- Type of incident
- All material facts
- Actions taken to avoid and mitigate impacts of the incident
- Corrective actions applied

Reportable incidents shall be addressed through documentation and submission of the following details:

- Facility name
- Pipeline title
- Location of incident

- Name of operator
- Names and contact details of witnesses
- Name and contact details of report submitter
- Description of the incident
- Work activity undertaken at time of incident
- Quantity and composition of spilled/vented material
- Duration of spill/vent
- Extent of impact
- Immediate actions taken
- Arrangements for internal investigation
- Corrective actions applied

7.4 Emergency Preparedness and Response

The WER shall feed into the DEP Emergency Response Process. DBP has three tiers of emergency and crisis response: Incident, Emergency and Crisis (refer Figure 7-1).

The WER Emergency Response Plan (ERP) provides for an Emergency Management Team (EMT) and an Incident Management Team (IMT) who are responsible for managing emergencies and minor incidents.

The contractor's local area emergency response plan specifies the assignment of particular responsibility and provisions for project related emergency response requirements and interfaces with the DBP ERP.

The Crisis Management Plan (CMP) establishes the Crisis Management Team (CMT) which is responsible for managing Crisis events, being those that are likely to be associated with personnel, public safety, supply, pipeline license or DBP reputation issues.

In the event that an emergency deteriorates and can no longer be managed effectively by the Emergency Management Team the CMT would be activated.

7.4.1 Emergency Response Plan

The emergency response processes (including storage of emergency response equipment) have been designed to effectively respond to all foreseeable emergency events as identified in various risk assessments (e.g. FSA, HAZOPs, HAZIDs and JHA's) and from DBNGP experience.

The Emergency Response Plan (ERP) is in place to manage events and emergencies so as to limit the consequences of such events so as to:

- Minimise or eliminate any danger or risk to individuals;
- Minimise or eliminate any risk to the business; and
- Ensure that the WER is returned efficiently to a safe condition with minimum impact to supply of gas and the environment.

The WER ERP consists of:

- All Hazards Plan (framework) which specifies the arrangements for:
  - incident escalation;
  - incident and emergency management structures;
  - roles and responsibilities of IMT and EMT and their interface;
  - IMT and EMT interface with Crisis Management Team;
  - display of emergency information including incident/emergency management logs;
  - changeover of responsibilities; and
  - emergency operations centre locations.
- Emergency Procedures, Contingency Plans and Work Instructions
- Emergency Equipment Management Plan
- Contacts Directory
- Notification and reporting requirements

The Spill Response Procedure (E-PRO-016) acts as the Oil Spill Contingency for the WER and is aligned with the Emergency Response Plan.

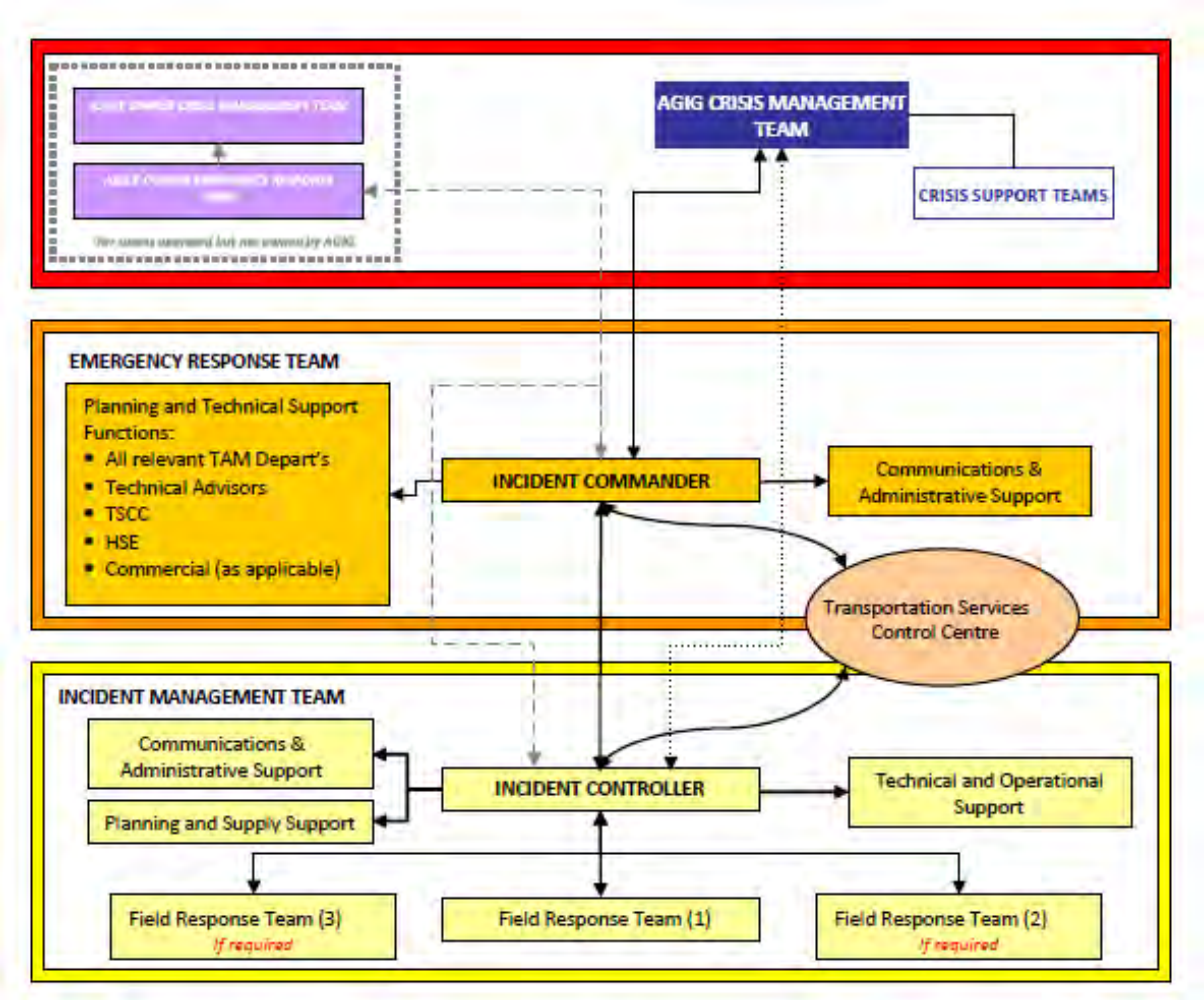

Figure 7-1 Emergency & Crisis Teams – Structures

The DBP ERP operates on risk based incident escalation and notification structures as shown in Table 7-2. These structures describe the escalation of an event to an emergency, which triggers the activation of the DBP ERP (see Figure 7-2). Depending on the severity of an emergency, the Crisis Management Plan may also be activated.

Table 7-2 Levels of Emergencies and Categories

Incident	Emergency	Crisis
Injury		
▪ Minor injury only	▪ Severe injury	▪ Fatality or fatalities ▪ Multiple injuries
Operational Impacts		
▪ No interruption or curtailment of supply ▪ Minor damage to equipment	▪ Short term interruption or curtailment within contractual limits ▪ Moderate damage to equipment, may require repair or replacement	▪ Extensive interruptions or curtailment ▪ Declaration of Force Majeure ▪ Declaration of Gas Supply System Emergency ▪ Major damage to equipment
Environmental Impacts		
▪ Short term impact without lasting effects	▪ Serious impact with medium to long term effects	▪ Major offsite impact; long term severe or permanent effects; rectification required
Community / Government / Reputation / Social / Cultural / Heritage		
▪ Public concern restricted to local complaints ▪ Minor infringement of cultural heritage – repairable	▪ Attention from Media ▪ Ongoing social issues or concerns from local community ▪ Permanent damage to items of cultural or heritage value	▪ Serious social issues with State political ramifications ▪ Significant damage or infringement of cultural heritage with widespread public outcry

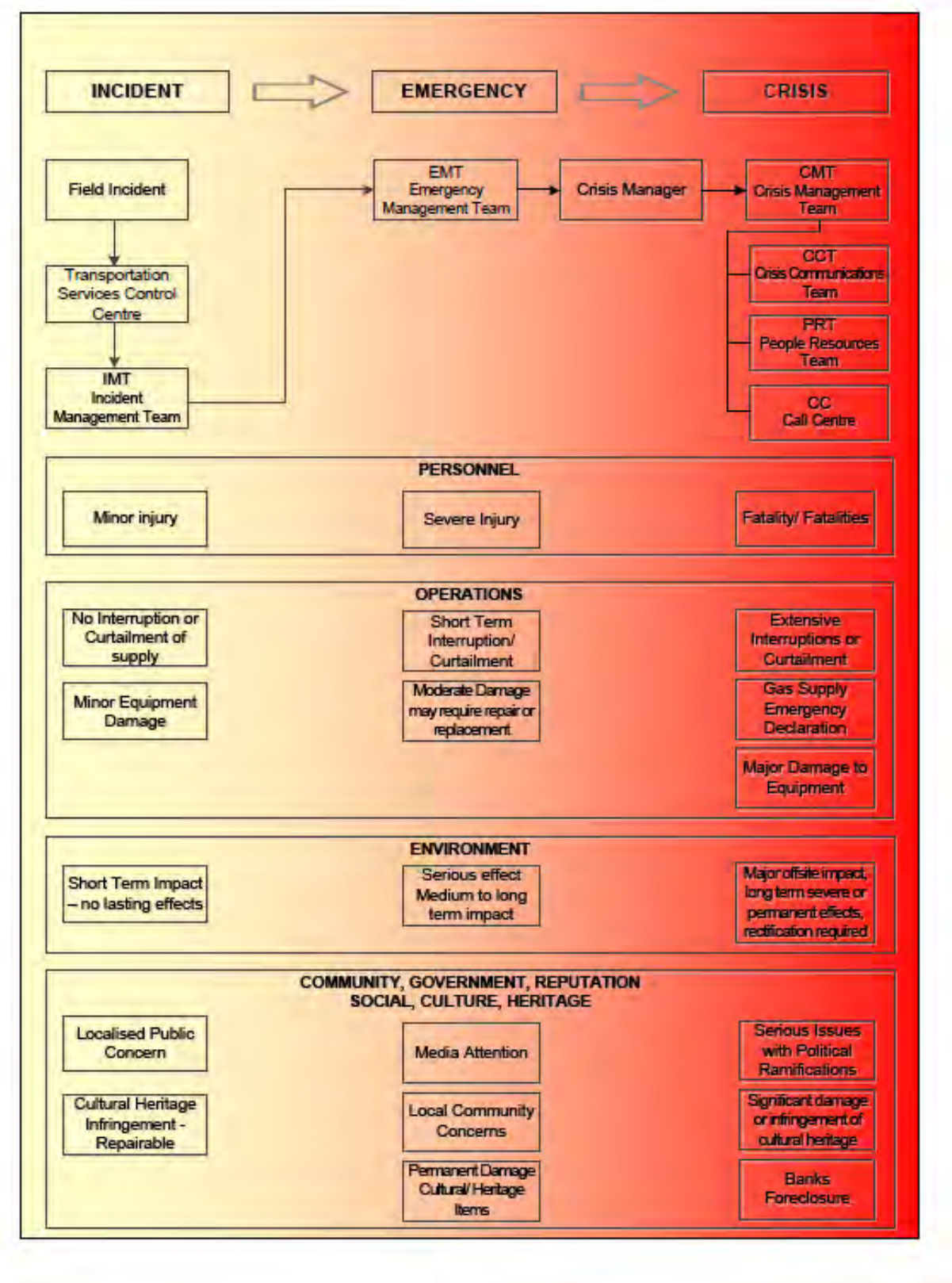

Figure 7-2 Emergency & Crisis Management Teams – Flowchart

7.4.2 Emergency Training

All field personnel are trained and competent in Senior First Aid/Remote Area First Aid, Fire Fighting and 4WD Driving. The performance of the tasks associated with Emergency Procedures for the pipeline and associated facilities are an extension of normal work practices and as such the personnel are trained on a regular basis to perform those tasks. Selected personnel also conduct competency based training in the completion of emergency response through regular emergency exercises.

Emergency exercises are conducted annually to assess the emergency response capabilities of the various teams by providing exercises at levels up to and including crisis. The level of escalation may vary from one exercise to another. All exercises include at least activation of the IMT and EMT.

The key roles in the response and recovery processes are the Incident Commander (GM Transmission Asset Management or delegate) and Incident Controller (GM Transmission Operations or delegate).

7.4.3 Emergency Preparedness & Management

The WER Construction Team assesses each project activity and potential external factors or influences that may give rise to identifiable emergency conditions. Systems will then be established and assigned priority to prevent, manage or mitigate emergency events, i.e. awareness of general fire restrictions, permit to work systems requirements, adverse weather monitoring etc.

The preparation for emergency response also includes an assessment of the probability of the type of emergency events identified through the hazard identification process.

Project emergency planning and procedures will reference:

- communications/alarm systems;
- emergency equipment;
- emergency reporting and support contact information;
- frequency of emergency response drills/exercises.
- muster points;
- provisions to account for personnel on site;
- response to specific emergency situations; and
- specific responsibilities.

7.4.4 Crisis Management Plan

DBP's Crisis Management Plan (CMP) details the roles and responsibilities of the Crisis Management Team (CMT). Events that will trigger the activation of the CMT are likely to be associated with personnel, public safety, supply, license or reputation issues.

The function of the CMT is to manage a crisis at a strategic level. Once activated, the CMT will receive input from all groups involved in the crisis. The operational crisis or the event is monitored and assessed for the impact on DBP's statutory and legal obligations, shipper contracts and its corporate reputation.

7.5 Monitoring

In accordance with Section 33 of the Regulations, WER shall conduct monitoring of the emissions and discharges defined in Table 7-3 and as outlined in the project GHG Management Plan.

The Quarterly Emissions and Discharge Report shall consolidate the results of all monitoring for submission to the DMIRS as specified in Table 7-6.

Table 7-3 Overview of monitoring of emissions

Equipment / Activity	Emission	Monitoring	Reporting
Venting	Fugitive gas emission	DBP's Supervisory Control and Data Acquisition (SCADA) system continually monitors for valve movements and pressure changes to identify periods of gas venting.	Where identified, a predetermined model is utilised to quantify the gas released. Results are recorded within DBP's Customer Reporting System (CRS) and reported quarterly to DMIRS.
Amine Gas Removal Unit and Oxidiser – Flare Unit	Gas removal from reservoir gas	Gas emissions measured through flare system and AGRU monitoring.	Emissions of CO_2 equivalents shall be calculated using measured gas consumption data in accordance with the NGER Measurement Determination 2008 and reported quarterly.
GEA	Gas combustion	Gas consumption by compressor turbines shall be continually metered at the source and recorded within DBPs Customer Reporting System (CRS).	Emissions of CO_2 equivalents shall be calculated using measured gas consumption data in accordance with the NGER Measurement Determination 2008 and reported quarterly.
DEA	Diesel combustion	DEA run time shall be metered where possible and for less frequently used units recorded directly.	DEA diesel consumption shall be estimated based on system specifications and measured run time. Emissions of CO_2 equivalents shall be calculated using estimated diesel consumption data in accordance with the NGER Measurement Determination 2008 and reported quarterly.
Pipeline maintenance and Testing	Purged Nitrogen	Acknowledging the inert and ubiquitous nature of this gas, monitoring is not proposed.	NA
Vehicles	Diesel combustion	Diesel purchases shall be monitored using DBPs Financial accounts system.	Direct purchasing values shall be used to calculate emissions of CO_2 equivalents in accordance with the NGER Measurement Determination 2008 and reported quarterly.
Forklifts	Gas combustion	Bottled gas purchases shall be monitored using DBPs Financial accounts system.	Direct purchasing values shall be used to calculate emissions of CO_2 equivalents in accordance with the NGER Measurement Determination 2008 and reported quarterly.
Potable Water Treatment	Reverse Osmosis waste water discharge	Acknowledging the low operating capacity of this plant no monitoring of effluent is conducted.	The volume of RO waste water discharge shall be estimated based on equipment specifications and reported quarterly.

Equipment / Activity	Emission	Monitoring	Reporting
Waste water disposal - Construction	Dewatering and hydrotest water discharge	Volume of dewatering amounts and hydrotest water that is discharged to the environment.	Volumes of water discharged measured through pumping rates (dewatering) and volumes of water used in hydrotest. NOTE water that is not suitable for discharge and is collected by a licensed waste contractor is captured as per below.
Waste Disposal	Waste – All types	Monitoring and recording of the type and volume of all waste collected for disposal shall be undertaken.	The total volume for each waste stream collected from site shall be reported quarterly.

7.6 Inspections and Audits

7.6.1 Project HSE Inspections

Project HSE Inspections shall occur weekly during construction and assist assessing compliance to the CEMP and regulatory approvals. Planning, controlling and monitoring construction activities are considered essential in ensuring those activities are effectively and efficiently performed. Project HSE Inspections are performed at least weekly and include the following environmental aspects:

- Evidence of any spills or leaks;
- Security, lighting and signage of the facility;
- Appropriateness of chemical storage (volume, storage type, availability of SDS);
- Evidence of subsidence, erosion;
- Impacts to flora and fauna are as per project approvals;
- Waste management; and
- Weed and vegetation control.

All issues identified must be recorded, investigated and action implemented to prevent the issue recurring.

7.6.2 HSE Audits and Field Evaluations

The HSE Audit and Evaluation Procedure (S-PRO-054) sets out the process for conducting internal HSE audits. Ultimately, the objective of this process is to provide a framework that ensures the implementation and effectiveness of DBP's HSE management system.

There are two levels of assessment used to verify the implementation and effectiveness of DBP's HSE management system, these are:

i. System Audit: An in depth and targeted assessment against specific criteria, established to assess compliance against a strategic audit objective.

ii. Field Audit: A high level and systematic assessment against generic criteria, tailored to evaluate ongoing compliance against key system indicators.

7.6.2.1 System Audits

The Lead Auditor shall review the relevant Obligation Sources (i.e. procedures, management plans, statutory approvals etc.) and identify all obligations relevant to the scope. To assist in the development of audit criteria for audits against the WER Safety Case and CEMP, the HSE Manager shall ensure the maintenance of the HSE Audit Template (S-TMP-054.1). This shall include obligations detailed within the documents themselves and also the subsidiary procedures that support them.

An audit schedule is developed annually and DBP completes a range of audits per year on AGIG assets. WER shall undergo at least an annual HSE System Audit.

Additionally, HSE System Audits shall also be conducted against specific activities, such as a clearing or waterway crossings, to ensure regulatory and procedural controls are being implemented. The frequency of these is set out in Section 6.

7.6.2.2 Field Audits

The HSE Manager shall ensure that a minimum of one field audit is conducted each calendar year on activities at WER. Where relevant, the HSE Manager may identify focus areas to be targeted, these may include for example:

- High risk work programs;
- Work involving environmental compliance requirements;

- Work activities relevant to a procedure that is under review (i.e. for consultation purposes);
- Work activities impacted by a recent procedural update; or
- Workgroups or work activities observed to encounter increased incident rates

The HSE Manager must monitor the frequency and scope of field audits completed and where there is concern that insufficient coverage is achieved, take steps to schedule targeted field audits to address this. Results of both internal (as above) and external audits (by the Regulator) shall be included in the Annual Environmental Report (Table 7-6).

7.7 Review and Improvement

DBP conducts an annual comprehensive business strategy planning process which guides the overall business operation for the following year. Key performance indicators for the business and individuals are determined from these reviews. The achievement of compliance with environmental management obligations shall be considered in each business plan, enabling the identification of issues to upper management and the allocation of resources where necessary to implement improvements.

Additional ongoing review commitments are presented in Table 7-5.

Table 7-4 Details of system elements requiring periodic review

Subject	Detail	Timeframe	Responsibility
CEMP / Operations Environment Plan	The review shall: ▪ assess the appropriateness of the EP to the operations of facilities based on audit information; and ▪ determine if any changes to the EP are required as a result of operational, legislative or organisational changes. All revisions shall be submitted to DMIRS for approval.	Minimum of every five years or earlier if in response to a material change to the activities and/or the use of equipment or in response to actions arising from any audit taken.	HSE Manager
Environmental Policy	Review to identify and implement continuous improvement opportunities.	Every two years	HSE Manager/ Executive Management Team
Legislation and other requirements	Review to identify amendments to existing and addition of new legislation which is relevant to the environmental management of pipeline activities.	Annual and opportunistic	HSE Manager
GIS Environmental data	Review to update publically available spatial information relating to environmentally sensitive areas within the DBNGP corridor.	Every two years	GIS Manager and HSE Manager
OSCP	Review the OSCP for relevance and appropriateness to risk from hydrocarbon management	Every 2.5 years (see OSCP for more details)	HSE Manager

7.7.1 Trend Analysis

As per Section 7.3, DBP undertakes a targeted annual review to ensure a process to identify trends, key factors and areas of focus for upcoming awareness programs and evaluations. This allows DBP to assess the potential risk from both events as well as audit and evaluation findings to target areas of concern or ongoing opportunities for improvement.

7.8 Reporting

To demonstrate and maintain compliance against legislative requirements, routine external reporting to key regulatory agencies shall be conducted. Routine external reporting requirements for the DBNGP are summarised in Table 7-6.

Table 7-5 Overview of external regulatory reporting requirements

Report	Details	Agency	Period	Due Date	Responsibility
Recordable Incident Report	Details the cause, impacts and corrective actions associated with any incident arising from the activity that breaches a performance objective or standard identified in the EP	DMIRS	Each calendar month	Not later than 15 days after the reporting period. A Nil report shall be supplied if no incidents occurred.	Senior HSE Advisor
Emissions and Discharge Report	Details all emissions and discharges to any land, air, marine, seabed, sub-seabed, groundwater, sub-surface or inland waters environment that occur in the course of the activity	DMIRS	Each three calendar months (Jan – Mar; Apr – June; Jul – Sept; Oct – Dec)	Not later than 15 days after the reporting period	Senior HSE Advisor
Emissions	Details GHG Emissions	DWER	Annual (TBC)	As outlined in the GHGMP	Senior HSE Advisor
Annual Environmental Report (AER)	Demonstrates environmental performance objectives and standards for	DMIRS	Each financial year	Not later than 3 months after the reporting period via petroleum.environment@dmirs.wa.gov.au	Senior HSE Advisor

Report	Details	Agency	Period	Due Date	Responsibility
	the activity are being met				
National Pollution Inventory (NPI)	Details emissions submitted for all meter stations and compressor sites on the DBNGP	DWER	Each financial year	Not later than 3 months after the reporting period	HSE Manager
NGERs	Details greenhouse emissions for all DBP facilities	Clean Energy Regulator (CER)	Each financial year	Not later than 3 months after the reporting period	HSE Manager
Annual Compliance Assessment Report (ACAR)	Details compliance against approvals issued under Part IV of the EP Act	DAWE	TBC	Not Specified: approximately 6 months following the reporting period	Senior HSE Advisor
Annual Compliance Report	Details compliance against approvals issued under the EPBC Act	DWER	Each financial year	Not later than 3 months after the reporting period	Senior HSE Advisor

7.9 Decommissioning and Rehabilitation

There is no current plan to decommission the WER with operational life expected to extend into the foreseeable future. The design life of the pipeline is 60 years and the plant 20 years. Prior to commencing any decommissioning activities, a Decommissioning and Final Rehabilitation Plan will be developed after a risk assessment and in consultation with stakeholders based around the following minimum criteria:

- Confirmation of future land use; dependent on multiple factors including previous land use, current land use for adjacent areas, stakeholder consultation and ensuring ecological sustainability of the land
- Removal of above ground facilities
- Removal of above ground signage and CP points
- Disturbance areas (compounds, access tracks and airstrips) shall be ripped to mitigate any soil compaction
- Development of rehabilitation criteria for disturbance areas (for an example see Table 7-7)
- Best practice (at the time) decommissioning management of the pipeline asset either through removal or if left in situ; to enable a non-polluting, safe and stable condition of the asset.

Where possible, we will conduct ongoing rehabilitation works for areas no longer required for operational use. This progressive rehabilitation allows for criteria such as perennial species diversity,

richness and foliage cover as well as the potential impact from weeds. These criteria, aligned with the above requirements would form the basis for any final decommissioning planning.

Rehabilitation immediately post construction and for the pipeline construction is covered under the project Rehabilitation Management Plan.

Table 7-6: Potential Rehabilitation Criteria for decommissioning

Criteria	Details
Native species richness	Perennial native species richness equals or exceeds 40% of that of the adjacent control area at 36 months
Native species density	Perennial native species density equals or exceeds 40% of the adjacent control area at 36 months
Native species foliage cover	Percentage foliage cover of perennial native species indigenous to each plant community is greater than or equal to 40% of the adjacent control area at 36 months
Weed foliage cover	Foliage cover of Declared and Environmental Weeds is not greater than that of the adjacent control area at 24 and 36 months (excluding extensive adjacent populations i.e. buffel grass).
Stable waterway beds and banks	Waterway beds and banks are in a stable condition as compared to the surrounding adjacent waterway features and monitored annually for three years.

Monitoring of criteria will be conducted annually with annual reviews to understand progress and trend of success. Any contamination identified during decommissioning or rehabilitation shall be remediated immediately. An Annual report shall be supplied to DMIRS in regards to progress of rehabilitation works or as agreed in the Decommissioning and Final Rehabilitation Plan.

The Decommissioning and Final Rehabilitation Plan shall require approval by DMIRS prior to decommissioning commencing.

Rehabilitation immediately post construction and for the pipeline construction is covered under Appendix E of the Environmental Review Document – Rehabilitation Management Plan.

7.10 Document Control

The HSE Manager is responsible for the maintenance of all HSE documentation to ensure that they:

- have an identifiable owner responsible for ensuring document updates as required;
- be clearly identifiable via a standard naming protocol and unique identifier;
- be subject to periodic review via a consultative process; and
- be readily available to all Personnel (as required) with obsolete versions removed and retained on
- archive for a minimum of five years.

The HSE Document Control Procedure (S-PRO-000) sets out the process for this. At the time of writing all HSE documents are managed, communicated to Staff and stored using InControl.

The TAM Document Controller, jointly with relevant document authors/owners, is responsible for implementing the Document Control and Records Management Procedure (TEB-003-0016-01) which describes the method for controlling documents and management of data relating to asset management and Project management, and all DBP Safety Cases. The policy is applicable to all

documents produced by TAM including policies, procedures, work instructions, and drawings, whether in hardcopy or electronic format, associated with management of:

- DBP assets (including DDG assets); and
- Projects executed under the Project Management Methodology (by Project Management Office) including AGIG Projects

Other relevant records, while not extensively referenced in this document, may be managed by the dedicated document control process which exists for the Maintenance and Commercial divisions as follows:

- Maintenance – Maintenance related work instructions are managed through DBNGP Work Instruction Administration Procedure (DBP-PR-ADM-004) by the Technical Writer.
- Commercial – Pipeline Operations related documented are created and managed through the Document Control Procedure (TSD-PR-GEN-OPS-UNI-002) by DBP Transportation Services Control Centre (TSCC). However document numbers are issued by the TAM Controller.

7.11 Consultation

The purpose of consultation is to:

- Obtain appropriate input into the ongoing improvement of this EP;
- Keep key stakeholders up to date with DBNGP activities;
- Ensure timely response to landholder issues; and
- Maintain dialogue with regulatory authorities, including local councils.

Key stakeholders including the Department of Planning, Land and Heritage and DMIRS, along with relevant pipeline operations personnel participated in a HAZID to identify and assess the potential environmental hazards associated with the operations and maintenance activities for the DBNGP. Furthermore, consultation with other stakeholders including the Department of Water and Environmental Regulation (DWER) undertaken as the need arises to ensure that operations on the DBNGP are managed in accordance with relevant statutory requirements.

Recent consultation with key regulators is described below:

- Consultation with DWER (OEPA) in relation to close out of rehabilitation for pipeline activities assessed under part IV of the EP Act. DWER reporting is also completed annually and on a 5 year basis for some projects.
- Ongoing discussions with DMIRS in regards to pipeline operator status, annual reporting, new projects, clearing permit and audits
- DWER (DoW) licensing for water bores along the route including renewal information.
- DBCA and DPaW in relation to fauna licensing and renewals or updates to the fauna license as well as access to conservation estates as the land manager.

Consultation and communication with relevant landholders, regulatory authorities, Aboriginal and other interest groups and the general public will be undertaken as part of the DBNGP operation activities. The schedule and key messages to be included in the consultation program is governed by the Land Management Plan. All contact with stakeholders will be recorded in the Land Management System (LMS). The Land Management department and the HSE department are responsible for the development and distribution of corporate awareness publications to communicate the details of our environmental commitments to key stakeholders. All other relevant details about land use, foreign crossings, landholder concerns and issues are to be recorded on the LMS for future reference and reporting.

The Wellesley Meter Station consultation included LandCorp (as the landholder), Albemarle Lithium Plant, Shire of Harvey, EPA (referral of project, DAWE (EPBC referral), DMIRS (pipeline license) and DWER (clearing permit). Outcomes included a no assessment / not a controlled action from EPA and

DAWE, a clearing permit application (awaiting outcome from DWER), an access arrangement from the Shire of Harvey and discussions on the construction of a road and a sub-lease with LandCorp.

Formal contact with all landholders will be determined relevant to the perceived risk, with ongoing liaison throughout the year. All contacts involve the dissemination of information about the DBNGP, discussion of any concerns and education of pipeline safety to increase awareness. This ongoing process is designed to decrease the risk of third party incidents and to encourage ownership of the activities around the pipeline.

DBP target annual consultation with all landholders. These consultations provide an opportunity for the landowner to advise DBP of any change to their contact details, land use requirements and future expectations. DBP promote awareness of risks and emergency protocols.

8. References

Australian Bureau of Statistics (ABS) (2011) Census Community Profiles http://www.censusdata.abs.gov.au Accessed 19/06/2013

Bancroft, W. & Bamford, M. J. (2006) *Fauna Values of Stage 5 of the Dampier to Bunbury Naturalgas Pipeline (DBNGP)* Unpublished report prepared for Strategen, June 2006.

BBG (2004) *Dampier to Bunbury Natural Gas Pipeline Corridor Widening - Kwinana to Bunbury Project - Strategic Environmental Review*. Prepared for the Gas Pipeline Working Group, Department of Industry and Resources Western Australia.

Beard J.S. (1976) *The Vegetation of the Murchison Region. Vegetation Survey of Western Australia – Murchison 1:1000000 Vegetation Series.* Explanatory Notes to Sheet 6. University of Western Australia Press.Beard 1976).

Beard J.S. (1981) *The Vegetation of the Swan Area. Vegetation Survey of Western Australia – Swan 1:1000000 Vegetation Series.* Explanatory Notes to Sheet 7. University of Western Australia Press.

Bureau of Meteorology (BOM) (2018) Weather and Climate Data http://www.bom.gov.au/climate/data/

Dames & Moore (2000) *Dampier to Bunbury Natural Gas Pipeline Corridor Expansion Section 16(E) Strategic Environmental Review.* Report prepared for Gas Pipeline Sale Engineering Committee WA.

EcoLogical Australia (ELA) (2018)
Survey for conservation significant flora species and ecological communities, Marriott Rd, Kemerton. Memorandum prepared for DBNGP. November 2018.

Ecos Consulting (ECOS) (2003) *Bioregion Description Dampier to Bunbury Natural Gas Pipeline.* Unpublished report prepared for Epic Energy. September 2006.

Epic Energy (1999) *Final Environmental Management Plan DBNGP Southern Loop Pipeline Project, Western Australia.*

Gascoyne Development Commission (GDC) (2003) *Gascoyne Geographic Perspective.*

Land and Water Australia (LAWA) (2001) *Australian Native Vegetation Assessment – 2001. Commonwealth of Australia*

Mattiske Consulting Pty Ltd (Mattiske) (2006), *Flora and Vegetation Assessment of Alinta Gas pipeline Stage 5 Expansion Geraldton to Dampier*. Unpublished report prepared for Alinta, Perth. September 2006.

Mattiske Consulting Pty Ltd (Mattiske) (2014), Environmental Risk Assessment fro Northern Section Dampier Facilities to CS6. Unpublished report for DBNGP, Perth 2014.

Mattiske Consulting Pty Ltd (Mattiske) (2014), Environmental Risk Assessment for CS6-CS9. Unpublished report for DBNGP, Perth 2014

Mid West Development Commission (2003) *Geography of the Mid West*

Payne A.L, Curry P.J. and Spencer G.F. (1987) *An inventory and condition survey of rangelands in the Carnarvon Basin, Western Australia.* WA Department of Agriculture Technical Bulletin No.73. Edited by D.A.W Johnston.

Payne A.L and Tille P.J. (1992) *An inventory and condition survey of the Roebourne Plains and surrounds, Western Australia.* WA Department of Agriculture Technical Bulletin No.83. Edited by D.A.W Johnston and L.J Snell.

State Energy Commission Western Australia (SECWA) (1979) Dampier – Perth Natural Gas Pipeline Draft Environmental Review and Management Programme. Report No. RP88

Western Australian Planning Commission (1999) Geraldton Region Plan – Section 5 Natural and Cultural Environment, State of Western Australia.