Dampier to Bunbury Natural Gas Pipeline - Environmental Plan

Public Summary

Australian Gas Infrastructure Group

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Definitions and Abbreviations

Term	Meaning/ Description
ACV	Authorisation to Clear Vegetation
AGIG	Australian Gas Infrastructure Group
ALARP	As Low As Reasonably Practicable
AMP	Asset Management Plan
AS	Australian Standard
Aspect	Elements of the operator's activities, products, or services that may interact with the environment. Includes planned and unplanned activities.
ASS	Acid Sulphate Soils
ASSMP	ASS Management Plan
BEP	Burrup Extension Pipeline
CBA	Cost benefit analysis
CCVT	Closed Cycle Vapour Turbine (Turbogenerator)
CKI	CK Infrastructure Holdings Limited
Clearing	The killing or destruction of; removal of; severing of trunks or stems; or the doing of any other substantial damage to native vegetation in an area.
CMP	Crisis Management Plan
CMT	Crisis Management Team
Consequence	The outcome of an event expressed qualitatively or quantitatively, being a loss, impact, injury, an expressed concern, disadvantage or gain.
CP	Cathodic Protection or Corrosion Protection
CRS	Customer Reporting System
CS	Compressor Station
Cth	Commonwealth
DBNGP	Dampier to Bunbury Natural Gas Pipeline
DBP	Dampier Bunbury Pipeline - group of companies that own and operate the DBNGP
DEC	Department of Environment and Conservation
DEMIRS	Department of Energy, Mines, Industry Regulation and Safety
DWER	Department of Water and Environmental Regulation
EGM TAM	Executive General Manager Transmission Asset Management
EGM TO	Executive General Manager Transmission Operations
EHB	European House Borer
EP	Environment Plan
EPBC	Environment Protection and Biodiversity Conservation
EPO	Environment Performance Objectives
ERP	Emergency Response Plan
EMT	Emergency Management Team
ESD	Ecologically Sustainable Development
GIS	Geographic Information System
HAZID	Hazard Identification study
HSE	Health, Safety and Environment
IMT	Incident Management Team
Inherent Risk	The risk rating for an event before control measures (EPSs) are applied, reflects the worst-case scenario.
ITP	Inspection Test Plan
KLV	Kwinana Line Valve

Term	Meaning/ Description
km	Kilometre
KP	Kilometre Point
Landholder	Those who hold any underlying tenure or interest in the land in which the pipeline is held. This includes freehold landowners, lessees, pastoralists, Native Title bodies and Claimants, local government authorities, government departments and other utilities.
LGA	Local Government Area
Likelihood	The probability or frequency of an event occurring.
LMS	Land Management System
MAE	Major Accident Event
MAOP	Maximum Allowable Operating Pressure
MLV	Main Line Valve
mm	Millimetre
MNES	Matters of National Environmental Significance
MPa	Mega Pascal
Native vegetation	Any indigenous vegetation; be it aquatic or terrestrial; living or dead (excluding plantations).
NGERS	National Greenhouse and Energy Reporting Scheme
OSCP	Oil Spill Contingency Plan
PAH	Power Asset Holdings Limited
PEC	Priority Ecological Communities
Petroleum activity	Any operations or works carried out in the State under a petroleum, geothermal, or pipeline instrument; or any other operations or works carried out in the State relating to petroleum or geothermal exploration or development, or to a pipeline which may have an environmental impact.
PL	Pipeline Licence
PPE	Personal protective equipment
PP(E)R	Petroleum Pipelines (Environment) Regulations 2012
psi	Pounds per square inch
Residual risk	The risk rating for an event after control measures (EPSs) are applied.
RiWI Act	Rights in Water and Irrigation Act 1914
RMZ	Restricted Movement Zones
SEWPaC	Department of Sustainability, Environment, Water, Population and Communities
TEC	Threatened Ecological Community
WA	Western Australia

1. INTRODUCTION

1.1 Background

The Dampier to Bunbury Natural Gas Pipeline (DBNGP) was constructed and commissioned in 1984 to transport natural gas from the north-west of Western Australia (starting near the township of Dampier) to commercial, industrial and domestic markets in the south-west of the State (finishing at MLV157 (Clifton Road) near the city of Bunbury).

Pipeline licenses (PL 40, 41, 47, 62, 69, 91, 94, 95, 100, 101 and 123) have been issued under the Western Australian (WA) *Petroleum Pipelines Act 1969* (PP Act) to allow the DBNGP to be operated. Additionally, Pipeline Licence PL 38 has been issued to allow the operation of the Burrup Extension Pipeline (BEP) which is connected to the DBNGP.

The Petroleum Pipelines (Environment) Regulations 2012 (the Regulations) (PP(E)R) require the development and implementation of an Environment Plan (EP) to the satisfaction of the Department of Environment, Mines, Industry Regulation and Safety (DEMIRS). The DBNGP EP has been prepared to collectively satisfy this requirement for each of PL 38, 40, 41, 47, 62, 69, 91, 94, 95, 100, 101 and 123.

1.2 Proponent

The Pipeline Licences for the DBNGP and other connected pipelines have been issued to various instrument holders, each of whom have nominated DBNGP (WA) Transmission Pty Limited as the Operator (DBP). Table 1-1 provides the contact details of the Operator of the DBNGP.

Table 1-1 Contact details of the Operator

Operator	DBNGP (WA) Transmission Pty Limited
ABN	69 081 609 190
Contact Name	Melanie Kenny
Position	Environmental Manager
Address	PO Box Z5267, Perth, St Georges Terrace WA 6831
Telephone	+61 8 9223 4907
Email	Melanie.Kenny@agig.com.au

1.3 Location

The DBNGP is a buried pipeline that transports natural gas approximately 1,600km from the Burrup Peninsula, starting near the township of Dampier, running parallel to the west coast of Western Australia and finishing near Bunbury. Figure 2-1 provides an overview of the route traversed by the DBNGP. The distribution of compressor stations (CS) and main line valves (MLV) along the pipeline is shown on Figure 3-1 also.

2. EXISTING ENVIRONMENT

The objective of this section is to provide a description of the existing environment that may be affected by the DBNGP. Due to the long and linear nature of the DBNGP, the infrastructure spans a wide range of natural, socioeconomic and cultural environments. An overview of the key values and sensitivities along the 30 m corridor of the DBNGP and associated infrastructure are provided by biogeographical regions.

2.1 Natural and Cultural Environments

The DBNGP extends through the following seven (7) biogeographical regions (from north to south:

- Pilbara;
- Carnarvon;
- Gascoyne;
- Yalgoo;
- Geraldton Sandplains;
- Swan Coastal Plain; and
- Jarrah Forest

Figure 2-1 shows the biogeographical regions the DBNGP traverses. DBP has undertaken a comprehensive desktop assessment in April 2025 using DBP's Environmental GIS database. DBP regularly updates its GIS database with up-to-date information, including datasets of conservation areas, ecological communities, flora and fauna have been provided by the DBCA.

Flora and fauna surveys are conducted prior to undertaking new works covered under the EP, as well as the progress of rehabilitation relevant to works on the DBNGP and associated infrastructure. **Error! Reference source not found.** of the EP contains the report on the a ssessment of Wellesley Lateral Rehabilitation Areas conducted in March 2023.

Dieback

The plant disease, dieback, caused by the fungus, *Phytophthora cinnamomi,* occurs in the Geraldton Sandplains, Swan Coastal Plain and the Jarrah Forest bioregions where rainfall reaches >500 mm/year. This fungal pathogen is soil borne and kills susceptible vegetation by killing root and tissue cells. Native vegetation in the areas with of rainfall is susceptible to dieback, which is spread by either soil or water, and management measures are required to prevent its spread. Dieback management plans are required for those areas either known to contain the disease or with the potential to be infected by the disease for adjoining areas (Epic 1999).

DBP has recently conducted a dieback (*P. cinnamomi*) risk assessment for all activities covered under the EP. DBP is in the process of developing a draft Dieback Management Plan (DMP) for DBCA-owned/ managed lands intercepted by and adjoining sections of the DBNGP. The highest level of management is currently applied to areas of uncertainty, which will be reassessed following ground verification of dieback occurrence in the near future.

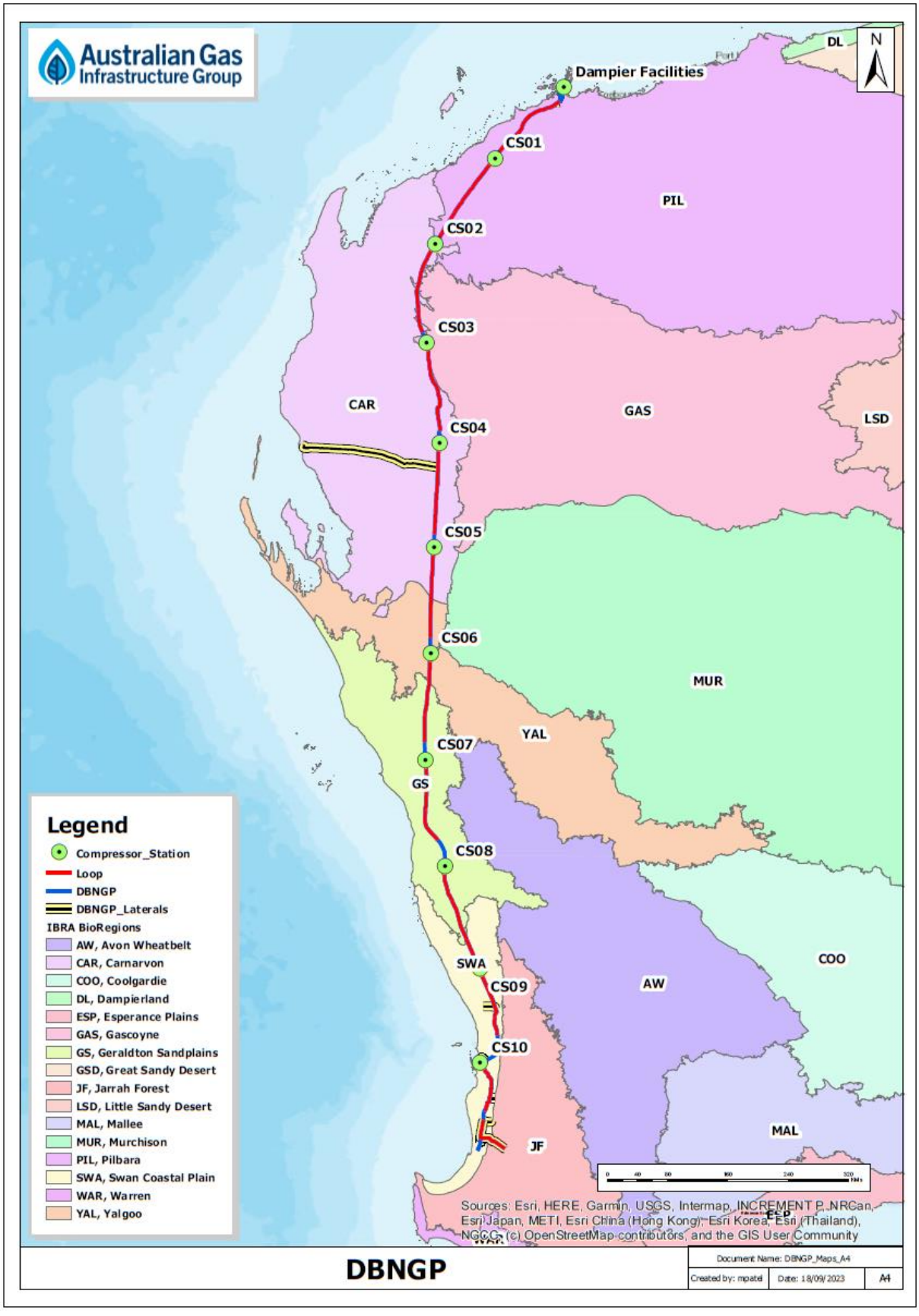

Figure 2-1: Biogeographical regions traversed by the DBNGP

2.1.1 Pilbara Region

Environment	Summary
Climate	The Pilbara Region has an arid climate with summer rainfall that is strongly influenced by tropical cyclones. The mean annual rainfall in Karratha Aero (site number 004083) is 289.0 mm (BOM 2023). Mean maximum temperatures range from 26.5°C to 36.2°C. Mean minimum temperatures range from 13.9°C to 26.9°C (BOM 2023).
Geology	The Pilbara Region consists of mountainous ranges and plateaus, alluvial plains, granite and basalt plains (LAWA 2001). The bioregion can be divided into three geographic sub-regions: • Plateaus and Tableland; • Coastal Plain including mudflats; and • Transitional Zone The soils on the banks of watercourses in these sub-regions have been identified as having high erosion potential when exposed to water (Dames and Moore 2000).
Acid Sulphate Soil	Three ASS areas along the DBNGP have been identified as Risk Category 1 of high to moderate risk, and several areas as Risk Category 2 of moderate to low risk: • High to Moderate Risk - KP3, KP4, KP12-KP14 • Moderate to Low Risk: KP1, Kp15-KP18, KP25-KP26, KP28-KP41, KP44-KP48, KP54, KP58-KP60, and KP73
Vegetation and Flora	The DBNGP within the Pilbara Region is located within the Fortescue Botanical District of the Eremaean Botanical Province as defined by Beard (1976). The vegetation of this area is characterised by tree and shrub-steppe communities. Dominant genera of the area are Eucalyptus, Acacia and Triodia (Mattiske, 2006). Four (State) Priority ecological communities have been identified to occur along the DBNGP almost entirely within the Roebourne subregion of the Pilbara: • Burrup Peninsula rock pile communities (Priority 1) in proximity to KP0 and KP3; • Roebourne Plains gilgai grasslands (Priority 1) in proximity to KP13-15and KP17; • Horseflat Land System (Priority 3) in proximity to KP29, KP34, KP36, KP39, KP46, and KP56 • Tanpool Land System (Priority 1) in proximity to KP185 (Hamersley subregion) and KP188. No flora species of conservation significance have been identified along the 30 m DBNGP corridor within the Pilbara Bioregion.
Fauna	Bancroft and Bamford (2006) conducted a Level 1 fauna survey of the entire pipeline corridor in accordance with EPA Position Statement No. 3 (Bancroft and Bamford 2006). A total of 51 species of conservation significance were identified as potentially occurring within the Pastoral region of the DBNGP corridor (i.e. Pilbara, Carnarvon, Gascoyne, Yalgoo and a portion of the Geraldton Sandplains). The *Leggadina lakedownensis* (northern short-tailed mouse, Lakeland Downs mouse, kerakenga), a state Priority 4, is known to occur at KP139 and KP144 of the DBNGP.
Surface Water	The following major water courses are crossed by the DBNGP in the Pilbara Region: • Maitland River (KP37) • Melford Creek (KP45) • Yanyare River (KP47) • Devils Creek (KP57-KP58) • Du Boulay Creek (KP98)

	• Fortescue River (KP108) • Trevarton Creek (KP127) • Peter's Creek (KP138) • Robe River North (KP 152) • Robe River South (KP153) • Warramboo Creek (KP166) • Peedamulla Creek (KP183) • Cane River (KP210) • Peepingee Creek (KP264)
Groundwater	Groundwater is available mainly from unconfined aquifers at shallow depths which are dependent upon rainfall. The depth of the water table on the alluvial plain in between 4 and 10 m. The water quality and quantity are generally quite good and improves with proximity to the hills and drainage channels where subsurface flows persist throughout the year (Payne & Tille, 1992).
Conservation Areas	Cane River Station (a C class Conservation Park) lies adjacent to the DBNGP corridor between KP 208 and KP 262 (inclusive of former leasehold areas proposed for conservation). It should be noted that the DBNGP corridor is excised from this reserve. Nevertheless, the adjacent area is still classified as "of conservation value" for the purpose of operational activities. The proposed extension of Loop 1 by 16.5 kms to Compressor Station 2 included a flora, vegetation and fauna survey and a hydrology desktop survey conducted in May 2021. All works will be contained with the existing disturbed corridor. The setting for the works includes a water crossing (Peepingee Creek) and vegetation clearing in the area. The survey did not identify any conservation flora species. There are no Environmentally Sensitive Areas (ESAs) identified in this section of the DBNGP.
Native Title	3 Native Titles surround the DBNGP and associated infrastructure within the Pilbara Region, they are: • Ngarluma / Yindjibarndi • Yaburara and Mardudhunera People • Kuruma Marthudunera Part B.
Aboriginal Heritage	There are 125 Aboriginal Heritage Areas surrounding the DBNGP and associated infrastructure within the Pilbara Region.

2.1.2 Carnarvon Region

Environment	Summary
Climate	The coastal areas of the Carnarvon Region experience a semi-desert climate with winter rainfall while the Shark Bay area has a Mediterranean climate. Further inland the climate is arid with low rainfall which is predominantly received in the winter. The mean annual rainfall in Carnarvon Airport (site number 006011) is 221.1 mm (BOM 2023). Mean maximum temperatures range from 22.3°C to 32.5°C. Mean minimum temperatures range from 10.9°C to 23.4°C (BOM 2023).
Geology	The Carnarvon Region is characterised by low gently undulating relief and open drainage and large undulating sand plains (ECOS 2003). The geomorphic districts of the bioregion that the DBNGP passes through can be grouped into the following six areas based on soil and relief characteristics: • Depositional surfaces predominating Aeolian forms; • Erosional surfaces predominating forms of low relief (plains with relief of <30m); • Forms of moderate relief (plains and hills with relied 30m to >100m); • Forms of marked relief (hills with relief >100m); • Fluvial forms; and • Lacustrine and marine forms.

	The soils of the Carnarvon system are erodible and disperse readily when they come into contact with water.
Acid Sulphate Soil	There are no known risks of Acid Sulphate Soil (ASS) within the Carnarvon Region of the DBNGP.
Vegetation and Flora	Classified as the Carnarvon Botanical District defined by Beard (1976), dominant genera are *Acacia* and *Triodia* with occurrences of species from the *Chenopodiaceae* (Chenopods) family such as *Halosarcia*, *Atriplex* and *Maireana* on flats and claypans. The vegetation of the area is varied and is dominated by *Acacia* in the south and changes to *Triodia* dominated in the north. Two (State) Priority 3 ecological communities have been identified to occur along the DBNGP within the Wooramel subregion: • Jingle Land System in proximity to KP554 and KP569; and • Garry Land System in proximity to KP711 and KP715. There are no species of conservation significant flora known to occur along the 30 m DBNGP corridor within the Carnarvon Bioregion.
Fauna	Two (State) Priority 4 mammals, *Dasycercus blythi* (KP289, KP311, KP321, KP324-KP327, KP329, KP339-KP340 and KP361) and *Leggadina lakedownensis*, (KP279-KP283, KP285 and KP320) are known to occur within the Cape Range subregion of the Carnarvon bioregion along the 30 m DBNGP corridor.
Surface Water	The following Major water courses are crossed by the DBNGP in the Carnarvon Bioregion: • Ashburton River (KP275) • Minilya River South (KP449) • Newman Creek (KP495) • Lyons River (KP534) • Davis Creek (KP553) • Gascoyne River (KP568) • Gascoyne River South (KP569) • Wooramel River (KP651)
Groundwater	Groundwater in the region is generally found in the sedimentary rocks of the basin and is fed from rainfall in the region. There are three basins in the region: • **Western Carnarvon Basin:** coastal lowland rising 100m above sea-level. Unconfined groundwater occurs in the surficial sediments and artesian water occurs in underlying Cretaceous sediments. Groundwater is generally available from 0-30m. Fresh water usually overlies very saline water. Artesian groundwater is primarily found in the Birdsong Sandstone and averages 30m in thickness. The water is brackish to very saline and is corrosive. • **Eastern Carnarvon Basin:** dissected upland rising 300m above sea-level. Unconfined groundwater, ranging from near surface to 100m occurs throughout the basin. Artesian groundwater occurs in some sandstones and springs, located on faults, are a feature of the region. Fresh groundwater is restricted to areas of outcrops or along major rivers. Elsewhere the groundwater is generally brackish to saline**.** • **Gascoyne** Province: irregular relief about 300m above sea-level. Unconfined groundwater at depths down to 20m occur. Groundwater occurs within fractures within the rocks and salinity ranges from marginal to brackish (Payne et al. 1987).
Conservation Areas	The Toolonga Nature Reserve (a C Class Nature Reserve) lies adjacent to the DBNGP corridor between KP 746 and KP 818, spanning the Carnarvon and Yalgoo bioregions. It should be noted that the DBNGP corridor is excised from this reserve.

	Nevertheless, the adjacent area is still classified as "of conservation value" for the purpose of operational activities. An ESA has been intersected by the Carnarvon Lateral at KP 155 within the Wooramel subregion of the Carnarvon.
Native Title	7 Native Titles surround the DBNGP and associated infrastructure within the Carnarvon Region, they are: • Thalanyji • Gnulli, Gnulli #2 and Gnulli #3 - Yinggarda, Baiyungu and Thalanyji People • Budina 2 • Budina People • Combined Thiin-Mah, Warriyangka, Tharrkari and Jiwarli People • Malgana Part A • Nanda People and Nanda #2
Aboriginal Heritage	There are 60 Aboriginal Heritage Areas surrounding the DBNGP and associated infrastructure within the Carnarvon Region.

2.1.3 Gascoyne Region

Environment	Summary
Climate	The region experiences a moderate arid tropical climate with very hot summers and warm winters. Rainfall is erratic and unreliable (LAWA 2001). The majority of the rainfall occurs as a result of cyclonic activity and hence varies considerably but rainfall can be received as both summer and winter rainfall (Beard 1976, GDC 2003). The mean annual rainfall in Gascoyne Junction (Site number 006022) is 210.9 mm (BOM 2023). Mean maximum temperatures range from 23.0°C to 40.7°C. Mean minimum temperatures range from 9.3°C to 24.4°C (BOM 2023).
Geology	The Gascoyne region has moderately high relief, a close dendritic drainage pattern and mature valley topography (Payne et al 1987). The region is characterised by low rugged sedimentary and granite ranges and broad flat valleys and includes the drainage basins of the Wooramel, Gascoyne, Lyons, Minilya, Lyndon and Ashburton Rivers (LAWA 2001, GDC 2003). Soils in the bioregion include shallow stony earthy loams, hard alkaline red soils, acidic or neutral shallow red earths, brown calcareous loams and red sands (Beard 1976).
Acid Sulphate Soil	There are no known risks of Acid Sulphate Soil (ASS) within the Gascoyne Region of the DBNGP.
Vegetation and Flora	The region is dominated by acacia shrublands and acacia forests and woodlands. Other shrublands and acacia open woodlands, salt lakes, and chenopod and samphire shrublands occur in the west (LAWA 2001). The vegetation associations and regions identified in the western area of the Gascoyne bioregion, crossed by the DBNGP alignment, can be divided into three broad associations. These associations are: • Gascoyne Ranges - the ranges, hills and plains of this sub-region are dominated by low Acacia woodland with a mixture of understorey species including *Eremophila* and *Cassia* species. The river flood plains carry dense marginal vegetation in which *Eucalyptus camalulensis* and Acacia species are found. The small sandplains are vegetated in the west with Acacia scrub and with hummock grassland and *Eucalyptus gamophylla* scrub in the east. • Carnegie Salient - the vegetation in this sub-region is predominantly covered with a low mulga woodland. Samphire communities, composed of a Frankenia-Atriplex community are present in the lower wetter pans. • Yinnietharra Hills - the vegetation in this sub-region is dominated by low Acacia scrub with a variety of shrubs and annual grasses and forbs forming a generally sparse understorey (Beard 1976).

	There are no species of conservation significant flora known to occur along the 30 m DBNGP corridor within the Gascoyne Bioregion.
Fauna	There are no species of conservation significant flora known to occur along the 30 m DBNGP corridor within the Gascoyne Bioregion.
Surface Water	The following Major water courses are crossed by the DBNGP in the Gascoyne Bioregion: • Yannarie (KP339) • Lyndon River (KP400) • Monkey Creek North (KP405) • Monkey Creek South (KP406) • Minilya River North (KP432)
Groundwater	Numerous rivers drain the Gascoyne region. Due to their ephemeral nature these rivers are usually dry with the exception of a few permanent waterholes however the Gascoyne River occasionally flows between February and August, recharging local aquifers within the riverbed (GDC 2003).
Conservation Areas	There are no conservation estates intersected by the DBNGP within the Gascoyne Bioregion. No Environmentally Sensitive Areas (ESAs) have been identified in this section of the DBNGP.
Native Title	1 Native Title surrounds the DBNGP and associated infrastructure within the Gascoyne Region, the Thudgari People.
Aboriginal Heritage	There is 1 Aboriginal Heritage Area surrounding the DBNGP and associated infrastructure within the Gascoyne Region, NATGAS 14 (Place ID: 8902).

2.1.4 Yalgoo Region

Environment	Summary
Climate	The climate varies from semi-desert to Mediterranean with hot dry summers and mild winters with winter rainfall (LAWA 2001). Average annual rainfall is 225-300 mm (Beard 1976). The mean annual rainfall in Yalgoo (Site number 007091) is 259.6 mm (BOM 2023). Mean maximum temperatures range from 18.2°C to 37.2°C. Mean minimum temperatures range from 6.2°C to 20.7°C (BOM 2023).
Geology	This region is characterised by sand and alluvial plains, lateritic breakaways, low ranges and saltlakes. Broad alluvial valleys separate the breakaways and low ranges (LAWA 2001). The soils of this bioregion are quite varied and include the following units: • Shallow loams on hilly areas with rock outcrops. • Sandplain and sandy upland soils comprising acidic yellow earths containing ironstone, shallow yellow earthy sands and ironstone gravely forms in association with shallow red earthy sands and shallow red earths. • Shallow earthy loams and red earths overlying red-brown hardpan on topography from ranges to plains. • Neutral and acidic red earths over hardpan on plains and flanking slopes. • Shallow acidic or neutral red earths with shallow earthy loams, overlaying hardpan, on plains with surface gravel. • Alkaline, neutral or acidic red earths on plains with extensive playa lakes and flanking dunes. • Saline soils of valleys and salt lakes (Beard 1976).
Acid Sulphate Soil	There are no known risks of Acid Sulphate Soil (ASS) within the Yalgoo Region of the DBNGP.

Vegetation and Flora	The vegetation in the region is dominated by acacia shrublands, acacia forests and woodlands, hummock grasslands and smaller areas of Eucalypt woodlands and chenopod shrublands and samphire shrublands (LAWA 2001). The stony hills and low-lying plains of this bioregion are dominated by acacia dominated scrub mixed with a variety of undershrubs. The winter rainfall results in strong annual growth of a variety of ephemeral species. In the south of this region there is a distinctive area that is comprised of heath on granite outcrops, acacia scrub on the shallow soils on the higher ground, *Acacia-Melaluca* thickets on the middle slopes, and *Acacia ramulosa* scrub with scattered eucalypts and cypress pines in the valleys. The chain of salt flats and lakes from Lake Monger to Lake Nullewa are surrounded by samphire, teatree and *Acacia-Eremophila* scrub (Beard 1976). There are no species of conservation significant flora known to occur along the 30 m DBNGP corridor within the Yalgoo Bioregion.
Fauna	One Priority 3 (State) invertebrate, *Idiosoma clypeatum* (northern shield-backed trapdoor spider), is known to occur in proximity to KP 828 and KP 834 of the DBNGP.
Surface Water	Due to the low and erratic rainfall of the region there is little or no surface water. There are numerous salt lakes present in the region. The only major watercourse crossed by the DBNGP in the Yalgoo bioregion is the Murchison River at KP 845.
Groundwater	Groundwater occurs throughout the bioregion although the water table is sometimes absent in high areas where rock fractures are poorly developed on the fractured rock zone is unsaturated. Water quality ranges from fresh to brackish and is generally encountered within 10m of the surface (Payne et al 1998).
Conservation Areas	The Toolonga Nature Reserve (a C Class Nature Reserve) lies adjacent to the DBNGP corridor between KP 746 and KP 818, spanning the Carnarvon and Yalgoo bioregions. It should be noted that the DBNGP corridor is excised from this reserve. Nevertheless, the adjacent area is still classified as "of conservation value" for the purpose of operational activities. There are no Environmentally Sensitive Areas (ESAs) identified in this section of the DBNGP.
Native Title	No Native Titles surround the DBNGP and associated infrastructure within the Yalgoo Region.
Aboriginal Heritage	There is one Aboriginal Heritage Area surrounding the DBNGP and associated infrastructure within the Yalgoo Region, Pipeline Corridor 85 (PC-85) (Place ID: 18086).

Geraldton Sandplains Region

Environment	Summary
Climate	The coastal climate is Mediterranean with mild wet winters and hot dry summers. Inland areas experience semi-desert arid climate with low un-seasonal rainfall, hot dry summers and mild dry winters. A semi-arid climate is transitional between the two. The great variation in rainfall, from north to south, results in considerable variation in vegetation and land use (LAWA 2001). Rainfall decreases in a northerly and easterly direction. Most coastal areas receive an average 400 - 500 mm of rainfall per year while inland areas can expect less than 250 mm. Rainfall in inland areas tends to be more erratic and unreliable (MWDC 2003). Annual evaporation in the region averages 2000-2800 mm (BOM 2023). Mean maximum temperatures at Geraldton Airport (Site number 008051) range from 19.6°C to 32.6°C (BOM 2023). Mean minimum temperatures range from 8.9°C to 19.2°C (BOM 2023).

Geology	The Geraldton Sandplains bioregion consists of undulating lateritic red sand plains overlaying sediments and gravels or cap-rock (LAWA 2001). The bioregion includes a diversity of geographic features. Ranges include the flat-topped Moresby Ranges near Geraldton, the Weld, Nicholas, Dividing, Montague, and Robinson ranges. However, these are minor and with a few other exceptions including the dissected Northampton Block and small areas of breakaway country, the region tends to be relatively flat. With the exception of the laterite breakaways land systems the soils in this region, which are characterised by loose sandy surfaces, are prone to wind erosion (Dames & Moore 2000) and tend to have a high erosion potential.
Acid Sulphate Soil	There are no known risks of Acid Sulphate Soil (ASS) within the Geraldton Sandplains Region of the DBNGP.
Vegetation and Flora	Twenty-nine different vegetation systems have been identified within the Geraldton bioregion reflecting the influences of the high winter rainfall and soils in the region (Beard 1976). There are two species of conservation significant flora known to occur along the 30 m DBNGP corridor within the Geraldton Sandplains Bioregion: *Grevillea florida,* P3 (KP1143) *Eucalyptus ebbanoensis* subsp*. Photina,* P4 (KP1027)
Fauna	Bancroft and Bamford (2006) conducted a Level 1 fauna survey of the entire pipeline corridor in accordance with EPA Position Statement No. 3 (Bancroft and Bamford 2006). A total of 47 species of conservation significance were identified as potentially occurring within the Agricultural region of the DBNGP corridor (i.e. Geraldton Sandplains and portion of Swan Coastal Plain). A (State) Priority 3 reptile, *Lerista yuna* (Yuna broad-blazed slider)*,* is known to occur along the DBNGP at KP 894 in the Geraldton Hills subregion of the Geraldton Sandplains.
Weeds, Pathogens and Pests	Areas in the region that have been cleared are susceptible to wind and water erosion and many areas suffer from land degradation from spread of weeds, uncontrolled fire and overgrazing by introduced pests such as feral goats, foxes and rabbits (WA Planning Commission 1999). Engagement with the DBCA confirmed that Dieback is present within the Coomallo Nature Reserve, described as intersecting the DBNGP in Table 3 8.
Surface Water	The following Major water courses are crossed by the DBNGP in the Geraldton Sandplains Region: • Greenough River (KP962) • Irwin River (KP1036) • Arrowsmith River (KP1080) • Donkey Creek (KP1086) • Flood Creek (KP1095) • Boothendarra Creek (553) • Hill River (KP568) • Mullering Brook (KP569) • Milyulo Brook North (KP651)
Groundwater	The relatively low rainfall of the region makes groundwater resources extremely valuable. Generally, groundwater is available throughout the region with southern coastal areas having access to higher yields and quality. The quality and quantity of groundwater in inland areas and other areas such as the Northampton Block varies (MWDC 2003). The depth to groundwater can vary, with the water table often being shallow, ranging from 2 to 15 meters below ground, but can be deeper in some areas, exceeding 100 meters. The Yaragadee aquifer itself is around 1500 m below the surface and contains low salinity (<1000 mg/L TDS).

	The Priority 2 protection area of the Allanooka-Dongara Water Reserve under the CAWS Act is intersected by the DBNGP at KP 1029.
Conservation Areas	The following Conservation Areas are intersected by the DBNGP in the Geraldton Sandplains Region: • Coomallo Nature Reserve (KP1151, KP1154) • Hill River Nature Reserve (KP1165, KP1166) • Twyata Nature Reserve (KP 1166, KP1167) • Badgingara Nature Reserve (KP 1168, KP1174) • Minyulo Nature Reserve (KP1201, KP1203) Additionally, Burma Road Nature Reserve lies adjacent (west) to the DBNGP corridor between KP999 and KP1007. It should be noted that the DBNGP corridor has been excised from all Conservation Areas listed. Nevertheless, sections of the corridor adjacent to (and intersecting) these reserves are still classified as "of conservation value" for the purpose of operational activities. ESAs within the Lesueur Sandplain subregion have been intersected at three locations of the DBNGP: KP1079, KP1151 and KP1170.
Native Title	1 Native Title surrounds the DBNGP and associated infrastructure within the Geraldton Sandplains Region, the Thudgari People (WCD2009/002).
Aboriginal Heritage	There are 5 Aboriginal Heritage Areas surrounding the DBNGP and associated infrastructure within the Geraldton Sandplains Region.

2.1.5 Swan Coastal Plain Region

Environment	Summary
Climate	This bioregion experiences a Mediterranean climate with warm dry summers and cool wet winters (LAWA 2001). Rainfall increases with proximity to the western side of the Darling Scarp (Beard 1981). The mean annual rainfall in Perth Airport is 760.0 mm (BOM 2023). Mean maximum temperatures range from 18.0°C to 32.0°C. Mean minimum temperatures range from 8.1°C to 17.6°C (BOM 2023).
Geology	This region is dominated by a low lying coastal plain (LAWA 2001) and has been divided into seven subunits, six of which are relevant to the DBNGP and which equate to the following soil and vegetation systems: • Quindalup Dunes - these young coastal dunes are dominated by calcarious sands. • Spearwood Dunes - these dunes support several permanent lakes and the soils are composed of slightly podzolized yellow sands. This region also includes the Swan and Blackwood River estuaries. • Bassendean Dunes - low sandhills with numerous interdunal swamps and lakes with leached and podzolized white quartz sands. • Pinjarra Plain - an alluvial flat between the Bassendean Dunes and Darling Scarp with soils comprising red and yellow podzolics with sandy surfaces. • Piedmont Zone (Ridge Hill Shelf) - runs along the foot of the Gingin and Darling Scarps and consists of alluvial fans with soils comprising red and yellow podzolics. • Gingin and Darling Scarps – these steeply rising scarps have soils comprised of acidic red earths on the slopes with red and yellow podzolics on the upper slopes and sands on the spurs and ridges.
Acid Sulphate Soil	The majority of the DBNGP and associated infrastructure are within ASS risk areas of the Perth and Dandaragan Plateau subregions of the Swan Coastal Plain. These are divided into two types of Risk Category: 1 - high to moderate risk and 2 - moderate to low risk. • 1 – High to moderate risk: Wellesley Meter Station, Burrup Fertiliser Lateral, KP1274, KP1288, KP1290-KP1292, KP1348, KP1350-

	KP1356, KP1363, KP1384, KP1392-KP1393, KP1394-KP1395, KP1417, KP1513, KP1517, KP1523 • 1- Moderate to low risk: Alcoa Pinjarra Lateral, Wellesley Lateral, KP1-KP14, Pinjar Lateral, KP1290, KP1295-KP1306, KP1309-KP1315, KP1316-KP1341, KP1342-KP1344, KP14345-KP1346, KP1359-KP1370, KP1372-KP1382, KP1385-KP1391, KP1409-KP1524
Vegetation and Flora	The vegetation in the region is dominated in the south by eucalypt open forests and eucalypt woodlands with small areas of heath, open forests and woodlands, melaleuca forests and woodlands, acacia shrublands and shrublands. In the north large areas of eucalypt open woodlands, other forests and woodlands, heath, acacia shrublands and eucalypt woodlands occur (LAWA 2001). The vegetation associations of the subunits of the Swan Coastal Plain are described below: • Bassendean Dunes – the dominant vegetation in this region is a *Banksia* low woodland dominated by *Banksia attenuate, B. menziessii*, *B. ilicifolia*, *Eucalyptus todtiana* and *Nuytsis floribunda* with a dense understorey of sclerophyll shrubs. North of the Moore River there are patches of heath and the swamps are charaterised by low woodland and forest (including *Melaleuca preissiana*, *M. rhaphiophylla*, *Banksia littoralis*, *Casuarina obesa* and *Eucalyptus rudis*). • Pinjarra Plain – the dominant vegetation in this region is a *Eucalyptus* woodland. Areas subject to flooding, such as Benger Swamp support low woodland or forest of *Melaleuca rhaphiophylla*, thickets of *M. preissiana* or sedgeland. • Quindalup Dunes – north of the Swan River vegetation includes low *Callitris preissii* forest, *Acacia* thickets and an *Acacia lasiocarpa – Melaleuca acerose* heath. On the coastal dunes and islands *Callitris preissii* low forest, heath, *Acacia rostellifera* thickets and *Acacia saligna* and *Jacksonia* scrub with numerous *Xanthorrhoea preissii* can be found. • Spearwood Dunes – the northern portion of this region is characterised by *Eucalyptus gomphocephala* woodlands, heath on shallow soils or ridges and a low *Banksia* woodland on the slopes. The southern portion of this region is characterised by woody communities of *Melaleuca* and *Banksia*, samphires on the margins of the salt lakes, a *eucalypt* woodland (*Eucalyptus gomphocephala* and *E. marginata*) and minor communities of heath, low woodland (with *Melaleuca* and *Banksia*) and low forest. • Piedmont Zone (Ridge Hill Shelf) – the main vegetation types in this region include Eucalypt Forest (*Eucalyptus marginata* and *E. calophylla*) with *E. wandoo* on the heavier gravel soils and *Casuarina fraserana* on the sandy soils. Streams and creeks are finged by a woodland of *Eucalyptus rudis* and *Melaleuca preissiana* (Beard 1981). There is very little of the original native vegetation remaining in the Swan Coastal Plain system due to extensive clearing undertaken for agricultural purposes. A number (18) of significant ecological communities have been identified to occur along the DBNGP within the Perth subregion of the Swan Coastal Plain. Three species of conservation significant flora are known to occur within the Perth subregion of the Swan Coastal Plain along the 30 m DBNGP corridor. These are: • *Jacksonia sericea*, P4 (KP1382) • *Drakea elastica*, Endangered / Critically Endangered (KP 1416) • *Synaphea stenoloba*, Endangered / Endangered (KP1448)

Weeds, Pests and Pathogens	European House Borer (EHB), *Hylotrupes bajulus Linnaeus*, is a destructive pest of seasoned coniferous timber including pine, fir and spruce known to occur at some locations within the Swan Coastal Plain. If allowed to become established, it can cause major structural damage to buildings. The adult beetle lays its eggs into cracks, holes and joints in dead pine trees, dead branches, or other dead parts of living trees and untreated pine timber. The *Agriculture and Related Resources Protection (European House Borer) Regulations 2006* have set Restricted Movement Zones (RMZ) in specific areas within the Swan Coastal Plain. Movement of untreated pine into or out of these areas is restricted. Engagement with the DBCA confirmed that Dieback is present within the conservation areas intersected by the DBNGP.
Fauna	Bancroft and Bamford (2006) conducted a Level 1 fauna survey of the entire pipeline corridor in accordance with EPA Position Statement No. 3 (Bancroft and Bamford 2006). A total of 40 species of conservation significance were identified as potentially occurring within the Swan Coastal Plains region of the DBNGP corridor. Eight conservation significant fauna are known to occur within the Perth subregion of the SCP along the 30 m DBNGP corridor.
Surface Water	The following Major water courses are crossed by the DBNGP in the Swan Coastal Plains Bioregion are: • Caren Crave Brook (KP1226) • Moore River (KP1241) • Red Gully (KP1254) • Gingin Brook (KP1286) • Swan River (KP1348) • Helena River (KP1349) • Canning River (KP1371) • Serpentine River (KP1415) • North Dandalup River (KP1439) • South Dandalup River (KP1445) • Murray River (KP1457) • Harvey River (KP1482)
Wetlands	The corridor traverses numerous conservation category wetlands (CCWs) and wetlands gazetted under the Environmental Protection (Swan Coastal Plain Lakes) Policy 1992 (EPP Lakes). Between CS9 and CS10 the pipeline traverses within 200 m of Forrestdale Lake (KP1383-1384.5) and south of CS10 the pipeline runs north-south across the eastern side of the Swan Coastal Plain section of the catchment of the Peel-Harvey Estuary (the estuary is approximately 10 km away from the pipeline route at its closest point) (KP1440 -KP1470). Forrestdale Lake and the Peel-Harvey Estuary are both Ramsar listed wetlands; 'Forrestdale and Thomsons Lakes' and the 'Peel-Yalgorup System' respectively. Both Ramsar wetland systems are identified as wetlands of international importance.
Groundwater	The groundwater in this region ranges in depth from 1m to 10m and occurs mainly in shallow unconfined aquifers. Water quality is around 1000 total dissolved salts mg/ml. The deeper aquifers are of variable water quality, but some do contain potable water (SECWA 1979). The Bassendean Dunes are an important intake area for coastal pain aquifers and are underlain by fresh groundwater at shallow depths (Beard 1981). Two Public Drinking Water Source Areas (PDWSAs) under the MWSSD Act are intersected by the DBNGP, these are: • Gnangara Underground Water Pollution Control Area (P1, P2, P3) • Jandakot Underground Water Pollution Control Area (P1, P2)
Conservation Areas	There are 12 conservation areas intersected by the DBNGP in the Swan Coastal Plains bioregion. It should be noted that unlike in all other

	bioregions, the DBNGP corridor has not been excised from any areas vested for conservation within the Swan Coastal Plains. ESAs, predominantly within the Perth subregion of the Swan Coastal Plains, have been intersected at various locations of the DBNGP and associated infrastructure. Currently there are 11 listed ESA's along the DBNGP within the Swan Coastal Plain, .
LGAs	In the Swan Coastal Plain Region, the DBNGP crosses through 14 LGAs.
Native Title	No Native Titles surround the DBNGP and associated infrastructure within the Swan Coastal Plains Region.
Aboriginal Heritage	There are 24 Aboriginal Heritage Areas surrounding the DBNGP and associated infrastructure within the Swan Coastal Plains Region.

2.1.6 Jarrah Forest Region

Environment	Summary
Climate	The bioregion experiences a warm mediterranean climate, with mild wet winters and dry summers. Rainfall is from 1200mm in the south west to 500mm in the east (McKenzie, 2003).
Geology	Duri-crusted plateau of Yilgarn Craton characterised by Jarrah-Marri Forest on laterite gravels and, in the eastern part, by Marri-Wandoo woodlands on clayey soils. Eluvial and alluvial deposits support Agonis shrublands. In areas of Mesozoic sediments, Jarrah forests occur in a mosaic with a variety of species-rich shrublands (McKenzie, 2003).
Acid Sulphate Soils	There are no known risks of Acid Sulphate Soil (ASS) within the Jarrah Forest Region of the DBNGP.
Vegetation and Flora	Vegetation of the Norther Jarrah Forest is comprised of Jarrah-Marri Forest in the west grading to Marri and Wandoo woodlands in the east. In the south-east, extensive areas of swamp are dominated by paperbarks and swamp yate. There are extensive but localised sand sheets with Banksia low woodlands. Heath is found on granite rocks and as a common understorey of forests and woodlands in the north and east (McKenzie, 2003). No ecological communities and flora species of conservation significance have been identified along the 30 m DBNGP corridor within the Jarrah Forest bioregion.
Fauna	One (State) Priority 4 mammal, *Notamacropus irma* (western brush wallaby), is known to occur along the DBNGP at KP 21 within the Northern Jarrah Forest subregion.
Surface Water	There are no major water courses intersected by the Worsley Lateral within the Jarrah Forest Region.
Groundwater	The depth to groundwater in the Jarrah Forest varies significantly depending on location and climatic conditions. The depth to groundwater can generally range from a few meters to over 10 m, depending on local conditions and forest management practices (Reed et al, 2012). In some areas, groundwater levels have declined by several meters over the past few decades due to reduced rainfall and increased evapotranspiration (Batini, 2024). However, the 500-800mm rainfall zone is showing rapid rises in ground water levels and contributing to accelerated Dieback impacts (McKenzie, 2003).
Conservation Areas	The Southern Loop Worsley Lateral intersects the Harris River State Forest (Class A) between KP 41 and KP 58. There are no Environmentally Sensitive Areas (ESAs) identified in this section of the DBNGP and associated infrastructure.
Native Title	No Native Titles surround the DBNGP and associated infrastructure within the Jarrah Region.
Aboriginal Heritage	There are no Aboriginal Heritage Areas surrounding the DBNGP and associated infrastructure within the Jarrah Region.

2.2 Social and Economic

The DBNGP is located within a tract of land called the 'DBNGP corridor' which was established in the early 1980s and formally gazetted under the *Dampier to Bunbury Pipeline Act 1997* (DBP Act). The control of land use within the DBNGP corridor is the responsibility of the DBNGP Land Access Minister. In March 1998, the DBNGP Land Access Minister conferred certain access rights to the Licensee of the DBNGP, issued as an Access Right under Section 34 of the DBP Act. The Access Right is administered by the Department of Planning, Lands and Heritage (DPLH) on behalf of the DBNGP Land Access Minister.

DBP has non-exclusive access rights to the original DBNGP Corridor, which is 30m from Dampier Facilities to Wagerup West, and further reducing to 16m from Wagerup West to MLV159. The laterals that form the pipeline system have pipeline easement widths that vary from 5m to 20m.

DBP pays an annual fee to the DBNGP Land Access Minister for the Access Right.

From a socio-economic perspective, the DBNGP corridor can be divided into three regions based on the predominant land use: the Pastoral Region; Agricultural Region and the Swan Coastal Plain Region. The following section gives a brief description of the Local Government areas traversed by the pipeline.

2.2.1 The Pastoral Region

The pastoral region extends from Dampier in the City of Karratha to the Shire of Northampton. Local Government Areas (LGAs) traversed by the pipeline in the pastoral region are described in Table 2-1.

Table 2-1: Local Governments in the Pastoral Region

LGA	Area (km²)	Popn[1]	Major Towns	Major Industries/ Land Use
Karratha	15,235	22,199	Major Towns: Karratha and Dampier; Ports: Cape Lambert and Dampier.	Iron ore, salt, natural gas, pastoral, fishing, tourism
Ashburton	105,647	7,391	Onslow	Mining, pastoral, fishing, fish processing, oil, tourism, salt
Carnarvon	53,000	5,251	Carnarvon	Fishing, horticulture, salt and gypsum, tourism, pastoralism
Upper Gascoyne	46,602	170	Gascoyne Junction	Mining, pastoral, tourism
Shark Bay	25,000	1,031	Denham	Pastoral, fishing, salt, pearl culturing, shell grit mining, tourism
Northampton	13,513	3,227	Northampton and Kalbarri	Wheat, sheep, fishing, mineral sands mining, tourism

2.2.2 Agricultural Region

The DBNGP runs through 9 LGAs in the Agricultural Region. The details of each of these are provided in Table 2-2.

Table 2-2: Local Governments in the Agricultural Region

LGA	Area (km²)	Popn[1]	Major Towns	Major Industries/ Land Use

Chapman Valley	4,007	1,556	Nabawa	Agricultural primary production, marron farming, viticulture.
Greater Geraldton	12,626	39,489	Mullewa, Geraldton	Mullewa area – Grain, sheep, iron ore mine at Tallering Peak.
Irwin	2,223	3,680	Dongara and Port Denison	Fishing, farming, manufacturing, gas and oil fields, mineral sands mining, tourism, crayfish processing
Three Springs	313	575	Three Springs	Talc mine, grain growing, sheep
Carnamah	2,835	552	Carnamah and Eneabba	Fishing, mineral sands, rock quarrying, agriculture, floriculture, gas production
Coorow	4,137	1,055	Leeman and Green Head	Agriculture, fishing, wildflowers, tourism
Dandaragan	6,934	3,355	Jurien Bay and Dandaragan	Wheat and pastoral farming, mining, tourism
Gingin	3,325	5,576	Gingin	Fishing, cattle/ sheep grazing, horticulture, piggeries, viticulture, market gardening, mineral sands mining
Chittering	1,220	5,930	Muchea, Bindoon and Wannamal.	Mineral sands processing, fruit growing, agriculture, horticulture, tourism, viticulture

3. ACTIVITY DESCRIPTION

The DBNGP transports natural gas approximately 1,600 km from the Burrup Peninsula, starting near the township of Dampier, running parallel to the west coast of Western Australia and finishing near Bunbury. The DBNGP has twelve loops (Loops 0 to 10 and the South West Loop) and seventeen laterals (branch pipelines) along its length. It also has 10 mainline compressor stations (CS) and Pluto Interconnect Compressor Station which is installed with a reciprocating compressor package. The mainline compressor stations are equipped with between one to four compressor units and associated facilities located on or along the pipeline, such as meter stations, mainline valves (MLVs) and communication equipment.

The DBNGP has Transportation Services Control Centre (TSCC) and Head Office located at 140 St Georges Terrace in the Perth CBD and an Operations complex located at Jandakot. The DBNGP employs hundreds of contractors for various petroleum activities.

A summary description of the DBNGP is below:

- Natural gas from suppliers enters the DBNGP at Burrup Peninsula (North West Shelf Gas and Woodside Pluto), BEP Interconnect, MLV 7 Interconnect, Maitland (Santos Devil Creek), CS1 (Santos Varanus Island), Gorgon, Macedon, Wheatstone and Tubridgi Gas Storage (via AGIG's Ashburton West Pipeline systems), Dongara (Mondarra Storage Facility – bidirectional), Dongara (Waitsia) and Gingin (Red Gully – *currently suspended*).
- The gas is cooled at Dampier Facilities and at all mainline Compressor Stations (except Pluto), primarily to minimise potential for the formation of stress corrosion cracking.
- The gas passes through Mainline Valves (MLVs) the primary function of which is to allow isolation of a section or sections of the DBNGP for emergency response purposes as well as for maintenance. These sites contain communication infrastructures and facilities for generation and storage of power on site to service the MLVs.
- The gas pressure reduces as it travels down the pipeline, due to friction loss. The pressure of the gas is raised through gas turbine driven compressors at mainline Compressor Stations, which are spaced approximately 150km apart.
- The gas is delivered to shippers through outlet meter stations. The Meter Stations generally comprise of duty and standby meter runs and may contain equipment to reduce pressure, heat the gas and/or odorise the gas before delivery to the Shippers. There are 62 customer Meter Stations on the DBNGP, of which 53 are operational while 9 are currently not in use.
- Odorisation is undertaken at some of the Meter Stations depending on the customer requirements. Bulk odorisation to industrial standard is undertaken at the DBNGP WLPG facility located in Kwinana for all gas delivered into the Kwinana and the pipeline South segments. Further odorisation of gas occurs at some Meter Stations to increase the level to the residential standard, depending on the downstream gas consumers.
- The pipeline is remotely operated through the Supervisor Control and Data Acquisition (SCADA) system from TSCC. The microwave communications system in the areas north of Perth provides the backbone for the SCADA system as well as connection for other digital communications systems. Communications system for sites south of Perth largely consists of fibre optic, pilot cable, UHF radio and public cellular networks.

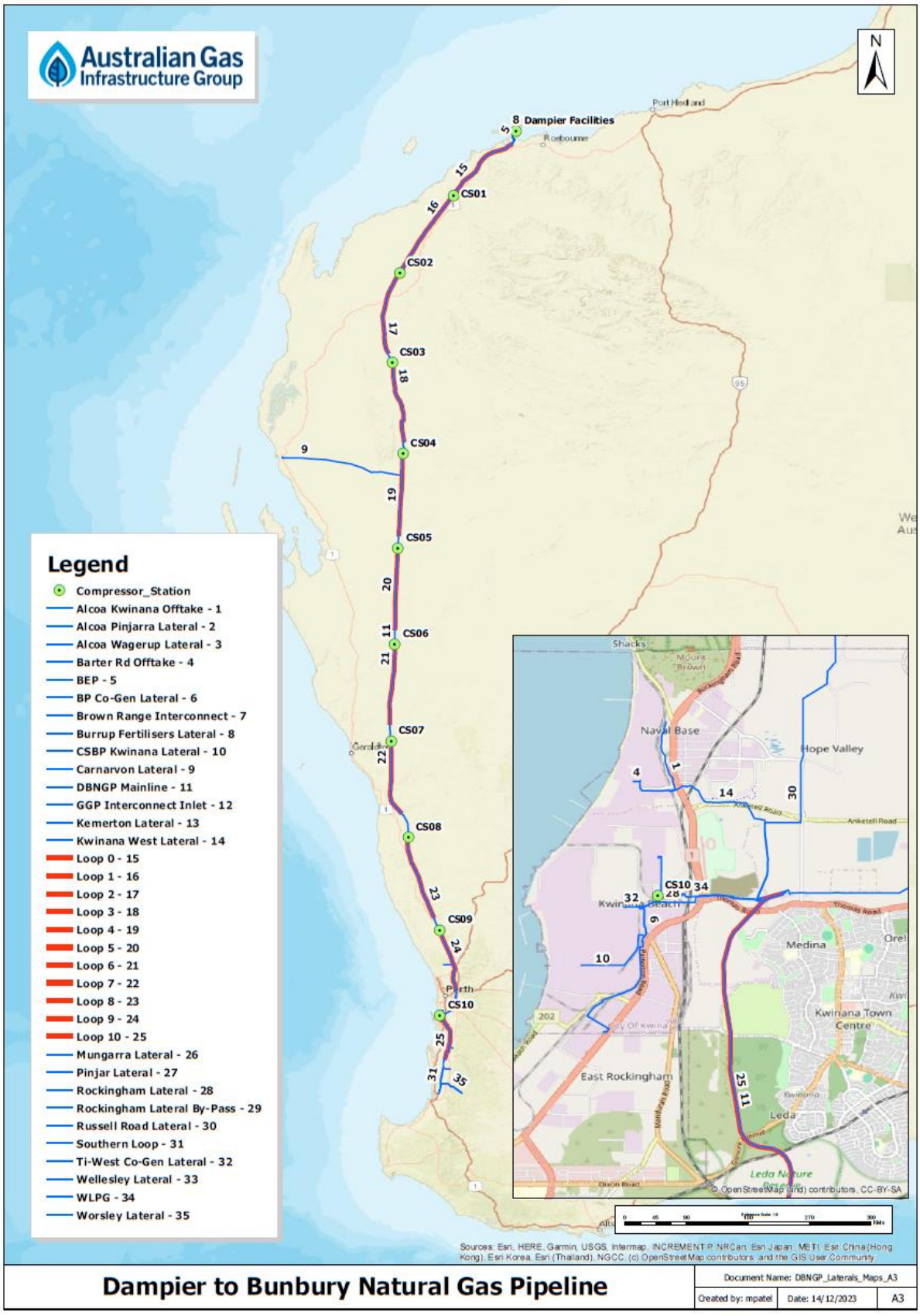

Figure 3-1: Overview of the DBNGP

4. ENVIRONMENTAL RISK IDENTIFICATION AND ASSESSMENT

The risk assessment was undertaken in accordance with AGIG's Risk Management Policy, as detailed within the EP. The Environmental Risk Assessment (ERA) completed in the EP aligns with the processes outlined in ISO 31000:2018 Risk Management – Guidelines.

Aspects, hazards and their associated management measures are detailed below in Table 4-1.

Table 4-1: Aspects, hazards and management measures

Aspect	Hazard	Management and Mitigation Measures
Soil and Sediment	• Poor stockpiling of topsoil • Vehicle and earthmoving equipment movements • Mixing of topsoil and subsoil • Environmental conditions • Exposure of acid sulphate soils to air and subsequent impacts (without treatment)	• Erosion and sedimentation management (including areas under rehabilitation) • Native Vegetation Clearing Procedure conditions • Internal Authorization to Clear Vegetation (ACV) process • Watercourse Crossing Procedure • Acid Sulphate Soil (ASS) management (limited interaction with any identified ASS sites along the DBNGP)
Native Vegetation	• Unapproved disturbance to threatened flora or other conservation significant species • Excessive clearing • Movement of vehicles and earthmoving equipment • Lack of rehabilitation success	• Native Vegetation Clearing Procedures • Internal Authorization to Clear Vegetation (ACV) process • Clearing Permit and approval conditions (including areas under rehabilitation) • DBCA notifcation prior to access to any DBCA managed lands
Weeds and Pathogens	• Movement of vehicle and earthmoving equipment • Import of fill • Weed control program – impact to native vegetation or crops • Rehabilitation progress	• Targeted and frequent weed management (including areas under rehabilitation) • Declared weeds management in conjunction with pastoral leases • Clean on Entry procedure • Stick to existing tracks
Fire	• Ignition from vehicles • Ignition from hot works (grinding, welding, etc) • Ignition from other activities (smoking, etc)	• Management of hot works and potential fire risk in line with relevant Permits • Management of flammable material build up

		• Firebreaks and management of ignition sources • Prohibited items in hazardous areas • Hot Works procedure conditions including compliance with bushfire regulations
Fauna	• Vehicle and earthmoving equipment movements including clearing • Attraction of fauna to facilities (poor waste management or water source) • Trench or excavation fauna entrapment. • Unauthorised clearing outside of the approved areas • Gates left open (livestock) or impacts from aerial surveillance	• Trench management • Fauna controls including egress and fences • Fauna interaction procedure • Fauna handling training • Frequent inspections • Waste management (lidded bins, frequent servicing)
Cultural Heritage and Stakeholder Engagement	• Clearing, trenching, excavation to impact on known registered or unknown heritage / artefact locations • Dust and noise / vibration generated from minor construction and operations / maintenance activities • Odorant injection and transfer (gas leak smell) • Impact to landholders / local land users from requirements to access the pipeline corridor	• Consultation with Traditional Owners • Surveys for planned disturbance areas • Regular review of Registered Sites (GIS) • Annual consultation on activities and planned interactions as a minimum frequency • Heritage survey commenced prior to works that have the potential to impact Aboriginal Heritage along the DBNGP • Local council communication and consultation (especially in relation to road closures) • Lodgement of complaints
Emissions – Atmospheric (GHHG), Dust and Noise	• Controlled gas release from venting, odorant injection and transfer (gas leak smell) • Uncontrolled gas release (including odorised gas) from pipeline rupture, equipment (ie relief valves) failure from aboveground facilities • Generation of dust and noise / vibration from vehicles and earthmoving	• Minimise GHG, dust and noise generated through activities • Stabilise stockpiles including use of dust suppression • Minimise emissions through design and efficient operations • Utilise Emergency Response Plan in event of significant unplanned gas release

	equipment, minor construction and maintenance activities for DBNGP such as pigging operations, trenching / backfilling, grit blasting	• Monitor ongoing emissions as per approval conditions
Surface and Groundwater	• Movement of vehicles and earthmoving equipment modifying drainage channels • Borrow pit design changing local water drainage patterns. • Over abstraction of water from licensed groundwater bores • Excessive rainfall event. • Clearing of riparian vegetation.	• Abstraction under licensed approval conditions only • Water Crossing Procedure • Management of evaporation pond (dual lined with leak detection) • Management of chemicals (as per below) to avoid contamination • Comply with all conditions of licenses
Hazardous Materials Storage and Handling; Spill Response	• Spill of hazardous chemicals including diesel, oils, herbicides and turbine cleaning products • Inappropriate storage and disposal of hazardous waste • Storage, handling and transport of hazardous chemicals	• Bunded areas for liquid storage • Hazardous Materials Storage and Handling Procedure • Spill response equipment • Capture and removal of contaminated material (i.e. soil) • Oil Spill Response Procedure • Oil Spill Contingency Plan • Minimise chemical storage onsite
Waste	• Generation of waste from the DBNGP activities • Inadequate management of waste, i.e. inappropriate storage and disposal	• Frequent servicing and provision of appropriate bins • Waste segregation • Labelled (all) and lidded (general and co-mingled) waste receptacles

5. IMPLEMENTATION STRATEGY

To meet the requirements of Regulation 15(1) of the PP(E)R, this Section describes the implementation strategy—the systems, practices, and procedures used to ensure that the environmental impacts and risks of the activities are continuously reduced to ALARP, and the environmental performance objectives and standards detailed in Environment Plan are achieved.

5.1 Management System Overview

The AGIG business tools and processes used to manage and maintain all information relating to asset operations required for the implementation of environmental management include:

- Maximo – Operations Work Order (Tracking) System (asset management and maintenance)
- INX InControl - Event Management System
- X-info Connect (GIS) - Stakeholder Management System
- SkillPASS – Contractor Training, Competencies and Accreditation System

These internal business tools allow AGIG to successfully track and implement:

- Policy and Commitment
- Legal and other requirements
- Hazard Identification and Risk Management
- Structure and Responsibility
- Training and Competencies
- Incident Management
- Emergency Preparedness and Response
- Monitoring of Emissions and Discharges
- Inspections and Audits
- Review and Improvements
- Reporting and Record Keeping

5.1.1 Oil Spill Contingency Plan

DBP has developed the Spill Response Procedure (E-PRO-016), and acts as the Oil Spill Contingency for the DBNGP, and is aligned with the ERP.

The Spill Response Procedure (E-PRO-016) outlines the response structure and considers key aspects of prevention, preparedness, response and recovery. The Spill Response Procedure covers the following key aspects:

- Preparations are on hand for the possibility of an oil spill;
- Emergency response arrangements are implemented if an oil spill occurs; and
- Recovery arrangements are implemented if an oil spill occurs.

The ERP describes the emergency management framework that is in place to ensure any emergency events are managed effectively.

5.2 Environment Plan Revisions

Regulation 18 of the PP(E)R requires that DBP review and submit a proposed revision of the accepted EP:

- before the commencement of a new activity;
- or any significant modification, change of a new stage of an existing activity; and
- before, or as soon as practicable after, the occurrence of any significant new environmental impact or risk, or significant increase in an existing environmental impact or risk which occurred or is to occur.

Additionally, Regulation 20 of PP(E)R requires that DBP submit a proposed revision of the EP five years from the date when the EP is accepted by the Minister.

5.3 Record Keeping

Records are prepared to demonstrate the environmental performance of the activity. Records will be maintained for a minimum of five years from the preparation of the record. Examples of records to be produced during implementation of the EP include:

- induction records;
- monitoring and emission records;
- waste disposal records;
- non-compliances and corrective action records;
- reportable and recordable incidents; and
- internal audit and inspection records.

6. STAKEHOLDER ENGAGEMENT

Minimising and mitigating the potential environmental impacts associated with the DBNGGP activities is assisted by the engagement of key stakeholders to ensure all issues are identified and addressed.

DBP ensures that there is appropriate and timely consultation with relevant authorities, interested organisations and individuals in line with the requirements of the PGER(E)R, the DEMIRS' EP Guidelines, the Australian Petroleum Production & Exploration Association's (APPEA) land access framework, and industry best practice.

6.1 Stakeholder Identification

In accordance with Regulation 17 of PP(E)R, DBP completed a scoping exercise to determine which authorities, persons and organisations were considered to be relevant.

Relevant person(s) for the purpose of identifying stakeholders that should be consulted were identified based on the following:

- departments or agencies that administer the required approval(s) to implement the proposed Project;
- adjacent exploration permit holders potentially impacted by Project activities;
- any person or organisation whose functions, interests or activities may be affected by the Project; and
- any other person or organisation with a potential interest in the proposed Project.

The stakeholder groups identified included:

- State government agencies, including DEMIRS;
- Local Government and community stakeholders; and
- relevant Landholders.

6.2 Ongoing Consultation

Ongoing stakeholder consultation will take place throughout the life of the Project. DBP will continue to identify new relevant stakeholders prior to the Project commencing and during the activity. New stakeholders may be identified during ongoing consultation with stakeholders identified to date or direct approach by persons that have become aware of the Project. If additional stakeholders are identified, they will be contacted and provided with information in relation to the Project and invited to make comment.

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