

EGP.2373-PL-HSE-0002

EASTERN GOLDFIELDS GAS PIPELINE SYSTEM



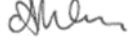
AGNEW GAS PIPELINE

KARLAWINDA GAS PIPELINE

LAKE WAY GAS PIPELINE

**OPERATIONS ENVIRONMENT MANAGEMENT
PLAN SUMMARY**



Rev	Date	Status	Originated/ Custodian	Checked	Approved
5.4	10/04/25	Binduli (PL137) added			
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Revision	Date	Status
5.3	Jul 2024	Stakeholder consultation table updated
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4.0	Nov 2021	KOTH added.
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1.1	Mar 2028	GGL, MMP, MMCS, YGP added.
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1. Introduction

This Operations Environment Management Plan (OEMP) Summary provides an overview of the environmental management requirements for the operation of the pipelines listed in Table 1 and Table 2.

Table 1 EGPS Pipeline Licences

Licence	Pipeline	Licensee
PL 108	Eastern Goldfields Pipeline (EGP)	APA Operations Pty Limited
PL 113	Mount Morgans Pipeline (MGN)	APA Operations Pty Limited
PL 36	Murrin Murrin Pipeline (MMP)	Australian Pipeline Limited
PL 115	Murrin Murrin Compressor Station (MMCS)	Australian Pipeline Limited
PL 114	Yamarna Gas Pipeline (YGP)	APA Operations Pty Limited
PL 76	Gwalia Gas Lateral (GGL)	Southern Cross Pipelines Australia Pty Ltd
PL118	Murrin Murrin Looping Pipeline (MUE)	APA Operations Pty Limited
PL 126	King of the Hills Gas Pipeline (KOTH)	APA Operations Pty Limited
PL 137	Binduli Gas Pipeline (BIN)	APA Operations Pty Limited

Table 2 AGE, KGP and LWP Pipeline Licences

Licence	Pipeline	Licensee
PL 120	Agnew Gas Pipeline (AGE)	APA Operations Pty Limited
PL 121	Karlawinda Gas Pipeline (KGP)	APA Operations Pty Limited
PL 125	Lake Way Gas Pipeline (LWP)	APA Operations Pty Limited

The nominated operator for the pipelines listed in Table 1 and Table 2 is APA Operations Pty Limited.

1.1 Purpose and Scope

The purpose of this OEMP Summary is to provide information to the public regarding environmental management requirements.

The scope of this OEMP Summary is limited to operational works associated with the pipelines listed in Table 1 and Table 2.

1.2 Health, Safety, Environment and Heritage Policy

At APA we strive to be world class in health, safety, environment and heritage performance. Our foremost priorities include protection of the environment, heritage and the communities we operate.

APA is committed to managing and minimising our impact on the environment and heritage. We foster a culture of responsibility, leadership and awareness of our environment and heritage obligations and practices.

1.3 Abbreviations

Table 3 Abbreviations

Acronym	Definition
ACHIS	Aboriginal Cultural Heritage Inquiry System
AGE	Agnew Gas Pipeline
APA	APA Group
ASS	Acid Sulphate Soils
ASS	Acid Sulphate Soils
BC Act	<i>Biodiversity Conservation Act 2016</i>
BIN	Binduli Gas Pipeline
CS	Compressor Station
DBCA	Department of Biodiversity, Conservation and Attractions
DBNGP	Dampier to Bunbury Natural Gas Pipeline
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DMIRS	Department of Mines, Industry Regulation and Safety
DPIRD	Department of Primary Industries and Regional Development
DPLH	Department of Planning, Lands and Heritage
DWER	Department of Water and Environmental Regulation
EGP	Eastern Goldfields Pipeline
EGPS	Eastern Goldfields Pipeline System
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act</i>
ERP	Emergency Response Plan
GGL	Gwalia Gas Pipeline
GGP	Goldfields Gas Pipeline
GGPS	Goldfields Gas Pipeline System
HDD	Horizontal Directional Drilling
KGP	Karlawinda Gas Pipeline
KOTHGP	King of the Hill Gas Pipeline
LCP	Landholder Contact Program
LMS	Learning Management System
LOS	Line of Sight
LWP	Lake Way Gas Pipeline
MB	Maintenance Base
MGN	Mount Morgan Pipeline
MMCS	Murrin Murrin Compressor Station
MMP	Murrin Murrin Pipeline
MUE	Murrin Murrin Looping Pipeline
NGER	National Greenhouse and Energy Reporting

Acronym	Definition
NORM	Naturally Occuring Radioactive Material
NPI	National Pollutant Inventory
OEMP	Operations Environment Management Plan
OSCP	Oil Spill Contingency Plan
PDWSA	Public Drinking Water Source Area
PEC	Priority Ecological Community
PL	Pipeline Licence
ROW	Right of Way
SDGM	Sunrise Dam Gold Mine
SG	Safeguard
TEC	Threatened Ecological Community
TGM	Tropicana Gold Mine
TPA	Third-Party Awareness Program
WBH	Water Bath Heaters
WoNS	Weed of National Significance
YGP	Yarmarna Gas Pipeline

2. Location

Pipeline	Location Description
EGP	<p>The EGP begins at existing APA infrastructure, from Leonora-Laverton Road near Murrin Murrin Nickel Mine 50 km south-west of Laverton. The pipeline then extends 83 km, around Lake Carey to the Sunrise Dam Gold Mine (SDGM), 55 km south of Laverton. The final section traverses 210 km from SDGM to Tropicana Gold Mine (TGM), 330 km north-east of Kalgoorlie (Figure 1). The EGP is 293km in length.</p> <p>The EGP is located on L39/227, L39/234, L38/105, L39/228 (held by AGAA) and traverses two pastoral leases (Glenorn and Mount Weld Stations) within a wider area used for mining.</p> <p>Pipeline commences: 395252.00 m E, 6815633.00 m N, 51 J.</p> <p>Pipeline terminates: 649297.89 m E, 6764969.17 m N, 51 J.</p>
MGN	<p>The MGN begins at EGP KP30.55, approximately 30 km south-west of Laverton. From the EGP the MGN extends approximately 5 km southwards, to the Mount Morgan's mine (Figure 1). The MGN lies within L39/227 (held by AGAA), M39/1107, M39/395, M39/236, M39/272 and M39/273 (held by Mount Morgan's WA Mining Pty Ltd).</p> <p>Pipeline commences: 421867.00 m E, 6816768.00 m N, 51 J</p> <p>Pipeline terminates: 422093.82 m E, 6813047.69 m N, 51 J.</p>
MMP	<p>The MMP commences at the off-take facility at GGP KP1142, 16km west of Leonora. The Murrin Murrin Compressor Station (MMCS) is located adjacent to installed adjacent to the existing Murrin Murrin Offtake/Inlet Station, at GGP KP1040, approximately 16 km west of Leonora. The MMP is 83km in length (Figure 1).</p> <p>The MMP is located within a dedicated easement, largely within road reserves.</p> <p>Pipeline commences: 321903.80 m E, 6807886.45 m N, 51 J.</p> <p>Pipeline terminates: 395252.00 m E, 6815633.00 m N, 51 J.</p>
YGP	<p>The YGP begins approximately 25 km south-south-west of Laverton, running north-north-east towards the Laverton town, turning east-north-east to follow the public White Cliffs – Yamarna Road for approximately 150 km, then departing from the road to continue north-east into the Gruyere minesite, about 160 km north-east of Laverton (Figure 1).</p> <p>Pipeline commences: 432836.11 m E, 6813796.22 m N, 51 J.</p> <p>Pipeline terminates: 584953.08 m E, 6903285.77 m N, 51 J.</p>
GGL	<p>The GGL commences at the off-take facility located on the MMP approximately 1 km west from Leonora.</p> <p>The GGL is contained within remote industrial zoned Crown Land and the mining tenements of St Barbara Mines Ltd, with the first 400 m from MMP within the Leonora township boundary. From MLV1, located near the corner of Rajah Road and Biggs Avenue, the pipeline extends in a Southerly direction parallel to Biggs Avenue for approximately 350 m. Thereafter it veers west and subsequently curves to the South for approximately 4 km, leaving the playing fields and Tower Hill Gold Mine to the east. The pipeline then runs east and curves around the existing mining areas to the Gwalia Power Station (Figure 1). GGL is 5.6km in length.</p> <p>Pipeline commences: 336600.26 m E, 6803950.08 m N, 51 J.</p> <p>Pipeline terminates: 337018.40 m E, 6799977.18 m N, 51 J.</p>
KOTGP	<p>KOTHGP is located within the Shire of Leonora in the Eastern Murchison Region, approximately 26km northwest of the Leonora townsite. The KOTHGP connects to the GGP to supply the KOTH power station at the KOTH mine on Miscellaneous Licence L37/248.</p> <p>The KOTHGP begins at a hot tap offtake at GGP KP1131 and runs for approximately 13 km, ending at the Tarmoola Delivery Station.</p>

	<p>Pipeline commences: 312687.418 m E, 6815111.578 m N, 51 J.</p> <p>Pipeline terminates: 320261.689 m E, 6825469.844 m N, 51 J.</p>
AGE	<p>The 24.4 km pipeline commences at the Kyara Offtake Station on the GGP at KP 1035.5, approximately 12 km south-east of Leinster. The AGE extends in a westerly direction from the GGP, terminating at the Agnew Delivery Station at KP 24.4 (Figure 4).</p> <p>AGE commencement point: -28.00569, 120.76139</p> <p>AGE termination point: -27.99762, 120.51528</p>
KGP	<p>The KGP begins at the Limestone Springs Offtake Station at GGP KP529.6 and runs for approximately 56 km, ending at the Savory Creek Delivery Station. The KGP supplies gas to the Karlawinda Gold Project mine site gas fired power station, operated by Greenmount Resources Pty Ltd (Figure 4).</p> <p>KGP commencement point: -23.79293 119.57689</p> <p>KGP termination point: -23.76777, 120.113638</p>
LWP	<p>The LWP commences at the Wongawol Road Offtake Station at GGP KP 868.9 and runs approximately 26 km, ending at the Camel Soak Delivery Station. The LWP is scheduled to be completed in 2020 and supplies gas to the Lake Way Potash Project, operated by SO4 (Figure 4).</p> <p>LWP commencement point: -26.607538, 120.332188</p> <p>LWP termination point: -26.748764, 120.235935</p>
BIN	<p>The BIN lies within the City of Kalgoorlie-Boulder municipal area in the Eastern Goldfields, approximate 6 km south-west of the Kalgoorlie townsite. The BIN connects directly to the GGP (PL 24) to supply the Lynas Kalgoorlie West Rare Earths processing plant. A right of way (ROW) is maintained along the pipeline centreline to assist with access for maintenance and repairs. This ROW corridor includes an access track.</p> <p>The BIN commences at the boundary of the GGP pipeline licenced area, approximately KP1367 on the GGP, and runs underground for approximately 1.45 km to the Karrawang Delivery Station</p> <p>Pipeline commences: 348938.202 m E, 6592777.695 m N, 51 J.</p> <p>Pipeline terminates: 348175.910 m E, 6592169.333 m N, 51 J</p>

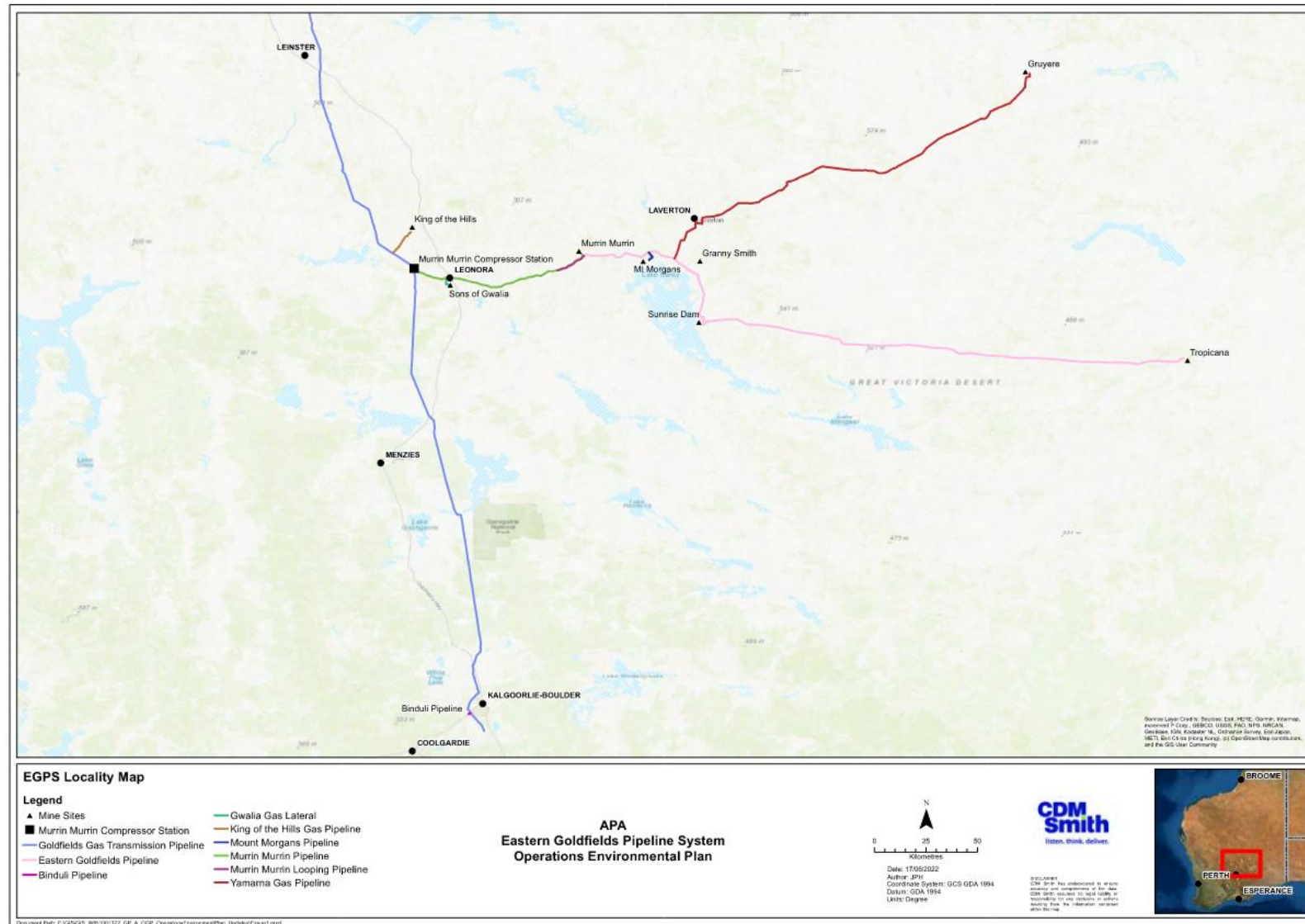


Figure 1 EGPS Locality Map

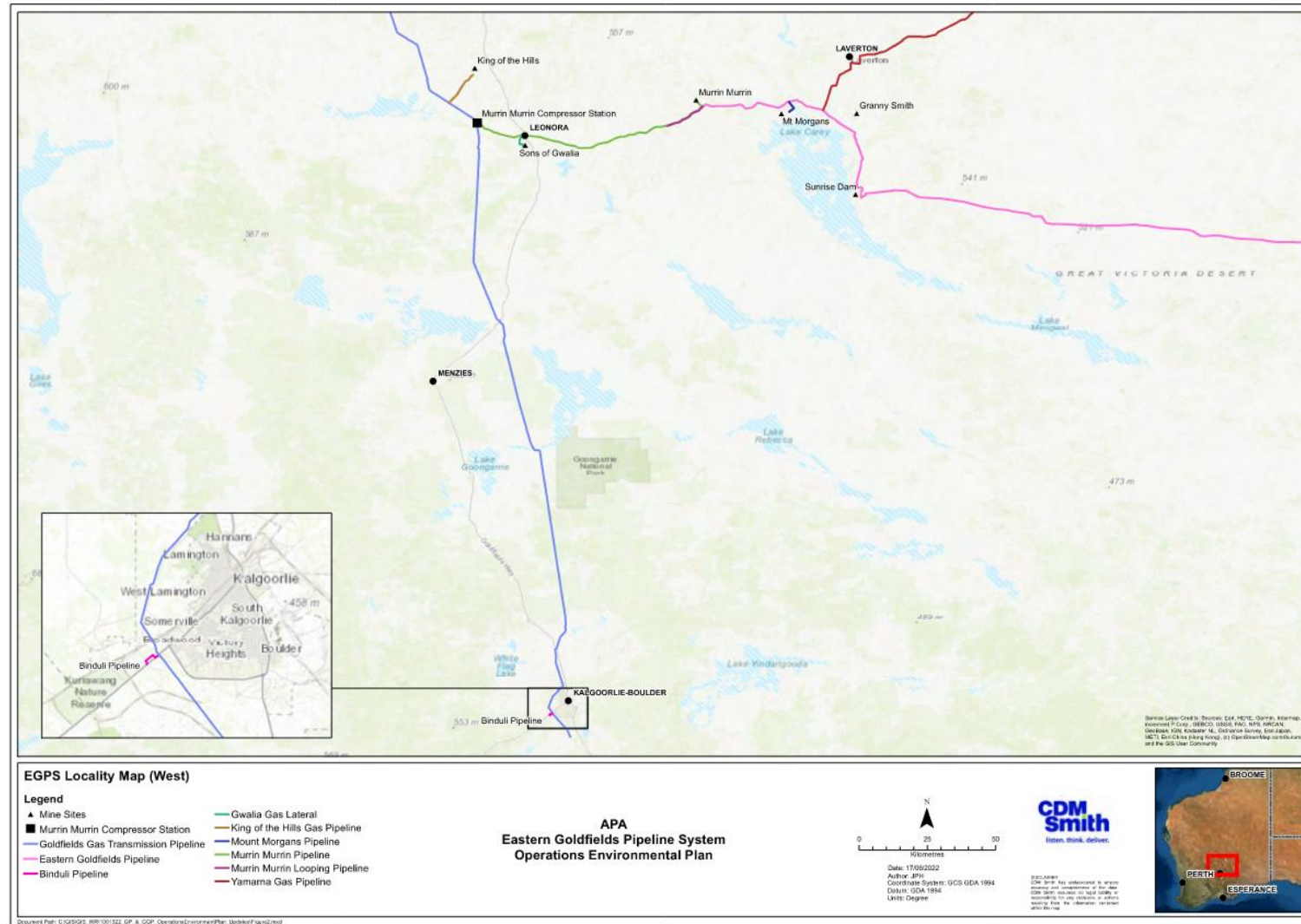


Figure 2 Locality Map (West)

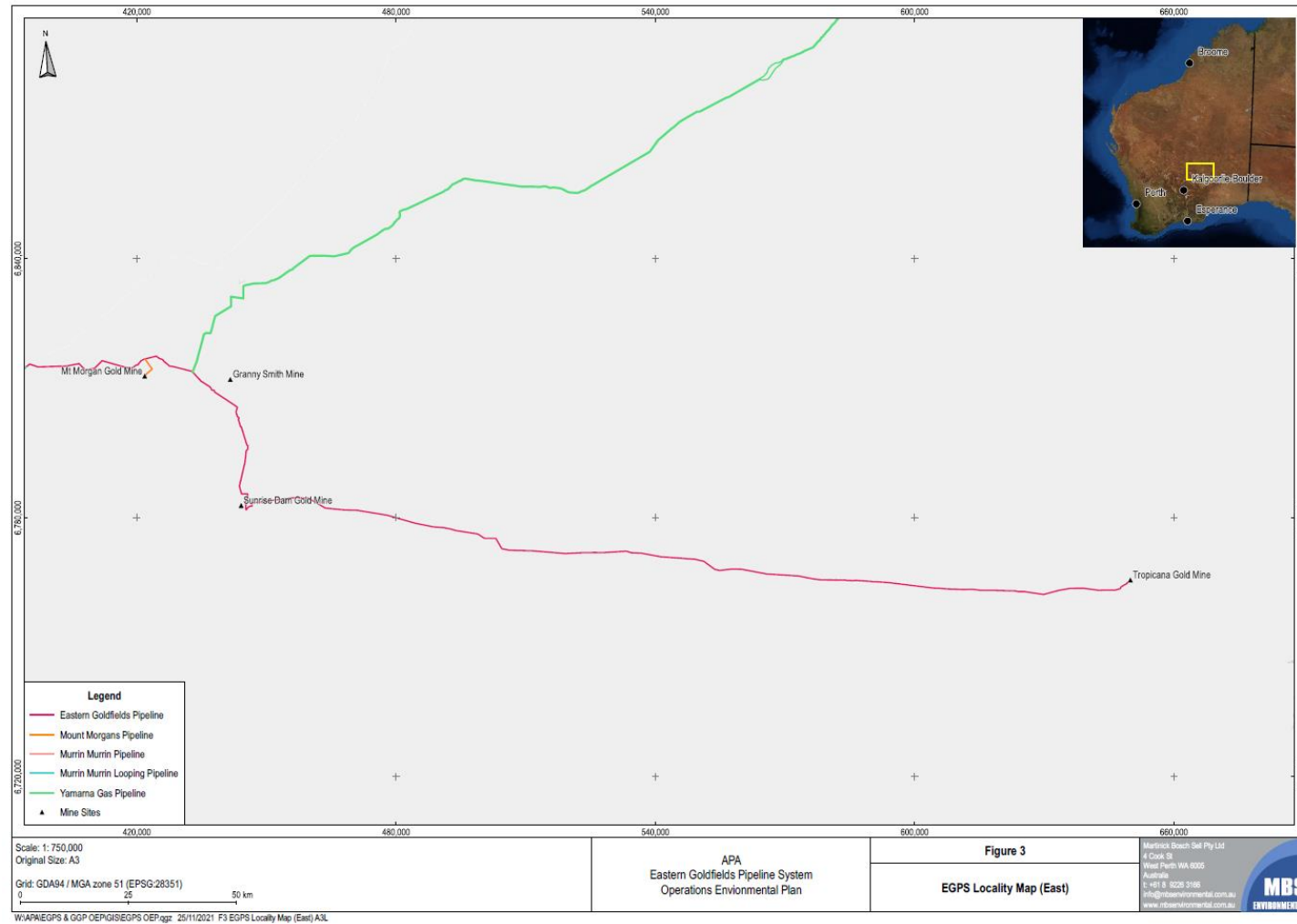


Figure 3 Locality Map (East)

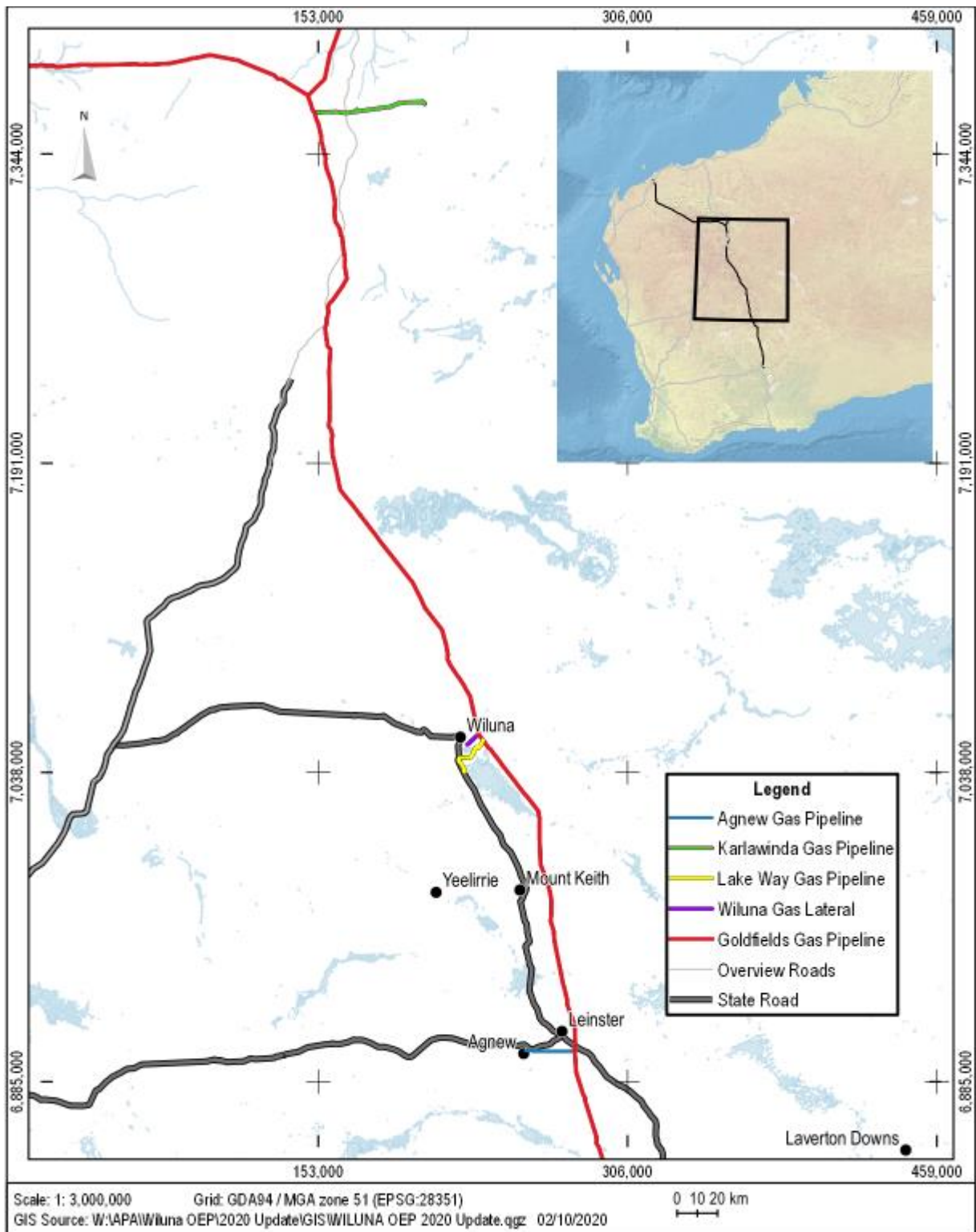


Figure 4 Agnew, Karlawinda and Lakeway Gas Pipelines Regional Map

3. Activity Description

3.1 General Equipment & Facility Maintenance

General equipment, easement and facility maintenance typically includes but is not limited to the following:

- Servicing and overhauls of machinery and equipment, including servicing and changing water of WBH;
- Equipment inspections and testing;
- Monitoring;
- Erosion management and remediation (inclusive of import of fill);
- Modification of fencing, include minor concreting for footings;
- Maintenance of temporary site offices, ablutions, laydown, and parking areas;
- Filter inspections and replacement; and
- Small scale facility works.

The above activities involve various mechanical and electrical tasks which are undertaken by appropriately qualified technicians.

Filter inspections are undertaken at regular intervals and filters replaced as required. Filter replacement involves filter removal, wash down with water and transfer to a secure container for transfer to appropriate offsite disposal facilities.

Pipeline warning signs are in accordance with AS2885. Signs are placed so as to be inter-visible and may require replacement.

Water Bath Heater's (WHB) consists of electric elements that get hot when electricity passes through them. The WBH's contain water which is treated with biocide or a corrosion inhibitor. These chemicals are stored at the MB and brought to site when required. Demineralised water, rainwater or mains water is used. WBH water is sampled and analyses on a three monthly basis and is treated based on the results as required. Water is treated by draining approximately 10L of water into a bucket, adding the chemical and then topping up the WBH (manual process). The water is changed in line with the pressure equipment inspection. This is done via isolating the WHB and draining the water into a bunded IBC. The water is then either reused or disposed of by a licenced waste carrier.

Erosion and subsidence management requiring the import of fill, ground/surface compaction and the mobilization of earth-moving machinery, may be required intermittently to ensure ongoing pipeline integrity. Fill will be clean of weeds and disease and sourced locally, where possible.

Small scale upgrades are required intermittently to allow for increased services or changes in pipeline requirements. Works may include minor concreting for footings, maintenance of temporary site offices, ablutions, laydown and parking areas to facilitate the small-scale installations. Works will be restricted to the pipeline licence area.

3.2 Pipeline Excavation

Pipeline excavations are undertaken periodically typically for pipeline repairs. The scales of excavations are generally single defect dig-ups.

Pipeline excavations are managed through Gas Transmission Excavation and Trenching Procedure.

Dewatering is sometimes required where the water table is present at less than a few metres from the ground surface, however this is rare (once every 5-10 years).

Abrasive blasting and coating activities may be conducted on an ad-hoc basis (likely once every ten years, based on similar APA pipelines).

3.3 Venting

Venting of gas is undertaken to purge pipelines or facilities for maintenance or emergency response purposes.

The Integrated Operations Centre Controller assists to monitor and respond to any unplanned/uncontrolled venting or gas release incidents via information provided on the on the operator interface (SCADA).

3.4 Pigging

Pipeline pigging is undertaken for the purposes of cleaning or integrity assessment (intelligent pigging). Intelligent pigging is completed in accordance with the requirements of AS2885.3 Section 6 – Pipeline Structural Integrity. In Line Inspection frequency is based on latest pigging data and integrity assessment, but not exceeding 10 years.

Pigs are run between pipeline scraper stations containing pig launching and receiving facilities. Particulate matter separated from the gas stream is a common by-product of pigging (removal of which is the ultimate goal in the case of a cleaning pig run), these are caught in the pig receiver trap along with the recovered pig and contained for appropriate offsite disposal.

3.5 Easement Inspections

Pipeline easement inspections are conducted as aerial or vehicle patrols. Scope of these patrols aim to identify:

- Third Party encroachments;
- Vegetation growth;
- Indicators of gas leaks;
- Line of sight;
- Presence of weed infestation greater than land immediately adjoining the corridor;
- Erosion;
- Exposed pipe; and
- Condition of signage and aerial markers.

Vehicle patrols are completed by pipeline technicians on a six-monthly basis or as per the Maximo Maintenance Regime. This work is conducted from light vehicles and managed

through MAXIMO with WOs being generated for completion. Any issues identified are documented and where necessary additional WO raised for corrective action to be completed.

Aerial patrols are completed monthly. The monthly aerial patrol is undertaken via a contractor and any issues / occurrences that are recorded during the flight are uploaded into Field Maps directly by the contractor for APA to action. The contractors follow the Corridor Surveillance Procedure (APA-PR-QM-0004).

Any changes to the above frequencies will go through a Management of Change process via Maximo prior to the change being in effect.

3.6 Hot Tapping

Hot Tapping is the process of safely drilling a hole into an operating gas pipeline to allow a connection to be made. Excavations are within the previously disturbed boundaries.

3.7 Vegetation Clearing

The PPA requires upstream and downstream pipeline warning markers to be visible (line of sight). In some areas, plant regrowth obscures line of sight between pipeline warning markers and inhibits vehicle access for maintenance purposes and emergency response. In these instances, vegetation mulching becomes necessary. The operation does not comprise soil disturbance and hence vegetative root stock and soil quality is maintained.

Vegetation disturbance may also be required to facilitate minor excavations/dig-ups.

Clearing will occur in accordance with the Environmental Protection (Clearing of Native Vegetation) Regulation 2004.

APA was granted the following clearing permits under section 51E of the Environmental Protection Act 1986:

- EGP – CPS 6361/3; for the purpose of a gas pipeline; permit duration 21 February 2015 – 21 February 2030;
- MML – CPS 7511/1; for the purpose of pipeline maintenance and associated activities; permit duration 20 May 2017 – 20 May 2027
- YGP – CPS 7660/2; for the purpose of a gas pipeline; permit duration 2 December 2017 – 1 December 2027
- MUE – CPS 8246/2; for the purpose of a gas pipeline; permit duration 16 February 2019 – 15 February 2029
- KOTHGP - CPS 9337/1; for the purpose of a gas pipeline; permit duration 9 October 2021 to 8 October 2026.
- AGE – Purpose Permit 8146/2; for the purpose of a gas pipeline and associated activities; permit duration 13 October 2018 to 12 October 2028
- LWP- Purpose Permit 9002/1; for the purpose of gas pipeline; permit duration 24 October 2020 to 23 October 2025
- Mt Morgan's WA Mining Pty Ltd was granted a clearing permit under section 51E of the *Environmental Protection Act 1986* for the purpose of mineral production and associated activities (CPS 7408/5; renewal granted in 2024)
- BIN – Purpose Permit 9909/1; for the purpose of pipeline construction, operation, commissioning and associated activities; permit duration 22 March 2025 to 21 March 2035

3.8 Waste Management

General waste, contaminated waste, controlled waste and NORMS waste are produced during the activity.

3.9 Vehicle Access

Vehicle activity predominantly comprises of light vehicles and occasional heavy vehicles for excavations, LOS clearing and associated maintenance activities. All access is restricted to the ROW and existing roads and tracks.

3.10 Planning for closure

APA will develop a separate environment plan for the decommissioning and rehabilitation of the EGPS which will be submitted to DEMIRS for review and approval prior to any work commencing for this activity.

Rehabilitation of the pipeline easement will be back to safe, stable and no polluting form consistent with existing land use.

4. Receiving Environment

4.1 Topography, Geology and Soils

Eastern Goldfields Pipeline System

A biogeographic regionalisation of Australia has been developed in which bioregions (broad-scale regionalisations) are formally recognised and mapped: the Interim Biogeographic Regionalisation for Australia (IBRA), version 7 (Department of Environment, 2012). IBRA provides a landscape-based approach to the classification of the land surface of Australia, with bioregions being classified according to common climate, geology, landform, native vegetation and species information. The EGPS occurs within two bioregions: the Murchison (MUR) and the Great Victoria Desert (GVD). Both bioregions are further split into sub-regions, which are described in detail below and shown in Figure 5.

The landscape of the Murchison IBRA bioregion comprises low hills, mesas of duricrust separated by flat colluvium and alluvial plains (Commonwealth Government 2008a). It is dominated by the Archaean (over 2500 million years ago) granite greenstone terrain of the Yilgarn Craton (Commonwealth Government 2008a). Alluvial soils and sands mantle the granitic and greenstone units of the Yilgarn Craton. These soils are shallow, sandy and infertile. Underlying the soils in low areas is a red-brown siliceous hard pan (Curry et al. 1994). The soils in the eastern half of the bioregion are typically red sands, lithosols, calcareous red earth soil, duplex soil and clays. Refer to Table 4 for EGPS subregion descriptions.

Table 4 EGPS Subregion Descriptions

Sub-Region	Description
The Eastern Murchison (MUR1)	The Eastern Murchison subregion is characterised by its internal drainage and extensive area of elevated red desert sandplains (Cowan 2001). Another important feature of the system is the salt lake systems associated with the occluded Paleodrainage system. Beard (1990) describes the topography of the region as undulating with occasional ranges of low hills and extensive sandplains located in the East. The dominant soil type is a shallow earthy loam, overlying red-brown hardpan. Red earthy sands can be found on the sandplains (Cowan 2001).
The Great Victoria Desert Shield (GVD1)	<p>The Great Victoria Desert Region forms the southern part of the anti-clockwise whorl of dunefields of Australia. The dominating landforms are dunes and swales. There are local occurrences of playa lakes, associated lee-sided mounds (lunettes) and rocky prominences (Commonwealth Government 2008b). Playa lakes are a minor, but locally significant landform in the desert, occurring in topographically low-lying regions and many represent the dried remnants of former drainage channels (Shephard 1995).</p> <p>The Great Victoria Desert Shield comprises the western margin of the Great Victoria Desert and contains a higher proportion of sandplain communities. Landforms consist of sandplains, sand dune fields, salt lakes, major valley floors and minor areas of out-cropping (silcrete-capped mesas and breakaways). Sandplain vegetation is dominated by Spinifex (<i>Triodia basedowii</i>) hummock grassland and mallee (<i>Eucalyptus kingsmillii</i>, <i>E. youngiana</i>). Marble Gum (<i>E. gongylocarpa</i>) and Native Pine (<i>Callitris</i>) woodlands occur on the deeper sands. Mulga and mixed acacia woodlands occur mainly on the colluvial and residual soils. Halophytes such as Saltbush (<i>Atriplex</i>), Bluebush (<i>Maireana</i>), and Samphire (<i>Tecticornia</i>) occur on the margins of salt lakes and in saline drainage areas. Yellow sandplain communities are distinctive vegetation communities occurring within the subregion.</p> <p>The western end of the Shield subregion is underlain by Yilgarn Craton. There is a higher proportion of sandplains in comparison to the entire bioregion. To the east is an arid active sand-ridge desert of deep Quaternary aeolian sands overlying Permian and Mesozoic strata of the Officer Basin. Landforms consist of salt lakes and major valley floors with lake derived dunes. Sandplains with patches of self dunes running east-west. Areas of moderate relief without-cropping and silcrete-capped mesas and plateaus (breakaways). The subregion contains major a paleochannel of Ponton Creek (Cowan 2001).</p>
Great Victoria Desert Central (GVD2)	<p>An arid active sand-ridge desert with extensive dune fields. The region is characterised by east-west orientated sand dune fields, sandplains, salt lakes, major valley floors, occasional outcropping (breakaways) and quartzite hills. Vegetation is dominated by Marble Gum (<i>Eucalyptus gongylocarpa</i>), Mulga and Mallee (<i>E. youngiana</i>) over hummock grassland dominated by <i>Triodia basedowii</i>. Acacia dominates colluvial soils with <i>Eremophila</i> and <i>Santalum</i> species. Halophytes are confined to edges of salt lakes and saline drainage systems.</p> <p>The Central subregion is characterised as an arid, active sand-ridge desert with extensive dune fields of deep Quaternary aeolian sands overlying Permian strata of the Gunbarrel Basin. Landforms consist of salt lakes and major valley floors with lake derived dunes.</p>
Eastern Goldfield (COO03)	Lying on the Yilgarn Craton's Eastern Goldfields Terrain, it is characterised as having gentle undulating plains with a subdued relief, interrupted in the west with low hills and ridges of Archaean greenstones and in the east by a horst of Proterozoic basic granulite. A series of large playa lakes in the western half are the remnants of an ancient major drainage line (Cowan 2001). Vegetation consists of Mallees, Acacia thickets and shrub-heaths on sandplains, with diverse <i>Eucalyptus</i> woodlands occurring around salt lakes, on ranges, and in valleys. Salt lakes support dwarf shrublands of samphire. Woodlands and <i>Dodonaea</i> shrubland occur on basic granulite of the Fraser Range, and the area is rich in endemic Acacias.

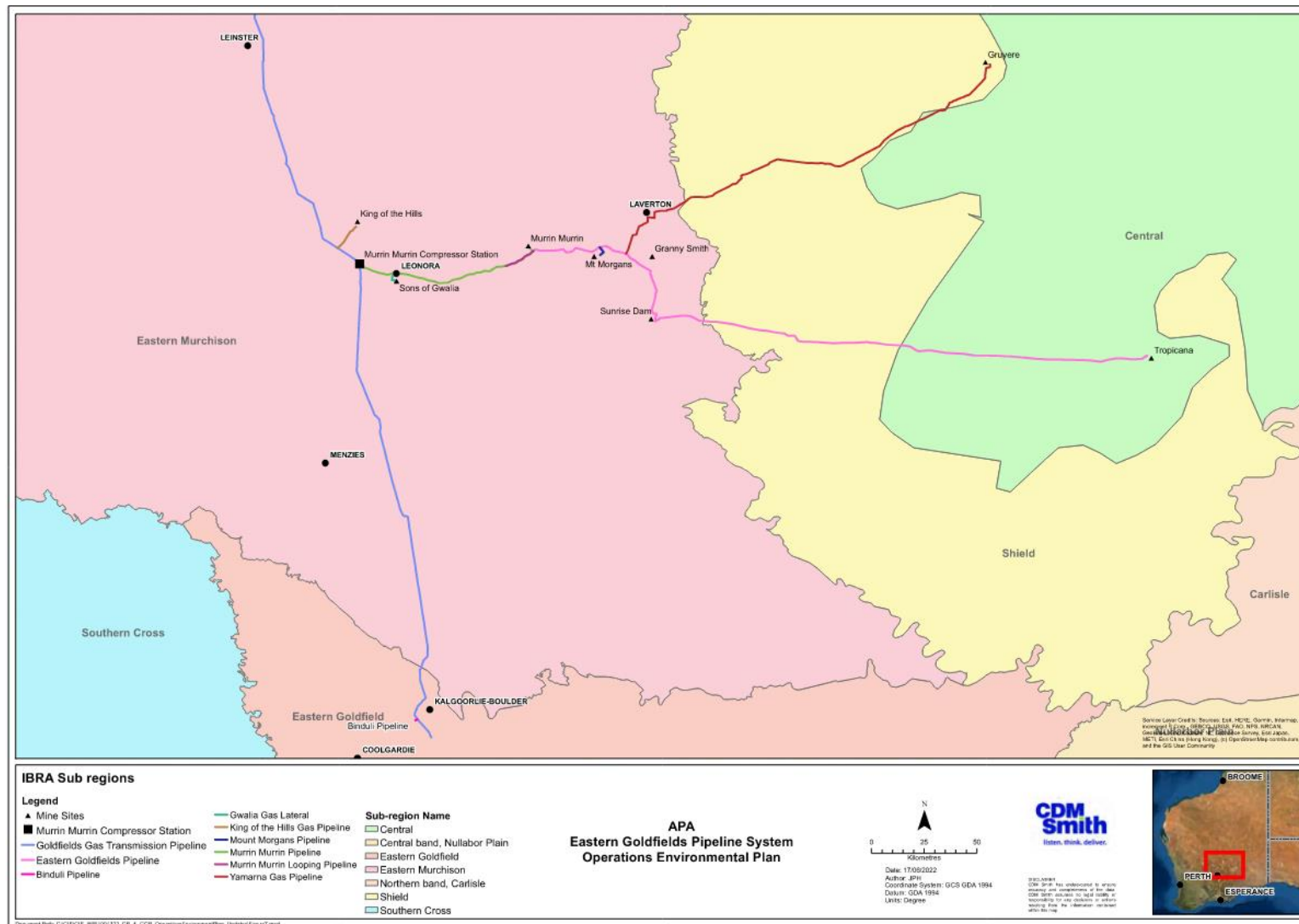


Figure 5 IBRA Bioregions

Six land systems dominate much of the pipeline corridor: Carnegie, Jundee, Monk, Mileura, Gundockerta and Monitor (Kingfisher 2014). These comprise broad plains with vegetation dominated by Mulga or chenopod communities. The surface geology of the Gundockerta land system is characterised by extensive undulating plains with stony mantles and lower alluvial tracts on weathered greenstone. Soils of the Murchison region in the Leonora area consist of silty sands and gravely loam with shallow colluvial and alluvial deposits.

Most of the southern half is composed of the Carnegie Landsystem, comprising extensive saline plains supporting low halophytic shrublands and scattered acacia shrublands. The Jundee, Monk, Mileura and Monitor Landsystems cover much of the western half of the corridor. These systems comprise hardpan plains with Mulga shrublands and alluvial plains supporting mulga/chenopod shrublands. Smaller areas of banded ironstone and greenstone hills and ridges (with mixed acacia shrublands) also occur (Kingfisher 2014). While the EGPS generally avoids saline playa lakes, approximately 1 km of the MGN passes through the northern fringes of Lake Carey within the Carnegie system, to reach the Mt Morgans mine.

Agnew Gas Pipeline, Karlawinda Gas Pipeline and Lake Way Gas Pipeline

Please refer to Table 5 for AGE, LWP and KGP topography, geology and soil description.

Table 5 Agnew, Karlawinda and Lake Way Topography, Geology and Soil Description

Asset	Description
AGE & LWP	The AGP is located in the Murchison Province and the Salinaland Plains Zone, described by Tille (2006) as sandplains (with hardpan wash plains and some mesas, stony plains and salt lakes) on granitic rocks of the Yilgarn Craton with red sandy earths, red deep sands, red shallow loams (sometimes with hardpans) and red loamy earths.
KGP	The KGP lies within the Bulloo Plains and Hills Zone of the Ashburton Province (Tille, 2006). The Ashburton Province comprises of a mosaic of hilly terrain and stony plains. Downslope from the hilly terrain, there are extensive flat and gently sloping plains. These wash plains typically have a pattern of groves and inter-groves, and they are sometimes covered with a surface mantle of gravel or stones. Sandy banks are also common in places (Tille, 2006). Soils within this zone primarily consist of Red shallow loams (often with hardpans), Red loamy earths, Stony soils and Red deep sands with some Red shallow sands. (Tille, 2006).

4.2 Acid Sulphate Soils

Acid sulphate soils (ASS) are naturally occurring soils and sediments containing sulphide minerals, predominantly pyrite (an iron sulphide). In an undisturbed state below the water table, these soils are benign and not acidic. However if the soils are drained, excavated or exposed by lowering of the water table, the sulphides will react with oxygen to form sulphuric acid (CSIRO 2009). Flushing of acidic leachate to ground water and surface waters can cause off site impacts including impacts to aquatic and riparian ecosystems, agriculture and contamination of groundwater.

Figure 6 present the likelihood of ASS occurrence along the EGPS. The Commonwealth Scientific and Industrial Research Organisation (CSIRO) Australian Soil Resource Information System (ASRIS) shows MGN, MMP, MUE, KOTHGP, AGE, LWP, KGP, BIN the EGP east of Lake Carey and the first section of the GGL are located within an area of

“extremely low probability” of ASS (C4: low confidence; CSIRO 2017). MMP soils do not contain sufficient sulphide minerals, avoiding wetlands and salt lakes.

The following locations of the EGPS have the potential for a high probability of ASS:

- The EGP intersects areas mapped as having a high potential for occurrence of acid sulphate soils, specifically around Lake Carey and the Hope Campbell Lake area. Results from investigations undertaken prior to construction showed no actual acidity above assessment criteria in any samples. No significant acidity or ASS signs were noted during construction and no further areas were identified.
- The Carnegie land system traversed by the YGP at approximately KP73 to KP75 of the pipeline is associated with actual or potential acid sulphate soils (ASS/PASS). An investigation of the area by MBS Environmental (2017) suggested no values consistent with PASS or ASS were recorded in the surface samples. Further investigation or management was not suggested as a result of the investigation.
- Given the low confidence associated with the CSIRO mapping and the geochemistry typical of salt lakes in the region (sulfidic soils can be associated with salt lakes), there may be potential for ASS to be present within a section of the MGN pipeline which crosses the salt lake.
- The second section of the GGL. The second half of the pipeline, including the areas within the mine site is located within an area that has the potential to contain ASS. The ASRIS search identified the second section of the GGL has the potential for a high probability of ASS.

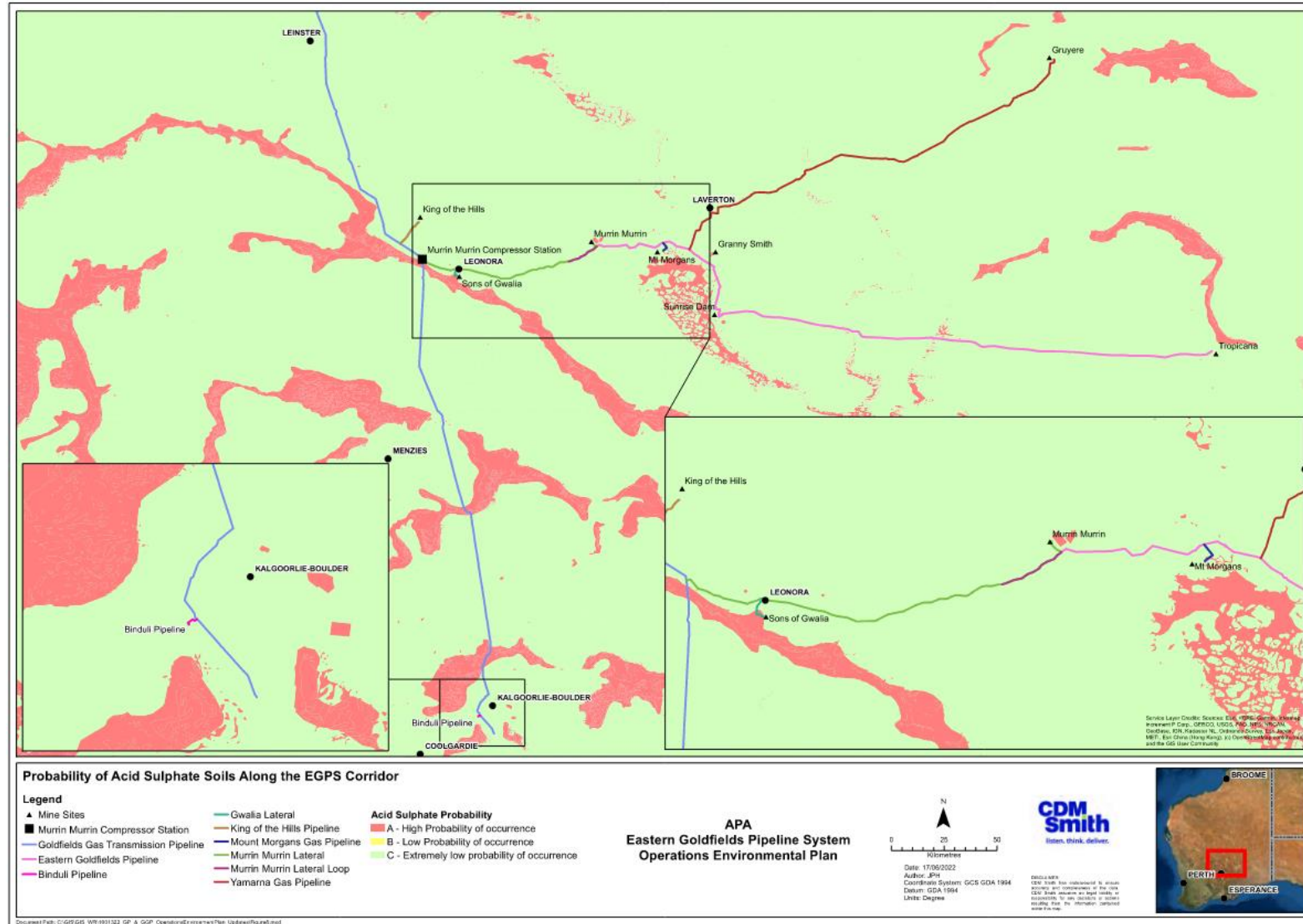


Figure 6 Probability of Acid Sulphate Soils along the EGPS

4.3 Surface Water

The surficial hydrology of the east Murchison Region consists of internally draining, intermittent rivers. Infrequent surface runoff (resulting from low, unreliable rainfall rates) forms ephemeral drainage lines which feed into salt lake systems experiencing high evaporation rates. Dry river and creek beds predominate, which flood in heavy rain events. Major drainage in the Leonora area consist of the Lake Raeside system (Dames and Moore 1994). Hydrology of the EPGS is shown in Figure 7.

The drainage of the northern Goldfields, including Laverton and the south-western half of the YGP, comprises three large, broad, and south-easterly-trending paleodrainage systems; Carey, Raeside, and Minigwal. The Carey and Raeside paleodrainage systems extend from a regional divide to the west, and drain towards the Eucla Basin, whereas the Minigwal paleodrainage system rises from a divide north-west of the Cosmo Newberry community, and drains into the Carey palaeodrainage system downstream of Lake Carey.

Please refer to Table 6 for the significant ephemeral watercourses intersected by YGP.

Table 6 Yamarna Gas Pipeline Significant Ephemeral Watercourses

Feature	Approximate KP
Watercourse (significant)	16.3
Watercourse (significant)	38.8
Watercourse (significant)	47.1
Watercourse (significant)	65.7
Watercourse (significant)	66.9
Watercourse (significant)	67.3
Watercourse (significant)	67.6
Watercourse (significant)	67.9
Watercourse (significant)	68.0
Watercourse (significant)	68.9
Watercourse (significant)	120.1
Watercourse (significant)	171.5

The nearest major water systems to the EGPS are Lake Carey and Hope Campbell Lakes, both of which are hypersaline. Lake Carey is part of a chain of lakes that follow the Carey Paleoriver basin. Depending on the climatic conditions, these areas can be subject to inundation. This also applies to the waterways, tributaries and drainage lines that are associated with these lakes. Water from Lake Carey can flow into Lake Minigwal to the south-east, also an ephemeral system. Watercourses and drainage lines in the region of the EGPS are generally weakly defined and ephemeral, with flows occurring only after heavy rains, and rapidly dissipating and evaporating (Johnson et al 1999; GRJV 2016). The EGPS, in particular the YPG, crosses numerous ephemeral watercourses. The YGP does

not cross any playa lakes, but crosses the “Carnegie” soil-landscape system (incorporating salt lakes, fringing alluvial plains, kopi dunes and sandy banks) over the Minigwal paleodrainage system.

The southern end of the MGN is situated within a saline playa lake. This section of the pipeline may be subject to infrequent flooding during extreme rainfall events that are occasionally experienced by the Goldfields. During a flood, floodwaters are widespread and shallow. Due to relatively flat topography, surface water flows in this area are typically slow and runoff drains towards Lake Carey using surficial ephemeral drainage lines and baseflow. Over time, specific drainage paths may differ due to the changing nature of alluvial fans directed towards Lake Carey.

The MMP traverses several locally draining ephemeral creeks. A watercourse which drains the 20,000ha catchment of the Maleta Creek, Sligo Creek and Katata Creek to west of the Murrin Murrin mine site crosses the pipeline at KP52. This watercourse carries reasonable volumes in flood. As a result, some natural erosion of the bed of the watercourse has reduced pipeline cover. As yet depth of cover has not been reduced below 950 mm which is consistent with AS2885 and APIA Code requirements. Soil erosion at this location will continue to be monitored.

The MUE is not crossed by any significant, perennial drainage lines. However, minor ephemeral drainage lines intersect the project area. The northern end of the project area is adjacent to the Carey paleochannel.

The EGPS does not intersect with any Ramsar wetland sites or wetlands of national significance.

The local surface topography within the vicinity of the KOTH mine project is dominated by the 1,400 km² catchment of Sullivan's Creek, which flows through a 30 km channel from north to south through the centre of the project. Sullivan's Creek has formed an alluvial plain ranging from 2 to 3 km in width and broadening downstream, and flows infrequently after periods of heavy rainfall, usually arising from summer cyclonic storms (Big Dog Hydrogeology 2019). An unnamed minor creek also occurs north of the Sullivan's Creek. Both features are traversed by the KOTHGP. Where the KOTHGP corridor intersects Sullivan's Creek, the pipeline has been installed via HDD.

AGE, LWP and KGP do not intersect any major river crossings.

The BIN does not intersect any watercourses.

4.4 Groundwater

Hydrogeology of the Murchison region consists of three main aquifer types containing groundwater of ranging salinities. The internal drainage system is dominated by calcrete aquifers located in ancient river channels which feed salt lakes with groundwater containing between 1000 and 10,000mg/L total dissolved salts (TDS). In addition, colluvial aquifers located at the base of outcrop hills hold groundwater of around 500 parts per thousand (ppt) TDS and alluvial aquifers are present in ephemeral drainage lines (Dames and Moore 1994). Murrin Murrin and the surrounding Murchison areas are dominated by fractured Archaean bedrock. This bedrock is covered by palaeochannel deposits, alluvium, colluvium and lake deposits (Johnson, Commander and O'Boy 1999).

Salinity levels tend to be related to topography, recharge levels and seasonality. Areas with lower recharge levels will generally have a higher salinity than others. Due to the variable climate in this region, the salinity will vary throughout the year however salinity around the

SDGM has been found in excess of 250,000 ml/L TDS. The TGM is in a hyper-salinity area also. The recharge rate for the areas surrounding the TGM is an estimated 0.5% of the annual rainfall. Consequently, this area has high salinity levels ranging from 15,000 to 80,000 mg/L TDS (EPA, 2010).

The EGPS lies within the Goldfields Ground Water Area and the sub areas of Lake Carey and Minigwal, on the Western Plateau. Specifically, it lies within the Lake Carey and Raeside-Ponton Catchments, and is in the region of the Salt Lake Basin (reservoir). However, the EGPS does not intersect any Public Drinking Water Source Areas (PDWSA). There are two PDWSA's within 50km of the EGPS; the Laverton Water Reserve and Catchment Area, 5 km north of the YGP and the Leonora Water Reserve 8 km east of the KOTHGP.

Groundwater occurs throughout the north eastern Goldfields in regional flow systems within the palaeodrainage channels (Allen 1996:14) that originate from major but infrequent rainfall events. The groundwater moves under gravity through adjoining fractured rocks and weathering profiles. It flows from the drainage divides towards the palaeo-channels and then south-eastward towards the Nullarbor Plain (Allen 1996:14). The groundwater flow systems are mainly recharged by rainfall. Rainfall in the Goldfields occurs at infrequent intervals after local and widespread intense rainfall events (Allen 1996:16). Recharge of the water table requires rainfall events of ≤ 20 mm and are generally associated with local thunderstorms or rainfall resulting from cyclonic activity or the passage of large frontal systems from the southwest.

The depth in which groundwater occurs in the north eastern Goldfields is determined by the depth of the weathering front and the depth at which rock fractures are closed. The depth of groundwater can therefore range from 30 m below surface in the granitoids to 45 m in greenstone (Allen 1996:19).

Please refer to Table 7 for YGP, KOTH, AGE, LWP, KGP and BIN groundwater description.

Table 7 YGP, KOTH, AGE, LWP, KGP and BIN Groundwater Description

Asset	Description
YGP	Some historical water level data from bores near the YGP route is available from the BoM Australian "Groundwater Explorer" database (BOM 2015), and additional data is available from recent groundwater exploration conducted by the GRJV around Yamarna, in support of feasibility studies and environmental approvals for the Gruyere project (Pennington Scott 2016). This data indicates that groundwater levels in the vicinity of the pipeline are at least five metres below ground level (well below the maximum expected depth of excavation) and typically substantially more. No groundwater was intersected during YGP construction in 2018. The YGP route does not fall within the Laverton PDSWA.
KOTH	The Leonora Water Reserve occurs 8 km east of the KOTHGP. It is a Priority 1 PDWSA. Groundwater is abstracted from both shallow sedimentary rocks and fractured bedrock from depths of 6 to 11m.
AGE	Some historical water level data from bores near the AGP route is available from the BoM Australian "Groundwater Explorer" database (BOM 2018). This data indicates that groundwater levels are typically 20 - 25 metres below ground level (mBGL), but have been recorded as shallow as 2.5 mBGL. It is expected that groundwater level will be well below the base of excavation.
LWP	The depth to groundwater in the shallow, unconfined aquifers varies from as little as 0.5 m near the edge of Lake Way to about 15 m below ground level in the more elevated areas at the edge of the catchment. Generally, the static water level in the shallow alluvium and calcrete aquifers is in the range of 2 to 7 m below ground level (Toro Energy Limited 2011).
KGP	A detailed hydrological study was undertaken by GRM (2017) for the mining operation on M52/1070 and adjacent tenements which found depth to groundwater to range from 5 m to 13 m below ground level, however was deeper than 10 m below ground in most bores.
BIN	Groundwater was not observed during the pre-construction geotechnical investigation, the maximum depth of investigation was at 6 m. Available information suggests the groundwater table is expected to be located at depths in excess of 30 m below ground level (APA 2024). No PDWSA are located in close proximity of the BIN. The closest PDWSA is the Broad Arrow Dam Catchment Area (currently not assigned) which is over 35 km away in a north-northwest direction from the BIN.

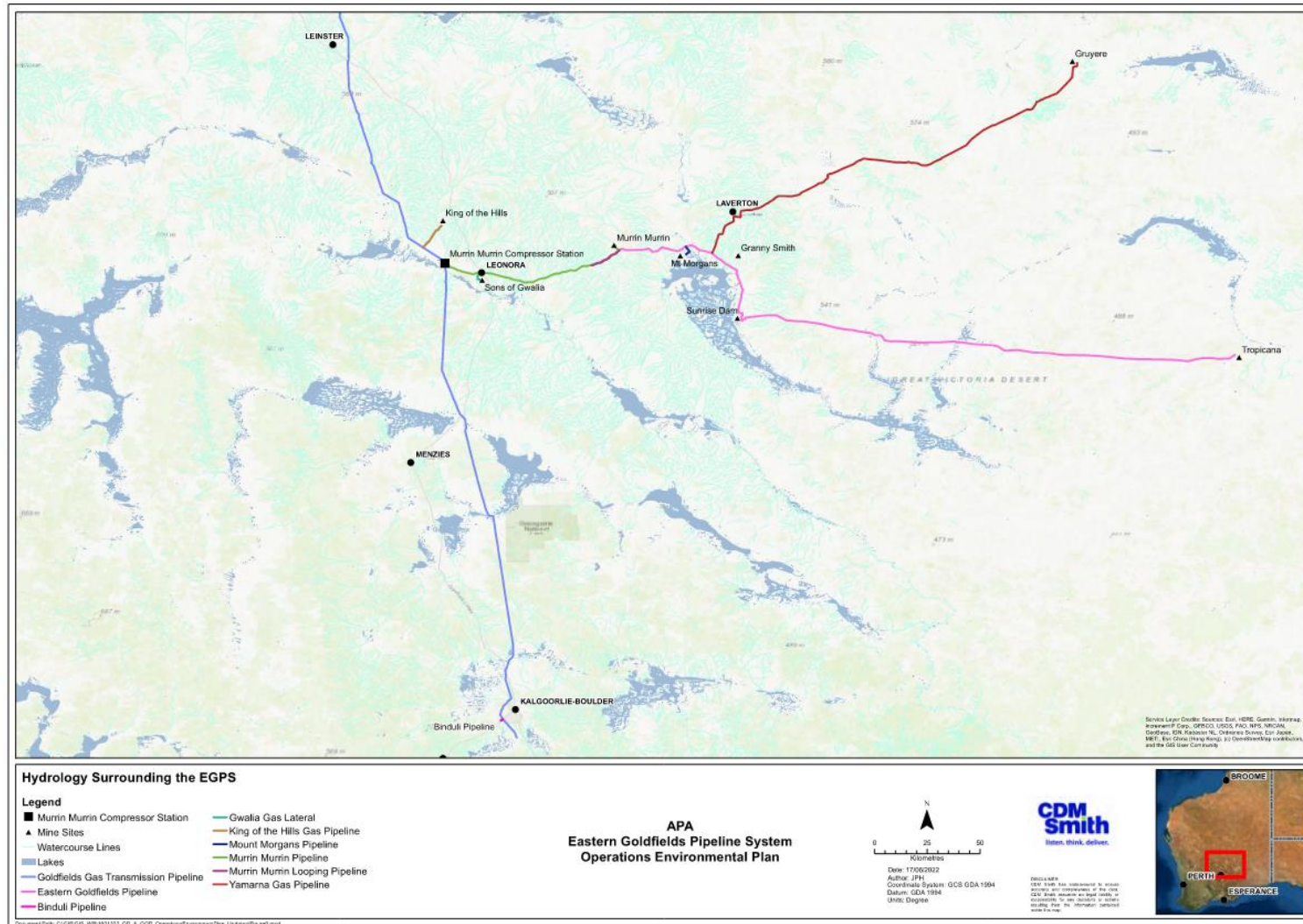


Figure 7 EGPS Hydrology

4.5 Contaminated Sites

There is no known contamination traversing the EGPS, with the exception of the YGP. While most of the YGP crosses unallocated or pastoral lands with little or no development or history that would indicate a material risk of existing contamination, two short sections of the corridor near Laverton pass close to sites of potential:

- The Laverton town landfill, at approximate KP 22 – 23.
- The Focus Minerals Barnicoat mine site, including ore haul roads, waste rock dumps and tailings storage facilities, at approximate KP 33 – 34.

An assessment was undertaken during July 2017 to assess the presence, severity, and extent of contamination within the corridor at these locations, and potential hazard to health or the environment during pipeline construction (MBS 2017). The assessment was undertaken in accordance with Assessment and Management of Contaminated Sites (DWER 2014). MBS (2017) determined relevant threshold levels for samples collected were within thresholds of the DWER guidelines, with the exception of arsenic and manganese. These exceeded the more conservative DEC (2010) values for several samples at the Barnicoat site, however, were within the relevant derived NEPM (2013) values.

MBS (2017) concluded that exposure of soils from pipeline construction at these locations did not present a particular risk to human health or the environment, and did not recommend any special management measures.

KGP, AGE, LWP and BIN do not intersect any registered contaminated sites.

4.6 Flora

No Declared Rare Flora or Threatened flora under the BC Act or EPBC Acts were identified as potentially occurring within the EGPS, AGE, KGP and LWP pipeline licence area during desktop assessments or field surveys. Priority species have been identified during desktop studies or recorded are presented in Table 8.

Table 8 Potential Priority Species

Location	Description
Murrin Murrin Pipeline	<p>One Priority Flora, <i>Grevillea inconspicua</i> (P4) was recorded at 12 locations within the survey area, all of which were recorded within the pipeline corridor.</p> <p>An additional 18 Priority flora were identified as potentially occurring but were not recorded during the survey. Three undescribed taxa of <i>Tecticornia</i> (as identified by K.A Shepherd 867) were also identified in the survey area, and within the pipeline corridor, and are considered to be of conservation significance.</p>
Murrin Murrin Looping Pipeline	<p>A reconnaissance flora and vegetation survey of the MUE was completed by specialist consultants, Botanica Consulting, on behalf of APA (Botanica Consulting, 2018). The survey was completed on the 24th and 25th of February 2018.</p> <p>No wetlands of national importance (Australian Nature Conservation Agency Wetlands), conservation category wetlands, Threatened Ecological Communities (TECs), Priority Ecological Communities (PECs), Declared Rare, Threatened or Priority Flora were recorded.</p>
Eastern Goldfields Pipeline	<p>Seven Priority flora species were recorded within the EGPS pipeline corridor:</p> <ul style="list-style-type: none"> • <i>Caesia talingka</i> (P2); • <i>Acacia eremophila</i> numerous-nerved variant (A.S. George 11924) (P3); • <i>Labichea eremaea</i> (P3); • <i>Melaleuca apostiba</i> (P3); • <i>Dicrastylis cundeeleensis</i> (P4); • <i>Grevillea secunda</i> (P4); and • <i>Olearia arida</i> (P4). <p>An additional 18 Priority flora have the potential to occur within the pipeline corridor but were not recorded during the survey.</p>
Yamarna Gas Pipeline	<p>Botanica Consulting completed a flora and vegetation assessment for the YGP, incorporating several "Level 1" field surveys between August 2015 and April 2017 over the entire pipeline licence (Botanica Consulting 2017).</p> <p>No TEC listed under the EPBC Act or BC Act were identified within the YGP Pipeline Licence area. The first approximately 15 km of the YGP route from the EGP tie-in fall within the "Mount Jumbo Range vegetation complex (banded ironstone formation)" P3 PEC as mapped by the DBCA 11. The pipeline route has been designed to avoid outcrops including banded ironstone formations.</p> <p>Through regional desktop studies (literature reviews and database searches), Botanica identified no Threatened Flora listed under the BC Act that were known to occur within 120 km of the Pipeline Licence, but did identify 32 Priority Flora as listed by DBCA, of which 14 were considered "unlikely" to occur within the Pipeline Licence itself, based on their typical associations.</p> <p>Of the 18 Priority Flora that Botanica determined could "possibly" occur, four were identified within the Pipeline Licence area through field surveys, namely:</p> <ul style="list-style-type: none"> • <i>Calytrix warburtonensis</i> (P2) • <i>Calytrix praecipua</i> (P3) • <i>Olearia arida</i> (P4) • <i>Thryptomene nealensis</i> (P3) <p>APA considered the locations of Priority Flora in the final design of the pipeline, and adjusted its alignment where necessary so that the ROW and associated disturbance avoids all identified locations, with as much "buffer" distance as practicable.</p>

Location	Description
King of the Hills Gas Pipeline	<p>No TECs listed under the EPBC Act or BC Act were identified within the KOTHGP Pipeline Licence area.</p> <p>Three Priority species were identified during the two 2020 Mattiske surveys of the broader KOTH mine site, these species being:</p> <ul style="list-style-type: none"> • <i>Frankenia georgei</i> (P1); • <i>Stenanthemum patens</i> (P1); and • <i>Grevillea inconspicua</i> (P4). <p>A population of <i>Frankenia georgei</i> was identified to the west of the existing mine footprint. The population was identified as having over 1,000 individuals (Mattiske 2020). The KOTHGP does not interface with Priority species.</p>
Agnew	<p>A level two flora and vegetation survey of the original AGE Pipeline Licence application area was carried out by Astron Environmental in October 2012 (Astron Environmental 2012). The proposed pipeline route and licence area was revised after this survey. A reconnaissance flora and vegetation survey of the deviation was carried out by Stantec in May 2018 (Stantec 2018).</p> <p>No TECs or PECs, and no conservation significant flora species were recorded during the 2012 Astron Environmental survey. Two Priority 4 Flora species were recorded during the 2018 Stantec survey:</p> <ul style="list-style-type: none"> • Four instances of <i>Eremophila pungens</i>; and • Three instances of <i>Grevillea inconspicua</i>, with two additional instances recorded outside of the licence area. <p>These Priority Flora are represented outside of the survey area both locally and regionally but were avoided by AGE construction works.</p>
Lake Way	<p>A detailed flora survey was undertaken across PL125 and surrounds (including the Lake Way mine area) by Botanica Consulting. The survey was undertaken over two seasons in September/October 2019 and March 2020 and covered a total area of 3,602 ha.</p> <p>A targeted survey was also conducted across a 276 ha area within the detailed survey area in March 2020, including PL125.</p> <p>One Priority 1 and one Priority 3 flora taxon listed by DBCA were recorded within the detailed survey area, but outside the proposed LWP construction footprint: <i>Eremophila congesta</i> (Priority 1) and <i>Eremophila arachnoides</i> subsp. <i>arachnoides</i> (Priority 3).</p> <p>The surveys recorded no Threatened Flora or TECs listed under the EPBC Act or critical habitats listed under the BC Act.</p>
Karlawinda	<p>Flora and vegetation surveys have been completed across the project area.</p> <p>A detailed flora survey was conducted in 2016 by 360 Environmental of the KGP project area. A further reconnaissance survey of the project area from the boundary of M52/1070 to the GGP was completed by specialist independent consultant, Brian Morgan in 2018.</p> <p>Four Priority taxa were recorded in the project area: <i>Aristida jerichoensis</i> var. <i>subspinulifera</i> (Priority 3), <i>Eremophila rigida</i> (Priority 3), <i>Rhagodia</i> sp. Hamersley (M. Trudgen 17794) (Priority 3) and <i>Goodenia nuda</i> (Priority 4). These species are well represented at a regional scale with numerous populations recorded within the Gascoyne and Pilbara Bioregions (Morgan, 2018; Western Australian Herbarium, 2020).</p> <p>No wetlands of national importance (Australian Nature Conservation Agency Wetlands), conservation category wetlands, TECs, PECs, or Threatened flora were recorded within the</p>

Location	Description
	project area. The flora and vegetation associations identified in the surveys across the project area are well represented in the region.
Mount Morgans	<p>A Level 1 flora and vegetation assessment was completed for the Mount Morgans Gold Project by specialist consultants (Native Vegetation Solutions) on behalf of Dacian Gold. APA's proposed MGN licence area is a subset of the broader area surveyed for the mine (~4,641 ha). The survey was completed from the 11th – 15th March 2016.</p> <p>No TECs, Declared Rare, Threatened or Priority Flora were recorded within the MGN licence area. The northern portion of the MGN licence area does fall within the buffer region of the Priority 1 PEC named "Mount Morgan calcrete groundwater assemblage type on Carey Paleodrainage on Mt Weld Station". This PEC is designed to protect the subterranean fauna community identified within the buffer zone.</p>
Binduli	<p>Botanica Consulting Pty Ltd (Botanica) was commissioned by APA to undertake a reconnaissance flora/ vegetation survey and basic fauna survey of the BIN (Botanica 2021). The survey area was approximately 1.5 km in length and 25 m in width (Botanica 2021). Botanica conducted the field survey on the 26th October and 15th November 2021, with the area traversed on foot and 4WD by Jim Williams (Director/Principal Botanist, Diploma of Horticulture) (Botanica 2021).</p> <p>No Threatened, Priority or otherwise significant flora species were recorded within the survey area. However, eight Priority species have been identified as having a likelihood of 'Possibly' occurring with the BIN Pipeline area. These species are:</p> <ul style="list-style-type: none"> • <i>Eremophila praecox</i> (P1) • <i>Rhodanthe uniflora</i> (P1) • <i>Chrysocephalum apiculatum</i> subsp. <i>norsemanense</i> (P3) • <i>Lepidium fasciculatum</i> (P3) • <i>Notisia intonsa</i> (P3) • <i>Phlegmatospermum eremaeum</i> (P3) • <i>Eremophila caerulea</i> subsp. <i>merrallii</i> (P4) • <i>Eucalyptus jutsonii</i> subsp. <i>Jutsonii</i> (P4) (Botanica 2021).

4.7 Fauna

Conservation Significant Fauna

A number of conservation significant species (EPBC Act, BC Act and DBCA Priority) have the potential or are likely to occur based on existence of suitable habitat and/or nearby records, based on desktop assessments and surveys undertaken for the EGPS, including:

- **Sandhill Dunnart:** *Sminthopsis psammophila* (Sandhill Dunnart; SHD); EPBC Act (Endangered), BC Act (Endangered) (DCCEW 2023). Suitable habitat for the Sandhill Dunnart is present throughout Section 2 of the EGP corridor. Sandhill Dunnarts were recorded during pre-construction, construction and Sandhill Dunnart Monitoring Plan surveys. Radio tracking has identified the pipeline ROW is not a barrier as individuals have been recorded to cross multiple times. Sandhill Dunnart Monitoring Plan (Kingfisher 2014) surveys and details are outlined in biannual reports.
- **Great Desert Skink** (*Liopholis kintorei*) – EPBC Act (Vulnerable), BC Act (Vulnerable) (DCCEW 2023a). There is a single record of the Great Desert Skink approximately 39 km east-north-east of Laverton (DoE 2014o) and there is the potential for the Great Desert Skink to occur. However, despite having distinctive burrows with scat latrines no evidence of the Great Desert Skink was recorded during surveys or construction.
- **Malleefowl** (*Leipoa ocellata*) – EPBC Act (Vulnerable), BC Act (Vulnerable) (DCCEW 2023b). Potential foraging habitat may be present (vegetated breakaways, rocky hillslopes, clay loam plains, drainage depressions and quartz rocky plains). Botanica Consulting (2017) notes anecdotal reports of individual Malleefowl sightings near Yamarna, however no mounds have been recorded, and Malleefowl are most likely occasional and transient visitors to the YGP area. Malleefowl is expected to occur within the EGP corridor and may forage and potentially breed in the area (Kingfisher 2014), however, no Malleefowl mounds were disturbed or individuals sighted during construction.
- **Rainbow Bee-eater** (*Merops ornatus*) – EPBC Act (Mig.). Potential foraging habitat may be present, but preferred breeding habitat in sand plains and sand dunes. Rainbow Bee-eater is likely to be an occasional visitor to YGP, but not likely to be present in substantial numbers (Botanica 2017), however, was recorded along the EGP corridor. Due to its widespread occurrence, ability to persist in a wide range of areas, and given ground disturbing works are minimal during operations, the presence of the Rainbow Bee-eater in the pipeline corridor is not considered significant. DBCA was consulted through EPA assessment and assessed the construction Threatened Species Management Plan with no issue with this classification.
- **Night Parrot** (*Pezoporus occidentalis*) – EPBC Act (Endangered), BC Act (Critically Endangered) (DCCEW 2023c). The Princess Parrot has been recorded in the Queen Victoria Spring and Neale Junction Nature Reserves (DPAW 2013) approximately 100 km and 150 km from the EGP corridor. None were spotted during surveys or construction.
- **Buff-snouted Blind Snake** (*Ramphotyphlops margaretae*). The species appears to have a wide distribution across the GVD, although records are limited, and it has not

been recorded in previous fauna surveys of the general area. It is possible that this species may occur along the EGP, as its preferred habitat (sand plains and sand dunes) is present within the YGP corridor (Botanica 2017).

- **Southern Marsupial Mole:** *Notoryctes typhlops* (Southern Marsupial Mole). Evidence of the Southern Marsupial Mole (mole tunnels) was recorded during pre-construction surveys from the crests and slopes of yellow sand dunes within extensive dune fields and supporting Marble Gum and Callitris with a scattered Spinifex Hummock Grassland understorey. Whilst the pipeline route does avoid most sand dune habitat, and none were encountered during construction, the route does intersect elevated sandplain habitat between dunes and thus, likely dispersal habitat for the Southern Marsupial Mole (Kingfisher 2014a). The Southern Marsupial Mole is likely to be widespread in the local area due to the availability of suitable habitat, and occur throughout the yellow sand dune fields traversed by the pipeline corridor (Kingfisher Environmental Consulting 2014a).
- **Striated Grasswren** (sandplain) (*Amytornis striatus striatus*; EPBC Endangered), with potential foraging and breeding habitat (sand plains, sand dunes and clay/loam plains), mainly the central and eastern sections of the YGP.
- **Brush-tailed Mulgara** (*Dasycercus blythi*), with potential foraging and breeding habitat (sand plains, sand dunes and clay/loam plains). Botanica (2017) notes that records are limited in the area, with most recent from 1990 at Yamarna, however it was recorded in several locations on the EGP route, some 100 km to the south, in 2014 (APA 2015). The Brush-tailed Mulgara was encountered during construction of the EGP.
- **Long-tailed Dunnart** (*Sminthopsis longicaudata*), with potential foraging and breeding habitat (breakaways, rocky hillslopes and quartz/rocky plains), mainly the western section, near Laverton. Botanica (2017) notes that this small marsupial was recorded by surveys near Laverton in 2011. The Long-tailed Dunnart was encountered during construction of the EGP.
- **Peregrine Falcon** (*Falco peregrinus*) – . Potential for foraging habitat is present along YGP, although no potential nest sites (large trees with open spouts or abandoned bird of prey nests) were observed during pre-construction surveys.
- **Princess Parrot** (*Polytelis alexandrae*) – EPBC Act (Vulnerable). Potential foraging habitat may be present along the YGP corridor. Botanica (2017) notes this parrot is highly nomadic, and would likely be at most an infrequent and transient visitor. It favours large trees with hollows for nesting; Botanica noted a small number of potential hollows within the survey area, though these were not formally surveyed.
- **Fork-tailed Swift** (*Apus pacificus*) – EPBC Act (Mig.). This species is considered as likely to occur in the pipeline corridor only as an occasional visitor. Due to the largely aerial nature of this species, the occurrence within the pipeline corridor is not considered significant.
- **Eastern Great Egret** (*Ardea modesta*) – EPBC Act (Mig.)
- **Red-necked Stint** (*Calidris ruficollis*) – EPBC Act (Mig.)
- **Curlew Sandpiper** (*Calidris ferruginea*)– EPBC Act (Mig.)
- **Sharp-tailed Sandpiper** (*Calidris acuminata*)– EPBC Act (Mig.)

- **Wood Sandpiper** (*Tringa glareola*)– EPBC Act (Mig.)
- **Common Sandpiper** (*Tringa hypoleucos*)– EPBC Act (Mig.)
- **Common Greenshank** (*Tringa nebularia*)– EPBC Act (Mig.)
- **Oriental Plover** (*Charadrius veredus*) – EPBC Act (Mig.)
- **Gull-billed Tern** (*Sterna nilotica*) – EPBC Act (Mig.)
- **Grey Falcon** (*Falco hypoleucos*) – EPBC Act (Vulnerable), BC Act (Vulnerable)

A number of terrestrial fauna surveys have been undertaken along the pipeline alignment prior to and during construction of the EGPS components. The Rainbow Bee-eater, Common Greenshank and Red-necked stint were recorded within the broader area surveyed for the mine Mount Morgans mine, however not within the MGN licence area itself. The Rainbow Bee-eater is likely to be a breeding visitor to the project area, but as its population is large and stable this species is unlikely to be significantly impacted by the development. The Great Desert Skink, Malleefowl, Princess Parrot and Night Parrot are considered unlikely to occur, as either the project area is located outside the core species distribution, or suitable habitat is absent (Western Wildlife, 2016). It is highly unlikely that area supports internationally significant numbers of either species (e.g. 1% or more of the global population) (Western Wildlife, 2016).

A number of EPBC listed Migratory waterbirds listed above are considered as likely to occur within the pipeline corridor as rare visitors associated with the irregular flooding of the salt lake habitats. None of these species would be restricted to the pipeline corridor, and all are highly mobile and nomadic in nature.

Yamarna Gas Pipeline

Botanica Consulting has completed a fauna and habitat assessment for the YGP, incorporating several “Level 1” field surveys over the entire pipeline licence, in conjunction with the vegetation and flora surveys (Botanica Consulting 2017).

Through regional desktop studies (literature reviews and database searches), Botanica (2017) identified 28 species of conservation significance are listed under the EPBC Act or BC Act, or listed by DBCA as Priority Fauna.

On the basis of their known contemporary ranges and habitat preferences, Botanica determined that eight of these species of conservation significance could “possibly” occur within the Pipeline Licence, namely the:

- Buff-snouted Blind Snake (*Ramphotyphlops margaretae*)
- Malleefowl (*Leipoa ocellata*)
- Peregrine Falcon (*Falco peregrinus*)
- Princess Parrot (*Polytelis alexandrae*)
- Rainbow Bee-eater (*Merops ornatus*)
- Striated Grasswren (sandplain) (*Amytornis striatus striatus*)
- Brush-tailed Mulgara (*Dasycercus blythi*); and
- Long-tailed Dunnart (*Sminthopsis longicaudata*).

Botanica found no evidence of any threatened, migratory or priority fauna species using the survey area. Botanica also noted that no such fauna had been recorded in several recent surveys at Yamarna for the Gruyere project, with the exception of the Australian Bustard (formerly DBCA P4, now de-listed).

Murrin Murrin Looping Pipeline

A Level 1 fauna assessment of the MUE area was completed by specialist consultants, Kingfisher Environmental Consulting (KEC), from the 12th – 16th February 2018 (KEC, 2018). The field survey methods included identification of fauna habitats, fauna habitat assessment, opportunistic records of fauna, targeted searches for evidence of any conservation significant species, targeted herpetofauna searches, motion-activated cameras, bird census, and acoustic bat detection.

No EPBC listed Critically Endangered or Endangered species are expected to occur within the MUE project area or were recorded during the survey. Two species listed as Vulnerable, the malleefowl (*Leipoa ocellata*) and the grey falcon (*Falco hypoleucos*), are known to occur within the local area. However, neither species are expected to depend on or breed within habitat in the MUE project area (KEC, 2018). As a result, the MUE project area is unlikely to support an “important population” of EPBC Vulnerable taxa. Additionally, the MUE project area does not contain habitat suitable to support ecologically significant numbers of migratory waterbirds. Therefore, the MUE project area does not support habitat thought to be “important” to an EPBC listed migratory species.

Three species of conservation significant fauna have previously been recorded within the vicinity of the MUE project area: malleefowl, Woolley’s pseudantechinus and kultarr. However, neither these three species nor any other conservation significant fauna were recorded in the MUE project area by KEC (2018). The locally occurring black-headed worm-lizard (*Aprasia picturata*) is considered conservation significant and is known from three locations (all within the Murchison Bioregion), with two of these being situated on greenstone hills approximately 10 km south of the survey area. While not detected during this survey, this species has the potential to occur within the survey area. The preferred habitat types of the black-headed worm-lizard are greenstone hills and sandplains (KEC, 2018). In addition, the Priority 4 long-tailed dunnart (*Sminthopsis dolichura*) has the potential to occur within the survey area, however, it was not detected during the survey despite targeted camera surveys. The preferred habitat of the long-tailed dunnart is stony hills and ridges, which are absent from the MUE project area. In total, ten species of conservation significance have either been previously recorded in the MUE survey area or are expected to occur in the area. These are summarised in Table 9.

Evidence of a number of introduced fauna, including feral cat, dingo, rabbit, house mouse and cattle, was observed within the MUE survey area (KEC, 2018).

Table 9 Fauna of Conservation Significance Previously Recorded Within, or are Considered Likely to Occur Within, the Murrin Murrin Looping Pipeline Survey Area

Species	Status	Preferred Habitat Type	Expected Use of Survey Area
Malleefowl (<i>Leipoa ocellata</i>) ¹	EPBC Vulnerable	Dense Acacia shrublands (breeding), scrubs and thickets of Mallee, rocky hills (minimal presence within the survey area)	Foraging visitor
Woolley's pseudantechinus (<i>Pseudantechinus woolleyae</i>) ²	Locally Significant	Rocky, rugged stony habitats, particularly ironstone ridges	Likely to be resident in discrete locations
Kultarr (<i>Antechinomys laniger</i>) ¹	Locally Significant	Associated with stony, granitic plains dominated by Acacia, Eremophila and Senna shrublands	Likely to be resident in discrete locations
Long-tailed dunnart (<i>Sminthopsis dolichura</i>)	DBCA Priority 4	Rocky habitats, particularly ironstone ridges	Likely to be resident in discrete locations
Black-headed worm- lizard (<i>Aprasia picturata</i>)	N/A	Low greenstone hills supporting Acacia and Eremophila shrubs, and sandplains	Likely to be resident in discrete locations
Peregrine falcon (<i>Falco peregrinus</i>)	N/A	Variety of habitats including rocky ledges and Acacia shrublands	Foraging visitor
Grey falcon (<i>Falco hypoleucos</i>)	EPBC Vulnerable	Open grasslands and woodland	Vagrant
Australian bustard (<i>Ardeotis australis</i>)	Locally Significant	Grassland, grassy woodland and shrubland habitats	Foraging visitor
Bush stone-curlew (<i>Burhinus grallarius</i>)	Locally Significant	Acacia shrublands, ironstone formations and rocky hills	Likely resident
Australasian spiny trapdoor spider (<i>Idiosoma</i> sp. Laverton) ³	N/A	Mulga woodland on clay	Likely resident

¹ Species previously recorded in the survey area² Species recorded within the survey area during the 2018 survey³ The species is likely to be extensive in the local area due to the wide occurrence of suitable habitat

Agnew Gas Pipeline

A level one fauna survey of the original AGE Pipeline Licence application area was carried out by Astron Environmental in October 2012 (Astron Environmental 2012). The pipeline route and licence area was revised after this survey, with the western end of the final route deviating slightly north from the original route. A level one fauna survey of the deviation was carried out by Stantec in May 2018 (Stantec 2018). The surveys were carried out in line with relevant EPA guidance (EPA 2004a; 2016a; 2016b).

One conservation significant species, the Rainbow Bee-eater, was observed during the 2012 Astron Environmental survey. Due to its highly mobile nature, the species is considered unlikely to be affected by the proposed pipeline. No significant species were observed during the 2018 Stantec survey.

Based on the fauna habitat observed, four species of significance were judged to have the potential to occur within the AGE pipeline corridor: *Dasyercus blythi* (Brush-tailed Mulgara), *Sminthopsis longicaudata* (Long-tailed Dunnart), *Apus pacificus* (Fork-tailed Swift), and *Falco peregrinus* (Peregrine Falcon) (Astron Environmental 2012; Stantec 2018). No species of significance have been observed during surveys of the AGE corridor, however.

Four introduced species – *Bos taurus* (Cattle), *Canis lupis* (Dingo/wild dog), *Orytolagus cuniculus* (Rabbit) and *Camelus dromedarius* (Camel) were identified during the two level one surveys.

Lake Way Pipeline

Two fauna assessments were undertaken in 2019 within the LWP project area, a Level 2 Fauna Assessment of the Expansion Project Area by Bamford Consulting and a Targeted Night Parrot Survey by Pendragon Environmental Solutions for Botanica Consulting.

The Bamford Consulting (Bamford) fauna assessment identified 286 vertebrate fauna species potentially occurring within the LWP project area, comprising of eight frogs, 79 reptiles, 161 birds, 28 mammals and ten introduced mammals (Bamford 2019). Of these fauna assemblages, 23 species are of significance with the majority being migratory and other wetland birds (Bamford 2019). The results of the field survey confirmed the presence of far fewer species (102) within the project area, including one frog, 28 reptiles, 55 birds, 13 native and five introduced mammals (cattle, dogs, cats, rabbits, and goats (Bamford 2020).

No Threatened species listed under the EPBC Act or BC Act were recorded during the surveys, however a known recording of the EPBC-listed, critically endangered Night Parrot exists in the Wiluna area, approximately 85 km north-east of Lake Way and the project area (Pendragon 2019).

Results of the targeted survey identified only a few potential sites as suitable habitat for roosting/nesting for the Night Parrot, and where suitable habitat was available, it was of low to moderate quality due to the low density and age of spinifex grasslands around Lake Way and/or disturbance from cattle grazing (Pendragon 2019). No Night Parrot calls were recorded during any of the fauna surveys.

Four species considered locally significant recorded in the wider vicinity and/or considered to be resident to the area (Barking Gecko - *Underwoodisaurus milii*, *Lerista 'Lake Way'*, Mallee Ningau - *Ningau yvonnae*, and Slender-billed Thornbill *Acanthiza iredalei iredalei*).

Additionally, 15 species of significant fauna may occur within the vicinity of the LWP project area. Species of most interest include the Peregrine Falcon (*Falco peregrinus*), the Australia Bustard (*Ardeotis australis*), the Brush-tailed Mulgara (*Dasyercus blythi*) and the Inland Long-Eared Bat (*Nyctophilus major tor*).

Karlawinda Gas Pipeline

A Level 1 fauna assessment was completed by 360 Environmental across M52/1070 in 2010 and a follow up targeted search for Bilby and Mulgara in 2016. In 2018, a Level 1 fauna assessment was undertaken by Bamford Consulting Ecologists (BCE, 2018) of the project area from the boundary of M52/1070 to the GGP.

The BCE 2018 desktop study indicated that one EPBC listed Endangered species, the Night Parrot (*Pezoporus occidentalis*) and three species listed as Vulnerable; the Greater Bilby (*Macrotis lagotis*), the Pilbara Leaf-nosed Bat (*Rhinonicteris aurantia*) and the Ghost Bat (*Macroderma gigas*) may occur within the project area, however these taxa were not recorded during the most recent or any previous surveys of the KGP project area.

In total, 15 species of significant fauna may occur within the vicinity of the KGP project area. Species of most interest include the Unpatterned Robust Slider (*Lerista macropisthopus remota*) for which the preferred habitat of “leaf litter under Acacia shrubland/woodland” is abundant and Long-tailed Dunnart (*Sminthopsis slongicaudata*), which may utilise rocky outcrops present in some sections of the project area. However, none of these species nor any other significant fauna were recorded in the project area by 360 Environmental (2010, 2016) or BCE (2018).

Evidence of a number of introduced fauna, including European rabbit (*Oryctolagus cuniculus*), feral cat (*Felis catus*) and cattle (*Bos taurus*) were observed within the survey area (BCE 2018). Previous surveys have also recorded donkey (*Equus asinus*) and dingo (*Canis lupus dingo*).

Binduli Gas Pipeline

Botanica conducted a reconnaissance flora/ vegetation and basic fauna survey on the 26th October and 15th November 2021, with the area traversed on foot and 4WD by Jim Williams (Director/Principal Botanist, Diploma of Horticulture) (Botanica 2021).

No evidence of significant fauna species were observed during the field survey (Botanica 2021). However, “based on the habitats present and, in some cases, direct observations or recent nearby records, Malleefowl (*Leipoa ocellata*) (Vulnerable - EPBC Act and BC Act) can be regarded as possibly utilising the survey area for some purpose at times” (Botanica 2021).

4.8 Weeds

For the purposes of environmental management, weeds are grouped into two categories as follows:

- Declared Plants: A weed/plant species that has been gazetted under the Biosecurity and Agriculture Management Act 2007.
- Environmental Weeds: A plant that has, or has the potential, to have a detrimental effect on economic, social or conservation values.

Declared pests (section 22(2)) may be categorised into the following control categories:

- Exclusion (C1)
- Eradication (C2)
- Management (C3)

Declared weeds that are categorised as C1 or C2 require reporting to the Department of Primary Industries and Regional Development (DPIRD).

There is no legal requirement to control weeds that are not “declared”. Notwithstanding, management is usually considered whereby non-declared plants pose problems for surrounding land use and/or values.

Environmental weeds which have been record on the EGPS include:

- *Cenchrus ciliaris* (Buffel Grass) (recorded on MUE and YGP (Botanica 2017, 2018))
- *Salvia verbenaca* (Wild Sage) (recorded on MUE, YGP and EGP (Botanica 2017, 2018, 2022));
- *Sonchus oleraceus* (Common Sowthistle) (recorded on MUE, YGP and EGP (Botanica 2017, 2018, 2022));
- *Schinus molle* var. *areira* (Pepper Tree) (recorded on YGP (Botanica 2017));
- *Rumex vesicarius* (Ruby Dock) (recorded on MUE, YGP and EGP (Botanica 2017, 2018, 2022));
- *Lysimachia arvensis* (Blue Pimpernel) (recorded on YGP and EGP (Botanica 2017, 2022));
- *Solanum nigrum* (Blackberry Nightshade) (recorded on YGP and EGP (Botanica 2017, 2022));
- *Cucumis myriocarpus* (Paddy Melon) (recorded on YGP and EGP (Botanica 2017, 2022));
- *Citrullus amarus* (recorded on YGP (Botanica 2017));
- *Malvastrum Americanum* (Spiked Malvastrum) (recorded on YGP (Botanica 2017));
- *Bidens bipinnata* (Bipinnate Beggartick) (recorded on YGP (Botanica 2017)).
- *Citrullus lanatus* (recorded on EGP (Botanica 2022))
- *Rumex hypogaeus* (recorded on EGP (Botanica 2022))

In 2020, APA engaged a third-party Botanist to conduct a desktop assessment to identify weeds likely to occur on APA assets. The following weeds were deemed to have high likelihood of occurring on APA assets located within the Southern Goldfields Region:

- *Cuscuta planiflora* (Small-seeded Alfalfa Dodder);
- *Erodium cicutarium* (Common Storksbill); and
- *Carthamus lanatus* (Saffron Thistle) (Declared Pest).

In 2023, APA commissioned Biodiversity Australia to undertake a weed survey of significant weed species along the MMP, EGP, GGL, MGN and YGP.

The following weeds were identified during the EGP and MGN survey:

- *Centaurea melitensis* (Maltese Cockspur)
- *Citrullus colocynthis* (Bitter Apple)
- *Opuntia stricta* (Common Prickly Pear) (Weed of National Significance (WoNS))
- *Rumex vesicarius* (Ruby Dock)
- *Solanum elaeagnifolium* (Silverleaf Nightshade) (WoNS)
- *Solanum lasiophyllum* (Flannel Bush)
- *Sonchus oleraceus* (Common Sowthistle)

The following weeds were identified during the YGP survey:

- *Solanum elaeagnifolium* (Silverleaf Nightshade) (WoNS)
- *Solanum lasiophyllum* (Flannel Bush)

The following weeds were identified during the MMP and GGL survey:

- *Cenchrus ciliaris* Buffel Grass
- *Centaurea melitensis* (Maltese Cockspur)
- *Citrullus colocynthis* (Bitter Apple)
- *Opuntia stricta* (Common Prickly Pear) (Weed of National Significance (WoNS))
- *Rumex vesicarius* (Ruby Dock)
- *Solanum lasiophyllum* (Flannel Bush)
- *Sonchus oleraceus* (Common Sowthistle)

The abovementioned 2023 weed survey shall inform the GGP and EGP weed control program.

Agnew Gas Pipeline

One introduced flora species was recorded during the 2012 Astron Environmental survey of the AGE:

- Buffel Grass (*Cenchrus ciliaris*).

Four introduced flora species were recorded during the 2018 Stantec survey:

- Bipinnate Beggartick (*Bidens bipinnata*);
- Wild Watermelon (*Citrullus colocynthis*);
- Couch Grass (*Cynodon dactylo*) and;
- Spiked Malvastrum (*Malvastrum americanum*).

None of these species are classified as declared weeds under the BAM Act.

Karlawinda Gas Pipeline

Four introduced taxa were identified were recorded in the survey areas:

- *Bidens bipinnata* (Beggart's Ticks);
- *Cenchrus ciliaris* (Buffel grass);
- *Malvastrum americanum* (Spiked Malvastrum); and
- *Portulaca Pilosa* (Djanggara).

The introduced taxa observed were each recorded at single locations within the survey area but are likely to be scattered in parts of the KGP project area and have been recorded in the wider Gascoyne region. Weed cover appears to be low in the survey area (Morgan, 2018).

None of these species are classified as declared weeds under the BAM Act.

Lakeway Gas Pipeline

No Weeds of National Significance were recorded in the survey area (Botanica 2020).

One species of declared plant was identified:

- *Cylindropuntia imbricata* (Devils Rope) (Declared Pest); and

Four introduced taxa, were identified within the survey area:

- *Bidens bipinnata* (Bipinnate Beggartick);

- *Brassica tournefortii* (Mediterranean Turnip);
- *Citrullus amarus* (Pie Melon);and
- *Tribulus terrestris* (Caltrop).

Binduli Gas Pipeline

Centaurea melitensis (Maltese Cockspur) and *Carrichtera annua* (Ward's Weed) were recorded during the 2021 reconnaissance survey by Botanica Consulting (Botanica 2021). Neither of these species are listed as a Weed of National Significance or a Declared Pest in WA.

5. Social Environment

5.1 Heritage

Numerous ethnographic and archaeological surveys, assessments and investigations have been undertaken throughout the EGPS licence area and corridor. The details and findings of these are presented in Table 10 below and indicate the presence of Aboriginal heritage sites along the pipeline corridors.

Table 10 EGPS Aboriginal Heritage Assessments

Location	Assessments and Findings
Eastern Goldfields Pipeline	<p>Ethnographic and archaeological surveys have been undertaken to determine if there were any places of importance or significance as defined by Section 5 of the <i>Aboriginal Heritage Act 1972</i> along the EGP prior to construction and during October 2014. No ethnographic sites were identified, and no further sites were identified during site walkovers by Aboriginal monitors during construction.</p> <p>Waru Consulting (2014) anticipate that the reason for the absence of heritage materials within the corridor is predominantly due to no reliable water sources such as claypans, gilgais or creeklines. In addition, a lack of key topographical or geological features such as hills or ridges containing cavities, means there is no potential for rockshelter sites. Finally, mining and pastoral activities have resulted in a degree of denudation of trees from the plains, and so there is little potential for culturally scarred trees to have survived.</p>
Mount Morgans Gas Pipeline	<p>An initial desktop review was undertaken, including a search of the DPLH ACHIS which identified 11 places with boundaries overlapping the MGN licence area. Ten of the 11 places have large, 2x2 km indicative 'buffer' boundaries. However, information gained from previous survey reports that recorded these sites, and verification during fieldworks, confirms that these places are not within the MGN licence area.</p> <p>The field inspection undertaken in August 2017 identified one previously recorded and two new archaeological sites within the MGN licence area. All three sites are defined as artefact scatters consisting of flaked stone and/or grindstones. The archaeological sites recorded during the fieldwork, consisting of tools made from local raw materials, suggest a highly mobile and transient Aboriginal lifeway, and include:</p> <ul style="list-style-type: none"> • DG_170816_01 Artefact Scatter. • DG_170818_01 Artefact Scatter. • Montevideo Hill 02, DPLH ID #881 Artefact Scatter. <p>All three sites are outside of the MGN operational corridor.</p>
Yamarna Gas Pipeline	<p>The YGP crosses Aboriginal reserve 25050, and a small part of reserve 22032, in the eastern half of the route into Yamarna. These reserves, and the Yamarna pastoral lease, are subject to Native Title claim. The YGP crosses no conservation reserves.</p> <p>Ethnographic and archaeological surveys conducted from YGP KP0 to the boundary of the Yilka claim (KP102) in association with relevant Aboriginal Elders during March and April 2017 (Waru Consulting 2017).</p> <p>The survey identified eight ethnographic (culturally significant) sites, of which three were on the DPLH register of Aboriginal Sites. Three archaeological sites (artefact scatters), of which two are associated with ethnographic sites. Protective exclusion zones were established by the Elders during construction, and the boundaries were recorded. Another claimant group has identified and registered a site of heritage significance (DPLH ID #36833) that lies across the pipeline route.</p>

Location	Assessments and Findings
	<p>Most of the sites identified through surveys are avoided by the YGP, however some sites extend across the entire Pipeline Licence. APA has adjusted the pipeline alignment and corridor to disturb such sites as little as practicable.</p> <p>The heritage areas impacted are:</p> <ol style="list-style-type: none"> 1. Yamarna Ethnographic Site 1 (ID 36833) ; and 2. Durang Gnamma Rockhole (ID 17247). <p>Goldfields Limited Australia Pty Ltd was granted Section 18 approvals under the <i>Aboriginal Heritage Act 1972</i> to impact these two sites (Approval Reference 69-04176).</p> <p>One new potential heritage site (sacred ritual or ceremonial site) was identified during the pre-clearance surveys, during construction. The pipeline was re-routed to avoid the new potential heritage site. A heritage consultant engaged and submitted a Heritage Information Submission form to the DPLH.</p>
<p>Murrin Murrin Pipeline</p> <p>Murrin Murrin Compressor Station</p> <p>Gwalia Gas Lateral</p>	<p>An Aboriginal heritage survey was undertaken prior to the construction of MMP in order to avoid heritage sites. A significant site was located near the Murrin Murrin Gas Lateral. The site was avoided during route selection and is not located within the pipeline easement. A search of the DPLH ACHIS for Register Aboriginal sites and other Heritage places was undertaken in January 2013 and August 2013, for MMP and GGL, respectively. Other small sites (predominantly artefact and scatter) were found to be located along the pipeline route (two sites) or in the surrounding area.</p> <p>The entire Township of Leonora lies within a mythological and historical site. The GGL is also located within these, as well as other registered sites. A mythological site is "a place that is connected to the Great Spirit ancestors, in their various manifestations, of the 'Dreamtime' which continues to be important and of special significance to persons of Aboriginal descent" (DIA, 2010).</p> <p>One Isolated Find was identified within the MMCS project area (MM1) prior to construction. One Artefact Scatter (MM1 AS) and five Isolated Find locations identified adjacent to the project area.</p>
<p>Murrin Murrin Looping Project</p>	<p>An Aboriginal Heritage survey (desktop and field inspections) was conducted by specialist consultants, Waru Consulting to identify Aboriginal sites within the MUE survey area. The initial desktop review included review of previous archaeological and heritage reports from the area and a search of the DPLH ACHIS, in order to identify any existing sites in the MUE survey area and enable targeted searches during field surveys. The desktop study did not identify any Registered Aboriginal Heritage sites within the MUE project area.</p> <p>Separate ethnographic and archaeological field inspections were conducted between the 24th and 27th February 2018 to ascertain the presence of Aboriginal sites within the MUE survey area. No ethnographic or archaeological sites were identified or reported within the MUE survey area during the site surveys (Waru Consulting, 2018).</p>

Location	Assessments and Findings
King Of The Hills Gas Pipeline	<p>A search of the DPLH ACHIS in March 2021 identified one registered Aboriginal heritage sites located within the KOTHGP licence area.</p> <p>The KOTHGP crosses Sullivan's Creek heritage site (ID 1741). Ethnographic surveys conducted in 2020 noted that a 100 m buffer on either side of Sullivan's Creek was considered sufficient to protect the registered heritage Site (de Gand 2020). HDD was utilised during construction through this site to avoid disturbance. During operations, no vehicle access or works is authorised within this area.</p> <p>Further ethnographic and archaeological surveys were undertaken in mid-late 2020 targeting the pipeline corridor and the Sullivan Creek heritage site (Site ID 1741). The survey identified a previously unreported site of significance ('Women's Site') and two archaeological scatter finds.</p> <p>A Notice was submitted by Red 5 under Section 18(2) of the AH Act 1972 on 3 April 2020, and consent to disturb Registered Aboriginal Heritage Sites ID 1741 and ID 38313 was approved with conditions on 19 August 2020.</p>
Agnew Gas Pipeline	<p>A search of the DPLH ACHIS in February 2019 identified no registered heritage sites within the AGE Pipeline Licence. Two "other heritage places" were identified within the Pipeline Licence:</p> <ul style="list-style-type: none"> • Artefact Scatter Site (ID 24570). Site recorded is only lodged, not registered. • Mythological Site (ID 28755). <p>These places have been avoided by the pipeline route, and buffer zones have been established around them to ensure they are not impacted.</p> <p>Additionally, one unregistered site (artefact scatter), located approximately 160 m east of the termination point at the western extent was located during ethnographic surveys carried out on behalf of Gold Fields. This site will not be impacted by operations, and a 20 m exclusion buffer will be maintained around it.</p> <p>Numerous ethnographic and archaeological surveys have been undertaken in the vicinity of the AGE between 1998 and 2018 (Neal Draper and Associates 2018). Neal Draper and Associates surveyed the extent of the AGE pipeline corridor during four surveys between 2016 and 2018. Surveys have identified two sites of significance along the AGE corridor, however these sites have been avoided by the pipeline route in accordance with agreements between Gold Fields Limited and the Wutha claimant group (Neal Draper and Associates 2018).</p>
Karlwindra Gas Pipeline	<p>Aboriginal Heritage surveys were conducted by specialist consultants, Wilypa and Terra Rosa Consulting to identify Aboriginal sites within the survey area.</p> <p>The initial desktop review included review of previous archaeological and heritage reports from the area and a search of the DPLH ACHIS, in order to identify any existing sites in the survey area and enable targeted searches during field surveys. The desktop study did not identify any Registered Aboriginal Heritage sites in close proximity or within the project area.</p> <p>Ethnographic and archaeological field inspections were conducted in May 2018 to ascertain the presence of Aboriginal sites within the survey area. No ethnographic or archaeological sites were identified or reported within the survey area during the site surveys (Terra Rosa, 2018 and Wilypa, 2018).</p>

Location	Assessments and Findings
Lakeway Gas Pipeline	<p>On 20 November 2019, Piper Preston Pty Ltd, Salt Lake Potash Limited (collectively SO4) and TMPAC executed the Lake Way Project Land Access (Native Title) Agreement, of which a comprehensive Cultural Heritage Management Plan (CHMP) is included in the Agreement. This Agreement facilitates SO4's activities within the Native Title determination area, and includes agreed heritage management processes, consistent with relevant heritage legislation and the cultural heritage principles agreed to by the parties.</p> <p>The CHMP provides a record of all DPLH registered Aboriginal Sites and Places, and TMPAC identified exclusion zones and culturally sensitive areas within the vicinity of the Lake Way Project with additional management requirements.</p> <p>On 6 November 2019, and in accordance with the Agreement, SO4 submitted a work program and spatial data to TMPAC, detailing the Project's proposed activities and spatially delineated area of land.</p> <p>TMPAC engaged Nyaparu Consulting to conduct an ethnographic and archaeological work area clearance for the Project area (Surveys). The purpose of the Survey as defined in the CHMP, was to:</p> <ul style="list-style-type: none"> • provide TMPAC's cultural heritage clearance for Project activities in a spatially delineated area of land (Cleared Area); and • any TMPAC proposed heritage monitoring or management measures required to manage Aboriginal sites or areas of cultural significance in the vicinity of the Cleared Area. <p>TMPAC and Nyaparu Consulting organised the Surveys with the NT Holders. They were conducted across the following fieldwork trips:</p> <ul style="list-style-type: none"> • an ethnographic survey between 11 and 13 November 2019; and • an archaeological survey between 11 and 14 November 2019. <p>Following the Surveys, TMPAC provided SO4 with a report and spatial data detailing the results, methods, registered Aboriginal sites, the Cleared Area, and any heritage monitoring or protection requirements for cultural heritage places in the vicinity of the Cleared Areas (Survey Report).</p> <p>The Surveys and Survey Report were informed by the Agreement and the CHMP. Survey Reports and associated spatial data for TMPAC exclusion zones and culturally sensitive areas cannot be provided to third parties (including APA) due to TMPAC's cultural heritage sensitivities and Agreement confidentiality obligations.</p> <p>A desktop investigation of the DPLH AHIS and the Survey Report concluded that the Project's Cleared Area would intersect with the boundary of two ethnographic Aboriginal Sites ID 2149 (Tjilla) and ID 19361 (Butchers Well).</p> <p>Following TMPAC consultation and in accordance with Agreement and regulatory requirements, SO4 submitted a section 18 Notice, and on 26 March 2020 secured Ministerial Consent (reference 69-18234) under Section 18 of the AH Act for the proposal area, including PL125.</p> <p>Access agreements address project activities within the proximity of heritage sites and the pipeline route and disturbance areas have been refined through multiple iterations to provide an alignment that minimises disturbance. This has resulted in a portion of the ROW being restricted to an unusually narrow width in a short section near areas of heritage significance (reduced ROW).</p>

Location	Assessments and Findings
Binduli Gas Pipeline	<p>Daniel de Gand & Associates (2022) conducted an Aboriginal Heritage Desktop Assessment for the Project area. The assessment confirmed that there was no previously registered or newly recorded Aboriginal Ethnographic or Archaeological Sites and/or Heritage Places within the Project area.</p> <p>Terra Rosa Consulting (Terra Rosa) was engaged to undertake an infield archaeological and ethnographic site identification heritage survey to ensure any Aboriginal cultural heritage places were identified and documented.</p> <p>The survey was undertaken between 9th and 11th July 2024 (excluding travel days) by thirteen Marlinyu Ghoorlie representatives and two heritage consultants from Terra Rosa.</p> <p>The summarised survey results are as follows:</p> <ul style="list-style-type: none"> the archaeological and ethnographic site identification survey of this area was completed during the heritage trip; the desktop survey identified no DPLH registered Aboriginal Cultural Heritage (ACH) sites, lodged ACH places, or archived ACH places within the survey area; and one isolated artefact was identified during the Binduli Gas Pipeline survey and was left in situ. This artefact was located just outside of the 30m construction corridor. This will not be impacted during operations. <p>Based on the results of the survey and consultation with the Traditional Owners, the following commitment were agreed (in relation to the Binduli Gas Pipeline):</p> <ul style="list-style-type: none"> Avoiding impact or disturbance to the isolated artefact located just outside of the BIN construction corridor. Avoiding impact or disturbance to Puryarl (Sandalwood - <i>Santa/um spicatum</i>) trees located within the vicinity of the Project area, and minimise impact to mature vegetation where possible throughout the course of APA's proposed works. (Terra Rosa 2024) <p>A Relationship Agreement between APA and Marlinyu Ghoorlie People was executed April 2024. As per the Relationship Agreement an Agreed Title Certificate was executed October 2024.</p>

5.2 Socio-economic

Eastern Goldfields Pipeline System

The closest town to the EGPS area is Laverton; located just over 20 km North-East of the EGP and 30 km North-East of the MGN. The Laverton townsite is located in the eastern Goldfields, 957 km north east of Perth, and 124 km east of Leonora. Laverton relies heavily on mining. The population during the 2011 Census was 1,023 (Laverton Shire 2014), with a large proportion of these fly in, fly out workers. Both the GGL and MMP traverse the Town of Leonora. Operations do not comprise activities which pose a disturbance to local industry or recreational activities. Minor interference may be experienced by other organisations who wish to build or excavate on the pipeline easement.

Additionally, the township of Leonora is approximately 26km South-East of the KOTHGP corridor. The Leonora township is located in the Shire of Leonora, with a population of 1,548 (ABS 2020).

There are a number of “residences” within proximity of the EGP, including the Granny Smith and AGAA, SDGM, KOTH and TGM personnel camps. In addition, the Mount Margaret Community is approximately 800m from edge of ML 39/227. The Mount Margaret Community is the nearest residential dwelling to the MGN, located over 2.5 km away. YGP traverses Mt Weld, Laverton Downs, and White Cliffs pastoral leases, a number of third-party minerals tenements, the Yamarna pastoral lease and tenements held by the GRJV. Tarmoola Station Homestead is the nearest residential dwelling to the KOTHGP, located approximately 1.8 km away.

The predominant land use in the East Murchison (MUR1) subregion is grazing sheep, cattle, and goat on native pastures, with approximately 85% of the region allocated to pastoral leases or this purpose. The region incorporates the northern Goldfields, with numerous operating, suspended or abandoned gold and nickel mines, although their combined footprint is relatively small and most sit within pastoral leases.

The EGPS is predominantly located within unallocated crown land, mining and exploration tenure, pastoral land, Aboriginal reserves (along the YGP) and the Peak Hill Stock Route (Reserve 9699). The EGPS intersects several pastoral leases; Glenorn, Mount Weld, Sturt Meadows and Tarmoola Stations. Both the Glenorn and Mount Weld Stations are leased by mining companies in the area; Murrin and Granny Smith respectively; therefore there are no residents on these leases.

The MMCS is located remote from residential and other areas sensitive to industrial activity. The nearest residential dwelling is located approximately 13 km from the MMCS.

Agnew Gas Pipeline

Land use in the pipeline corridor is consistent with the dominant land uses of the surrounding region and comprises pastoralism and mining. Specifically, the AGE lies within the Leinster Downs a pastoral station and Agnew mining tenements/miscellaneous licences (held by the Gold Fields). The AGE also lies within a mining tenement held by Ramelius Resources and intersects several linear miscellaneous licences held by TEC Desert Pty Ltd/TEC Desert No. 2 Pty Ltd (a wholly owned subsidiary of TransAlta). Gold Fields have an access agreement with both Ramelius Resources and TransAlta.

The AGE is within the Shire of Leonora; the nearest town is Leinster, located approximately 10 km north of the pipeline. Leinster has a population of approximately 700 people and was established by Agnew Mining in 1976, to support nickel and gold mining in the region.

Karlawinda Gas Pipeline

The KGP is located within the Shire of Meekatharra. The closest townsite to the KGP project area is Newman, located approximately 60 km north-west of KGP. In 2016, the Newman townsite had a total population of 4,567 residents (ABS, 2019). The KGP overlies three pastoral leases, which include Weelarrana, Bulloo Downs and Prairie Downs which stock cattle and sheep. The KGP intersects the Great Northern Highway. The nearest residential dwellings to the KGP is the Sylvania homestead, located approximately 20 km north-east of KGP.

Lake Way Gas Pipeline

The LWP is located within the Shire of Wiluna. The Shire of Wiluna has a total population of 720 residents (ABS 2016). The LWP is approximately 8 km south of the Wiluna townsite at its closest point.

The project area is located within the Millbillillie Pastoral Lease (L3114/1260).

The nearest residential dwellings are located approximately 1.2 km northeast of the nearest point of the LWP at Gunbarrel Laager.

Binduli Gas Pipeline

The BIN is located within the City of Kalgoorlie-Boulder. The City of Kalgoorlie-Boulder comprises of an area of 95,575 km² and has a total population of 30,059 residents (Australian Bureau of Statistics (ABS), 2016 Census). The BIN corridor is approximately 6 km south-west of the Kalgoorlie town site.

The dominant land uses of the Eastern Goldfield subregion includes Unallocated Crown Land (UCL) and Crown reserves and pastoral grazing, with conservation areas and mining leases also present (Cowan, 2001).

The pipeline is not located within a Pastoral Lease and is currently zoned for General Industry.

6. Implementation Strategy

All works will be conducted in accordance with the APA Corporate Environment and Heritage Policy. It is the responsibility of the APA WA Manager Operations and Maintenance to ensure that APA Environment and Heritage policies and commitments are observed throughout all operational activities.

The APA Health, Safety, Environment and Heritage (HSEH) Management System is called 'Safeguard' (SG). SG provides a framework by which the processes relating to APA's HSEH activities are defined, implemented and controlled. Local business unit processes and procedures operating under SG management systems, provide further instruction to workers on performing activities.

SG is supported by a database, referred to as SG+. SG+ is used for functions such as incident reporting, auditing, action tracking and reporting.

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

- Maximo – Asset maintenance system (Work Order / Job Plan / Work Instruction)
- SG+ - Risk, actions, auditing and incident reporting system
- XIC – Landholder Contact Program, landholder information, access conditions, stakeholder consultation
- Learning Management System (LMS) – Training system used to capture APA staff information and learning materials
- SkillPASS – Contractor training, competency and accreditation system (under LMS)

SG defines the requirements for environmental management under APA's Environmental Corporate Framework. Procedures, forms and other guidance materials for environmental management is available to all personnel via APA intranet Empower.

One Environmental Risk Assessment workshop per management region was conducted to assess environmental risks associated with the operation of the assets. The Environmental Risk Assessment is conducted in accordance with APA's 'Risk Management System – Group Procedure' which "aligns with the principles in the international risk standard ISO 31000:2018 - Risk Management". A summary of the primary environmental hazards, control measures and mitigating factors identified for the Activity has been provided in Table 11.

Note: Table 11 is intended to be indicative of major hazards and controls only and is not comprehensive of all commitments made by APA in the EMP.

Table 11 Primary Operations Environmental Hazards and Controls / Mitigating Factors

Summary of risks and impacts	Control Measures and Mitigation Factors
Overarching	<ul style="list-style-type: none"> • Regular legislation reviews • Toolbox talks • Works Environmental Assessment Process • Environmental audits • Site inspection • Inductions • Environment Procedures
Aspect: Contamination	<ul style="list-style-type: none"> • Bunding and site inspected for leaks/spill during periodic site inspections • Vehicle prestart

Summary of risks and impacts	Control Measures and Mitigation Factors
<p>Activity: storage, transport, handling, waste disposal</p> <p>Impact: Ground and water contamination</p>	<ul style="list-style-type: none"> • OSCP testing • Drip trays • Licenced controlled waste carrier engaged for all controlled waste transport on public roads • Spill kits • Groundwater monitoring • Cathodic protection • Chemicals must be stored to avoid the risk of contamination • Reportable spills reported to relevant regulator verbally within 2 hours and via report within 3 days. • No refuelling or parking equipment within 100m of watercourse • Documented mobile plant pre-start checks completed before mobilisation • Regular documented LV pre-start checks completed • OSCP testing • Drip trays used when refuelling on ROW • Licenced controlled waste carrier engaged for all controlled waste transport on public roads • Capture in place to cover ground during coating • Spill kit inspections conducted in accordance with Maximo regime • Spill response equipment appropriate to the type and amount of chemical must be available at point of use or transport • Vessel inspection in accordance with APA pressure vessel inspection regime and concrete tank inspection regime • Level indicator calibration in accordance with calibration regime • Belowground oily water tank level checks conducted in accordance Maximo regime • Visual inspections of MB oily water separator system conducted in accordance with Maximo regime • MB oily water separator system water level maintained • WBH vessel inspection in accordance with APA pressure vessel inspection regime • Cathodic Protect of belowground steel lubrication oil lines in accordance with CP schedule (Maximo) at MMCS
<p>Aspect: Waste</p> <p>Activity: controlled, general, hydrocarbon, dangerous goods, NORM waste storage, handling, transport and disposal</p> <p>Impact: Ground contamination, unauthorised discharge or community nuisance</p>	<ul style="list-style-type: none"> • Licenced controlled waste carrier engaged for all controlled waste transport on public roads. Tracking receipts retained for seven years. • Abrasive blasting activities not to occur within close proximity to watercourses without sufficient capture in place. • Spent garnet is wrapped up and disposed of in hydrocarbon bin for Class III landfill disposal • Pigging waste screened for radioactivity to determine waste stream • Identify/label as NORM contaminated waste • Arrange for APA approved (licensed) NORM waste contractor for management/ disposal • Designated temporary concrete wash-down bay set up to contain liquid waste where significant volumes of concreting and equipment wash-down is required • Concrete wash-down and waste shall be captured, tested and disposed of in accordance with Landfill Waste Classification and Waste Definitions 1996 • Concrete tanker utilised wherever possible to minimise mixing of concrete on site • Bags of dry concrete to be stored in a designated, dry undercover area • Waste shall be segregated into applicable waste streams

Summary of risks and impacts	Control Measures and Mitigation Factors
	<ul style="list-style-type: none"> Waste shall be stored in a labelled designated waste storage area and in a manner to prevent nuisance (general waste lidded, regulated liquid waste banded) Waste to be removed from site and disposed of at a licensed landfill facility Project works only: liquid overflow alarms fitted to temporary ablution facilities No equipment to be stored on top of septic leach drains
<p>Aspect: Heritage</p> <p>Activity: Driving, vegetation clearing, excavation</p> <p>Impact: unauthorised impact to heritage</p>	<ul style="list-style-type: none"> Mulcher with GIS capabilities (geofencing or similar) or heritage boundaries flagged prior to clearing through heritage areas Knowledge Holders contacted prior to any ground disturbing works inside heritage areas Works Environmental Assessment Form completed prior to clearing or excavation Spotter/guide engaged during LOS clearing Agnew only: Goldfields to be contacted prior to any ground disturbing works in the Native Claimant area Lakeway only: APA to contact SO4 prior to conducting ground disturbing activities on LWP Lakeway only: Reduced ROW Lakeway only: flag heritage boundaries before any nearby clearing activities Karlawinda only: APA to contact Capricorn prior to conducting ground-disturbing works KOTH only: Sullivan's Creek Environment Bulletin and Toolbox Talk issued to operations YGP only: All APA vehicles travelling on Yilka Native Title Claimant land must carry a copy of the Section 31 Aboriginal Affairs Planning Authority Act 1972 Aboriginal Reserve Entry Permit. YGP only: No ground disturbing works to be conducted on Yilka Native Title claimant land without prior authorisation from Goldfields Limited Australia Pty Ltd If heritage values or suspected human remains are unexpectedly discovered, or suspected to exist in the activity area, the activity must immediately cease in the vicinity (10m from extent) of the heritage discovery and be reported as per current APA HSE GP 07.01 Incident Reporting BIN: Avoid impact or disturbance to Puryarl (Sandalwood - <i>Santalum spicatum</i>) trees located within the vicinity of the pipeline, and minimise impact to mature vegetation where possible throughout the course of APA works
<p>Aspect: Native Vegetation</p> <p>Activity: driving, vegetation clearing, excavation, weed spraying, CS operation</p> <p>Impact: Loss of biodiversity, fire</p>	<ul style="list-style-type: none"> EGP: Avoid driving through BIF and dunes Karlawinda only: APA to contact Capricorn prior to conducting ground-disturbing works EGP only: No clearing within 10m of <i>Caesia talingka</i>; <i>Melaleuca apostiba</i>; <i>Labichea eremaea</i> Spotter/guide engaged during LOS clearing Fire response equipment inspections in accordance with Maximo regime Fire awareness to be reinforced during toolbox meeting Works Environmental Assessment Form completed prior to clearing or excavation Vehicles travelling on easement must have a fire extinguisher KOTH and BIN only: Annual vegetation cover assessment shall be conducted annual for 5-years post-construction. Finding shall be discussed in the AER. KOTH and BIN only: Vegetation survey by Botanists shall be conducted 5 and 7 years post-construction. Survey results shall be discussed in the AER.
Aspect: PWD	<ul style="list-style-type: none"> APA vehicle washdowns bay maintained in good working order All vehicle washdowns recorded in Washdown Register or similar Vehicles and equipment kept clean and free of weeds and seeds

Summary of risks and impacts	Control Measures and Mitigation Factors
<p>Activity: Driving, vegetation clearing, excavation</p> <p>Impact: Introduction of new and /or spread of PWD</p>	<ul style="list-style-type: none"> • Annual weed control on EGP • Clearing and excavation: equipment clean upon arrival
<p>Aspect: Fauna</p> <p>Activity: Driving, vegetation clearing, excavation</p> <p>Impact: Negative or unauthorised impact to biodiversity</p>	<ul style="list-style-type: none"> • Ramps for excavations left overnight • Fauna inspections undertaken in excavations and trenches that are left open overnight prior to work commencing • Works Environmental Assessment Form completed prior to clearing or excavation • Karlawinda only: APA to contact Capricorn prior to conducting ground-disturbing works • EGP only: APA shall not clear within 50m of recorded Malleefowl mounds • EGP only: Access in BIF and dunes avoided, unless emergency • EGP: Annual EGP flora monitoring • EGP: Biennial EGP SHD fauna monitoring
<p>Aspect: Gas, Light and Dust</p> <p>Activity: controlled and uncontrolled gas release, rupture</p> <p>Impact: Contribution to global warming</p>	<ul style="list-style-type: none"> • NGER reporting in accordance with <i>National Greenhouse and Energy Reporting Act 2007</i> • NGI reporting in accordance with Environmental Protection (NEPM-NPI) Regulations 1998 • ERP is triggered for significant unplanned gas emission incidents • Site personnel are trained in the ERP
<p>Aspect: Noise, Vibration, Amenity</p> <p>Activity: project works near sensitive noise receptors, facility operation</p> <p>Impact: Stakeholder nuisance</p>	<ul style="list-style-type: none"> • Fire response equipment inspections in accordance with Maximo regime • Fire awareness to be reinforced during toolbox meeting • Works near noise sensitive receptors shall only be conducted between 0700 hours and 1900 hours (excluding emergency works) • Works near sensitive noise receptors shall not be conducted on Sunday or Public Holidays (excluding emergency works)
<p>Aspect: Soil and Watercourse</p> <p>Activity: Excavation, dewatering/discharge, vegetation clearing</p> <p>Impact: acidification, erosion, unauthorised dewatering, unauthorised impact to beds and banks</p>	<ul style="list-style-type: none"> • Where ASS/PASS cannot be avoided, APA will manage in-line with DWER treatment and management of soil and water in acid sulphate landscape guidelines • ASS desktop assessment completed prior to excavations • Topsoil must be stripped and stockpiled prior to, or at the commencement of, land disturbance activities • Vegetation/mulch to be respread following reinstatement • Easement patrols completed in accordance with maintenance regime (Maximo) • Dewatering conducted inline with DWER Water Quality Protection Note 13 • No disturbance to watercourse without Permit to Interfere with Beds and Banks • No discharge to watercourse permitted • Works Environmental Assessment Form completed prior to excavation and dewatering

7. Stakeholder Consultation

Stakeholders are identified by looking at the underlying land parcel and other layers of tenure or constraints intersecting each parcel. Stakeholder consultation is managed in the APA X-Info Connect database, maintained by the Infrastructure Protection Team. X-Info stores all contact details, communications, land parcel details, APA access, risk level of each parcel, requirements for access and any documentation associated with the parcel. APA completes annual updates of the parcel information stored in X-Info. X-Info is used in conjunction with ARGO (Assets, Resources and GIS Online) to show the geometry for each parcel.

The main form of planned ongoing stakeholder consultation for APA pipelines is via the Third-Party Awareness Program (TPA) and the Landholder Contact Program (LCP) to achieve compliance with AS2885. Consultation is also done on an ad hoc basis for maintenance programs. Table 12 below shows the main forms of consultation that APA performs.

Table 12 Consultation Programs

Program	Communication Methods / Materials	Frequency
TPA	<ul style="list-style-type: none"> • Face to face meetings • Letters • Emails • Phone calls • Promotional materials • Multimedia materials • Presentations 	<p>The program is run on an annual basis.</p> <p>The frequency of each group will be determined through the AS2885 safety management study, with high-risk groups contacted annually.</p>
LCP – Rural / Remote	<ul style="list-style-type: none"> • Face to face meetings • Letters • Emails • Phone calls • Promotional materials 	Annual contact as a minimum, however maybe more frequent if determined through the AS2885 safety management study.
Routine Works	<ul style="list-style-type: none"> • Letters • Emails • Phone calls 	Ad hoc basis
Third Party Works	<ul style="list-style-type: none"> • Face to face meetings • Letters • Emails • Phone calls • Risk assessments • Permits / Approvals 	Ad hoc basis
Emergency works	<ul style="list-style-type: none"> • Emails • Phone calls 	Ad hoc basis

The following stakeholders have been identified as having an interest in EGPS, AGE, KGP and LWP operation:

- | | | |
|---------|------------------------------|---|
| •DEMIRS | •Landholders | •Minara Resources (Murrin Murrin mine site) |
| •DWER | •Local Knowledge Holders | •St Barbara Mines Ltd |
| •DPLH | •Native Title Claimants | •Red 5 Limited (KOTHGP) |
| •DBCA | •Third-party pipeline owners | •Pastoralists: Yamarna, White Cliff, Laverton Downs and Mt Weld Stations; |
| •DFES | •Shire of Leonora | •Gruyere Joint Venture (Gruyere Mine Site); |
| •WARC | •Shire of Laverton | •Main roads |

•Clean Energy Regulator	•Alinta Energy	•BHP Nickel West Pty Ltd (Miscellaneous Licence (L 26 / 288) (BIN only)
•DCCEEW	•Shire of Menzies	•Water Corporation (Lot 3010 on Deposited Plan 0706804 (Freehold Land) (BIN only)
		•Lynas Kalgoorlie Pty Ltd (BIN only)

7.1 Third Party Awareness Program

The TPA is used to contact relevant industry, local government and utilities. The types of consultation for the TPA is in the form of meetings, emails, materials (i.e. toolbox, engagement letters, emails, calendar), multimedia (i.e. CodeSafe and e-learning), personal (i.e. meeting, face to face group presentations, conference or industry group presentation) and promotion (i.e. advertising, text message or email message, industry event, social media post). The TPA is used for providing these stakeholders with the location of the pipeline, safety and emergency requirements and APA contact if they propose to do any works in the vicinity of the pipelines. Response from recipients is not mandatory.

7.2 Landholder Program

The LCP alerts landowners to the pipeline location, safety and emergency requirements, ongoing landholder contact processes and details during APA operations. Landholders are visited annually each financial year as part of the LCP.

For rural or remote landholders, contact will be made via phone / email prior to APA travelling to them. There will be at least three attempts to contact the landholder to arrange a visit. If a face-to-face meeting is not desired by the landholder, the meeting will be conducted via phone. Records stored in X-Info.

LCP also conducts annual notification and APA branded promotional materials. APA does not require a response from the LCP recipients. The notifications are letter form.

7.3 Routine Maintenance Works

Ad hoc consultation to notify landholders of routine works that will be carried out. APA endeavours to provide advanced notice of easement works to landholders and affected stakeholders. This is via letter or email. The notifications will outline the type, duration, date works are scheduled, APA's right of access and APA contact information. If the landholder has particular access requirements, they will also be reiterated on the notification.

Responses to these communications are not required by APA due to APA's right of access.

7.4 Third Party Works

Third party works are when an external party contacts APA as they have a project that will impact an APA pipeline. These can be activities that involve excavations, vertical and horizontal boring / drilling or installation of power lines. It may also be a connection into the APA pipeline. Third party works cannot proceed until APA has completed the necessary protection works.

The main communications to the impacted stakeholders will include description, date and duration of works. Government approvals may also be required for works, APA shall arrange approvals prior to works.

If responses are required by APA, this will be noted in the correspondence with an initial period of one month to reply. For individuals (freehold landowners), that don't reply, then APA will communicate again via the same method as well as others. If there is still no response, site visits will be made to attempt to make contact with the individual. The more time from the initial contact, the more frequent the ongoing contact is made.

For companies and government departments, when there is no reply, then alternative contacts will be used. If still no response, then the client may get involved until a

determination is made. As above, the timing of the contact attempts shall become more frequent overtime.

There may be times where the client takes the lead for stakeholder consultation due to wider commitments, APA will still be a part of the process. These communications shall be recorded in X-Info.

7.5 Emergency Works

Emergency works are completed when the emergency response plan is enacted.

For the consultation during an emergency, the impacted stakeholders are contacted, usually via phone with a follow up email, however APA doesn't always wait for a response. At the end of emergencies, there will be a closeout notification with the impacted parties.

7.6 Other Consultation

Table 13 shows additional ad hoc consultation as part of the ongoing stakeholder consultation outside the abovementioned programs for the EGPS, AGE, KGP and LWP.

A summary of ongoing stakeholder consultation undertaken by APA is provided in Table 13.

Table 13 Stakeholder Consultation

Stakeholder	Detail
DEMIRS	Updates to OEMP Changes to activity Reporting Clearing referrals/permit applications
DWER	Permits/approvals/licences Controlled waste transport / contaminated sites
DPLH	Heritage assessments
DPIRD	Report declared weeds
Clean Energy Regulator	NGER reporting
DCCEEW	NPI reporting
Local Knowledge Holder	Contacted prior to conducting ground disturbance works in registered and other sites
WARC	Licensing of APA facilities to temporarily store NORM waste

Stakeholders who manage sensitive environments intersected by the assets listed in Table 1 were consulted with during the five-yearly renewal including the Knowledge Holders and the mining companies which have close working relationships with the Knowledge Holders.

During the five-yearly EMP renewal stakeholder consultation program, if no response was received by the due date, APA will call or email the stakeholder to confirm they received the correspondence.

Please refer to Table 14 for the consultation undertaken during the five yearly OEMP review completed during 2023 and 2024.

Table 14 Stakeholder Consultation for Five Yearly Renewal

Stakeholder	Method	Detail	Date
Red 5 Limited	Email	Emailed the EMP to Red 5 Limited Contracts and Procurement Superintendent, who forwarded it onto their Environment Team. APA requested comment by 30/11/2023.	27/10/2023
	Email	Red 5 Contracts and Procurement Superintendent to Red 5 Environment Team: "Please see the comment below and the attached for your consideration and/or response to Lisa at APA."	27/10/2023
	Email	APA to "Could you please provide confirmation that you have no comments re the EMP 5 yearly renewal. If you could respond by 06 Feb, that would be greatly appreciated."	30/01/24
	Email	Red 5 Superintendent Environment and Approvals: "Apologies, this one fell off my list. I'll review and provide any feedback by tomorrow."	30/01/24
	Note only	No feedback received. Any feedback shall be addressed and reported to DEMIRS via AER.	11/02/24
Capricorn Metals	Phone	Spoke to Environment Advisor. He confirmed he is happy for APA to contact NT Claimants directly.	06/11/23
	Email	Sent EMP for comment. Requested feedback by 06 December 2023.	06/11/23
	Email	APA to Capricorn Environment Advisor: "Could you please confirm that you have no comments. If you could please respond by 06 Feb, that would be greatly appreciated."	30/01/24
	Email	Automatic response from Capricorn Environment Advisor. He is on leave until Monday 12th Feb	30/01/24
	Email	APA forwarded email to Acting Environment & Community Advisor	30/01/24
	Email:	Acting Environment & Community Advisor to APA: "From what I read, everything looks good to me."	31/01/24
	Email	Environment & Community Advisor: "Apologies for my delayed response. All good from our end so no comments or edits required."	13/02/24
SO4	Email	Sent EMP for comment to Environment Manager. Requested feedback by 11 Dec 2023. Informed Environment Manager APA's intention to consult with Tarlka Matuwa Piarku.	13/11/23
	Email	SO4 Manager – Environment and Approvals to APA: "Thanks for getting in touch and letting us know about the upcoming Environment Management Plan review. Is there anything you need from me at this stage? Feel free to give me a call to discuss."	14/11/24
	Email	APA to SO4 Manager – Environment and Approvals: "Could you please confirm that you have no comments. If you could please respond by 06 Feb, that would be greatly appreciated."	30/01/24
	Email	SO4 Manager – Environmental and Approvals: "Sorry for the delay getting back to you. I can confirm I have no comments on the EMP provided."	07/02/24
Tarlka Matuwa Piarku Aboriginal Corporation	Phone	Provided background re the five-year EMP renewal. Confirmed email address.	15/11/23
	Email	Emailed reception, the EMP Summary and cover letter. Offered virtual meeting to discuss operations. Requested feedback by 06/12/2023.	15/11/23
	Phone	TMPAC administration stated that they forwarded to their heritage department and will hopefully provide feedback this week.	31/01/24
	Phone	TMPAC queried whether the GGP was extinguished or suppressed from Native Title. APA to seek internal legal advice and provide feedback to TMPAC. Ongoing consultation and potential agreement development with TMPAC and APA and shall be reported to DEMIRS during AER.	13/02/24
	Email	TMPAC to APA: "Thank you for your e-mail below inviting TMPAC to comment on APA's Gas Pipeline Environment Management Plan. Unfortunately, at that time of the year TMPAC was not in a position to consider the matter and associated documents sufficiently to provide a response in the 3 weeks provided."	13/02/24

		TMPAC wishes to express its intention to engage further with APA in relation to the management of the gas pipelines within the TMPAC determination, should this approach be agreeable to APA."	
	Email	APA to TMPAC: "As discussed on the phone with Alex this morning, we have already resubmitted the Environment Management Plan (as we have a regulatory timeframe). However, APA's consultation with our Native Title Claimants and Knowledge Holders is ongoing and we are committed to understanding their expectations and working together. The EMP can be amended at any time. I will follow up with our legal team re whether the Goldfields Gas Pipeline is "extinguished or suppressed" regarding the Native Title Act. Please note, this may take a month or so for a response, we are juggling a few priorities at the moment"	13/02/24
	Email	TMPAC to APA Requested Native Title and Tenure status analysis. Requested APA asset shapefile.	10/06/24
	Email	APA to TMPAC "I have escalated this again within the business and will keep you updated. Our GIS team is creating the shapefile for you. I will hopefully get it to you next week."	04/07/24
Watarra Aboriginal Corporation	Phone	Called Roe Legal. Provided background re the five-year EMP renewal. Confirmed email address.	15/11/23
	Email	Emailed Roe Legal the EMP Summary and cover letter. Offered virtual meeting to discuss operations. Requested feedback by 15/12/2023.	15/11/23
	Phone	Called Roe legal. Left a message with the firm that I am following up on the email sent on 15/11/23 and to please respond by 06 February if they wish to comment. Administration stated he will notify team.	30/01/24
	Note only	No feedback received. Any feedback shall be addressed and reported to DEMIRS via AER.	11/02/24
Wangkatja Tjungula Aboriginal Corporation	Phone	Called corporation contact number, no answer left voicemail. Provided background re the five-year EMP renewal and provided APA contact details.	16/11/23
	Email	Emailed jeremybrown@nts.org.au . EMP Summary and cover letter. Offered virtual meeting to discuss operations. Requested feedback by 15/12/2023.	16/11/23
	Email	"Thank you for your email. We acknowledge receipt of your email and letter. Jeremy Brown has passed on this email to me to respond. I am also a lawyer assisting Wangkatja Tjungula Aboriginal Corporation (WTAC). As you may appreciate, following the Nyalpa Pirniku determination of native title on 31 October 2023, the WTAC directors are currently working through matters in the transition period from the claim group to operating as the Registered Native Title Body Corporate. I will provide the information to the directors, however if there is an opportunity to provide further comment or for APA to discuss the EMP with the directors after 15 December 2023 (e.g., in January or February 2024), please let me know."	24/11/23
	Email	"APA must resubmit the EMP revision by 11 Jan. However, the purpose of this consultation was really to open the lines of communication with WTAC. APA is happy to have a	27/11/2023

		<p>meeting with WTAC at anytime to describe our activities and understand WTAC expectations.</p> <p>The EMP is a live document and can be amended at any time.</p> <p>Please don't hesitate to contact me should you have any questions."</p>	
	Email	"Thank you for your email to Wangkatja Tjungula Aboriginal Corporation (WTAC). We acknowledge receipt and will respond as soon as practicable."	27/11/23
Barra Parrapi Aboriginal Corporation	Phone	Called Central Deserts administration. Provided background re the five-year EMP renewal. Confirmed email address.	16/11/23
	Email	Emailed Central Deserts the EMP Summary and cover letter. Offered virtual meeting to discuss operations. Requested feedback by 15/12/2023.	16/11/23
	Letter	<p>We request that APA Group engages in consultations with Barra Parrapi AC in relation to a review of the EMP, including if necessary contributing to Barra Parrapi AC's costs of obtaining advice from appropriate experts.</p> <p>Requested further information: full EMP, Policy, heritage surveys, due diligence assessments.</p> <p>Proposed the next step is to arrange meeting with APA and Barra Parrapi to discuss further.</p>	14/12/23
	Email	<p>"Apologies for the delayed response.</p> <p>I am in the process of gathering the requested information. I will send it through to you in the next couple of weeks (apologies for delay, juggling a few things at the moment).</p> <p>Once you've had a chance to review the information, let's arrange a meeting to discuss the next steps.</p> <p>With regards to the 5-yearly Environment Management Plan renewal, I will include your request in the EMP and state that "Barra Parrapi AC has requested further information and if necessary for APA to contribute to Barra Parrapi AC's costs of obtaining advice from appropriate experts for the EMP review. APA shall provide all requested information and have a meeting with Barra Parrapi to discuss next steps. All ongoing consultation shall be reported to DEMIRS within Annual Environment Report. If required, the EMP shall be updated to incorporate Barra Parrapi AC expectations".</p>	17/01/24
	Email	<p>APA to Barra Parrapi AC:</p> <p>APA provided: APA HSEH Policy, Full EMP, references to heritage surveys available through DPLH, welcomes meeting.</p>	07/06/24
Goldfields Gruyere Mine	Phone	Called the Senior Environment Advisor. Provided background re the five-year EMP renewal. Informed them of APA's plan to contact Yilka Talintji Aboriginal Corporation.	16/11/23
	Email	Emailed Senior Environment Advisor EMP Summary. Requested feedback by 15/12/2023.	16/11/23
	Phone	Called the Senior Advisor Community to discuss EMP renewal and advice regarding best contact for the Yilka Talintji Aboriginal Corporation.	16/11/23
	Email	Senior Environment Advisor responded: "No comments/queries from me. Thanks for sending through the summary for review."	18/11/23
Yilka Talintji Aboriginal Corporation	Phone	Called Yilka Manager Agreement Implementation, Provided background re the five-year EMP renewal and provided APA contact details.	27/11/23
	Email	Emailed Manager Agreement Implementation the EMP Summary and cover letter. Offered virtual meeting to discuss operations. Requested feedback by 05/01/2024.	27/11/23
	Letter	We request that APA Group engages in consultations with Yilka AC in relation to a review of the EMP, including if necessary	14/12/23

		<p>contributing to Yilka AC's costs of obtaining advice from appropriate experts.</p> <p>Requested further information: full EMP, Policy, heritage surveys, due diligence assessments.</p> <p>Proposed the next step is to arrange meeting with APA and Yilka to discuss further.</p>	
	Email	<p>cc. Goldfields Senior Environment Advisor and Senior Advisor Community.</p> <p>I am in the process of gathering the requested information. I will send it through to you in the next couple of weeks (apologies for delay, juggling a few things at the moment).</p> <p>Once you've had a chance to review the information, let's arrange a meeting to discuss the next steps.</p> <p>With regards to the 5-yearly Environment Management Plan renewal, I will include your request in the EMP and state that "YT AC has requested further information and if necessary for APA to contribute to YT AC's costs of obtaining advice from appropriate experts for the EMP review. APA shall provide all requested information and have a meeting with YT to discuss next steps. All ongoing consultation shall be reported to DEMIRS within Annual Environment Report. If required, the EMP shall be updated to incorporate YT AC expectations".</p>	24/01/23
	Email	<p>APA to Yilka:</p> <p>Apologies for the extremely delayed response.</p> <p>Please find attached letter and requested documents.</p> <p>APA provided: Aboriginal Reserve Entry Permit, APA HSEH Policy, EGPS EMP.</p>	16/04/24
	Email	<p>Central Deserts Native Title Services to APA:</p> <p>Good afternoon,</p> <p>Following review of this matter, CDNTS have obtained instructions from Yilka Talintji that they do not wish to provide any further comment on the Yamarna Gas Pipeline EMP Renewal.</p> <p>Thank you for your time, and please feel free to email should you have any further questions or comments in relation to this matter.</p>	09/05/24
BHP Nickel West Pty Ltd Miscellaneous Licence (L 26 / 288) (BIN)	Email	<p>APA to BHP:</p> <p>"Good morning,</p> <p>APA is currently completing their five year review of the APA Eastern Goldfields Pipeline System Operations Environment and Heritage Management Plan.</p> <p>The Binduli Gas Pipeline has been incorporated into this plan, which outlines the measures APA will implement to manage and mitigate potential environmental and heritage risks associated with the operation of the pipeline.</p> <p>A detailed summary of the plan is attached.</p> <p>If you have any questions or comments regarding the plan, please submit them via email to environment.national@apa.com.au by 10 May 2025."</p>	10/04/25
Marlinyu Ghoorlie	Email	<p>APA to Ghoorlie People:</p>	10/04/25

People WC2017/007 (Registered Native Title Claim) (BIN)		<p>"Good afternoon,</p> <p>APA is currently completing their five year review of the APA Eastern Goldfields Pipeline System Operations Environment and Heritage Management Plan. This review is triggered by a requirement under the petroleum pipeline legislative framework.</p> <p>The Binduli Gas Pipeline has been incorporated into this plan, which explains how APA will managed and minimise any potential risks to the environment and heritage with the operation of the pipeline.</p> <p>A detailed summary of the plan is attached.</p> <p>During pipeline operation ground disturbance is infrequent, and may include digging a small area (about 3m by 3m) to repair the pipeline, or trimming plant regrowth that grows too close (within 3 metres of the pipeline). These activities only happen in areas that were already disturbed when the pipeline was constructed. That said APA does not expect to do any pipeline maintenance for the next 5 to 10 years, as the Binduli Pipeline will be a new pipeline (once built).</p> <p>If you have questions or comments on the Operations Environment and Heritage Management Plan, please email them through to environment.national@apa.com.au by 10 May 2025.</p> <p>APA is happy to organise an online meeting to discuss and answer any questions you may have (if required)."</p>	
Lynas Kalgoorlie Pty Ltd (BIN)	Email	<p>APA to Lynas:</p> <p>"Good morning,</p> <p>APA is currently completing their five year review of the APA Eastern Goldfields Pipeline System Operations Environment and Heritage Management Plan.</p> <p>The Binduli Gas Pipeline has been incorporated into this plan, which outlines the measures APA will implement to manage and mitigate potential environmental and heritage risks associated with the operation of the pipeline.</p> <p>A detailed summary of the plan is attached.</p> <p>If you have any questions or comments regarding the plan, please submit them via email to environment.national@apa.com.au by 10 May 2025."</p>	10/04/25
Water Corporation (Freehold Land) (BIN)	Email	<p>APA to Water Corporation:</p> <p>"Good morning,</p> <p>APA is currently completing their five year review of the APA Eastern Goldfields Pipeline System Operations Environment and Heritage Management Plan.</p> <p>The Binduli Gas Pipeline has been incorporated into this plan, which outlines the measures APA will implement to manage and mitigate potential environmental and heritage risks associated with the operation of the pipeline.</p> <p>A detailed summary of the plan is attached.</p> <p>If you have any questions or comments regarding the plan, please submit them via email to environment.national@apa.com.au by 10 May 2025."</p>	10/04/25

8. APA Contact Details

For further queries regarding the Activity please contact the WA APA Environment & Heritage Team on (08) 6189 4300 or via the APA Website <https://www.apa.com.au/contact/>.

9. References

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