MINERAL RESOURCES

APPENDIX C
LOCKYER CONVENTIONAL GAS PROJECT CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

MINERAL RESOURCES

LOCKYER CONVENTIONAL GAS PROJECT

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

27 FEBRUARY 2024 VERSION 0

DOCUMENT INFORMATION

Approval holder	Mineral Resources Limited
ACN or ABN	33 118 549 910
The Proposed / Approved action	Lockyer Conventional Gas Project
Location of the Action	Mid-West region of Western Australia

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Revision History and Document Review

Rev	Issue Date	Prepared by	Reviewed By	Approved By	Document Purpose
0	27/02/2024	Eco Logical Australia	M. Robinson	A. Parker	Final

Acknowledgement of Country

MinRes is committed to reconciliation and recognises and respects the significance of Aboriginal and Torres Strait Islander peoples' communities, cultures, and histories. MinRes acknowledge and respect Aboriginal and Torres Strait Islander peoples as the traditional custodians of the land.

EXECUTIVE SUMMARY

This Construction Environmental Management Plan (CEMP) has been prepared to outline Mineral Resources Limited's (MinRes) approach to managing environmental impacts associated with the Lockyer Conventional Gas Project (the Proposal) as outlined in **Table ES-1**. The Proposal is a conventional gas project and as such there will be no potential impacts from unconventional gas activities such as fracking.

This document has been developed to meet the requirements of the State *Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans* (EPA 2021).

Table ES-1: Summary and Purpose of this CEMP

Proposal Name:	**Lockyer Conventional Gas Project (the Proposal)**	
Proponent Name	Mineral Resources Limited (ABN 33 118 549 910, herein MinRes)	
Short Description	The Proposal involves the construction and operation of up to six natural gas production well heads and a Central Processing Facility. The gas produced from the well heads will be transported, via an infield gathering system, for treatment in the Central Processing Facility. Once treated, the gas will be directed into an export pipeline connected to the Dampier Bunbury Natural Gas Pipeline. The condensate byproduct will be stored on site prior to being transported off site for export.	
Scope and Purpose of CEMP	The purpose of the Construction Environmental Management Plan (CEMP) is to support the referral under section 38 of the *Environmental Protection Act 1986 (WA)* (EP Act) in minimising the duration, intensity and/or extent of impacts on environmental factors during the construction phase of the Proposal. This CEMP outlines the management actions, management targets, monitoring and contingency actions designed to meet the environmental objectives for each environmental factor identified as relevant to the Proposal.	
Environmental Factor / Outcome/s and/or Objectives	**Key Factor**	**Objectives / Outcomes**
	Flora and Vegetation	**Outcome** • No clearing outside of the Development Envelope • Total clearing area not to exceed that of the indicative Disturbance Footprint **Objectives** • Clearing and fragmentation of native vegetation is minimised • Indirect impacts to vegetation and flora are minimised
	Terrestrial Fauna	**Outcome** • No loss of fauna habitat outside of the Development Envelope • No clearing of fauna habitat in excess of the area in the indicative Disturbance Footprint **Objectives** • Minimise loss and fragmentation of fauna habitat within Development Envelope • Minimise the occurrence of injury, mortality, or displacement of conservation significant fauna • Minimise species disturbance associated with noise, light and dust • Minimise changes to the abundance of feral fauna species within the Development Envelope
	Inland Waters	**Objectives** • Minimise drawdown from groundwater abstraction impacting surrounding groundwater users • Minimise alteration to surface water flows in the Irwin and Lockier Rivers • Minimise adverse changes to surface and groundwater quality

	Social Surroundings	**Outcome** • No impacts to known Aboriginal cultural heritage values from construction activities **Objectives** • Minimise impacts of dust, noise, and light on local sensitive receptors
	Terrestrial Environmental Quality	**Objectives** • Minimise the risk of contamination of soils, surface water and groundwater resources from chemical or hydrocarbon spills • Minimise the occurrence of soil erosion on stockpiled materials, watercourse banks and areas of cleared vegetation
Key Components in the CEMP	The key components in the plan are detailed in **Section 3**. These include objective based actions and outcome-based actions which will be applied at the construction stage of the Proposal	

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ABBREVIATIONS

Definition	Definition
ACR	Annual Compliance Report
AER	Annual Environmental Reports
AGIG	Australian Gas Infrastructure Group
AH Act	*Aboriginal Heritage Act 1972*
ALARP	As Low As Reasonably Practicable
APPEA	Australian Petroleum Production & Exploration Association
AMEC	Association of Mining and Exploration Companies
ASS	Acid Sulfate Soil
BC Act	*Biodiversity Conservation Act 2016*
BYAC	Bundi Yamatji Aboriginal Corporation
CEMP	Construction Environmental Management Plan
CME	Chamber of Minerals and Energy
CPF	Central Processing Facility
CPM	Contractor Project Manager
DCCEEW	Commonwealth Department of Climate Change, Energy, the Environment and Water
DBCA	Department of Biodiversity, Conservation and Attractions
DBNGP	Dampier Bunbury Natural Gas Pipeline
DCMS	Document Control Management System
DFES	Department of Fire and Emergency Services
DGS Act	*Dangerous Goods Safety Act 2004*
DEMIRS	Western Australian Department of Energy, Mines, Industry Regulation and Safety
DPIRD	Department of Primary Industries and Regional Development
DPLH	Department of Planning, Lands and Heritage
DWER	Western Australian Department of Water and Environmental Regulation
ED	Environment Department
EMS	Environmental Management System
EPA	Environmental Protection Authority
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
EP Act	*Environmental Protection Act 1986*
EPA	Western Australian Environmental Protection Authority
ERL	Energy Resources Limited
ERP	Emergency Response Plan
FEMP	Framework Environmental Management Plan
GL	Gigalitre
GLpa	Gigalitre per annum
ha	Hectare
IAAC	Irwin Arrowsmith Advisory Council
JTSI	Department of Jobs, Tourism, Science & Innovation

Definition	Definition
km	Kilometre
LAP	Land Activity Permit
m	Metre
MCP	Mine Closure Plan
MEPAU	Mitsui E&P Australia
MNES	Matters of National Environmental Significance
Mining Act	*Mining Act 1978* (WA)
MinRes	Mineral Resources Limited
MRWA	Main Roads WA
Mt	Million tonnes
Mtpa	Million tonnes per annum
MWCCI	Mid-West Chamber of Commerce and Industry
No.	Number
PDCA	Plan-Do-Check-Act
PEC	Priority Ecological Community
PER	Public Environmental Report
PGER Act	*Petroleum and Geothermal Energy Act 1968*
PP Act	*Petroleum Pipelines Act 1969*
PTA	Public Transport Authority
RIWI Act	*Rights in Water and Irrigation Act 1914*
SRE	Short-range Endemic
TEC	Threatened Ecological Community
YSRC	Yamatji Southern Regional Corporation
WA	Western Australia

1. CONTEXT, SCOPE, AND RATIONALE

1.1 Proposal

The Lockyer Conventional Gas Project (the Proposal) is proposed to be developed in the mid-west region of Western Australia (WA), approximately 25 km to the east of Dongara and 15 km west of Mingenew. The geographic extent of the Proposal is illustrated in **Figure 1**.

The Proposal will collect natural gas from conventional well heads and direct it via gas collection hubs to a Central Processing Facility (CPF) where the gas will be treated. The product gas will be routed via an export pipeline to the Dampier Bunbury Natural Gas Pipeline (DBNGP) for sale. Associated condensate liquids will be stored on site prior to transport, via road trains, to a Western Australian port for export. The Proposal is designed to produce up to 250 TJ/day of sales quality gas. The Proposal is a conventional gas project and as such there will be no potential impacts from unconventional gas activities such as fracking.

Energy Resources Limited, a wholly owned subsidiary of Mineral Resources Limited (MinRes), is the Proponent for the Proposal.

Construction of the gas production wells is not included in this CEMP as this will require specific approval and management under the *Petroleum and Geothermal Energy Act 1967* (PGER Act), P*etroleum and Geothermal Energy (Environment) Regulations* 2012 and Part V of the *Environmental Protection Act 1986* (EP Act).

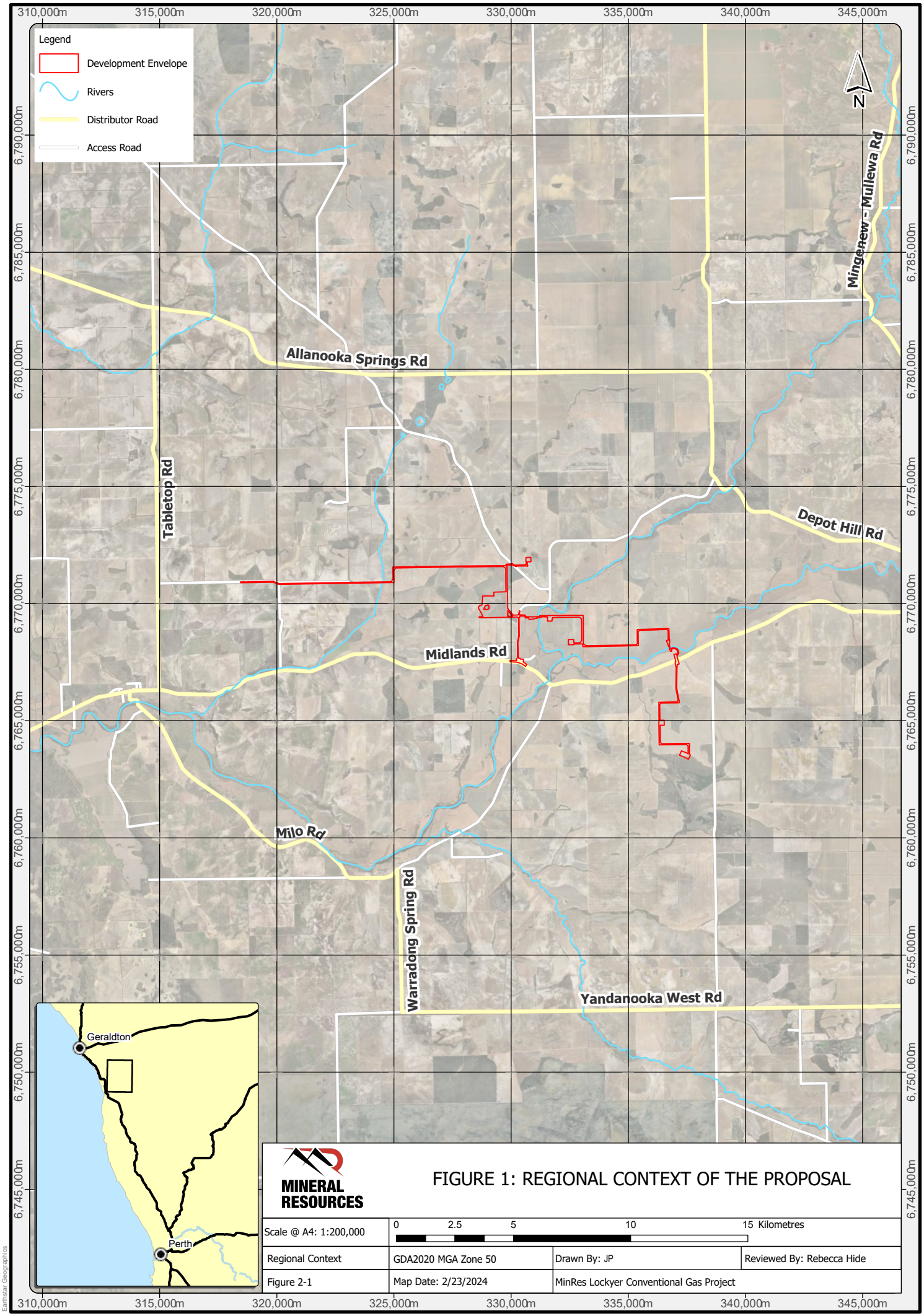

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FIGURE 1: REGIONAL CONTEXT OF THE PROPOSAL

Scale @ A4: 1:200,000	0 2.5 5 10 15 Kilometres		
Regional Context	GDA2020 MGA Zone 50	Drawn By: JP	Reviewed By: Rebecca Hide
Figure 2-1	Map Date: 2/23/2024	MinRes Lockyer Conventional Gas Project	

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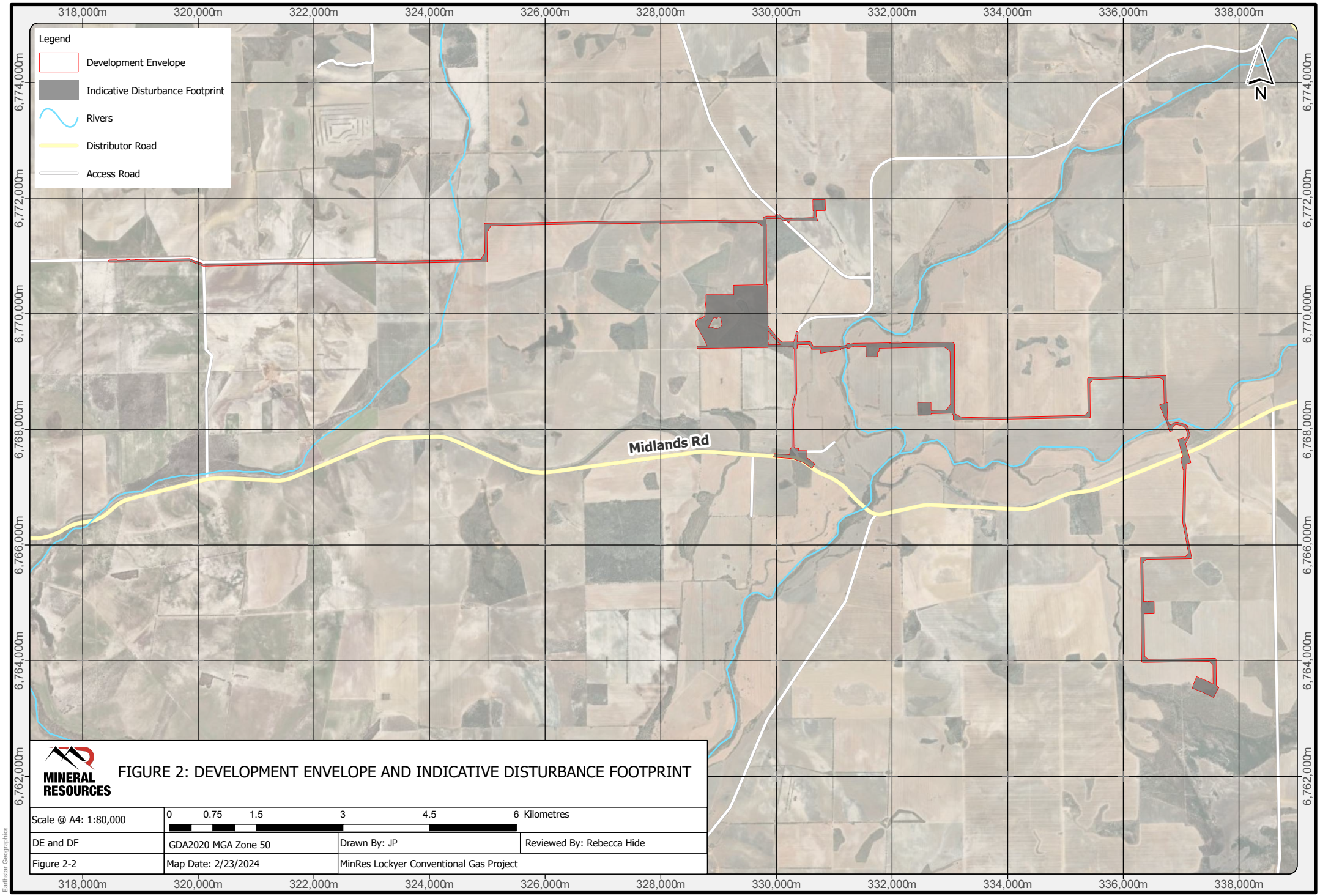

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FIGURE 2: DEVELOPMENT ENVELOPE AND INDICATIVE DISTURBANCE FOOTPRINT

Scale @ A4: 1:80,000	0 0.75 1.5 3 4.5 6 Kilometres		
DE and DF	GDA2020 MGA Zone 50	Drawn By: JP	Reviewed By: Rebecca Hide
Figure 2-2	Map Date: 2/23/2024	MinRes Lockyer Conventional Gas Project	

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1.2 Purpose and Objectives

MinRes is committed to the delivery of its services and activities in an environmentally sustainable and responsible manner.

This CEMP has been prepared in accordance with the *Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans* (EPA 2020).

The overarching objective of the CEMP is to protect environmental factors from potential direct and indirect impacts during the construction of the Proposal and ensure that these impacts are not greater than predicted. This CEMP outlines both outcome-based (**Section 3.1**) and objective-based management measures (**Section 3.2**) to achieve this.

The purpose of this CEMP is to provide one clear, concise, and easily readable document, which can be used and applied for the construction phase of the Proposal to demonstrate that sufficient management measures are in place, such that there are no significant environmental impacts resulting from construction of the Proposal.

In addition the CEMP:

- Documents rationale and approach to the management of environmental factors where relevant to the construction of the Proposal (**Section 1**)
- Identifies environmental objectives and outcomes for the management of environmental factors (**Section 3**)
- Details mitigation measures (**Section 3**)
- Details the roles and responsibilities of personnel, the monitoring and reporting requirements as well as contingency actions if objectives and outcomes are not met (**Section 4**).

1.3 Approval Condition Requirements

This CEMP has been prepared to support the referral of the Proposal to the EPA under Part IV of the EP Act. As such, at the time of the CEMP preparation, there are no approval conditions for the Proposal.

If approval conditions are prescribed by the EPA under a Ministerial Statement, subsequent CEMP iterations will address these condition requirements.

1.4 Environmental Factors

The EPA Environmental Factors relevant to this CEMP are:

- Flora and Vegetation
- Terrestrial Fauna
- Inland Waters
- Air Quality
- Terrestrial Environmental Quality
- Social Surroundings.

The Referral Supporting Document (RSD) also considered greenhouse gas emissions related to the construction of the Proposal, primarily relating to land clearing and diesel combustion, during land clearing and construction. As the majority of the GHG emissions are associated with the operational phase (11,257 tCO_2-e during construction compared to 78,198 tCO_2-e per year for the operational phase of the Proposal) this environmental factor is not considered relevant to this CEMP and the Greenhouse Gas Emissions factor has not been included.

The Proposal construction activities and significance applicable to each relevant environmental factor is summarised in **Table 1**.

Table 1: Environmental Factor, Significance and Relationship to the Proposal

Proposal Activity	Significance
Environmental Factor – Flora and Vegetation	
EPA objective: Protect flora and vegetation so that biological diversity and ecological integrity are maintained (EPA 2021)	
• Clearing of native vegetation. • Earthwork activities including excavation, soil disturbance, compaction, movement, and stockpiling. • Construction of permanent and temporary infrastructure (and alteration of landscape). • Operation, movement and refuelling of plant, machinery, and vehicles.	Direct clearing of native vegetation: • Loss of up to 6.2 ha of remnant native vegetation. • Loss of Priority flora due to clearing. Indirect impacts from: • Increased dust deposition. • Increased fragmentation of native vegetation. • Accidental bushfires due to construction activities. • Introduction and/or spread of weeds.
Environmental Factor – Terrestrial Fauna	
EPA objective: Protect terrestrial fauna so that biological diversity and ecological integrity are maintained (EPA 2016a)	
• Clearing of native vegetation. • Earthwork activities including trenching, excavation, soil disturbance, compaction, movement, and stockpiling. • Construction of permanent and temporary infrastructure • Operation, movement and refuelling of plant, machinery, and vehicles.	Direct clearing of native vegetation: • Loss and fragmentation of fauna habitat • Injury, mortality, or displacement of conservation significant fauna. Indirect impacts from: • Disturbance to native fauna from dust, light, noise and/or vibration • Degradation of fauna habitats as a result of: – increased competition or predation by feral fauna – increased risk of bushfires.
Environmental Factor – Inland Waters	
EPA objective: Maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected (EPA 2018)	
• Abstraction of groundwater for water supply. • Construction of permanent and temporary infrastructure. • Earthwork activities including trenching, excavation, soil disturbance, compaction, movement, and stockpiling. • Waste disposal. • Storage and handling of chemicals and fuels.	• Increased drawdown from groundwater abstraction impacting surrounding groundwater users and/or GDEs. • Alteration of surface water flows due to site earthworks and layout. • Reduction of quality of surface water in the Irwin and Lockier rivers due to site construction works and earthworks exposing underlying soil followed by increased erosion and sediment load. • Adverse changes to the quality of surface water in the Irwin and Lockier rivers and groundwater in the Proposal area due to leaks and spills of fuel and other hazardous chemicals used during construction
Environmental Factor – Air Quality	
EPA objective: Maintain air quality and minimise emissions so that environmental values are protected (EPA 2023)	
• Vegetation clearing. • Earthwork activities and vehicle and machinery movement.	• Increased dust emissions.
Environmental Factor – Terrestrial Environmental Quality	
EPA objective: Maintain the quality of land and soils so that environmental values are protected' (EPA 2016b)	

Proposal Activity	Significance
• Earthwork activities including trenching, excavation, soil disturbance, compaction, movement, and stockpiling. • Waste disposal. • Storage and handling of chemicals and fuels.	• Soil contamination as a result of the storage and handling of chemicals and hazardous materials required during the construction phase. • Wind erosion impacting soil quality.
Environmental Factor – Social Surroundings	
EPA objective: Protect social surroundings from significant harm (EPA 2023b)	
• Clearing of native vegetation. • Earthwork activities including trenching excavation, soil disturbance, compaction, movement, and stockpiling. • Construction of permanent and temporary infrastructure.	• Aboriginal cultural heritage could be affected. • Dust, noise, and light generated during construction could impact on amenity of the surrounding landscape.

1.5 Rationale and Approach

This CEMP documents MinRes' commitments for each environmental factor relevant to the construction stage of the Proposal and outlines how the mitigation measure will be implemented to achieve these commitments. It has been developed utilising a combination of an objective-based and outcome-based approach for the relevant environmental factors to identify and prioritise management actions.

Outcome-based provisions have been applied when suitable thresholds have been determined, whereas objective-based provisions have been applied when a level of uncertainty exists that prevents setting objective and measurable criteria. In this case, management targets are established to measure the success of management actions in achieving the environmental objective as there is insufficient site-specific information for setting outcome-based criteria and associated trigger and threshold values.

Section 1.5.1 to **Section 1.5.5** provides a summary of the results of desktop analyses and field surveys that have been conducted to understand baseline conditions of the environment associated with the Proposal, including a summary of associated assumptions and uncertainties.

Construction impacts on air quality include the potential for increased dust emissions, largely associated with pipeline installation excavation and trenching activities. Outcome-based management measures for dust are detailed within the management measures tables for Flora and Vegetation, Terrestrial Fauna, and Social Surrounds and as such Air Quality has not been addressed in this document as a stand-alone factor. Given the Proposal's short construction phase, it is noted that construction impacts on air quality due to dust would have a relatively short duration. In addition, the Proposal is located in a sparsely populated area, and as such, any potential impacts would be expected to be low due to low numbers of sensitive receptors.

The overall management approach applied under this CEMP and the rationale for the choice of indicators and management actions for the environmental factors are addressed in **Section 1.5.7** and **Table 2**.

1.5.1 Flora and Vegetation

1.5.1.1 Environmental Outcome or Management Objective/s

MinRes has invested considerable effort in the planning phase of the Proposal to exclude native remnant vegetation and Priority flora individuals from the Development Envelope wherever practicable through flowline/pipeline placement and CPF site location and design. This approach, combined with proposed horizontal direct drilling under river crossings, has reduced the overall environmental impact of the Proposal such that the residual impacts the to the Flora and Vegetation factor can be appropriately managed through the following outcome and objective-based provisions:

- No clearing outside of the 304.5 ha Development Envelope
- Total clearing area not to exceed that of the indicative Disturbance Footprint
- Clearing and fragmentation of native vegetation is minimised
- Indirect impacts to vegetation and flora are minimised
- Minimise the risk for Proposal-initiated wildfire ignition.

The rationale for these chosen provisions is provided in **Table 2,** and a description of the survey and study findings that occur within the Development Envelope that form the basis of the management approach to the Flora and Vegetation factor are provided below.

1.5.1.2 Survey and Study Findings

1.5.1.2.1 Vegetation Types

The majority of the Development Envelope overlies historically cleared agricultural land. Only 6.4 ha of the Development Envelope vegetation is considered to represent remnant native vegetation types, of which 6.2 ha is proposed to be cleared for this Proposal. A further 188.3 ha of mapped vegetation types within the Development Envelope are considered to have been previously cleared for agricultural use and comprise planted native Eucalypts and/or Callistemon sp., weeds and cropping species, except for the native grass *Austrostipa nunaginensis* (P3).

1.5.1.2.2 Threatened and Priority Ecological Communities

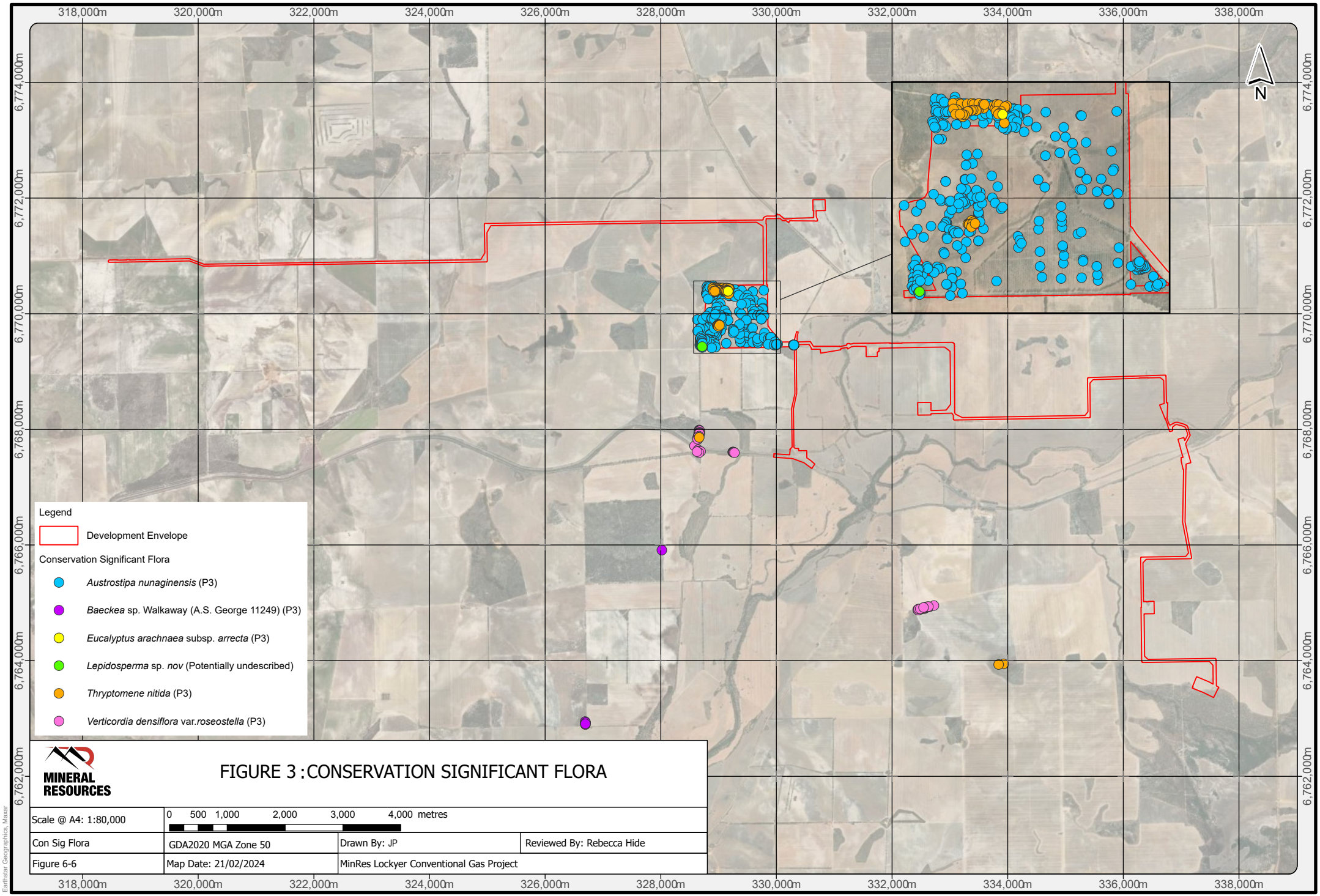
None of the vegetation types present within the Development Envelope represent any Threatened Ecological Communities (TECs) as listed under the *Biodiversity Conservation Act 2016* (BC Act) or Priority Ecological Communities (PECs) as listed by the Department of Biodiversity, Conservation and Attractions (DBCA).

1.5.1.2.3 Flora and Conservation Significant Flora Records

The Phoenix survey identified a total of 202 flora taxa within the survey area representing 51 families and 136 genera, while the JBS&G survey identified 260 flora taxa from 62 families and 168 genera. The most common families recorded in both surveys were *Myrtaceae, Fabaceae, Poaceae*, *Asteraceae* and *Proteaceae*.

No Threatened flora species listed under the EPBC Act, or the BC Act were recorded within the Development Envelope. Five Priority Flora species were recorded during the survey, of which one Priority 3 taxa, *Austrostipa nunaginensis*, was recorded within the Development Envelope. Records of *Eucalyptus arachnaea* subsp*. arrecta*, *Thryptomene nitida*, *Verticordia densiflora* var. *roseostella* (P3) and *Baeckea* sp. Walkaway (A.S. George 11249) (P3) have been avoided in final placement of the Development Envelope (**Figure 3**).

A Lepidosperma species that does not match any known species currently represented in the Western Australian Herbarium's Reference Collection was recorded within the CPF site. The species (*Lepidosperma* sp. nov) is potentially a new species that has not been described, however, the Herbarium was unable to identify it with any accuracy due to the disarray of Lepidosperma vouchers in the Research Collection (JBS&G 2024).



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1.5.1.2.4 Introduced Flora

A total 24 introduced (weed) flora species were recorded within the Development Envelope (JBS&G 2023 and Phoenix 2023).

Several patches of *Echium plantagineum* (Patterson's curse) were recorded within the Development Envelope. This species is listed as a Declared Pest under the *Biosecurity and Agricultural Management Act 2007* (BAM Act) and is common in agricultural areas. The largest area of infestation was recorded in the open paddock of the proposed CPF and had an estimated plant count of 10,000 individuals (JBS&G 2023).

A substantial infestation of *Rumex hypogaeus* (Double gee) was also noted as being present within the Development Envelope. This taxon is not a Declared Pest or WoNS but can be troublesome due to the spiny nature of its fruits and ability to spread (JBS&G 2023).

1.5.2 Terrestrial Fauna

1.5.2.1 Environmental Outcome or Management Objective/s

MinRes has invested considerable effort in the planning phase of the Proposal to exclude any areas of high fauna value as well as large trees from the Development Envelope wherever practicable through flowline/pipeline placement, CPF site and access road location and design. This approach, combined with proposed horizontal direct drilling under river crossings, has reduced the overall environmental impact of the Proposal such that the residual impacts the to the Terrestrial Fauna factor can be appropriately managed through the following outcome and objective-based provisions:

- No loss of fauna habitat outside of the Development Envelope
- No clearing of fauna habitat in excess of the area in the indicative Disturbance Footprint
- Minimise loss and fragmentation of fauna habitat within the Development Envelope
- Minimise the occurrence of injury, mortality, or displacement of conservation significant fauna
- Minimise species disturbance associated with noise, light and dust
- Minimise changes to the abundance of feral fauna species within the Development Envelope
- Minimise the risk for Proposal-initiated wildfire ignition

The rationale for these chosen provisions is provided in **Table 2,** and a description of the survey and study findings that occur within the Development Envelope that form the basis of the management approach to the Terrestrial Fauna factor are provided below.

1.5.2.2 Survey and Study Findings

1.5.2.2.1 Fauna habitats

Two broad terrestrial fauna habitat types were identified during the survey within the Development Envelope including:

- **Acacia shrublands**: dominated by mid to tall shrub cover of wattles, other Acacia and Kwongan species; includes scattered eucalypts, as well as Banksia spp.
- **Eucalyptus woodlands**: mixture of spaced and dense Eucalyptus trees (and few mallees) over some shrubs (degraded, weedy understorey). Includes a mixture of species that are native and non-native Eucalypts.

Non-native Plantations on previously cleared land were also mapped but were reported as having little to no value for fauna (Phoenix 2024).

Riparian zone fauna habitat was mapped within the broader survey area but does not occur within the Development Envelope.

1.5.2.2.2 Terrestrial fauna and conservation significant fauna records

A total of 51 terrestrial vertebrate species representing 30 families and 44 genre were recorded in the Development Envelope comprising one amphibian, five reptiles, 41 birds and four mammals (Phoenix 2024).

Of the 51 species of vertebrate fauna recorded, 46 species were native (Phoenix 2024). Evidence of one Threatened fauna species has been recorded within the Development Envelope; *Zanda latirostris* (Carnaby's Cockatoo). A further eight conservation significant fauna species are considered to potentially occur based on the proximity of nearby records and the presence of suitable habitat (Phoenix 2024), namely:

- *Aphelocephala leucopsis* (Southern Whiteface): Vulnerable (EPBC Act)
- *Apus pacificus* (Fork-tailed Swift): Migratory (EPBC and BC Act)
- *Falco peregrinus* (Peregrine Falcon): Other Specially Protected Fauna (BC Act)
- Migratory Waterbirds (EPBC and BC Act):
- *Actitis hypoleucos* (Common Sandpiper)
- *Calidris acuminata* (Sharp-tailed Sandpiper)
- *Calidris melanotos* (Pectoral Sandpiper)
- *Tringa nebularia* (Common Greenshank)
- *Tringa stagnatilis* (Marsh Sandpiper).

Due to the avian nature of these species and avoidance of potentially suitable riparian habitat via horizontal direct drilling under waterways, specific management for Fork-tailed Swift and Migratory Waterbirds is not considered necessary.

1.5.2.2.3 Carnaby's Cockatoo

The Development Envelope lies within the non-breeding range of Carnaby's Cockatoo (DAWE 2022). A total of 5.0 ha of suitable, low-quality foraging habitat was identified in the Development Envelope, comprising Acacia shrubland. The Acacia shrubland fauna habitat contained some suitable foraging species such as *Banksias*, *Hakeas*, and *Grevillea* present at some of the sites with density below 10% and other sites where the density was less than 2% (Phoenix 2024). Indirect evidence of the species in the form of chewed Banksia cones was observed at one site outside of the Development Envelope (Phoenix 2024) (Figure 4).

There is a total of 4.8 ha of suitable roosting habitat within the Development Envelope. One hollow of an appropriate size and angle to potentially be suitable for nesting cockatoos also occurs within the Development Envelope (Phoenix 2024; BCE 2024), however no evidence of hollow use by black cockatoos was recorded during any of the surveys and the closest known breeding buffer occurs over 35 km south-east of the Development Envelope, within the modelled breeding range of the species (DAWE 2022; Phoenix 2024; DBCA 2024). Given the foraging habitat in the Study Area is low quality at best, the foraging habitats present are unlikely to support breeding (BCE 2024).

1.5.2.2.4 SRE habitat

No SRE individuals were recorded within the Development Envelope and surveys found that the Development Envelope contains very limited suitable SRE habitat due to high levels of disturbance and low levels of vegetation complexity (Phoenix, 2024). The Acacia shrubland habitat within the Development Envelope is considered low-value habitat for SRE, as one site located within this habitat type contained habitat features conducive to SREs (i.e. a southern-facing rocky slope, litter-forming shrub vegetation and higher moisture levels), however, no Confirmed, Potential or Uncertain SREs were recorded at this location (Phoenix, 2024).

No other habitats were identified within the study area that are suitable for SRE invertebrates.

1.5.2.2.5 Introduced fauna species

Of the 51 species of vertebrate fauna recorded, five species were introduced. Introduced fauna species included:

- *Oryctolagus cuniculus* (Rabbit)
- *Canis familiaris* (Dog)
- *Vulpes vulpes* (Red Fox)
- *Dacelo novaeguineae* (Laughing Kookaburra)
- *Streptopelia senegalensis* (Laughing Turtle-Dove).

The presence of numerous introduced species reflects the degraded nature of the remnant vegetation occurring in the Study Area (Phoenix, 2024).

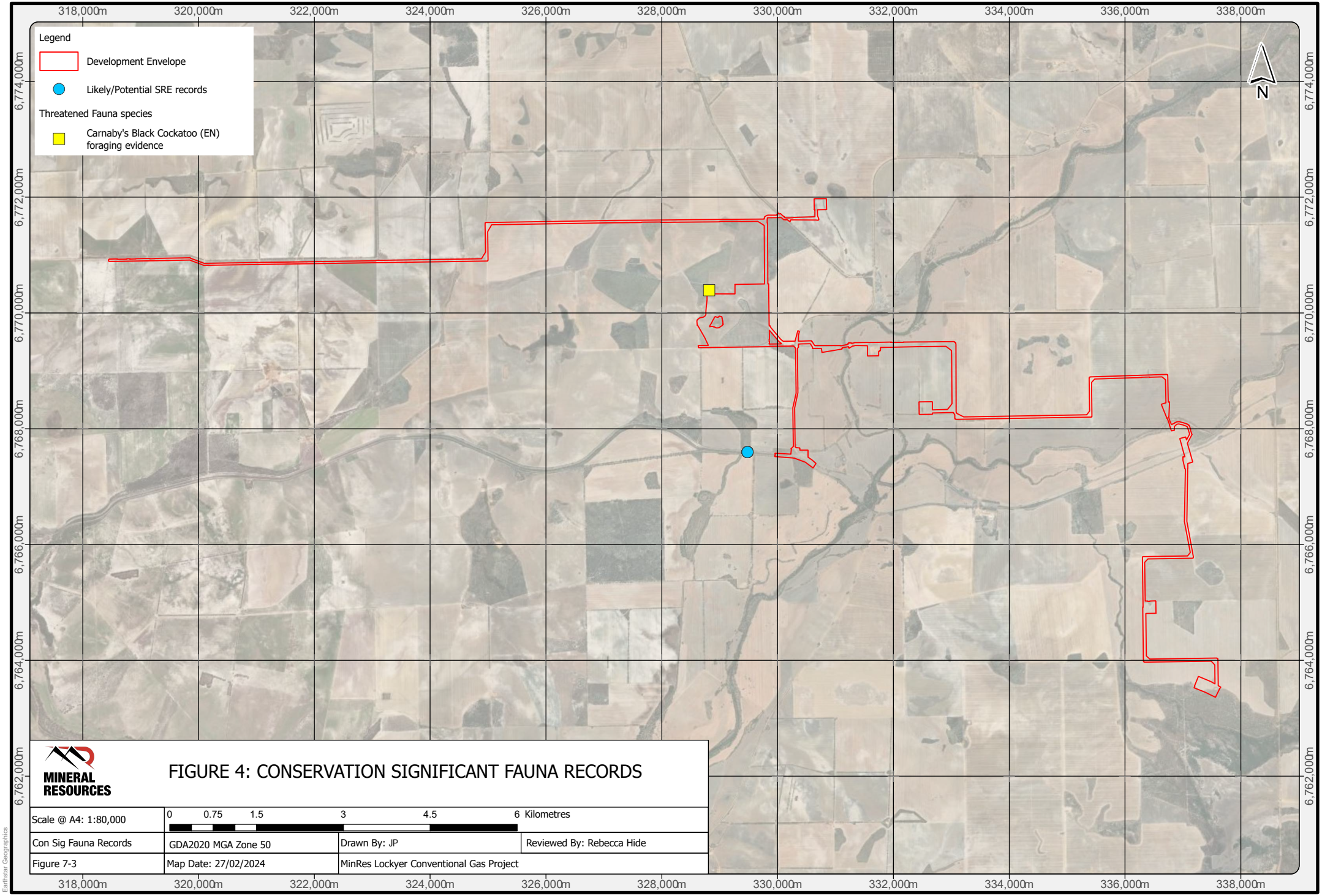

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FIGURE 4: CONSERVATION SIGNIFICANT FAUNA RECORDS

Scale @ A4: 1:80,000	0 0.75 1.5 3 4.5 6 Kilometres		
Con Sig Fauna Records	GDA2020 MGA Zone 50	Drawn By: JP	Reviewed By: Rebecca Hide
Figure 7-3	Map Date: 27/02/2024	MinRes Lockyer Conventional Gas Project	

Earthstar Geographics

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1.5.3 Inland Waters

1.5.3.1 Environmental Outcome or Management Objective/s

MinRes has located the CPF site away from major waterways and proposes horizontal direct drilling under river crossings as key measures for avoiding impacts to the Inland Water factor. This has reduced the overall environmental impact of the Proposal such that the residual impacts to the Inland Water factor can be appropriately managed through the following objective-based provisions:

- Minimise drawdown from groundwater abstraction impacting surrounding groundwater users
- Minimise alteration to surface water flows in the Irwin and Lockier rivers
- Minimise adverse changes to surface and groundwater quality.

The rationale for these chosen provisions is provided in **Table 2,** and a description of the survey and study findings that occur within the Development Envelope that form the basis of the management approach to the Inland Waters factor are provided below.

1.5.3.2 Survey and Study Findings

1.5.3.2.1 Surface Water

The Development Envelope is located within the Irwin River catchment, with the catchment covering a surface area of approximately 6,100 km^2.

The main surface water drainages in proximity to the Development Envelope are the Irwin River and the Lockier river, with the Lockier River acting as a tributary to the Irwin River. The confluence of the rivers is located approximately 3 km from the south-eastern boundary of the CPF site. From the convergence onwards, the Irwin River drains in a general westerly direction before discharging to the Indian Ocean at Dongara. Flows are generally highest during winter months.

Freshwater aquatic ecosystems associated with the Irwin and Lockier rivers are considered to represent a water-dependent ecosystem health value.

The Development Envelope is not within any surface water proclamation areas under the *Rights in Water and Irrigation Act 1914* (RiWI Act). No Ramsar wetlands, wetlands listed in the Directory of Important Wetlands in Australia, Conservation Category or Resource Enhancement Wetlands or Wild Rivers occur within a 20 km radius of the Development Envelope.

Surface water monitoring within the Lockier and Irwin Rivers in 2020 and 2023 indicated generally oxidising and brackish conditions, with circumneutral pH. When screened against the 95% species protection default guideline values for freshwater ecosystems that have been developed for slightly to moderately disturbed systems (ANZECC and ARMCANZ 2000; ANZG 2018), boron exceeded the criteria for all samples taken, indicating that this metalloid is naturally elevated in the Irwin and Lockier rivers. Apart from one exceedance of nitrate in October 2023, no other analytes that had reported concentrations above the laboratory limit of reporting exceeded the available default guideline values.

1.5.3.2.2 Groundwater

Groundwater in the region is mainly used for stock watering and domestic supply and is regulated through the Arrowsmith Proclaimed Groundwater Area under the RiWI Act. The near-surface sedimentary sequence within the Development Envelope is dominated by the Jurassic Yarragadee Formation, generally dipping eastwards. The area's major groundwater resource is the Yarragadee aquifer, with salinity increasing with depth and towards coastal zones.

Regional groundwater tables in the northern Perth Basin vary significantly and can be as deep as 181 m below ground level. Elevated groundwater levels in the region are generally seen near aquifer recharge points and surface water features such as rivers and tributaries, with structural geological features such as faults acting as aquifer boundaries.

Across the Development Envelope, the groundwater levels have been found to vary significantly, from approximately 7 m below ground level at the Lockyer Deep 1 well location (as measured at LD1-MB and LD1-PB in October 2023)

to approximately 70 m at North Erregulla Deep 1. Locally the Irwin and Lockier Rivers and associated tributaries have been found to act as groundwater recharge zones, with the water table deepening with distance away from the waterways. Water levels are generally shallower in bores located close to the Irwin River. Where the groundwater is closer to the ground surface along local waterways, groundwater is likely to contribute to supporting riparian ecosystems (HGG 2023).

A high potential for groundwater-dependent ecosystems has been identified in the lower Lockier River, spanning from east of Mingenew to the Irwin-Lockier River confluence (BoM, 2023). Further 'unclassified potential' for supporting GDEs has been identified in sections of the Irwin River both upstream and downstream of the Irwin-Lockier River confluence. These potential GDEs may support ecologically valuable systems for fauna and flora (HGG 2023).

Field measurements indicate that groundwater across the Development Envelope is generally reducing (little or no free oxygen) and slightly brackish to brackish with circumneutral pH. Given the identified groundwater use, collated groundwater chemistry data from laboratory analysis was screened against both livestock drinking water guidelines (ANZECC and ARMCANZ 2000) and the Australian Drinking Water Guidelines (NHMRC, 2011). Exceedances of the Drinking Water Guidelines were recorded for Ba, Ni and Mn. In all sampled locations except for one pastoral bore, total dissolved solids exceeded the 1,200 mg/L limit for drinking water purposes (NHMRC, 2011)

1.5.4 Social Surroundings

1.5.4.1 Environmental Outcome or Management Objective/s

MinRes have deliberately located the CPF at a low point in the landscape, away from roads and sensitive receptors, avoiding impacts to amenity. Culturally sensitive waterways will be avoided through the implementation of horizontal direct drilling under river crossings. These design measures have reduced the overall environmental impact of the Proposal so that the residual impacts to the Social Surroundings Factor can be appropriately managed through the following outcome and objective-based provisions:

- No impacts to known Aboriginal cultural heritage values from construction activities
- Minimise impacts of dust, noise, and light on local sensitive receptors.

The rationale for these chosen provisions is provided in **Table 2**, and a description of the survey and study findings that occur within the Development Envelope that form the basis of the management approach to the Social Surroundings factor are provided below.

1.5.4.2 Survey and Study Findings

1.5.4.2.1 Aboriginal Cultural Heritage

The Proposal is located within the Yamatji Nation Determination Area, with native title existing in selected parcels of land within the Determination Area. After the settlement agreement in 2020, the Yamatji Southern Regional Corporation Ltd (YSRC) was established, acting as the Regional Entity to implement a best-practice governance structure to manage the benefits of the Agreement on behalf of the native title holders. The Bundi Yamatji Aboriginal Corporation (BYAC), also established in 2020, is the Registered Native Title Body Corporate for the area. The native title holders comprise the peoples of Hutt River, Mullewa Wadjari, Southern Yamatji and Widi.

The Proposal site is located on freehold land where native title does not exist; however Aboriginal cultural heritage remains a relevant consideration. The Lockier and Irwin rivers are Department of Planning, Lands and Heritage (DPLH) listed culturally sensitive Aboriginal heritage places that intersect with the Development Envelope (sites 24382 and 18907 respectively). There were no new isolated artefacts or newly recorded heritage sites found within the Development Envelope.

1.5.4.2.2 Amenity

The proposed CPF site occurs in a rural area. Local residents are assumed to be most concerned about the amenity of the area, given their daily interaction with the landscape. Key sensitive receptors have been identified as local rural residences, of which there are 7 within approximately 5 km of the CPF. The closest residence to the CPF is located 1.2 km south of the CPF.

1.5.5 Terrestrial Environmental Quality

1.5.5.1 Environmental Outcome or Management Objective/s

Through the planning phase of the Proposal MinRes has avoided areas of environmental value that could be affected by changes to terrestrial environmental quality through considered flowline/pipeline placement and location of the CPF. This has reduced the overall environmental impact of the Proposal so that the residual impacts to the Terrestrial Environmental Quality Factor can be appropriately managed through the following objective-based provisions:

- Minimise the risk of contamination of soils from chemical or hydrocarbon spills.
- Minimise the occurrence of soil erosion on stockpiled materials, watercourse banks and areas of cleared vegetation.

The rationale for these chosen provisions is provided in **Table 2**, and a description of the survey and study findings that occur within the Development Envelope that form the basis of the management approach to the Terrestrial Environmental Quality factor are provided below.

1.5.5.2 Survey and Study Findings

The Development Envelope falls within the Arrowsmith soil landscape zone, comprising dissected lateritic sandplain on Cretaceous and Jurassic sediments. Soils are sandy and gravelly, formed in colluvium and rock weathered in-situ. The predominant soil land system in the region (Mount Horner System [224Mh]) is described as long gentle slopes broken by low gravel ridges and broad open depressions.

Within the CPF site, the geotechnical survey found that most of the site comprises yellow quartzose sand with silt overlying clayey sands to a depth of 2.0 m. This is consistent with the general descriptions for the Mount Horner system, which identify the soils of the long gentle slopes as mainly pale and yellow deep sands, with areas of ironstone gravel.

Within the alluvial plains of the Irwin and Lockier Rivers, red sandy earth predominates, with areas of yellow/brown shallow sandy duplexes and small areas of hard-cracking clay.

Acid Sulphate Soil (ASS) risk mapping found that the Development Envelope is not within an ASS risk area. The geology and soil types are consistent with low ASS risk. Further, given the rural location of the Development Envelope and surrounding broadacre agricultural land use, the potential for existing contamination is low. The geotechnical assessment for the CPF site did not identify any evidence of asbestos, hydrocarbon contamination or uncontrolled fill materials at this location.

1.5.6 Key Assumptions and Uncertainties

The information provided in this CEMP relies on the accuracy and adequacy of the information and methods provided in the investigations and studies undertaken for the Proposal. Several assumptions were made during the development of the mitigation measures to address impacts to environmental factors. These are outlined below:

- Investigations and studies have adequately and accurately:
- Identified the environmental values present within and surrounding of the Development Envelope
- Reported the distribution and status of conservation significant fauna and flora
- Undertaken surveys when conditions were ideal for recording conservation significant fauna and flora species, unless specified otherwise
- Identified all fauna and flora species correctly
- Described local and regional surroundings to enable accurate determination of potential direct and indirect impacts
- Captured the occurrence of sensitive receptors in the surrounding landscape
- Applicable surveys have been completed as per relevant technical guidance survey methods for flora and vegetation and terrestrial vertebrate fauna, unless specified otherwise.
- Investigations and studies have provided suitable descriptions of the findings.
- The likelihood and severity of predicted impacts is accurate and complete.

- ASS is unlikely to be encountered within the Development Envelope during construction.
- Avoidance and protection of fauna habitat will in turn result in the protection of conservation significant fauna within associated habitats.

Several key uncertainties were also identified during the development of these mitigation measures, including:

- Actual characteristics of the subsurface materials and conditions (including groundwater levels and soil characteristics), which can vary significantly between test points and sample intervals.
- It is also assumed that even targeted surveys will not record every individual of a conservation significant species and therefore the known records are considered to represent the lower limits of actual populations present.

1.5.7 CEMP Management Approach

A hybrid objective-based and outcome-based management plan, as defined under EPA 2021 Guidance, will be implemented to ensure that outcomes and objectives of direct and indirect impacts on environmental factors are not greater than predicted. The Proponent has prioritised management provisions using a risk-based approach informed by best management practice and industry standards, intending to ensure the risks of secondary or indirect impacts are minimised, typically to the level of 'as low as reasonably practicable' (ALARP). Triggers for early response and adaptive management have been prepared to further ensure the management objectives for each factor are achieved and performance is continually improved. Management actions (safeguards and controls) and performance targets have been assigned to ensure the associated objectives are achieved.

This CEMP incorporates both outcome-based and objective-based management measures to ensure the full inclusion of each environmental factor aspect and achieve the proposed environmental outcomes and objectives. Moreover, this CEMP considers the conservation significance of the environmental value (receptor) based on conservation status at local, state, and regional levels.

Table 2 lists the environmental values and threatening processes that are the main scope of this CEMP, as well as the rationale for their inclusion.

Table 2: Rationale for Provisions of Environmental Factors

Environmental Factor	Environmental Aspect	Management Provisions	Rationale for Provision
Flora and Vegetation	Weed and hygiene management	Objective-based	Objective-based management provisions have been adopted to ensure correct hygiene management measures are in place to minimise the introduction and spread of weeds. As part of this contractors will be required to observe if there are any increases in weeds through observations and record and report the opportunistic sightings. This provision has been chosen given that the Proposal is already located within a highly disturbed area with many weed species already present. Due to the degraded nature of the Development Envelope, absence of adjoining areas of high quality vegetation and difficulty of mapping Dieback occurrence in this type of environment, specific management and monitoring measures for Dieback have not been included in this CEMP. The Proposal is unlikely to increase the existing risk of introduction of Dieback into adjacent areas of remnant native vegetation.
Flora and Vegetation and Terrestrial Fauna	Land disturbance – vegetation/habitat clearing	Outcome-based and Objective-based	Inadvertent clearing beyond that which is approved may lead to reducing the conservation significant flora population sizes and fauna habitats. Land clearing is required to be effectively managed and have the commitment from senior management through to site operators and the Environment Department (ED). Both outcome-based and objective-based management provisions have been adopted as disturbance limits are a measurable target and management actions are required to mitigate further impact from clearing.
Flora and Vegetation and Terrestrial Fauna	Fire prevention and response	Objective-based	Bushfires could cause widespread damage and loss of native vegetation and flora and present a significant safety issue to construction sites and therefore must be protected against. Objective-based management provisions have been adopted as the risk of accidental fires may not be able to be completely avoided and it is important to minimise the risks with management practices.
Terrestrial Fauna	Direct fauna mortality or injury	Objective-based	Objective-based provisions have been adopted for direct fauna mortality from clearing activities/vehicle strike/ trenching activities as the risk of fauna mortality from construction activities is considered low and can be effectively managed through robust management practices and opportunistic monitoring.
Terrestrial Fauna	Feral fauna	Objective-based	Objective-based provisions have been adopted to minimise the potential for an increase in the abundance of feral fauna species as whilst hygiene management measures can be in place to minimise the possibility of feral species increase, feral species increase cannot entirely be avoided given the highly disturbed nature of the area and the existing presence of feral animals.
Flora and Vegetation, Terrestrial Fauna, and Social Surroundings	Dust, light, and noise management	Objective-based	Objective-based provisions have been adopted to minimise the impact of dust, light and noise emissions as robust management actions will effectively mitigate impacts from dust, light and noise emissions given the short time frame associated with construction activities.
Inland Waters	Groundwater drawdown management	Objective-based	Objective-based provisions have been adopted for drawdown to minimise the drawdown level. All water use will be authorised by DWER under the RiWI Act, with licences issued in accordance with the capacity and availability of the resource. Matters considered in issue of a licence include ecological sustainability and environmental acceptability. It is anticipated that a licence would require abstraction bores to be metered and routinely monitored and reported to DWER as per licence conditions.
Inland Waters	Surface water flow management	Objective-based	Objective-based provisions have been adopted for water flow alterations in the Irwin and Lockier Rivers due to the relatively small disturbance area. The risk to surface water flows is therefore considered to be effectively managed through robust management actions.
Inland Waters	Surface and groundwater quality management	Objective-based	Objective-based provisions have been adopted for water quality due to the relatively small disturbance area. Robust management practices will reduce the risks of contamination and changes to water quality.
Social Surrounds	Heritage management	Outcome-based	Outcome-based management provisions have been adopted to ensure no heritage sites are impacted by construction. The Proposal will avoid impacts on the Irwin and Lockyer Rivers through horizontal directional drilling. Heritage Management can be outcome-based as impacts to cultural sites can be measured.
Terrestrial Environmental Quality	Erosion management	Objective-based	Objective-based provisions have been adopted for erosion, as erosion and sediment controls/management actions are key in minimising the risk from erosion.
Terrestrial Environmental Quality	Chemical and hydrocarbon management	Objective-based	Objective-based provisions have been adopted for the risks to terrestrial environmental quality from chemical and hydrocarbon spills, as robust chemical and hydrocarbon management actions are key in minimising the risk of contamination.

2. LEGISLATIVE CONTEXT

The following sections detail the legislative framework within which the Proposal will operate.

2.1 *Environmental Protection Act 1986* (EP Act)

The EP Act is the primary legislation that governs environmental impact assessment and protection in Western Australia.

The aim of this Act is to prevent, control and abate environmental pollution for the conservation, preservation, protection, enhancement, and management of the environment. Authorities under this Act include the Department of Water and Environmental Regulation (DWER) and the Environmental Protection Authority (EPA).

The Proposal is being assessed under Part IV of the EP Act which provides for the referral and assessment of proposals that may or will, have a significant impact on the environment.

2.2 Petroleum and Geothermal Energy Act 1967 / Petroleum Pipelines Act 1969 and associated Environment regulations

All onshore petroleum exploration, development, and production activities (including intra-connected flowlines) are subject to the PGER Act and associated regulations, administrated by the State Government through the Department of Energy, Mines, Industry Regulation and Safety (DEMIRS), while the *Petroleum Pipelines Act 1969* (PP Act) applies to construction, operation, and maintenance of petroleum transmission pipelines on land within the State.

The objectives of the Environment regulations associated with the PGER and PP Act are to ensure that any petroleum activities are carried out in a manner consistent with the principles of ecologically sustainable development and are being carried out in accordance with an Environment Plan and an Oil Spill Contingency Plan. All petroleum activities within the State are to be undertaken in accordance with these plans, which will have appropriate risk based environmental performance objectives and standards and provide criteria for determining whether the objectives and standards are met. The management measures outlined within this supporting document will be mirrored within the Environment Plan or Oil Spill Contingency Plan as appropriate.

2.3 Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act provides a legal framework for the protection of Matters of National Environmental Significance (MNES). As such it requires all actions that will or may have a significant impact on a protected matter to be referred to the Minister for the Environment. The EPBC Act is administrated by the Department of Climate Change, Energy, the Environment and Water (DCCEEW).

No referral under the EPBC Act is considered necessary for the Proposal.

2.4 Other Approvals

Other environmental approvals and regulations relevant to the Proposal are outlined in **Table 3**.

Table 3: Associated environmental legislation and other requirements

Decision-making Authority	Legislation or Agreement regulating the activity	Approval required
Department of Energy, Mines, Industry Regulations and Safety (DEMIRS)	PP Act and PP (Environment) Regulations 2012	Licence to construct and operate a petroleum pipeline
	PGER Act and PGER (Environment) Regulations 2012	Permits to undertake petroleum exploration Production Licences

	Dangerous Goods Safety Act 2004 (DGS Act)	License for the appropriate storage and handling of Dangerous Goods
DBCA	BC Act	Licensing associated with fauna and flora surveys and research, including fauna handling licences
Environmental Protection Authority	EP Act Part IV	Environmental Approval for Minor or Preliminary Works
DWER	EP Act Part V Environmental Protection Regulation 1987	Works approvals and operating licences for prescribed activities Native vegetation clearing permit
	EP Act Part V Environmental Protection (Clearing of Native Vegetation) Regulations 2004	Native vegetation clearing permit
	RIWI Act	26D licence to construct a well 5C licence to take groundwater
DPLH	*Aboriginal Heritage Act 1972* (AH Act)	Section 16 authorisation to enter, excavate, examine, or remove anything on an Aboriginal site (if required) Section 18 consent for impact on an Aboriginal site (if required)
DPIRD	*Biodiversity and Agriculture Management Act 2007*	Includes obligations for the management of declared weeds within WA and the need for the identification and management of weed species. Declared weeds may occur along the pipeline route or in the plant area and requires management and landholder

3. ENVIRONMENTAL MANAGEMENT PLAN COMPONENTS

This section of the CEMP identifies the provisions that MinRes proposes to implement, to reduce residual impacts on environmental factors associated with the Proposals construction. This section identifies management actions that will be implemented to mitigate and manage potential impacts to the following environmental factors:

- Flora and Vegetation
- Terrestrial Fauna
- Inland Waters
- Social Surroundings
- Terrestrial Environmental Quality.

Management and monitoring provisions have been split into outcome-based (**Section 3.1**), where a specific measurable outcome incorporating threshold and trigger criteria are proposed, and objective-based (**Section 3.2**), relating to the achievement of desired management targets/objectives.

3.1 Outcome-based management measures

3.1.1 Flora and Vegetation

Table 4 outlines the rationale for the proposed outcomes-based management indicators, actions and monitoring for Flora and Vegetation.

Table 4: Flora and Vegetation - Outcome-based Management

EPA Factor	Flora and Vegetation
EPA Objective	*To protect flora and vegetation so that biological diversity and ecological integrity are maintained*
Environmental Values	Native vegetation communities, and the flora they support Priority flora populations
Key Impacts	Clearing of 6.2 ha of remnant native vegetation within the Development Envelope
Key Risks	**Direct impacts:** • Loss of native vegetation due to clearing • Loss of conservation significant flora species due to clearing • Loss of local or regionally significant vegetation due to clearing **Indirect impacts:** • Increased dust deposition • Increased fragmentation of native vegetation • Accidental bushfires due to construction activities • Introduction and/or spread of weeds.

Outcome	Indicators (Trigger Criteria / Threshold Criteria)	Response Actions (Trigger level actions / Threshold contingency actions)	Monitoring	Timing / Frequency of Monitoring	Reporting
• No clearing outside of the Development Envelope • Total clearing area not to exceed that of the indicative Disturbance Footprint.	**Trigger criterion:** • Clearing of remnant native vegetation is within 10% of the threshold criterion (more than 5.6 ha). **Threshold criterion:** • Clearing of remnant native vegetation exceeds 6.2 ha. • Clearing occurs outside the Development Envelope	**Trigger level actions:** • Review clearing requirements and undertake a critical review of LAP planning, assessment, and implementation. **Threshold contingency actions:** • Immediately cease clearing activities. • Advise relevant government agencies of non-compliance if confirmed. • Identify the cause of non-compliance and undertake a critical review of LAP planning, assessment, and implementation. • Rehabilitation of cleared areas outside of approved extent, in consultation with relevant government agencies, including setting of objectives, targets and monitoring measures. • Implement an appropriate biosecurity plan in relation to the Activities to minimise the risk of any spread of weeds and pests as a result of the Activities. Additional measures will be included a required under private land access agreements.	• Undertake a post-clearing survey of LAP and any associated conditions.	• Monthly during active clearing. • Monthly review of incident reporting.	• Inspections and audits. • MinRes incident classification and reporting procedures • Annual Compliance Report (ACR).

3.1.2 Terrestrial Fauna

Table 5 outlines the rationale for the proposed outcomes-based management indicators, actions, and monitoring for Terrestrial Fauna.

Table 5: Terrestrial Fauna - Outcome-based Management

EPA Factor	Terrestrial Fauna
EPA Objective	To protect terrestrial fauna so that biological diversity and ecological integrity are maintained.
Environmental Values	• Fauna habitat and the fauna it supports • Conservation significant fauna individuals
Key impacts	Clearing of 11.8 ha of fauna habitat within the Development Envelope.
Key Risks	**Direct impacts:** • Loss and fragmentation of fauna habitat • Injury, mortality, or displacement of conservation significant fauna. **Indirect impacts:** • Disturbance to native fauna from dust, light, noise and dust • Degradation of fauna habitats as a result of: – increased competition or predation by feral fauna – increased risk of bushfires.

Outcome	Indicators (Trigger Criteria / Threshold Criteria)	Response Actions (Trigger level actions / Threshold contingency actions)	Monitoring	Timing / Frequency of Monitoring	Reporting
• No loss of fauna habitat outside of the Development Envelope • No clearing of fauna habitat in excess of the area in the indicative Disturbance Footprint	**Trigger criterion:** • Clearing is within 10% of threshold criterion (more than 10.6 ha). **Threshold criterion:** • Clearing of fauna habitat exceeds 11.8 ha. • Clearing occurs outside of Development Envelope.	**Trigger level actions** • Review clearing requirements and undertake a critical review of LAP planning, assessment, and implementation. **Threshold contingency actions** • Immediately cease clearing activities. • Advise relevant government agencies of non-compliance if confirmed. • Identify the cause of non-compliance and undertake a critical review of LAP planning, assessment, and implementation. • Rehabilitation of cleared areas outside of approved extent, in consultation with relevant government agencies, including setting of objectives, targets and monitoring measures.	• Undertake a post-clearing survey of LAP and any associated conditions, including progressive rehabilitation. • Record any incidents, including encounters and observations of conservation significant fauna.	• Monthly during clearing boundary inspections. • Monthly review of incident reporting.	• Inspections and audits. • MinRes incident classification and reporting procedures • ACR.

3.1.3 Social Surroundings

Table 6 outlines the rationale for the proposed outcomes-based management indicators, actions, and monitoring for Social Surroundings – Aboriginal Heritage.

Table 6: Social Surroundings - Aboriginal Heritage - Outcome-based Management

EPA Factor/s	Social Surroundings
EPA Objective/s	To protect social surroundings from significant harm
Environmental Values	Aboriginal cultural heritage
Key Impacts	None predicted
Key Risks	Discovery of sub-surface cultural material Unauthorised access and/or damage to heritage sites

Outcome	Indicators (Trigger Criteria / Threshold Criteria)	Response Actions (Trigger level actions / Threshold contingency actions)	Monitoring	Timing / Frequency of Monitoring	Reporting
• No impacts to known Aboriginal cultural heritage values from construction activities	**Trigger criterion** • Discovery of any potential sub-surface Aboriginal cultural material**.** **Threshold criterion** • Disturbance to identified heritage site as a result of the Proposal construction.	**Trigger level actions** • On discovery of any potential sub-surface Aboriginal cultural material, the Proponent commits to management actions outlined in the 'Site Discovery Procedure' including ceasing the work immediately until further arrangements for re-commencement of work is determined. The Proposals Project Manager has to be notified. **Threshold contingency actions** • The Proponent will initiate a critical review of LAP. • If there is any disturbance to known Aboriginal cultural heritage values during construction activities.	• Compliance audits and inspections. • Traditional Owner Monitoring during: – Topsoil clearing sites where the pipeline intersects DPLH sites 18907 and 24382, the CPF location and future well pads. – Directional drilling locations associated with the Irwin and Lockier river crossings. – Areas where subsurface aboriginal cultural heritage is discovered during construction.	• As required throughout the construction period.	• MinRes incident classification and reporting procedures • Provide Proposal data and technical information to the relevant Traditional Owners. • ACR.

3.2 Objective-based management measures

3.2.1 Flora and Vegetation

Table 7 outlines the rationale for the proposed objective-based management indicators, actions and monitoring for Flora and Vegetation.

Table 7: Flora and Vegetation - Objective-based Management

EPA Factor/s	Flora and Vegetation
EPA Objective/s	*To protect flora and vegetation so that biological diversity and ecological integrity are maintained*
Environmental Values	• Native vegetation communities, and the flora they support • Priority Flora populations
Key Impacts	Clearing of 6.2 ha of remnant native vegetation within the Development Envelope.
Key Risks	**Direct impacts:** • Loss of native vegetation due to clearing • Loss of conservation significant flora species due to clearing • Loss of local or regionally significant vegetation due to clearing **Indirect impacts:** • Increased dust deposition • Increased fragmentation of native vegetation • Accidental bushfires due to construction activities • Introduction and/or spread of weeds

Management Target	Management Action	Monitoring	Timing / Frequency of Monitoring	Reporting	Contingency Action if Target(s) not Met
• Clearing and fragmentation of native vegetation is minimised	• All relevant personnel and contractors will be inducted on land disturbance and vegetation clearing management, including: – Significant vegetation and flora. – Demarcation of 'No-go' areas. – Clearing boundaries. – Requirements for LAP. • A LAP Procedure will be used for all land clearing activities to avoid impact on priority flora populations and ensure clearing within approval boundaries. • Clear demarcation of proposed clearing areas prior to the commencement of any clearing, including but not limited to flagging and signage.	• Undertake pre and post-clearing survey of LAP and any associated conditions. • Inspection of conservation significant flora populations and significant vegetation communities.	Pre and post clearing boundary inspections.	• MinRes LAP. • Impact Reconciliation Report. • MinRes incident classification and reporting procedures. • ACR.	• Advise relevant government agencies of any impact to conservation significant flora outside of the approved disturbance area to determine appropriate mitigations. • Identify cause of non-compliance and undertake critical review of LAP planning, assessment, and implementation. • Rehabilitation of cleared areas outside of approved areas, in consultation with relevant government agencies, including setting of objectives, targets and monitoring measures.
• Indirect impacts to vegetation and flora are minimised.	**Dust** • Ensuring vehicles importing material with dust emitting loads are covered (except when loading and unloading). • Sealing of roads within the CPF site, and between the CPF and Midlands Road (subject to Shire approvals). • Maintaining a low speed environment on unsealed roads and right of way within the CPF site. • Minimising time between clearing and grading or trenching and backfill/reinstatement. • Application of water or stabilisers via water trucks and sprayers to dampen down soil as required. • Limiting topsoil stockpile height to less than 2m in height • Potential use of dust stabilisers, water, tarps, geo-textile materials and/or hydro-mulch (with or without seed) to suppress dust from stockpiles.	• Inspection of visible dust accumulation • Environmental Compliance Inspections	Opportunistically during construction	• Inspections and audits • Impact Reconciliation Reports. • MinRes incident classification and reporting procedures • ACR.	• Advise relevant government agencies of non-compliance if confirmed; • Identify cause of non-compliance and undertake critical review of LAP planning, assessment, and implementation.

Management Target	Management Action	Monitoring	Timing / Frequency of Monitoring	Reporting	Contingency Action if Target(s) not Met
	Weeds • Visual inspection of the pipeline and CPF for the occurrence of WoNs or Declared Pests. • Recording and reporting of opportunistic sightings of WoNs or Declared Weed species within the Development Envelope. • Implementation of appropriate weed controls to manage the occurrence of and WoNS or Declared Pests recorded within the Development Envelope. • Implement an appropriate biosecurity plan in relation to the Activities to minimise the risk of any spread of weeds and pests as a result of the Activities. Additional measures will be included a required under private land access agreements.	• Visual inspection of the pipeline and CPF for the occurrence of WoNs or Declared Pests. • Recording of opportunistic sightings of WoNs or Declared Weed species within the Development Envelope	• Prior to construction (baseline Declared Pests and WoNS occurrence mapping); and • Every two years post-construction;	• Inspections and audits • Min Res incident reporting procedures • ACR	• Review and revise hygiene measures including; ○ Establish additional weed hygiene check points. ○ Additional criteria for vehicle inspections and wash-down. ○ Increased frequency of weed control. ○ Increased frequency of monitoring.

3.2.2 Terrestrial Fauna

Table 8 outlines the rationale for the proposed objective-based management indicators, actions, and monitoring for Terrestrial Fauna

Table 8: Terrestrial Fauna - Objective-based Management

EPA Factor/s	Terrestrial Fauna
EPA Objective/s	To protect terrestrial fauna so that biological diversity and ecological integrity are maintained.
Environmental Values	• Fauna habitat and the fauna it supports • Conservation significant fauna individuals
Key Impacts	Clearing of 11.8 ha of fauna habitat within the Development Envelope.
Key Risks	**Direct impacts:** • Loss and fragmentation of fauna habitat • Injury, mortality, or displacement of conservation significant fauna. **Indirect impacts:** • Disturbance to native fauna from dust, light, noise and dust • Degradation of fauna habitats as a result of: – increased competition or predation by feral fauna – increased risk of bushfires.

Management Target	Management Action	Monitoring	Timing / Frequency of Monitoring	Reporting	Contingency Action if Target(s) not Met
• Minimise loss and fragmentation of fauna habitat within Development Envelope.	• All relevant personnel and contractors will be inducted on land disturbance and vegetation clearing management, including: – Significant fauna. – Demarcation of No-go' areas. – Clearing boundaries. – Requirements for LAP. • A LAP Procedure will be used for all land clearing activities to avoid impact on significant fauna and ensure clearing within approval boundaries. • Clear demarcation of proposed clearing areas will occur prior to the commencement of any clearing, including but not limited to flagging and signage. • Horizontal directional drilling will occur at river crossings.	• Undertake post-clearing survey of LAP and any associated conditions, including Progressive rehabilitation; and • Environmental Compliance Inspections	• Monthly during active clearing; and • Monthly review of incident reporting.	• Induction records; • Inspections and audits; • MinRes incident classification and reporting procedures • ACR	• Advise relevant government agencies of non-compliance if confirmed; • Identify cause of non-compliance and undertake critical review of LAP planning, assessment, and implementation; and • Rehabilitation of cleared areas outside of approved areas, in consultation with relevant government agencies, including setting of objectives, targets and monitoring measures.

Management Target	Management Action	Monitoring	Timing / Frequency of Monitoring	Reporting	Contingency Action if Target(s) not Met
Minimise the occurrence of injury, mortality, or displacement of conservation significant fauna	• Clearing will occur in the direction of adjacent retained vegetation to allow fauna to move to retained areas. • An experience fauna handler will be on site during vegetation clearing activities. • Maintaining a low speed environment on unsealed roads and right of way within the CPF sit. • Trenches and borrow pits will include appropriate design to enable fauna egress. • Fauna exit ramps will be installed every 100 m of trench at a minimum. • Fauna shelters will be installed every 100 m between exit ramps if open trench lengths exceed 500 m. • Pipes will be inspected prior to welding and observed fauna removed. • All open trenches will be inspected within half an hour prior to backfilling and any entrapped fauna cleared by a fauna handler before backfilling can be completed. • Trench inspections will be undertaken twice daily during construction to identify any trapped fauna species. Open trenches will be checked less than three hours after sunrise and before commencement of any construction to detect and safely remove trapped terrestrial fauna. • Any fauna capture, handling and relocation will be conducted in accordance with DBCA Parks and Wildlife Service Standard Operating Procedures, by a trained fauna handler.	• Record any incidents, including encounters and observations of conservation significant fauna. • Monitoring of incident reporting for records involving terrestrial and migratory conservation significant fauna • Environmental Compliance Inspections.	• Monthly review of incident reports. • Daily Fauna spotter monitoring/inspection. • Twice daily trench inspections.	• Inspections and audits; • Fauna sighting and incident reporting. • MinRes incident classification and reporting procedures • ACR.	• Critical review of incident reporting/monitoring records to determine whether further mitigation requirements are required. • If conservation significant species are observed, they will be given the opportunity to move from the work area. If the conservation significant species will not move away from the work area, clearing will either be delayed or they will be relocated by a trained fauna handler, in consultation with DBCA as required. • If trench inspections note increased numbers of conservation significant species injury or death, trench inspections frequency will be increased to twice daily
Minimise species disturbance associated with noise, light and dust.	• Lighting will be designed to minimise light pollution to surrounding areas including no permanent use of flood lighting except where required to meet safety standards. • Excessive dust will be minimised through: – sealing of roads within the CPF site, and between the CPF and Midlands Road (subject to Shire approvals). – using water or stabilisers via water trucks and sprayers to dampen down soil as required. – limiting topsoil stockpile heights to less than 2m. • use of dust stabilisers, water, tarps, geo-textile materials and/or hydro mulch (with or without seed) to suppress dust from stockpiles (where applicable).	• Inspection of visible dust accumulation. • Environmental Compliance Inspections. • Interaction of birds with lighting.	• Opportunistic dust monitoring during construction. • Opportunistic bird observations.	• Inspections and audits; • MinRes incident classification and reporting procedures • ACR.	• Advise relevant government agencies of any impacts to conservation significant fauna outside of approved disturbance areas to determine appropriate mitigation/offset requirements. • If bird interaction records identify vulnerability of certain species or certain areas of the Development Envelope experience higher interactions with birds, determine measures to reduce light intensity and frequency.
Minimise changes to the abundance of feral fauna species within the Development Envelope.	• Keep the Proposal area clean and tidy by depositing litter and waste into appropriate litter or recycling bins at nominated waste collection areas. • Recording of feral animal sightings during construction. If feral animal numbers increase (during construction), targeted control measures will be undertaken (including management of putrescible waste, removal of temporary water sources).	• Review of incident reports. • Feral animal sighting records.	• Opportunistically during construction. • Monthly review of incident records.	• Inspections and audits; • MinRes incident classification and reporting procedures • ACR	• If opportunistic feral fauna sighting records show an increase in fauna occurrence over an extended period during construction, investigate cause and establish further mitigation measures including: – Targeted control measures in consultation with DBCA; and / or – Staff training and reinduction if measures are not implemented or incident reporting indicates management processes are not being followed, i.e., access to no-go zones

3.2.3 Fire Management

Table 9 outlines the rationale for the proposed objective-based management indicators, actions, and monitoring for Fire Management.

Table 9: Fire Management - Objective-based Management

EPA Factor/s	Flora and Vegetation & Terrestrial Fauna
EPA Objective/s	To protect flora and vegetation so that biological diversity and ecological integrity are maintained. To protect terrestrial fauna so that biological diversity and ecological integrity are maintained.
Environmental Values	Priority Flora populations and vegetation communities and terrestrial conservation significant fauna occurring within the Proposal
Key Impacts and Risks	Accidental ignition of fire by the construction activities of the Proposal

Management Target	Management Action	Monitoring	Timing / Frequency of Monitoring	Reporting	Contingency Action if Target(s) not Met
Minimise the risk for Proposal initiated wildfire ignition	• Ensure fire extinguishers are available on all mobile equipment and at all work locations. • Fit water trucks with high pressure monitors and pumps for fire management where required. • Store flammable and combustible materials appropriately and segregate them from ignition sources, in accordance with AS1940:2017. • Develop and submit a hot work permit procedure to the Manager Environment and ensure it is approved prior to commencing on site. The permit will include the following requirements: – Risk assessment to be completed before commencement of any hot work; – Exemptions sought from Bushfires Act 1954 for hot work on fire ban days; and – Daily weather check for fire ban status prior to conducting hot works. • Equip fire control equipment in fire-risk areas including but not limited to hazardous material storage areas, hot works areas and service trucks. • Ensure adequate numbers of personnel trained with basic fire awareness, fire response and use of fire suppression equipment to be on site at all times during the Project. • Restrict open fires on site at any time. • Liaise regularly with the local government authorities regarding fire danger status. • Maintain hot machinery only in designated cleared areas whenever possible. • Check vehicle undersides regularly (e.g., at daily pre-starts etc.) for any material stuck around the exhaust system, and any identified material removed.	• Inspection of firefighting equipment to ensure availability and compliance with fire safety standards. • Inspection of hazard/incident records. • Inspection of permit to work system records.	As required.	• Report all hazard/ incidents and all inspections undertaken. • Inspections and audits. • MinRes incident classification and reporting procedures • ACR.	• MinRes Emergency Response and Hot Work permit procedures will be reviewed.

3.2.4 Inland Waters

Table 10 outlines the rationale for the proposed objective-based management indicators, actions, and monitoring for Terrestrial Fauna

Table 10: Inland Waters - Objective-based Management

EPA Factor/s	Inland Waters
EPA Objective/s	To maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected.
Environmental Values	Inland Waters support the following environmental values • Water dependent ecosystems and the habitat and species they support • Amenity • Other water users
Key Impacts and Risks	• Increased drawdown from groundwater abstraction impacting surrounding groundwater users and/or groundwater dependent ecosystems • Alteration of surface water flows due to site earthworks and layout • Reduction of quality of surface water in the Irwin and Lockier rivers due to site construction works and earthworks exposing underlying soil followed by increased erosion and sediment load • Adverse changes to the quality of surface water in the Irwin and Lockier rivers and groundwater in the Proposal area due to leaks and spills of fuel and other hazardous chemicals used during construction activities

Management Target	Management Action	Monitoring	Timing / Frequency of Monitoring	Reporting	Contingency Action if Target(s) not Met
Minimise drawdown from groundwater abstraction impacting surrounding groundwater users	• Groundwater abstraction will be undertaken in accordance with conditions set out in a 5C licence. • Abstraction bores will be metered and routinely monitored, with abstraction volumes to be reported to DWER as per licence conditions. • Local monitoring bores to be routinely monitored for groundwater levels and reported against site specific trigger levels.	As per 5C licence conditions	As per 5C licence conditions	As per 5C licence conditions	• Advise relevant government agencies of non-compliance if confirmed; and • Identify cause of non-compliance and undertake critical review of management actions, plan and assess suitability of alternative actions and then implement them.
Minimise alteration to surface water flows in the Irwin and Lockier Rivers	• Undertake horizontal directional drilling under Lockier and Irwin Rivers. • Design stockpiled material, earthworks, and excavations to reduce alterations to natural stormwater runoff.	Visual inspections for pooling or unseasonal stagnation.	Daily during construction of pipeline underneath river and monthly thereafter during construction.	• Inspections and audits • MinRes incident classification and reporting procedures • ACR	• Advise relevant government agencies of non-compliance if confirmed; and • Identify cause of non-compliance and undertake critical review of management actions, plan and assess suitability of alternative actions and then implement them.

Management Target	Management Action	Monitoring	Timing / Frequency of Monitoring	Reporting	Contingency Action if Target(s) not Met
Minimise adverse changes to surface and groundwater quality	• Incorporate erosion and sediment controls during construction activities. • During earthworks, conduct routine inspections of stormwater pathways for sediment load. • Standard operating procedures will be implemented for handling and use of hazardous materials. Risks associated with the storage and handling of chemicals and hazardous materials will be regulated and managed under the Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007. An Emergency Response Plan (ERP) and an OSCP will be prepared, approved by DEMIRS, and implemented. Key provisions will include: • All tanks storing hydrocarbon liquids or chemicals will be appropriately bunded to prevent any spills being discharged to the environment. • Bunds will be inspected regularly to determine integrity and maintenance of capacity. • Storage containers will be labelled with the technical product name as per the Safety Data Sheet. • Storage containers will be closed when not in use. • Spill response equipment will be readily available at the site of hazardous material storage or use, including absorbent material. • All spills are to be recorded and immediately cleaned up in accordance with the OSCP. • Equipment, machinery, and vehicles will be restricted to designated roads, access tracks and cleared areas and will be maintained, refuelled, and serviced only where spill containment is in use (i.e. bunded areas). • Any contaminated material will be removed and disposed offsite to a licenced facility using a licensed contractor. • Waste Management measures will include: – Specific waste segregation systems utilised onsite. – Waste stations to be located and designed to limit the potential for surface water and groundwater contamination. – Covered waste receptacles utilised onsite. – Waste hydrocarbon products will be stored in areas where spill containment is in use (i.e., bunded areas) prior to offsite disposal. – Offsite disposal of waste will be undertaken via licensed contractors. – All personnel will undergo site inductions related to waste management requirements.	Visual inspections	Monthly throughout construction stage	• Inspections and audits. • MinRes incident classification and reporting procedures • ACR.	• Advise relevant government agencies of non-compliance if confirmed. • Identify cause of non-compliance and undertake critical review of management actions, plan and assess suitability of alternative actions and then implement them. • Site remediation plan will be prepared and implemented.

3.2.5 Social Surroundings

Table 11 outlines the rationale for the proposed objective-based management indicators, actions, and monitoring for Social Surrounds.

Table 11: Social Surrounds - Objective-based Management

EPA Factor/s	Social Surroundings
EPA Objective/s	To protect social surroundings from significant harm
Environmental Values	Aboriginal cultural heritage Amenity
Key Impacts and Risks	• CPF infrastructure may be visible from sensitive receptors and public roads, impacting on visual amenity • Dust, noise, and light generated during construction could impact on amenity of the surrounding landscape

Management Target	Management Action	Monitoring	Timing / Frequency of Monitoring	Reporting	Contingency Action if Target(s) not Met
Minimise impacts of dust, noise, and light on local sensitive receptors.	• Ensure that vehicles importing material with dust emitting loads are covered (except when loading and unloading). • Minimising time between clearing and grading or trenching and backfill/reinstatement. • Sealing of roads within the CPF site, and between the CPF and Midlands Road (subject to Shire and Main Roads approvals). • Application of water or stabilisers via water trucks and sprayers to dampen down soil as required. • Limiting topsoil stockpile height to less than 2 m in height. • Potential use of dust stabilisers, water, tarps, geo-textile materials and/or hydro-mulch (with or without seed) to suppress dust from stockpiles. • Screening or sheeting material (e.g. crushed rock) to be spread over well sites. • Substituting permanent flood lights for “resort style” lights at the accommodation camp. • Lighting design around the CPF gas plant facilities will consider and minimise light spill. • Floodlighting at the CPF will be limited to support essential operations and maintenance tasks and where required to meet safety standards. • Night works will not normally occur, limiting the amount of task level light required	• Inspection of visible dust accumulation. • Environmental Compliance Inspections.	Opportunistic; and in response to community complaints.	• Inspections and audits. • MinRes incident classification and reporting procedures • ACR. • Community complaints register.	• Modification of management action to reduce emission levels. • Ensure all corrective actions are closed out within a set timeframe.

3.2.6 Terrestrial Environmental Quality

Table 12 outlines the rationale for the proposed objective-based management indicators, actions, and monitoring for Terrestrial Environmental Quality

Table 12: Terrestrial Environmental Quality - Objective-based Management

EPA Factor/s	Terrestrial Environmental Quality
EPA Objective/s	• To maintain the quality of land and soils so that environmental values are protected
Environmental Values	Soils
Key Impacts and Risks	• Soil contamination as a result of the storage and handling of chemicals and hazardous materials required during the construction phase • Erosion impacting soil quality.
Purpose of EMP Provision	Minimise impacts of Proposal construction activities on the land and soils within the Proposal Area.

Management Target	Management Action	Monitoring	Timing / Frequency of Monitoring	Reporting	Contingency Action if Target(s) not Met
Minimise the risk of contamination of soils, surface water and groundwater resources from chemical or hydrocarbon spills.	• Preparation and implementation of an ERP and Oil Spill Contingency Plan (OSCP), approved by DEMIRS, before the commencement of construction. The key provisions of these plans will include: – All tanks storing hydrocarbon liquids or chemicals will be constructed in accordance with *Australian Standard AS1940:2004 the storage and handling of flammable and combustible liquids* and will be fully bunded to prevent any spills from being discharged into the environment. – Bunds will be inspected regularly to determine integrity and maintenance of capacity. – Storage containers will be labelled with the technical product name as per the SDS. – Storage containers will be closed when not in use. – Spill response equipment will be readily available at the site of hazardous material storage or use. All spills are to be recorded and immediately cleaned up in accordance with the OSCP. – Equipment, machinery, and vehicles will be restricted to designated roads, access tracks and cleared areas and will be maintained, refuelled, and serviced only where spill containment is in use (i.e. bunded areas). – Any contaminated material will be removed and disposed of offsite to a licenced facility using a licensed contractor. • All personnel are inducted on the appropriate storage and disposal of hydrocarbons and hazardous substances, use of spill kits and potential impacts associated with contamination.	• All waste removed off-site will be recorded in a Waste Management and Tracking register. • Inspections and audits of chemical storage, refuelling and washdown areas will be undertaken. • Visual inspection of any spills/leaks.	• As required. • Monthly. • As required.	• MinRes incident classification and reporting procedures • ACR	Site remediation plan will be prepared and implemented.
Minimise the occurrence of soil erosion on stockpiled materials, watercourse banks and areas of cleared vegetation	• Trenches will be progressively closed as the pipeline is laid to avoid stockpiling of surface materials for extended periods. • Within the CPF site, provision will be taken during construction to stop airborne silt and sand during windy periods by water suppression, until the sandy soils in the work area can be stabilised either by capping or seeding with ground cover.	• Visual inspections of construction areas and stockpiles to identify areas of erosion and scouring. • Visual inspection of surface water bodies for signs of increase sediment discharge and buildup.	• Monthly • As required	• Compliance Assessment Report • MinRes incident classification and reporting procedures	Modification of management action to reduce erosion levels

4. SYSTEM REQUIREMENTS

4.1 Management System

MinRes implements an Environmental Management System (EMS) to manage impacts associated with mining operations, identify, and manage compliance, and address risks.

The purpose of the CEMP is to support the Proposal's Framework Environmental Management Plan (FEMP). The FEMP outlines the programme for MinRes to effectively manage environmental factors in all its construction activities and to meet its legal obligations. As well as managing the risk of unintended or unnecessary environmental impact, this plan also seeks to reduce or eliminate the business risk associated with poor environmental outcomes at its operations.

The EMS is aligned with the international standard for EMS - ISO 14001:2015. The EMS shall be continuously updated and amended to ensure:

- MinRes' objectives and targets are defined
- Legal obligations are understood and adhered to
- MinRes' environmental management activities are consistent
- A commitment to driving environmental management is demonstrated.

Figure 5 outlines the main features of the EMS. Environmental improvement is driven using the Plan-Do-Check-Act (PDCA) model.

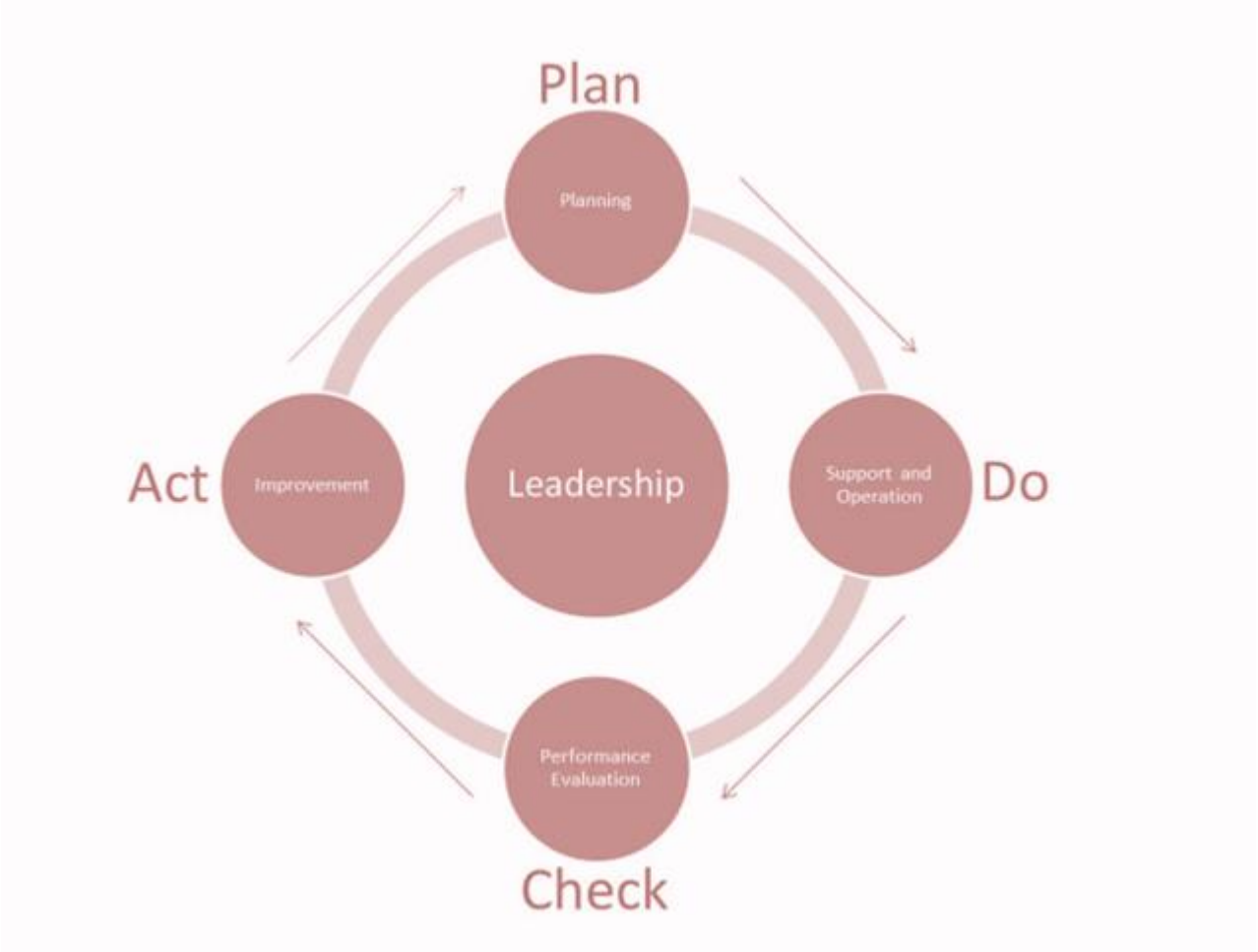

Figure 5: Environmental Improvement Plan-Do-Check-Act (PDCA) Model

4.2 Roles and Responsibilities

All our people are responsible for ensuring they comply with the company's environmental management requirements and that any action or inaction on their part does not result in harm to the environment. Delegation of responsibilities may occur to ensure that environmental management activities are co-ordinated at an appropriate level, however, accountability remains with the person designated those responsibilities. MinRes also expects this general principle of line management accountability to apply to all its contractors. Key roles and responsibilities relevant to the Proposal are included in **Table 13**.

Table 13: Roles and Responsibilities Relevant to the Proposal

Title	Responsibilities
Managing Director, Chief Operating Officer, Executive General Managers	The Executive General Manager (Project Services) and/or Project Director will be responsible for: • Ensuring all Proposal activities are undertaken in accordance with statutory and environmental approval and heritage requirements; • Providing environmental leadership and be an emergency contact for the Proposal; • Providing required information to the MinRes Board of Directors; • The overall management and control of the EMS; • Providing the necessary resources to effectively implement this CEMP and associated EMPs; • Endorsing and supporting the Environmental Policy, this CEMP and associated EMPs; • Taking strategic actions to continuously improve the CEMP and associated EMPs; and • Reviewing the CEMP performance and implementation of corrective actions in the event of breaches of associated EMP conditions that may lead to serious impacts on local communities or affect the reputation of the Proposal.
General Manager Environment	Responsibility for: • Ensuring all Proposal activities are undertaken in accordance with statutory environmental approval and heritage requirements; • Reviewing the CEMP and subsidiary management plans in alignment with the defined review schedule; • Communicating the requirements of the CEMP and subsidiary plans to site personnel; • Ensuring Environment inductions are undertaken in accordance with the CEMP and subsidiary plans; • Managing the submission and attainment of environmental and heritage approvals; • Identifying environmental competence requirements for all personnel and ensure delivery of environmental training to relevant personnel; • Acting as main point of contact between the regulatory authorities and the Proposal on environmental issues/incidents or complaints; • Managing environmental monitoring programs as required by this CEMP and subsidiary management plans; • Identify and implement corrective and preventative actions after incidents and share lessons learned within the relevant personnel; • Reviewing and monitoring corrective and preventative actions resulting from audits, incidents, and non-conformances; and • Preparing routine Environment and Heritage Reports, presenting an update on key performance indicators, Proposal outcomes, issues, and incidents.

Title	Responsibilities
Site Environmental Personnel	Responsible for environmental management and control of all activities relating to the execution of the works including work undertaken by subcontractors; • Assisting in the development and delivery of environmental training for site personnel and subcontractors; • Supporting the Environment Manager with environmental incident investigations and any other relevant tasks; • Providing environmental advice to other site personnel; • Coordination of the LAP process on site including preparing LAPs in consultation with the relevant Managers, issuing and releasing LAPs, verifying clearing boundaries, monitoring clearing works, and closing out LAP permits; • Conducting regular monitoring, inspections, and audits in accordance with this CEMP, subsidiary management plans and other regulatory requirements; and • Consolidating emissions, energy consumption and monitoring data into a Monthly report.
Contractor / Construction Managers	The Contractor / Construction Manager/s will be responsible for: • Overall accountability for auditing and compliance assessment to ensure objectives and targets are achieved; • Comply with all legal requirements and the requirements of the CEMP; • Ensure staff employed are adequately trained in CEMP; • Ensure all personnel involved in the Proposal will adhere to CEMP requirements; • Undertaking ongoing environmental monitoring and reporting; • Assess and report on performance against environmental targets; and • Liaise with stakeholders and technical advisors for advice and resolution of management aspects/objectives as required.
All Personnel	• Must receive induction prior to commencement of work on site; • Report incidents to their Construction Contractor supervisor or MinRes Project Manager; • Attend environmental inductions and any other training required; and • Participate in toolbox meetings and suggest improvements to management measures as required.

4.3 Competence, Training and Awareness

MinRes will ensure that all personnel have the awareness, understanding, competence and skills appropriate to their role and responsibilities. General guidance on training and awareness requirements is given in **Table 14**:

Table 14: Training and Awareness Requirements

Title	Responsibilities
Managing Director, Chief Operating Officer, Executive General Managers	• Awareness of environmental legislation; • Understanding of national and international trends in the approach to environmental issues relevant to MinRes businesses; and • Understanding of MinRes' approach to environmental management, as outlined in this CEMP.
General Manager Environment	• Awareness of environmental legislation; • Understanding of national and international trends in the approach to environmental issues relevant to MinRes businesses; • Knowledge of EMS and principles of ISO 14001; and • Understanding of MinRes' approach to environmental management, as outlined in this CEMP.
Manager Environment	• Detailed knowledge of EMS and principles of ISO 14001; • Detailed understanding of MinRes' approach to managing environmental aspects relevant to site. Ability to undertake environmental audits; and • Ability to conduct incident investigations using Incident Cause Analysis Method (ICAM).

Title	Responsibilities
Registered, Project and Construction Managers	• Awareness of environmental legislation, particular licences, permits and approvals applicable to site; • Understanding of MinRes' approach to managing environmental aspects relevant to site; and • Understanding of MinRes' approach to environmental management, as outlined in this CEMP.
Superintendents and Supervisors	• Awareness of environmental legislation, particular licences, permits and approvals applicable to site; • Detailed understanding of MinRes' approach to managing environmental aspects relevant to site; and • Ability to conduct incident investigations using ICAM.
Environmental Advisors	• Working knowledge of EMS and principles of ISO 14001; • Detailed understanding of MinRes' approach to managing environmental aspects relevant to site. Ability to undertake environmental audits; • Ability to conduct incident investigations using ICAM; and • Specialist training (e.g. land rehabilitation techniques, fauna handling, water sampling and testing) appropriate to site.
Our People	• Awareness of MinRes' approach to environmental management; • Awareness of environmental aspects relevant to site and their management; and • Specialist training (e.g. spill management) appropriate to site.

As a minimum, training comprises the corporate and site inductions, both of which contain an environmental component. Other training and awareness can be delivered through toolbox meetings, presentations, and refreshers.

An annual program of environmental training requirements must be developed and implemented.

All training records for MinRes shall be maintained in the MinRes' Safety Management System application. Contractors shall maintain their own records, and where requested, shall make these available to MinRes and Business Units.

Training records shall be made accessible to the individual and relevant departments such as Human Resources and Environment as appropriate.

As a minimum, training records should include details on who has been trained, what the training course covered, what competencies or qualifications were achieved or obtained, the identification of the provider and training duration.

4.4 Environmental Reporting

4.4.1 Incident Reporting

All employees of MinRes and Contractors shall immediately report all environmental incidents whether they are reportable or non-reportable incidents (i.e., performance indicators are not met, or management actions are not followed) to the Contractor site supervisor, who will investigate the incident with both the Contractor Project Manager (CPM) and MinRes PM.

Reportable incidences include clearing outside the Development Envelope, injury to conservation significant species as a result of the Proposal activities and significant spills of contaminants such as chemicals and hydrocarbons are to be reported to Contractor PM. The CPM is to notify MinRes who will notify DBCA or DWER as relevant.

Events that either cause or have the potential to cause harm or contamination of the environment will be recorded and investigated as stipulated in MinRes incident classification and reporting procedures) Projects are required to maintain a register of all incidents in the MinRes Incident Management System, which include:

- Initial Incidents are logged in the MinRes Incident Management System.
- All relevant documents and photos are uploaded with the report; and
- Incidents are monitored, updated, and closed out within the required timeframes.

Corrective and preventative actions arising from an incident investigation shall be recorded within the incident record in the MinRes Incident Management System for monitoring to closeout. For high potential events, a review of all corrective actions associated with high potential events will be completed to ensure the risks have been effectively controlled.

All regulatory reporting for the Proposal shall be undertaken by the Client, the Registered Manager, or a person having control of a workplace or delegate.

4.4.2 Annual Compliance Reporting

Annual Compliance Reporting will be undertaken for the Proposal in line with regulatory requirements and relevant guidance documentation. The annual reports will document compliance with applicable approval conditions imposed on the Proposal as well as requirements stipulated in this CEMP.

5. STAKEHOLDER CONSULTATION

MinRes is committed to ongoing stakeholder engagement and communication through all stages of the Proposal (Approval, Construction, Operation and Closure).

MinRes strives to engage early, openly, honestly, and regularly with the stakeholders and communities impacted by their operations and to consider their views in decision-making with respect to the key planning, operational and closure aspects of the Proposal.

5.1 Engagement

Stakeholder engagement for Proposal commenced in 2020. The key objective of the stakeholder engagement process is managing and maintaining positive relationships with the major stakeholders including the Shire of Mingenew, the Shire of Irwin, the Southern Yamatji people (Traditional Landowners), land holders, and major Regulatory Agencies.

Specific stakeholder engagement activities have included:

- Briefings and presentations with key regulatory authorities and potentially affected parties to provide information on the Proposal, planned studies and request feedback; and
- Face to face meetings, telephone calls and written correspondence with potentially affected stakeholders to provide updates on the Proposal and obtain additional feedback.

Through this variety of engagement forums, MinRes has been able to identify the required studies and investigations and importantly, key social and environmental effects and associated mitigation and management strategies required to support this Proposal.

Responses to consultation are documented through a formal feedback mechanism. This documentation ensures a high standard and actively supports a culture of honest and ethical behaviour. A Community Grievance Procedure is currently in place which allows community members or other stakeholders to express any concerns, grievances or provide feedback about their interactions with our people, activities, or operations.

Further, ongoing engagement alongside the Community Grievance Procedure will be happening throughout the construction and later to the operation and closure stage of the Proposal. This will ensure that the stakeholder's awareness of the Proposal is maintained at a suitable level and that their concerns are understood and addressed in an appropriate manner. This will ensure that the current positive two-way communication is maintained through the life of the Proposal.

5.2 Key Stakeholders

Key stakeholders for the Proposal are outlined in **Table 15**.

Table 15: Key Stakeholders

Stakeholder Sector	Organisation
Regulatory Agencies	Department of Biodiversity, Conservation and Attractions (DBCA)
	Department of Energy, Mines, Industry Regulation and Safety (DEMIRS)
	Department of Jobs, Tourism, Science, and Innovation (DJTSI)
	Department of Primary Industries and Regional Development (DPIRD)
	Department of Planning Lands and Heritage (DPLH)
	Department of Water and Environmental Regulation (DWER)
	Environmental Protection Authority (EPA)
Local Government	Shire of Irwin
	Shire of Mingenew
Traditional Owners	Yamatji Southern Regional Corporation (YSRC)
Landowners	Private landowners
	Main Roads Western Australia (MRWA)
	Public Transport Authority (PTA)
	Arc Infrastructure
	Australian Gas Infrastructure Group (AGIG)
Community Groups	Irwin Arrowsmith Advisory Council (IAAC)
	Mingenew-Irwin Group (MIG)
	Mid-West Development Commission (MWDC)

6. ADAPTIVE MANAGEMENT AND REVIEW

MinRes implements an EMS to manage potential environmental impacts, identify and manage compliance, and address risks. The EMS is aligned with the international standard for environmental management systems - ISO 14001:2015.

This CEMP is a key element of the EMS. The CEMP outlines the Provisions for MinRes to effectively avoid and mitigate impact to MNES values associated with the Proposal.

Through this CEMP and the EMS, MinRes are committed to an adaptive management approach.

6.1 Management of Change

In the event there is a change in equipment, or materials used for construction, procedures, processes or roles and responsibilities during the construction phase the following should be written in a management of change document:

- Reasons for change – Why is it needed and what are beneficial outcomes of the change?
- Determine the scope – Who will the change impact, what policies and processes will it impact?
- Who is responsible for the change?
- How will this change be executed to employees, contractor(s), and other stakeholders?

The management of change should be approved by senior management prior to the execution of the change.

6.2 Environmental Inspections

MinRes will undertake MinRes will undertake scheduled environmental inspections of all the Proposal activities involved with construction.

These inspections will be specific to the work area and include relevant environmental aspects such as, but not limited to:

- Correct implementation of design;
- Dust and other emissions management;
- Feral animal sightings and management;
- Weed surveys and management;
- Erosion and sedimentation;
- Maintenance works;
- Noise management; and
- Environmental incidents and corrective action close out

6.3 Environmental Audits

An internal audit of the CEMP will be undertaken in response to a significant incident of non-conformance. Environmental audits of individual operation work packages will also be undertaken. The Audit Schedule for these work packages will be developed in consultation with relevant internal stakeholders and Contractors. Results of all audits will be communicated and discussed at Project management review meetings.

6.4 Corrective and Preventative Actions

Corrective and preventative actions arising from an incident investigation shall be recorded within the incident record on MinRes Incident Management Systems for monitoring to closeout. For high potential events, a review of all corrective actions associated with high potential events will be completed to ensure the risks have been effectively controlled.

6.5 Review and Changes to the CEMP

This CEMP will be reviewed periodically during Proposals implementation. Other occasions when the CEMP will be reviewed include:

- Upon significant changes to the Proposals activities or upon significant changes to key environmental values identified in this CEMP;
- Following non-compliances or reportable environmental incidents
- If one or more management targets or performance indicators are not being met and adaptive management is required; and
- Upon regulatory approval of the Proposal from regulatory bodies such as DWER

Any amendments prepared for inclusion in this CEMP, shall be duly signed as authorised by the relevant manager and shall comply with statutory requirements. All contractors shall be supplied a copy of any revisions that may affect their scope of works.

6.6 Document Control and Records Management

All Company documents shall be controlled in accordance with the MinRes document control procedures.

All Proposal records shall be retained in accordance with the MinRes document control procedures. Access to these records will be restricted in accordance with the type of record and information contained within and controlled to prevent unauthorised access.

7. REFERENCES

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