BHP Mitsubishi Alliance

Part B
Referral Material

Peak Downs Mine Power Line Realignment Project
EPBC 2024/09983

Peak Downs Mine Power Line Realignment Project

Application Number: **02572** Commencement Date: **30/08/2024** Status: **Locked**

1. About the project

1.1 Project details

1.1.1 Project title *

Peak Downs Mine Power Line Realignment Project

1.1.2 Project industry type *

Energy Generation and Supply (non-renewable)

1.1.3 Project industry sub-type

Transmission Line

1.1.4 Estimated start date *

01/12/2025

1.1.4 Estimated end date *

01/12/2026

1.2 Proposed Action details

1.2.1 Provide an overview of the proposed action, including all proposed activities. *

Proposed action

BM Alliance Coal Operations Pty Ltd (BMA, the Proponent) owns and operates the Peak Downs Mine (PDM), an open cut coal mining operation near Moranbah, Queensland. There are currently three existing mine pits at PDM, 7 North, 5 North and 2 North (7N, 5N and 2N, respectively), which are progressing to the east within Mining Lease (ML) 1775 in line with current regulatory authorisations.

The existing 7N/5N/2N power lines (all 66 kilovolt (kV)) are situated within ML 1775, running in a north-south direction adjacent to the shared mining lease boundary of ML 1775 and ML 70411. The pit progression towards the power lines is approaching exclusion limits to blasting for mining activities. As a result, the current 7N/5N/2N power lines require realignment in order to allow for the pit to progress.

The relocation of these power lines is necessary to support continued mining activities at PDM. Without relocation of the power lines, existing mining activities would be severely constrained due to a lack of supporting power requirements.

The **Proposed action** for this referral is the Peak Downs Mine Power Line Realignment Project. The Proposed action involves the realignment of the existing 66kV 7N/5N/2N power lines to the east of the current alignment, and is comprised of the following three components:

- 7N power line realignment – entirely outside of a mining lease
- 5N power line realignment – partly within ML 70411, partly outside a mining lease
- 2N power line realignment – entirely within ML 70411

It is noted that the Proposed action is situated partly within an area that is already subject to assessment under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). This is the 'Peak Downs Mine Continuation Project' (EPBC ref 2022/09350), which is not related to the Proposed action presented herein. For clarity the Proposed action, the subject of this referral (Peak Downs Mine Power Line Realignment Project), facilitates authorised mining activities.

Action area and disturbance footprint

The **Action area** (also referred to as the 'Project area' in some sections of the DCCEEW referral template and guidance documents) is the power line realignment corridor, which encompasses 83.39 hectares (ha) in area. The Action area is located adjacent to the northern-eastern side of PDM and is approximately 22 kilometres (km) south-east of the township of Moranbah in central Queensland. It lies within land described as Lot 8 on SP277384, located within the Isaac Region Local Government Area and the Brigalow Belt North Bioregion. The Action area is shown in **Attachment 1 –** *MNES Significant Impact Assessment Report* (Figure 1, page 2).

For this referral, the Action area is the same as the **Disturbance footprint**. Meaning that the entire Action area contains the proposed Disturbance footprint.

Proposed action activities

The Proposed action includes the following activities:

- Clearing of woody vegetation for a corridor up to 50 metres (m) wide located along the proposed power line's main axis, extending 12.66 km in length in an approximate north-west to south-east direction. Existing ground cover present in the Action area will be retained (i.e. there will be no topsoil disturbance and the root mass will remain intact), with the exception of the access track addressed below. Outside of the access track, grass slashing may occur in the corridor where required for safe access during construction
- Clearing of woody vegetation along a series of eight stub lines with corridors up to 30 m wide, located perpendicular to the southern side of the power line's main axis. The stub lines vary in length from 160 m to 1,500 m, with an overall length of 7.78 km (i.e. the total Action area length is

approximately 20 km). As per the main corridor, ground cover within the stub lines will be retained through slashing only (where necessary), with the exception of the access track addressed below
- Clearing and grubbing of an access track up to 10 m wide along main corridor and stub line corridors to provide access for vehicles, plant and project materials. This will remove the ground cover present potentially including the root mass. On completion of construction this will be allowed to regenerate naturally. A permanent formed access track will not be retained for the operation of the power line infrastructure, with only slashing required to maintain the track and ensure safe access
- Excavating and pouring foundations for the power line towers will be located within the 10 m wide access track area. Power line towers are generally located 165 m apart for the majority of the alignment
- Assembly and erecting the power line steel work including installation of stay anchors
- Stringing electrical cables, conductors and earth wires along the power line towers
- Tensioning of electrical cables to achieve minimum ground clearance
- Connection of conductor bridges and droppers
- Testing, commissioning and connection

The operational phase of the proposed action is anticipated to require little maintenance. Occasional slashing of ground cover within the main corridor and stub line corridors may be carried out when required and the entire area will be subject to continued cattle grazing as occurs currently.

Study area

The Study area described in this referral is the area assessed by supporting ecological studies, which captures the Action area and nearby surrounding land. The Study area is 1,822 ha in size and is detailed in **Attachment 1 –** *MNES Significant Impact Assessment Report* (Section 1.1 and Figure 1, pages 1-2).

Corresponding area definitions in the attached reports

The key report which consolidates the findings of the supporting ecological studies and provides an assessment of the significance of impacts to Matters of National Environmental Significance (MNES) is the *MNES Significant Impact Assessment Report* (Epic Environmental, 2024), located in **Attachment 1** (all pages). This report uses the term ‘Project area’ which corresponds with the Action area used in this referral. **Attachment 2 –** *7N5N2N Power line alignment MNES Ecological Report* (Ausecology, 2024) provides the detailed methodologies and findings of field surveys that have been undertaken across the Study area (which includes the Action area and surrounds).

1.2.2 Is the project action part of a staged development or related to other actions or proposals in the region?

No

1.2.6 What Commonwealth or state legislation, planning frameworks or policy documents are relevant to the proposed action, and how are they relevant? *

A description of the Commonwealth and State legislation relevant to the proposed action is provided below.

***Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (Cwlth)**

The EPBC Act is the key piece of Commonwealth legislation governing environmental protection in Australia. It defines and protects nine MNES, which are:

- World heritage properties
- National heritage places
- Wetlands of international importance
- Listed threatened species and ecological communities
- Listed migratory species
- Commonwealth marine areas
- The Great Barrier Reef Marine Park
- Nuclear actions
- A water resource in relation to coal seam gas development and large coal mining development

The Proposed action has the potential to impact on MNES, namely threatened species and threatened ecological communities (TECs). Therefore, the Proposed action has been referred to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) for further assessment, per the EPBC Act requirements. This referral addresses this Act.

***Environmental Offsets Policy 2012* (Cwlth)**

The *EPBC Act Environmental Offsets Policy October 2012* (EOP) provides guidance on the role of offsets in environmental impact assessments, and how the DCCEEW considers the suitability of a proposed offset.

If the Proposed action is determined by DCCEEW to be a Controlled Action, there may be a requirement for environmental offsets to compensate for the impact.

***Native Title Act 1993* (Cth)**

The Barada Barna People are the Native Title holders for the Action area.

***Aboriginal Cultural Heritage Act 2003* (Qld)**

The Barada Barna People are considered the Aboriginal Party for the purposes of the *Aboriginal Cultural Heritage Act 2003*. The Action area is located within the extent of the PDM Indigenous Land Use Agreement (QI2001/047) and cultural heritage management will be conducted via the processes set out within the PDM Cultural Heritage Management Plan (CHMP) (2014). The CHMP will not be made publicly available due to cultural sensitivity reasons.

***Planning Act 2016* (Qld)**

The *Planning Act 2016* (Planning Act) serves to establish an efficient, effective, transparent, integrated, coordinated, and accountable system of land use planning, development assessment and related matters that facilitates the achievement of ecological sustainability. It mandates the framework and process for development assessment and the requirements for development application. Under the Planning Act, development may be categorised as accepted development, assessable development (code and impact) and prohibited development.

Given part of the Proposed action occurs outside of an ML, State approvals under the Planning Act are required. Development that is assessable development is identified under Schedule 10 of the *Planning Regulation 2017*. The Proposed action meets the assessable development requirements under the following provisions:

- Schedule 10, Part 3, Division 2, Section 5 – Assessable development – clearing native vegetation on prescribed land

Therefore, the Planning Act is relevant to part of the Proposed action.

***Environmental Protection Act 1994* (Qld)**

The *Environmental Protection Act 1994* (EP Act) and subordinate *Environmental Protection Regulation 2019* (EP Regulation) provide a legislative framework for safeguarding the environment whilst promoting sustainable development within Queensland, by establishing mechanisms for the avoidance or minimisation of environmental harm, as well as the licencing of environmental harm according to conditions of approval. A key aspect of the EP Act is the General Environmental Duty (GED) (EP Act, Section 319), which applies to all individuals and organisations in Queensland, including BMA and its employees and contractors. The GED requires that '*A person must not carry out any activity that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practicable measures to prevent or minimise the harm*'.

Activities which cause, or are likely to cause, environmental harm constitute offences unless authorised through an Environmental Authority (EA). An EA is an approval to undertake an Environmentally Relevant Activity (ERA) in accordance with relevant conditions. The portion of the Proposed action that falls within ML 70411 is located in an area authorised by the existing PDM EA EPML00318213, where the Proposed action will operate in accordance.

***Nature Conservation Act 1992* (Qld)**

The Nature Conservation Act 1992 (NC Act) and subordinate Regulations, including the *Nature Conservation (Animals) Regulation 2020* (NC Animals Regulation) and *Nature Conservation (Plants) Regulation 2020* (NC Plants Regulation), are in place to protect Queensland's native flora and fauna from potential environmental impacts of various activities through the nomination of threatened species, and requirements for protected plant clearing permits, species management programs, and other permits. A fauna spotter catcher will be engaged prior to vegetation clearing to assess areas of habitat and manage breeding places should they be present during clearing.

Habitat that supports species listed as conservation significant under the NC Act is present within the Action area. This will be addressed under the approvals process through State Assessment Referral Agency (SARA).

***Vegetation Management Act 1999* (Qld)**

The *Vegetation Management Act 1999* (VM Act) regulates the clearing of regulated vegetation in Queensland. The VM Act aims to conserve Queensland's biodiversity through vegetation management. The VM Act provides a framework for identification, description, classification and mapping of remnant and high-value regrowth vegetation communities (listed as Regional Ecosystems (REs)), essential habitat (for protected flora and fauna) and wetland areas.

Vegetation that is regulated directly under the VM Act is present within the Action area, within the portion that is outside an ML. This will be addressed under the approvals process through SARA, and the Proponent will obtain all relevant permits and approvals as required.

***Environmental Offsets Act 2014* (Qld)**

Under the Queensland *Environmental Offsets Act 2014* (Offsets Act) an environmental offset is defined as an activity undertaken to counterbalance a significant residual impact of a prescribed activity on a Prescribed Environmental Matter. Prescribed Environmental Matters include Matters of State Environmental Significance as defined under Schedule 2 of the *Offsets Regulation 2014*.

Where a significant residual impact is assessed as occurring on a Prescribed Environmental Matter as a result of the Proposed action, there may be a requirement for environmental offsets to compensate for the impact. This will be assessed as part of the State approvals process through SARA for the portion of the Action area outside of an ML (noting that the portion within ML 70411 is regulated by the PDM EA EPML00318213).

***Mineral Resources Act 1989* (Qld)**

BMA has received approval for surface rights over the ML 70411 where part of the Proposed action is located.

***Water Act 2000* (Qld)**

The *Water Act 2000* (Water Act) provides a framework for the planning, allocation and use of surface water and groundwater in Queensland, including regulating major water impoundments (e.g. dams and weirs) and extraction through pumping for irrigation and other uses.

No new water sources or watercourse diversions are associated with the Proposed action. The Action area crosses two 'unmapped' waterways, one 'drainage feature', and one 'watercourse' mapped under the Water Act. Where works cannot meet an exemption, including the *Riverine Protection Permit Exemption Requirements, Department of Regional Development Manufacturing and Water, Version 2.03 2/06/2023*, the relevant approvals will be acquired.

Local Environmental Plans

The Action Area is located within the Isaac Region LGA of the Bowen Basin, in central Queensland, within the lands covered by the *Isaac Regional Council Planning Scheme 2021*. Where required, Isaac Regional Council will be engaged for the Proposed action.

1.2.7 Describe any public consultation that has been, is being or will be undertaken regarding the project area, including with Indigenous stakeholders. Attach any completed consultation documentations, if relevant. *

BMA maintains ongoing dialogue and consultation with key stakeholders regarding its actions and future plans at its operations in central Queensland. The following stakeholders are frequently consulted at various stages of the Proposed action development and implementation:

- Local landholders
- Community groups
- Infrastructure service providers
- Isaac Regional Council
- Native Title parties (Barada Barna People)
- Queensland Department of Environment, Science and Innovation
- Queensland Department of Resources
- Commonwealth DCCEEW
- Overlapping tenure holders

Indigenous consultation for the Proposed action will be undertaken through regular Relationship Committee meetings between BMA and the Barada Barna people (determined Native Title group) as prescribed under the BMA and BBAC ILUA (2014), and cultural heritage management will be conducted via the processes set out within the Peak Downs CHMP (2014). Cultural heritage surveys of part of the Action area were undertaken in 2022, with the remainder to be completed in due course. Cultural heritage sites are known within the Action area, recorded during surveys conducted intermittently over the last 15 years. These sites, and any new recordings, will be managed in accordance with CHMP processes. The CHMP will not be made publicly available due to cultural sensitivity reasons.

1.3.1 Identity: Referring party

Privacy Notice:

Personal information means information or an opinion about an identified individual, or an individual who is reasonably identifiable.

By completing and submitting this form, you consent to the collection of all personal information contained in this form. If you are providing the personal information of other individuals in this form, please ensure you have their consent before doing so.

The Department of Climate Change, Energy, the Environment and Water (the department) collects your personal information (as defined by the Privacy Act 1988) through this platform for the purposes of enabling the department to consider your submission and contact you in relation to your submission. If you fail to provide some or all of the personal information requested on this platform (name and email address), the department will be unable to contact you to seek further information (if required) and subsequently may impact the consideration given to your submission.

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1.3.1.1 Is Referring party an organisation or business? *

Yes

Referring party organisation details

ABN/ACN	67096412752
Organisation name	BM ALLIANCE COAL OPERATIONS PTY LIMITED
Organisation address	4000 QLD

Referring party details

Name	[redacted]
Job title	Environment Approvals Specialist
Phone	[redacted]
Email	[redacted]
Address	Level 14, 480 Queen Street, Brisbane

1.3.2 Identity: Person proposing to take the action

1.3.2.1 Are the Person proposing to take the action details the same as the Referring party details? *

No

1.3.2.2 Is Person proposing to take the action an organisation or business? *

Yes

Person proposing to take the action organisation details

ABN/ACN	67096412752
Organisation name	BM ALLIANCE COAL OPERATIONS PTY LIMITED
Organisation address	4000 QLD

Person proposing to take the action details

Name	[redacted]
Job title	Superintendent Environmental Approvals
Phone	[redacted]
Email	[redacted]
Address	Level 14, 480 Queen Street, Brisbane Qld 4000

1.3.2.14 Are you proposing the action as part of a Joint Venture? *

No

1.3.2.15 Are you proposing the action as part of a Trust? *

No

1.3.2.17 Describe the Person proposing the action's history of responsible environmental management including details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against the Person proposing to take the action. *

The Proponent of the Proposed action is BMA and is owned 50:50 by BHP Group Limited (BHP) and Mitsubishi Development Pty Ltd (operated by BHP) and is Australia's largest supplier of seaborne metallurgical coal. BMA operates six Bowen Basin mines: Broadmeadow, Goonyella Riverside, Peak Downs, SRM, Saraji South Mine and Caval Ridge as well as owning and operating the Hay Point Coal Terminal near Mackay.

BMA has an excellent record of responsible environmental management and a strong commitment to the communities and the environments in which it operates. BMA has no convictions for breaches of environmental management requirements and regularly reviews environmental performance and publicly reports on progress.

BMA has not been subject to any environmental related proceedings in any superior State or Federal Court.

BMA has been the subject of environmental related proceedings in the Queensland Magistrates Court, for matters related to State legislation. A fine was imposed and paid by BMA. No conviction was recorded.

The proposed action will be undertaken in accordance with the BMA's environmental policy and framework.

BMA has been responsible for multiple actions approved and under assessment, under the EPBC Act, including (but not limited to):

- 2023/09757 – BM Alliance Coal Operations Pty Ltd, Saraji Mine Grevillea Pit Continuation Project (assessment commenced)
- 2023/09723 – BM Alliance Coal Operations Pty Ltd, Blackwater Mine – North Extension Project (assessment approach determined)
- 2022/9350 – BM Alliance Coal Operations Pty Ltd, Peak Downs Mine Continuation Project (assessment approach determined)
- 2022/09279 – BM Alliance Coal Operations Pty Ltd, Blackwater Mine South Coking Coal Project (under assessment)
- 2021/9031 – BM Alliance Coal Operations Pty Ltd, Caval Ridge Mine Horse Pit Extension (under assessment)
- 2019/8576 – BM Alliance Coal Operations Pty Ltd, Saraji Mine Spring Creek to Phillips Creek Diversion (approval decision made)
- 2016/7791 – BM Alliance Coal Operations Pty Ltd, Saraji East Mining Lease proposed action (approved)
- 2013/6868 – BM Alliance Coal Operations Pty Ltd, Dysart Road Relocation (approved)
- 2013/6865 – BM Alliance Coal Operations Pty Ltd, Red Hill Mining Proposed action (approved)
- 2012/6268 – BM Alliance Coal Operations Pty Ltd, M Block 3D Seismic Survey Program (approved)
- 2009/4759 – BM Alliance Coal Operations Pty Ltd on behalf CQCA Joint Venture, Hay Point Coal Terminal Expansion (approved)
- 2008/4659 – BM Alliance Coal Operations Pty Ltd, Vessel-based Seismic and Hydrographic Sonar Survey (approved)
- 2008/4418 – BM Alliance Coal Operations Pty Ltd, Develop an Open Cut Coal Mine at Daunia (approved)
- 2008/4417 – BM Alliance Coal Operations Pty Ltd, Caval Ridge Open Cut Coal Mine Proposed action (approved)
- 2005/2248 – BM Alliance Coal Operations Pty Ltd, Goonyella Riverside Coal Mine Expansion (approved)
- 2005/2211 – BM Alliance Coal Operations Pty Ltd, Hay Point Services Coal Terminal Offshore Expansion (approved)
- 2004/1447 – BM Alliance Coal Operations Pty Ltd, Norwich Park Coal Mine - Development of East Pit (approved).

1.3.2.18 If the person proposing to take the action is a corporation, provide details of the corporation's environmental policy and planning framework

BMA operates under BHP Group Limited (BHP) and/or Mitsubishi Development Pty Ltd environmental policy and planning framework. BHP and Mitsubishi Development policies and frameworks are described below.

In line with *Our Charter* value of Sustainability, BHP seeks to avoid or minimise adverse environmental impacts through every stage of its operational activities and acknowledges its role in contributing more broadly to the resilience of the natural environment.

BHP's approach to environmental management is based on and influenced by:

- the identification, assessment and management of risks (both threats and opportunities) across all phases of our operational life cycle, including exploration, development, operation, closure and post closure. BHP applies a Group-wide Risk Framework to identify and manage risks, including environmental risks;
- engagement with internal and external stakeholders to ensure we take their perspectives and knowledge into account in our decision-making;
- the realms of nature (land, oceans, freshwater and atmosphere) that we may impact or depend on;
- the extent and nature of our planned activities and optimising our activities to seek to minimise or prevent adverse impact and maximise contribution to social value; and
- societal risks such as habitat loss and pollution.

BHP's group-wide approach to environmental management is set out in the Our Requirements for Environment and Climate Change standard and BHP's mandatory minimum performance requirements for risk management. BHP takes an integrated, risk-based approach to managing any actual or reasonably foreseeable operational impacts (direct, indirect and cumulative) on biodiversity, land, water and air.

BHP's primary approach to preventing or minimising potential adverse environmental impacts is to apply the mitigation hierarchy. Steps one and two of the mitigation hierarchy – avoid and minimise – seek to prevent adverse impacts as far as possible. Steps three and four – rehabilitate and compensate – seek to address those impacts that cannot be avoided.

BHP's Climate Transition Action Plan 2021, Water Stewardship Position Statement and Group-level biodiversity strategy outline BHP's vision, strategies and focus areas to support action on the global challenges of climate change and biodiversity loss.

BHP's environmental policy is further described on BHP's website (BHP, 2024): https://www.bhp.com/sustainability/environment/.

Mitsubishi Development (a wholly owned subsidiary of Mitsubishi Corporation) operates under three corporate principles: corporate responsibility to society; integrity and fairness; and global understanding through business.

These principles are the heart of Mitsubishi Development's sustainability approach, which strives to address the following key sustainability issues:

- transitioning to a low-carbon society;
- procuring, operating and supplying in a sustainable manner;
- tackling evolving regional issues in Australia;
- addressing the needs of society through business innovation and new technology;
- conserving the natural environment;
- growing together with local communities; and
- fostering our employees' maximum potential including health and safety.

Mitsubishi Development is committed to reducing greenhouse gases by implementing new operational efficiencies and sustainable technologies, as well as actively pursuing business partnerships that facilitate the transition to a low-carbon society.

Mitsubishi Corporation, Mitsubishi Development's parent company, aims to reduce greenhouse gas emissions by 50 per cent by 2030 per total assets, compared to FY2020 levels and Net Zero by 2050.

Further information on Mitsubishi Development's sustainability approach is available at (Mitsubishi Development Pty Ltd, 2021): https://www.mdp.com.au/sustainability.

1.3.3 Identity: Proposed designated proponent

1.3.3.1 Are the Proposed designated proponent details the same as the Person proposing to take the action? *

Yes

Proposed designated proponent organisation details

ABN/ACN	67096412752
Organisation name	BM ALLIANCE COAL OPERATIONS PTY LIMITED
Organisation address	4000 QLD

Proposed designated proponent details

Name	[redacted]
Job title	Superintendent Environmental Approvals
Phone	[redacted]
Email	[redacted]
Address	Level 14, 480 Queen Street, Brisbane Qld 4000

1.3.4 Identity: Summary of allocation

Confirmed Referring party's identity

The Referring party is the person preparing the information in this referral.

ABN/ACN	67096412752
Organisation name	BM ALLIANCE COAL OPERATIONS PTY LIMITED
Organisation address	4000 QLD
Representative's name	Hannah Silcox
Representative's job title	Environment Approvals Specialist
Phone	[redacted]
Email	[redacted]
Address	Level 14, 480 Queen Street, Brisbane

Confirmed Person proposing to take the action's identity

The Person proposing to take the action is the individual, business, government agency or trustee that will be responsible for the proposed action.

ABN/ACN	67096412752
Organisation name	BM ALLIANCE COAL OPERATIONS PTY LIMITED
Organisation address	4000 QLD
Representative's name	[redacted]
Representative's job title	Superintendent Environmental Approvals
Phone	[redacted]
Email	[redacted]
Address	Level 14, 480 Queen Street, Brisbane Qld 4000

Confirmed Proposed designated proponent's identity

The Person proposing to take the action is the individual or organisation proposed to be responsible for meeting the requirements of the EPBC Act during the assessment process, if the Minister decides that this project is a controlled action.

Same as Person proposing to take the action information.

1.4 Payment details: Payment exemption and fee waiver

1.4.1 Do you qualify for an exemption from fees under EPBC Regulation 5.23 (1) (a)? *

No

1.4.3 Have you applied for or been granted a waiver for full or partial fees under Regulation 5.21A? *

No

1.4.5 Are you going to apply for a waiver of full or partial fees under EPBC Regulation 5.21A?

No

1.4.7 Has the department issued you with a credit note? *

No

1.4.9 Would you like to add a purchase order number to your invoice? *

No

1.4 Payment details: Payment allocation

1.4.11 Who would you like to allocate as the entity responsible for payment? *

Referring party

2. Location

2.1 Project footprint



Project Area: 83.81 Ha **Disturbance Footprint:** 83.81 Ha

2.2 Footprint details

2.2.1 What is the address of the proposed action? *

831 Peak Downs Mine Road, Winchester QLD 4721

2.2.2 Where is the primary jurisdiction of the proposed action? *

Queensland

2.2.3 Is there a secondary jurisdiction for this proposed action? *

No

2.2.5 What is the tenure of the action area relevant to the project area? *

The Action area is located within Lot 8 on SP 277384, which is Freehold land. Part of the Action area occurs within the BMA-held resource tenement ML 70411, the remainder is outside of an ML.

An easement was previously established for the Proposed action, Lot N on SP316951, based on a previous superseded version of the power line realignment. This easement is being modified to suit the final alignment (the Action area) presented as subject of this referral. A separate easement, Lot M on SP312986, intersects the Action area however is unrelated to the Proposed action.

Refer **Attachment 1 –** *MNES Significant Impact Assessment Report*, Figure 1, page 2 for the location of the Action area with respect to tenure.

3. Existing environment

3.1 Physical description

3.1.1 Describe the current condition of the project area's environment.

The Proposed action is situated within the Brigalow Belt North Bioregion, specifically within the Northern Bowen Basin subregion. The Proposed action occurs in a predominantly disturbed landscape impacted by cattle grazing and existing mining-related activities. Vegetation communities within the Action area include remnant vegetation, woody regrowth, and non-remnant/cleared lands. To the south and south-west, the landscape is dominated by extensive mining operations associated with the PDM and more broadly existing BMA mining operations. The land to the north and east is primarily utilised for cattle grazing. Much of the landscape associated with the Action area has been heavily impacted by tree clearing for cattle grazing purposes.

The Action area intersects four minor drainage lines, including one stream order 2 and three stream order 1 drainage lines. All of the drainage lines within the Action area are considered highly ephemeral in nature, draining north from the PDM. As a result, there is very little catchment draining through the Action area and any flows would be minor in extent and short-lived. The nearest major watercourses are Harrow Creek, located to the west outside of the Action area, Cherwell Creek, approximately 3 km to the north-west, and the Isaac River, approximately 11 km to the north.

Access to the Proposed action will be provided via the PDM and existing local roads, including the Peak Downs Mine Road. A new 10 m wide access track will be established within the Action area, along the main corridor and stub line corridors, facilitating the transportation of materials and vehicles during the development, operational, and completion stages.

Further details of the condition of the Action area and wider Study area are provided in **Attachment 2 –** *7N5N2N Power line alignment MNES Ecological Report* (Sections 3.1-3.5, pages 23-36).

3.1.2 Describe any existing or proposed uses for the project area.

The proposed use of the Action area associated with the Proposed action is energy transmission using 66 kV power lines to support the existing mining activities at the PDM. The existing use within the Action area is cattle grazing, which will continue during implementation of the Proposed action.

The surrounding land is predominantly used for cattle grazing and mining-related activities, including the existing PDM.

Further details of the existing and ongoing uses for the Action area are detailed in **Attachment 1 –** *MNES Significant Impact Assessment Report* (Section 4, pages 11-18).

3.1.3 Describe any outstanding natural features and/or any other important or unique values that applies to the project area.

There are no outstanding natural features or unique values within the Action area.

3.1.4 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area.

The elevation within the Action area ranges from approximately 200 to 245 m Australian Height Datum (AHD). The topography is characterised by undulating plains with slight variations in elevation.

3.2 Flora and fauna

3.2.1 Describe the flora and fauna within the affected area and attach any investigations of surveys if applicable.

The Study area (which includes the Action area and surrounds) has been the subject of numerous ecological studies in recent years providing extensive coverage over the Action area. This includes ecology surveys specifically for the Proposed action carried out by Ausecology in 2019, 2022 and 2023, as well as surveys carried out in the local region for other projects by Eco Logical (2016 and 2020), AECOM (2020) and E2M (2021). A detailed description of the methodologies and findings of these studies is provided in **Attachment 2 –** *7N5N2N Power line alignment MNES Ecological Report* (Section 2 and Section 3, pages 9-36).

A summary of the key findings of the surveys are provided in **Attachment 1 –** *MNES Significant Impact Assessment Report* (Section 3.2, pages 5-10).

Attachment 1 – *MNES Significant Impact Assessment Report* (all pages) provides greater detail on the project context, key ecology survey findings, and impact assessment outcomes for the Proposed action. The impact assessment sections of **Attachment 2 –** *7N5N2N Power line alignment MNES Ecological Report* (Section 4 and Section 5, pages 40-44) have been superseded due to subsequent minimisation of impact areas, which is captured in Attachment 1. Specific sections and pages of these reports are referenced in this referral where necessary.

Conservation significant species and ecological communities

A review of the following up to date publicly available information sources was undertaken to support preparation of **Attachment 1 –** *MNES Significant Impact Assessment Report*:

- DCCEEW Protected Matters Search Tool (PMST) and resulting Protected Matters Report (PMR) - search area of a 10 km buffer placed around the Study area
- Species Profile and Threats (SPRAT) Database administered by DCCEEW
- Queensland Government Wildlife Online database search, using a 25 km buffer placed around the central coordinates: -22.1912 Latitude, 148.1874 Longitude
- The Atlas of Living Australia (ALA) species database, a web-based search tool that is a partnership between CSIRO, Australian museums, herbaria and other biological collections, and the Australian Government

Copies of the search results are provided in **Attachment 1 –** *MNES Significant Impact Assessment Report* (Appendix A, page 48).

Based on desktop and field survey observations, MNES that potentially, likely or are known to occur within a 10 km radius of the Study area include two TECs, eight species listed as threatened, and three species listed as migratory under the EPBC Act. These MNES are listed below, with further information provided in **Attachment 1 –** *MNES Significant Impact Assessment Report* (Section 3.2, pages 5-10).

TECs:

- Known to occur:
    - Brigalow (*Acacia harpophylla* dominant and codominant) (Brigalow TEC) - Endangered
    - Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin (Natural Grasslands TEC) - Endangered

Threatened species:

- Known to occur:
    - Squatter Pigeon (southern) (*Geophaps scripta scripta*) - Vulnerable
    - Koala (*Phascolarctos cinereus*) - Endangered
    - Greater Glider (*Petauroides volans*) - Endangered
- Likely occurs:
    - Ornamental Snake (*Denisonia maculata*) - Vulnerable
    - Australian Painted Snipe (*Rostratula australis*) - Endangered
    - White-throated Needletail (*Hirundapus caudacutus)* - Vulnerable, Migratory

- Potentially occurs:
    - Sharp-tailed Sandpiper (*Calidris acuminata*) - Vulnerable, Migratory
    - King Blue-grass (*Dichanthium queenslandicum*) - Endangered

Migratory species:

- Known to occur:
    - Fork-tailed Swift (*Apus pacificus*)
    - Rufous Fantail (*Rhipidura rufifrons*)
- Likely occurs:
    - Caspian Tern (*Sterna caspia*)

Flora

Historically, the regional area has been subject to range of land management practices including clearing, woody vegetation poisoning, fire, and grazing. These practices have resulted in large areas of regrowth and non-remnant vegetation.

Survey efforts confirmed a total of 9 regional ecosystems (RE) occurring within the proposed action area. In total, the proposed action area was found to contain approximately 1.67 ha of infrastructure and roads, and approximately ~81.78 ha of vegetation including remnant, regrowth and cleared vegetated areas.

Cattle grazing was common throughout most of the proposed action area. Areas where cattle activity was particularly concentrated (e.g. watering holes, creek crossings and general cattle tracks) often were subject to a significant increase in bare ground cover when compared to the surrounding vegetation.

Pest flora was common throughout the proposed action area. Buffel Grass (*Cenchrus ciliaris*) was the most prolific non-native grass species, often dominating the ground layer throughout extensive areas of the proposed action area.

Fauna

Fauna surveys conducted included fauna trapping (pitfalls, funnels, Elliott traps, cages, harp trapping), avifauna surveys, diurnal active searches, nocturnal active searches, call playback, modified SAT assessments, spotlighting, baited camera trapping and Anabat passive call detection recording.

Pest fauna was common throughout the proposed action area, this included Wild dog, Feral cat, European rabbit and Feral pigs.

Refer to **Attachment 2 –** *7N5N2N Power line alignment MNES Ecological Report* (Sections 3.1-3.5, pages 23-36, and Appendix G, page 79-86) for full flora and fauna descriptions and species' list.

3.2.2 Describe the vegetation (including the status of native vegetation and soil) within the project area.

The Action area encompasses a total of 83.39 ha, of which 52.91 ha is identified as modified non-remnant / previously cleared lands with little value to potentially occurring MNES. The Proposed action will impact 8.67 ha of woody vegetation in remnant REs and a further 21.81 ha of immature and low-growing woody regrowth (refer to **Attachment 1 –** *MNES Significant Impact Assessment Report*, Table 4, page 13 for the detailed breakdown).

Much of the Action area has been impacted by historic disturbance and land management practices. Flora surveys identified nine remnant and regrowth REs within the Action area. A list of ground-truthed REs and their status within the Action area is summarised below, with their detailed descriptions and extents relevant to the Action area provided in **Attachment 1 –** *MNES Significant Impact Assessment Report* (Section 4.1.1, pages 11-14).

Remnant REs:

- 11.3.4 - *Eucalyptus tereticornis* woodland to open forest on Cainozoic alluvial plains and terraces
- 11.3.25 - *Eucalyptus tereticornis* woodland to open forest on fringing levees and banks of major rivers and drainage lines
- 11.4.4 - *Dichanthium spp. +/- Astrebla spp.* tussock grassland on flat to gently undulating clay plains
- 11.5.3 - *Eucalyptus populnea* woodland +/- other eucalypts on flat to gently undulating plains formed from Cainozoic sediments
- 11.8.5 - *Eucalyptus orgadophila* open woodland on undulating plains, rises, low hills or sometimes flat tablelands
- 11.8.11 - Grassland dominated by *Dichanthium sericeum*, *Aristida spp*., *Astrebla spp*. and *Panicum decompositum* on moderately shallow to deep cracking clay soils

Regrowth and non-remnant REs:

- 11.4.8 - *Eucalyptus cambageana* and Acacia harpophylla woodland to open forest on level to gently undulating Cainozoic plains
- 11.4.9 - *Acacia harpophylla* woodland to open forest on level to gently undulating Cainozoic plains
- 11.8.5 - *Eucalyptus orgadophila* open woodland on undulating plains, rises, low hills or sometimes flat tablelands
- 11.9.2 - *Eucalyptus melanophloia* and/or *E. orgadophila* woodland to open woodland on undulating plains with cracking clay or texture contrast soils

3.3 Heritage

3.3.1 Describe any Commonwealth Heritage Places Overseas or other places recognised as having heritage values that apply to the project area.

The PMR did not identify any Commonwealth Heritage Places Overseas withing the Action area or within 10 km of the Study area. The Proposed action is located 132 km from the coastline and well within Australia. Direct or indirect impacts on Commonwealth Heritage Places Overseas are not applicable to the Proposed Action.

Refer to **Attachment 1 –** *MNES Significant Impact Assessment Report* (Appendix A, page 48).

3.3.2 Describe any Indigenous heritage values that apply to the project area.

For the on-lease sections of the Action area there is no native title approval required. Native title has been extinguished in the Action Area. The Action area is covered by a current PDM Cultural Heritage Management Plan/Agreement (CHMP/CHMA). All on-lease disturbance areas provided are within areas that have been granted Unrestricted Clearance. The CHMP will not be made publicly available due to cultural sensitivity reasons.

For off-lease sections of the Action area, this area falls on the traditional lands of the Barada Barna Traditional Owners. Monitoring surveys will be required for the relevant areas here, where further consultation and monitoring requirements will be discussed with the traditional owners as necessary. Where the Action area crosses through un-surveyed lands which fall outside of the CHMP, a pedestrian survey along with other measures will be required. Engagement will occur with the Barada Barna People throughout this process.

3.4 Hydrology

3.4.1 Describe the hydrology characteristics that apply to the project area and attach any hydrological investigations or surveys if applicable. *

The Proposed action is situated within the Isaac River sub-basin, part of the larger Fitzroy Basin. The Action area intersects four minor drainage lines including one stream order 2 and three stream order 1 drainage lines. All of the drainage lines within the Action area are considered highly ephemeral in nature, draining north from the PDM. As a result, there is very little catchment draining through the Action area and any flows would be minor in extent and short-lived.

The nearest major watercourses are Harrow Creek, located to the west outside of the Action area, Cherwell Creek, approximately 3 km to the north-west, and the Isaac River, approximately 11 km to the north.

Refer to **Attachment 2 -** *7N5N2N Power line alignment MNES Ecological Report* (Section 4.3, page 40) for additional detail on the hydrological information.

4. Impacts and mitigation

4.1 Impact details

Potential Matters of National Environmental Significance (MNES) relevant to your proposed action area.

EPBC Act section	Controlling provision	Impacted	Reviewed
S12	World Heritage	No	Yes
S15B	National Heritage	No	Yes
S16	Ramsar Wetland	No	Yes
S18	Threatened Species and Ecological Communities	Yes	Yes
S20	Migratory Species	Yes	Yes
S21	Nuclear	No	Yes
S23	Commonwealth Marine Area	No	Yes
S24B	Great Barrier Reef	No	Yes
S24D	Water resource in relation to large coal mining development or coal seam gas	No	Yes
S26	Commonwealth Land	No	Yes
S27B	Commonwealth Heritage Places Overseas	No	Yes
S28	Commonwealth or Commonwealth Agency	No	Yes

4.1.1 World Heritage

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.1.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.1.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The PMR did not identify any World Heritage Properties within the Action area, or within 10 km of the Study area. The nearest World Heritage Property is the Great Barrier Reef World Heritage Property. This is approximately 132 km east of the Action area.

Direct or indirect impacts on World Heritage Properties (including the Great Barrier Reef World Heritage Property) are not applicable based on the type and scale of the Proposed action (being a power line realignment, with no diversions to waterways or releases to waterways proposed).

Refer to **Attachment 1 –** *MNES Significant Impact Assessment Report* (Appendix A, page 48).

4.1.2 National Heritage

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.2.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.2.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The PMR did not identify any National Heritage Properties within the Action area, or within 10km of the Study area. The nearest National Heritage Property is the Great Barrier Reef National Heritage Property. This is approximately 132 km east of the Action area.

Direct or indirect impacts on National Heritage Properties (including the Great Barrier Reef National Heritage Property) are not applicable based on the type and scale of the Proposed action (being a power line realignment, with no diversions to waterways or releases to waterways proposed).

Refer to **Attachment 1 –** *MNES Significant Impact Assessment Report* (Appendix A, page 48).

4.1.3 Ramsar Wetland

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.3.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.3.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The PMR did not identify any RAMSAR wetlands within the Action area, or within 10km of the Study area. The nearest RAMSAR wetland is the Shoalwater and Corio Bays Area. This wetland is located approximately 180 km east of the Action area.

Direct or indirect impacts on Ramsar wetlands are not applicable based on the type and scale of the Proposed action (being a power line realignment, with no diversions to waterways or releases to waterways proposed).

Refer to **Attachment 1 –** *MNES Significant Impact Assessment Report* (Appendix A, page 48).

4.1.4 Threatened Species and Ecological Communities

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Threatened species

Direct impact	Indirect impact	Species	Common name
No	No	Calidris acuminata	Sharp-tailed Sandpiper
No	No	Calidris ferruginea	Curlew Sandpiper
No	No	Dasyurus hallucatus	Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu]
Yes	No	Denisonia maculata	Ornamental Snake
Yes	No	Dichanthium queenslandicum	King Blue-grass
No	No	Egernia rugosa	Yakka Skink
No	No	Elseya albagula	Southern Snapping Turtle, White-throated Snapping Turtle
No	No	Erythrotriorchis radiatus	Red Goshawk
No	No	Eucalyptus raveretiana	Black Ironbox
No	No	Falco hypoleucos	Grey Falcon
No	No	Furina dunmalli	Dunmall's Snake
No	No	Gallinago hardwickii	Latham's Snipe, Japanese Snipe
Yes	No	Geophaps scripta scripta	Squatter Pigeon (southern)
No	No	Grantiella picta	Painted Honeyeater
No	No	Hemiaspis damelii	Grey Snake
No	No	Lerista allanae	Allan's Lerista, Retro Slider
No	No	Macroderma gigas	Ghost Bat
No	No	Neochmia ruficauda ruficauda	Star Finch (eastern), Star Finch (southern)
No	No	Nyctophilus corbeni	Corben's Long-eared Bat, South-eastern Long-eared Bat
Yes	No	Petauroides volans	Greater Glider (southern and central)

Direct impact	Indirect impact	Species	Common name
Yes	No	Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)	Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory)
No	No	Poephila cincta cincta	Southern Black-throated Finch
No	No	Polianthion minutiflorum	
No	No	Rheodytes leukops	Fitzroy River Turtle, Fitzroy Tortoise, Fitzroy Turtle, White-eyed River Diver
No	No	Rostratula australis	Australian Painted Snipe
No	No	Samadera bidwillii	Quassia
No	No	Stagonopleura guttata	Diamond Firetail

Ecological communities

Direct impact	Indirect impact	Ecological community
Yes	No	Brigalow (Acacia harpophylla dominant and co-dominant)
Yes	No	Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin
No	No	Poplar Box Grassy Woodland on Alluvial Plains

4.1.4.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

Yes

4.1.4.2 Briefly describe why your action has a direct and/or indirect impact on these protected matters. *

An MNES Report has been prepared to support referral of the Proposed action under the EPBC Act (**Attachment 1 –** *MNES Significant Impact Assessment Report*, all pages).

The Proposed action will involve disturbance within an area of 83.39 ha. There is approximately 8.67 ha of remnant vegetation and 21.81 ha of immature and low-growing woody regrowth being disturbed. It is noted that the regrowth vegetation within the Action area provides limited value for MNES. The Proposed action has been designed (pre-mitigation measures) to minimise direct impacts to MNES as follows:

- Grubbing and topsoil removal will be restricted to the construction access track situated within the power line corridor, which will be up to 10 m wide (the width of which may be reduced during construction where practicable to further avoid MNES).
- Topsoil and grassland will be retained within the remaining width of the Action area, with only trees and shrubs required to be removed to reduce the fire hazard and maintain safe operational clearance for the power lines.

Further detail on the Proposed action design and impacts are provided in **Attachment 1 –** *MNES Significant Impact Assessment Report* (Section 4, pages 11-21).

Direct impacts associated with the Proposed action are related to vegetation clearing and associated impacts to TECs or habitat for threatened species. The Proposed action will involve direct impacts to the following MNES that are known or likely to occur in the Action area.

A summary of the associated impact areas are provided below. Further details of the nature and extent of direct and indirect impacts to MNES are described in **Attachment 1 –** *MNES Significant Impact Assessment Report* (Section 4 and Section 5, pages 11-41).

Direct impacts to TECs:

- Natural Grassland TEC (0.57 ha)
- Brigalow TEC (0.04 ha)

Direct impacts to threatened species habitat:

- King Bluegrass (*Dichanthium queenslandicum*) (0.57 ha)
- Squatter Pigeon (*Geophaps scripta scripta*) (22.77 ha)
- Koala (*Phascolarctos cinereus*) (17.57 ha)
- Greater Glider (*Petauroides volans*) (6.42 ha)
- Ornamental Snake (*Denisonia maculata*) (0.19 ha)

Other threatened species that may occur in the Action area (including the White-throated Needletail, Australian Painted Snipe and Sharp-tailed Sandpiper) are not expected to be impacted beyond negligible levels. A detailed justification for this assessment outcome is provided in **Attachment 1 –** *MNES Significant Impact Assessment Report* (Section 5.2, pages 23-24).

The Proposed action also has the potential to result in indirect impacts to MNES if construction activities and operation of the power line are not managed appropriately. Potential indirect impacts could include the proliferation or introduction of weeds and pests, increased risk of fire, and impacts to local water quality.

4.1.4.4 Do you consider this likely direct and/or indirect impact to be a Significant Impact? *

No

4.1.4.6 Describe why you do not consider this to be a Significant Impact. *

An assessment of the potential for significant impacts resulting from the Proposed action was carried out (refer to **Attachment 1 –** *MNES Significant Impact Assessment Report,* Section 5, pages 22-41).

The relevant sections and pages for the outcomes of the significant impact assessment for TECs and threatened species are listed below:

- TECs (refer **Attachment 1**, Section 5.2.1, page 23 and Section 5.3.1, pages 24-26).
- Threatened flora (refer **Attachment 1**, Section 5.4.1, pages 26-29)
- Threatened fauna (refer **Attachment 1**, Section 5.2.2-5.2.4, pages 23-24, and Sections 5.4.2-5.4.4, pages 29-40).

In general, impacts resulting from the Proposed action will be minor and likely only restricted to the construction phase. Impacts from the operational phase are likely to be benign and restricted to occasional slashing of grasses within the corridors and maintenance activities. Project infrastructure has been located away from MNES values as much as is feasible, and the extent of remnant vegetation cleared as a result of the Proposed action (8.67 ha of remnant vegetation) is a very minor area given the extent remaining in the Action area and surrounding region (refer **Attachment 1 –** *MNES Significant Impact Assessment Report*, Section 4.1.1, page 14).

It is noted that the significant impact assessment for the Proposed action determined that there is a potential for a significant impact to occur on the Koala and Greater Glider as a result of native vegetation clearing and associated impacts to suitable habitat. However, the Proposed action was not identified to have a likely significant impact. The detailed reasoning for this assessment is provided in **Attachment 1 –** *MNES Significant Impact Assessment Report* (Section 5.4.2 and 5.4.3, pages 29-36).

The Proposed action has **not been found to have a likely** significant impact. While it is not likely significant impacts will occur, due to the regulatory sensitivities of these species, the Proponent has taken a conservative approach and elected to refer the Proposed action under the EPBC Act to provide DCCEEW the opportunity to assess the action.

4.1.4.7 Do you think your proposed action is a controlled action? *

No

4.1.4.9 Please elaborate why you do not think your proposed action is a controlled action. *

The Proposed action is not considered to be a controlled action due to the significant impact assessment, completed in accordance with the Commonwealth Significant Impact Guidelines 1.1, indicating that no MNES are considered likely to be significantly impacted. It is noted that Koala and Greater glider have the potential to be significantly impacted.

An assessment of the potential for significant impacts resulting from the Proposed action was carried out and detailed explanation is provided (refer to **Attachment 1 –** *MNES Significant Impact Assessment Report,* Section 5, pages 22-41).

Should DCCEEW determine the Proposed action is a controlled action, the proponent expects that it would be assessed based on the referral documentation given the comprehensive information provided within, including a robust significant impact assessment (**Attachment 1 –** *MNES Significant Impact Assessment Report*, all pages) supported by the detailed methodologies and findings of extensive field-based ecological studies (**Attachment 2 –** *7N5N2N Power line alignment MNES Ecological Report*, all pages).

4.1.4.10 Please describe any avoidance or mitigation measures proposed for this action and attach any supporting documentation for these avoidance and mitigation measures. *

The Proposed action has been located away from sensitive ecological values as much as is feasible. The design layout has been subject to several revisions in order to further avoid identified higher value habitats. A detailed description of this design refinement process is provided below and **Attachment 1 –** *MNES Significant Impact Assessment Report* (Section 4.3, page 20-21).

Design avoidance and refinement process

The original Action area included a corridor up to 60 m wide for both the main lines and the stub lines. The width of the main line has been reduced by 10 m (now 50 m wide) while the width of the stub lines has been reduced by 30 m (now 30 m wide). The main line width is required to remain at 50 m and could not be reduced any further due to safety and design requirements which are managed under BMA's internal procedure policies for a 66 kV power line.

Significant design changes have occurred to avoid fragmenting patches of potential habitat through shifting the alignment to the edges of these patches where possible. This includes shifting the alignment to almost completely avoid impacting on the Natural Grassland TEC. The proposed alignment avoids the clearing of mature trees as much as practical to minimise potential impact to Greater Glider and Koala, should the species occur. Further, where necessary clearing could not avoid ground-truthed MNES potential habitat, proposed disturbance has been limited to marginal habitat as much as practicable.

To minimise the proposed clearing impacts, activities involving grubbing and topsoil removal will be restricted to the construction access track situated within the power line corridor (i.e. located within the above-nominated widths for main lines and stub lines), which will be up to 10 m wide. Topsoil and grassland will be retained within the remaining width of the corridor, with only trees and shrubs required to be removed to reduce the fire hazard and maintain safe operational clearance for the power lines.

Regarding the Natural Grassland TEC, this results in a substantial reduction to the total area being permanently impacted, where the original extent to be impacted was 2.55 ha, which through the avoidance and mitigation process has been reduced to 0.57 ha.

Importantly, the 10 m wide construction access track will not be formalised as a gravel access track which would typically result in preventing the vegetation regrowth. Instead, it will be allowed to regenerate naturally following completion of construction of the power lines, and will be subject to weed management to support the regeneration of the natural grassland. During the operational life of the power line, the entire area will be managed through slashing and grazing to keep fuel loads controlled in the corridor and to allow continued maintenance access.

Overall, the refinement of the alignment has minimised the direct impact to vegetation communities that have been ground-truthed as potential habitat for MNES.

Construction and operational mitigation measures

Proposed mitigation measures to be implemented during the pre-construction, construction, operation and completion phases are detailed in **Attachment 1 –** *MNES Significant Impact Assessment Report* (Section 4.2, pages 18-20, and Section 5.3 to 5.5, pages 24-41). Key measures include minimising disturbance extents (micro-siting of infrastructure), the use of a qualified fauna spotter catcher(s) during clearing works, and implementing robust weed, pest and pathogen controls.

4.1.4.11 Please describe any proposed offsets and attach any supporting documentation relevant to these measures. *

If the proposed action is deemed a controlled action by DCCEEW, as necessary, the Proponent will provide appropriate offsets based on the assessed level of direct impacts to MNES.

4.1.5 Migratory Species

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Direct impact	Indirect impact	Species	Common name
No	No	Actitis hypoleucos	Common Sandpiper
No	Yes	Apus pacificus	Fork-tailed Swift
No	No	Calidris acuminata	Sharp-tailed Sandpiper
No	No	Calidris ferruginea	Curlew Sandpiper
No	No	Calidris melanotos	Pectoral Sandpiper
No	No	Cuculus optatus	Oriental Cuckoo, Horsfield's Cuckoo
No	No	Gallinago hardwickii	Latham's Snipe, Japanese Snipe
No	Yes	Hydroprogne caspia	Caspian Tern
No	No	Motacilla flava	Yellow Wagtail
No	Yes	Rhipidura rufifrons	Rufous Fantail

4.1.5.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

Yes

4.1.5.2 Briefly describe why your action has a direct and/or indirect impact on these protected matters. *

The following species listed as migratory under the EPBC Act are considered as known or likely to occur within the Action area (refer **Attachment 1 –** *MNES Significant Impact Assessment Report*, Section 3.2.3, page 9):

- Known to occur:
  - Fork-tailed Swift (*Apus pacificus*)
  - Rufous Fantail (*Rhipidura rufifrons*)
- Likely occurs:
  - Caspian Tern (*Sterna caspia*)

It is noted that the following indirect impacts on the above-listed migratory species while they may occur, are considered unlikely as a result of the proposed action:

- Potential spread or exacerbation of weed species.
- Potential for spread of invasive fauna species.
- Potential disturbance to individuals (if present) from dust, noise and light during construction.

These species are not expected to be impacted beyond negligible levels.

A detailed justification for this assessment outcome is provided in **Attachment 1 –** *MNES Significant Impact Assessment Report* (Section 5.2, pages 23-24, and Section 5.5, pages 40-41).

4.1.5.4 Do you consider this likely direct and/or indirect impact to be a Significant Impact? *

No

4.1.5.6 Describe why you do not consider this to be a Significant Impact. *

The assessment of significant impacts resulting from the Proposed action on migratory species concluded that the Proposed action is unlikely to result in significant impacts to these species. Potential indirect impacts as a result of the proposed action are considered negligible given that important habitat, specifically breeding habitat, for these migratory species is not present in the proposed action area, and a reduction of migratory species' foraging and dispersal habitat will not significantly impact the persistence of these species.

The detailed justification for this assessment outcome is provided in **Attachment 1 –** *MNES Significant Impact Assessment Report* (Sections 5.2.3 to 5.2.4, page 24, and Section 5.5, pages 40-41). The detailed survey methodology and relevant legislation it is in accordance with for migratory species is provided in **Attachment 2 -** *7N5N2N Power line alignment MNES Ecological Report* (Section 2.6, pages 14-17).

4.1.5.7 Do you think your proposed action is a controlled action? *

No

4.1.5.9 Please elaborate why you do not think your proposed action is a controlled action. *

There will be no significant direct or indirect impact to migratory species from the Proposed action, as per the assessment outcomes provided in **Attachment 1 –** *MNES Significant Impact Assessment Report* (Sections 5.2.3 to 5.2.4, page 23, and Section 5.5, pages 40-41). Therefore, the Proposed action is not considered to be a controlled action with respect to migratory species.

4.1.5.10 Please describe any avoidance or mitigation measures proposed for this action and attach any supporting documentation for these avoidance and mitigation measures. *

The Proposed action has been located away from sensitive ecological values as much as is feasible. The design layout has been subject to several revisions in order to further avoid identified higher value habitats. Further, no significant impacts to migratory species or their habitats are considered likely to occur as a result of the Proposed action. A detailed description of this design refinement process is provided below and **Attachment 1 –** *MNES Significant Impact Assessment Report* (Section 4.3, page 20-21).

4.1.5.11 Please describe any proposed offsets and attach any supporting documentation relevant to these measures. *

No proposed offsets are necessary for migratory species as the proposed action is not considered likely to have a significant impact on any migratory species. If the assessment process by DCCEEW identifies that offsets are required, BMA will ensure offsets are provided in accordance with Commonwealth and State legislation where required.

4.1.6 Nuclear

4.1.6.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.6.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

Not applicable. The Proposed action does not involve any nuclear activities or material.

4.1.7 Commonwealth Marine Area

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.7.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.7.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The Action area is located over 250 km west of the boundary of the Commonwealth Marine Area.

Direct or indirect impacts to a Commonwealth Mine Area are not applicable based on the type and scale of the Proposed action (being a power line realignment, with no diversions to waterways or releases to waterways proposed).

4.1.8 Great Barrier Reef

4.1.8.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.8.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The Great Barrier Reef Marine Park is located approximately 132 km east of the Action area.

Direct or indirect impacts to the Great Barrier Reef Marine Park are not applicable based on the type and scale of the Proposed action (power line realignment, with no diversions to waterways or releases to waterways proposed).

4.1.9 Water resource in relation to large coal mining development or coal seam gas

4.1.9.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.9.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The Proposed action involves realignment of a 66 kV power line and is not a coal mining development or coal seam gas project. Furthermore, there is no water extraction, major excavations, contamination, or alteration of watercourses or aquifers proposed for the Proposed action. Therefore, the Proposed action will not have any direct or indirect impacts on water resources in relation to large coal mining development or coal seam gas.

4.1.10 Commonwealth Land

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

—

4.1.10.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.10.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The Significant Impact Guidelines 1.1 (DE 2013) define Commonwealth land as the islands within the Marine Park. The Proposed action is unlikely to have a direct or an indirect impact on any Commonwealth Land as the nearest Marine Park is the Great Barrier Reef Marine Park, which is approximately 132 km to the east of the Action area.

Direct or indirect impacts on Commonwealth Land (including the Great Barrier Reef Marine Park) are not applicable based on the type and scale of the Proposed action (power line realignment, with no diversions to waterways or releases to waterways proposed).

4.1.11 Commonwealth Heritage Places Overseas

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

—

4.1.11.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.11.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The PMR did not identify any Commonwealth Heritage Places Overseas withing the Action area or within 10km of the Study area. The Proposed action is located 132 km from the coastline and well within Australia. Direct or indirect impacts on Commonwealth Heritage Places Overseas are not applicable to the Proposed Action.

Refer to **Attachment 1 –** *MNES Significant Impact Assessment Report* (Appendix A, page 48).

4.1.12 Commonwealth or Commonwealth Agency

4.1.12.1 Is the proposed action to be taken by the Commonwealth or a Commonwealth Agency? *

No

4.2 Impact summary

Conclusion on the likelihood of significant impacts

You have indicated that the proposed action will likely have a significant impact on the following Matters of National Environmental Significance:

None

Conclusion on the likelihood of unlikely significant impacts

You have indicated that the proposed action will unlikely have a significant impact on the following Matters of National Environmental Significance:

- World Heritage (S12)
- National Heritage (S15B)
- Ramsar Wetland (S16)
- Threatened Species and Ecological Communities (S18)
- Migratory Species (S20)
- Nuclear (S21)
- Commonwealth Marine Area (S23)
- Great Barrier Reef (S24B)
- Water resource in relation to large coal mining development or coal seam gas (S24D)
- Commonwealth Land (S26)
- Commonwealth Heritage Places Overseas (S27B)
- Commonwealth or Commonwealth Agency (S28)

4.3 Alternatives

4.3.1 Do you have any possible alternatives for your proposed action to be considered as part of your referral? *

No

4.3.8 Describe why alternatives for your proposed action were not possible. *

There is no alternative to the Proposed action. The relocation of the power lines is necessary to support existing mining activities at PDM. Without relocation of the power lines, existing mining activities would be severely constrained due to a lack of supporting power requirements.

The Proposed action has been through a substantial design refinement process, including the relocation and refinement of the Action area to avoid or minimise impacts to ground-truthed MNES wherever possible. A description of the refinement process has been provided in **Section 4.1.4.10** of this referral. No further design refinement or action alternatives are now possible, as these would only result in either increased impacts to MNES or making the project unfeasible.

5. Lodgement

5.1 Attachments

1.2.1 Overview of the proposed action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 1 - MNES Significant Impact Assessment.pdf MNES Significant Impact Assessment for the Proposed Action.	29/08/2024	No	High
#2.	Document	Attachment 2 - 7N5N2N Power line alignment MNES Ecological Report.pdf Ecological survey methodologies and findings relevant to the Proposed Action.	10/06/2024	No	High

1.3.2.18 (Person proposing to take the action) If the person proposing to take the action is a corporation, provide details of the corporation's environmental policy and planning framework

	Type	Name	Date	Sensitivity	Confidence
#1.	Link	(BHP, 2024) Environment and nature https://www.bhp.com/sustainability/environment/.			High
#2.	Link	(Mitsubishi Development Pty Ltd, 2021) Sustainability https://www.mdp.com.au/sustainability.			High

2.2.5 Tenure of the action area relevant to the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 1 - MNES Significant Impact Assessment.pdf MNES Significant Impact Assessment for the Proposed Action.	28/08/2024	No	High

3.1.1 Current condition of the project area's environment

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 2 - 7N5N2N Power line alignment MNES Ecological Report.pdf Ecological survey methodologies and findings relevant to the Proposed Action.	09/06/2024	No	High

3.1.2 Existing or proposed uses for the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 1 - MNES Significant Impact Assessment.pdf	28/08/2024	No	High

MNES Significant Impact Assessment
for the Proposed Action.

3.2.1 Flora and fauna within the affected area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 1 - MNES Significant Impact Assessment.pdf MNES Significant Impact Assessment for the Proposed Action.	28/08/2024	No	High
#2.	Document	Attachment 2 - 7N5N2N Power line alignment MNES Ecological Report.pdf Ecological survey methodologies and findings relevant to the Proposed Action.	09/06/2024	No	High

3.2.2 Vegetation within the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 1 - MNES Significant Impact Assessment.pdf MNES Significant Impact Assessment for the Proposed Action.	28/08/2024	No	High
#2.	Link	Methodology for survey and mapping of regional ecosystems and vegetation communities in Queensland https://www.qld.gov.au/environment/plants-animal..			High

3.3.1 Commonwealth heritage places overseas or other places that apply to the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 1 - MNES Significant Impact Assessment.pdf MNES Significant Impact Assessment for the Proposed Action.	28/08/2024	No	High

3.4.1 Hydrology characteristics that apply to the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 2 - 7N5N2N Power line alignment MNES Ecological Report.pdf Ecological survey methodologies and	09/06/2024	No	High

findings relevant to the Proposed Action.

4.1.1.3 (World Heritage) Why your action is unlikely to have a direct and/or indirect impact

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 1 - MNES Significant Impact Assessment.pdf MNES Significant Impact Assessment for the Proposed Action.	28/08/2024	No	High

4.1.2.3 (National Heritage) Why your action is unlikely to have a direct and/or indirect impact

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 1 - MNES Significant Impact Assessment.pdf MNES Significant Impact Assessment for the Proposed Action.	28/08/2024	No	High

4.1.3.3 (Ramsar Wetland) Why your action is unlikely to have a direct and/or indirect impact

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 1 - MNES Significant Impact Assessment.pdf MNES Significant Impact Assessment for the Proposed Action.	28/08/2024	No	High

4.1.4.2 (Threatened Species and Ecological Communities) Why your action has a direct and/or indirect impact on the identified protected matters

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 1 - MNES Significant Impact Assessment.pdf MNES Significant Impact Assessment for the Proposed Action.	28/08/2024	No	High

4.1.4.6 (Threatened Species and Ecological Communities) Why you do not consider the direct and/or indirect impact to be a Significant Impact

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 1 - MNES Significant Impact Assessment.pdf MNES Significant Impact Assessment for the Proposed Action.	28/08/2024	No	High

4.1.4.9 (Threatened Species and Ecological Communities) Why you do not think your proposed action is a controlled action

	Type	Name	Date	Sensitivity	Confidence

#1.	Document	Attachment 1 - MNES Significant Impact Assessment.pdf MNES Significant Impact Assessment for the Proposed Action.	28/08/2024	No	High
#2.	Document	Attachment 2 - 7N5N2N Power line alignment MNES Ecological Report.pdf Ecological survey methodologies and findings relevant to the Proposed Action.	09/06/2024	No	High

4.1.4.10 (Threatened Species and Ecological Communities) Avoidance or mitigation measures proposed for this action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 1 - MNES Significant Impact Assessment.pdf MNES Significant Impact Assessment for the Proposed Action.	28/08/2024	No	High

4.1.5.2 (Migratory Species) Why your action has a direct and/or indirect impact on the identified protected matters

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 1 - MNES Significant Impact Assessment.pdf MNES Significant Impact Assessment for the Proposed Action.	28/08/2024	No	High

4.1.5.6 (Migratory Species) Why you do not consider the direct and/or indirect impact to be a Significant Impact

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 1 - MNES Significant Impact Assessment.pdf MNES Significant Impact Assessment for the Proposed Action.	28/08/2024	No	High
#2.	Document	Attachment 2 - 7N5N2N Power line alignment MNES Ecological Report.pdf Ecological survey methodologies and findings relevant to the Proposed Action.	09/06/2024	No	High

4.1.5.9 (Migratory Species) Why you do not think your proposed action is a controlled action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 1 - MNES Significant Impact Assessment.pdf MNES Significant Impact Assessment for the Proposed Action.	28/08/2024	No	High

4.1.5.10 (Migratory Species) Avoidance or mitigation measures proposed for this action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 1 - MNES Significant Impact Assessment.pdf MNES Significant Impact Assessment for the Proposed Action.	28/08/2024	No	High

4.1.10.3 (Commonwealth Land) Why your action is unlikely to have a direct and/or indirect impact

	Type	Name	Date	Sensitivity	Confidence
#1.	Link	Matters of National Environmental Significance: Significant Impact Guidelines 1.1 https://www.dcceew.gov.au/environment/epbc/publi..			High

4.1.11.3 (Commonwealth heritage places overseas) Why your action is unlikely to have a direct and/or indirect impact

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 1 - MNES Significant Impact Assessment.pdf MNES Significant Impact Assessment for the Proposed Action.	28/08/2024	No	High

5.2 Declarations

Completed Referring party's declaration

The Referring party is the person preparing the information in this referral.

ABN/ACN	67096412752
Organisation name	BM ALLIANCE COAL OPERATIONS PTY LIMITED
Organisation address	4000 QLD
Representative's name	Hannah Silcox
Representative's job title	Environment Approvals Specialist
Phone	[redacted]
Email	[redacted]
Address	Level 14, 480 Queen Street, Brisbane

☑ Check this box to indicate you have read the referral form. *

☑ Check this box to confirm these are the correct identification details. *

☑ By checking this box, I, [redacted] **of BM ALLIANCE COAL OPERATIONS PTY LIMITED**, declare that to the best of my knowledge the information I have given on, or attached to this EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. *

You may receive automated notifications that aim to assist you in tracking the progress of your project. You can opt out of these notifications by updating your communication preferences on your profile.

Completed Person proposing to take the action's declaration

The Person proposing to take the action is the individual, business, government agency or trustee that will be responsible for the proposed action.

ABN/ACN	67096412752
Organisation name	BM ALLIANCE COAL OPERATIONS PTY LIMITED
Organisation address	4000 QLD
Representative's name	[redacted]

Representative's job title	Superintendent Environmental Approvals
Phone	[redacted]
Email	[redacted]
Address	Level 14, 480 Queen Street, Brisbane Qld 4000

- [x] Check this box to indicate you have read the referral form. *

- [x] Check this box to confirm these are the correct identification details. *

- [x] I, [redacted] **of BM ALLIANCE COAL OPERATIONS PTY LIMITED**, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action on behalf or for the benefit of any other person or entity. *

You may receive automated notifications that aim to assist you in tracking the progress of your project. You can opt out of these notifications by updating your communication preferences on your profile.

Completed Proposed designated proponent's declaration

The Proposed designated proponent is the individual or organisation proposed to be responsible for meeting the requirements of the EPBC Act during the assessment process, if the Minister decides that this project is a controlled action.

Same as Person proposing to take the action information.

- [x] Check this box to indicate you have read the referral form. *

- [x] Check this box to confirm these are the correct identification details. *

- [x] I, [redacted] **of BM ALLIANCE COAL OPERATIONS PTY LIMITED**, the Proposed designated proponent, consent to the designation of myself as the Proposed designated proponent for the purposes of the action described in this EPBC Act Referral. *

You may receive automated notifications that aim to assist you in tracking the progress of your project. You can opt out of these notifications by updating your communication preferences on your profile.



MNES Significant Impact Assessment Report

BM Alliance Coal Operations Pty Ltd

Peak Downs Mine Powerline Realignment Project

Peak Downs Mine

BE200178.01

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1 INTRODUCTION

BM Alliance Coal Operations Pty Ltd (BMA, the Proponent) owns and operates Peak Downs Mine (PDM), an open cut coal mining operation near Moranbah, Queensland. The Proponent plans to progress mining at PDM within Mining Lease (ML) 1775 in an easterly direction in line with its current regulatory authorisations for mining. This has triggered the need to realign the existing 66 kilovolt (kV) power line (the Project) ahead of pit progression. The existing 66 kV power line is located within ML 1775, running in a north-south direction adjacent to the shared mining lease boundary of ML 1775 and ML 70411.

1.1 Project Location

The Project is located adjacent to the northern side of PDM and is approximately 22 kilometers (km) south-east of the township of Moranbah in central Queensland (**Figure 1**). It lies within land described as Lot 8 on SP 277384, located within the Isaac Regional Council Local Government Area (LGA) and the Brigalow Belt North Bioregion. For the purposes of this report, the Project area is the location where the proposed power line realignment and associated activities will be sited, and the Study area is the area assessed by supporting ecological studies, which captures the Project area and nearby surrounding land (**Figure 1**).

1.2 Project Description

There are currently three existing mine pits at PDM, 7 North, 5 North and 2 North (7N, 5N and 2N respectively), which are progressing to the east. As a result, the current 7N/5N/2N power lines require realignment in order to allow for the pit to progress. The pit progression towards the power lines is approaching exclusion limits to blasting for mining activities. Therefore, the power lines are required to be relocated to the east of their current alignment. The relocation of these power lines is necessary to support continued mining activities at PDM. Without relocation of the power lines, existing mining activities would be severely constrained due to a lack of supporting power requirements.

The proposed realignment of the 7N/5N/2N power line for the Project is comprised of the following three components:

- 7N power line realignment – entirely outside of a mining lease
- 5N power line realignment – partly within ML 70411, partly outside a mining lease
- 2N power line realignment – entirely within ML 70411

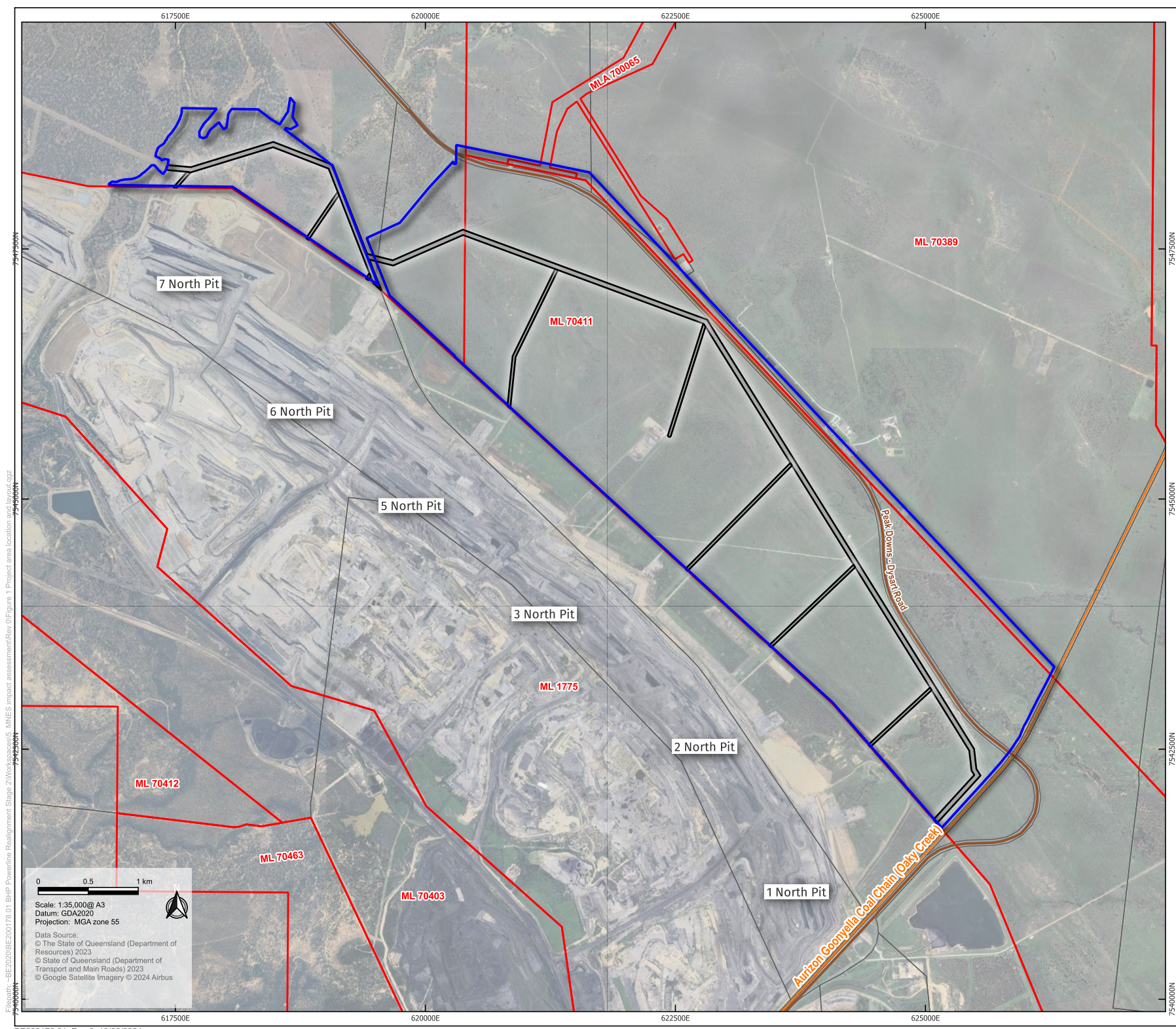
The Project will consist of the following activities:

- A corridor up to 50 m wide along the main axis of the proposed power line's main axis
- A series of stub lines with 30 m wide corridors, perpendicular to the power line's main axis
- An access track up to 10 m wide along the main corridor and stub line corridors
- Excavating and pouring foundations for the power line towers
- Assembly and erecting the power line steel work including installation of stay anchors
- Stringing electrical cables, conductors and earth wires along the power line towers
- Tensioning of electrical cables to achieve minimum ground clearance
- Connection of conductor bridges and droppers
- Testing, commissioning and connection with the main site

The Project area that contains the power line corridors and associated infrastructure is 83.39 hectares (ha). Disturbance types and extents within the Project area are described in **Section 4.1**.

1.3 Scope and Purpose of Assessment

The Proponent has engaged Epic Environmental Pty Ltd (Epic) to undertake an assessment of the likelihood of significant impacts to Matters of National Environmental Significance (MNES) to occur as a result of the Project. This report presents the approach, findings and conclusions of the assessment, and includes the information necessary to determine whether the Project requires referral under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) for assessment by the Department of Climate Change, Energy, the Environment and Water (DCCEEW). Should a referral be submitted, this report would provide supporting information as part of the application documents.





Legend

- Study area
- Project area
- Mining leases
- State controlled roads
- Railways

BM Alliance Coal Operations Pty Ltd
Peak Downs Power Line Realignment
MNES Impact Assessment

Figure 1
Study area and Project area location

Filepath: ...\BE2020\BE200178.01 BHP Powerline Realignment Stage 2\Workspaces\5. MNES impact assessment\Rev 0\Figure 1 Project area location and layout.qgz

1.4 Assessment Method

The assessment is based on recent Project field-based mapping of environmental values and reporting provided by Ausecology including:

- 7N-5N-2N Powerline Alignment MNES Ecological Report (June 2024) (Ausecology 2024a)
- Peak Downs Mine 7N-5N-2N Power line Project Off-lease – MSES Technical Memo (July 2024) (Ausecology 2024b)

The reporting encompasses data largely collected during field surveys undertaken for the Project by Ausecology in 2019, 2022 and 2023. The purpose of these surveys was to document the existing ecological values of the Study area (refer **Figure 1**) and to inform the potential impact of the Project.

As such, this assessment is not intended to present a full summary of the ecological values present within the Study area. The Project's MNES Ecological report (Ausecology 2024a) should be reviewed in conjunction with this MNES Significant Impact Assessment Report.

This assessment includes an updated desktop review of publicly available information to ensure all ecological values of conservation significance (listed MNES) considered currently relevant to the Study area are identified. This includes species and vegetation communities of conservation significance that potentially occur within the Study area and surrounds.

Publicly available information sources accessed for this assessment included the following:

- DCCEEW Protected Matters Search Tool area search with a 10 km buffer placed around the Study area
- Species Profile and Threats (SPRAT) Database administered by DCCEEW
- Queensland Government Wildlife Online database:
  - 25 km buffer placed around the central coordinates: -22.1912 Latitude, 148.1874 Longitude
- The Atlas of Living Australia (ALA) species database is a web-based search tool that is a partnership between CSIRO, Australian museums, herbaria and other biological collections, and the Australian Government

Copies of the search results are provided in **Appendix A**.

The significant impact assessment has been completed for MNES identified to be relevant to the Project area and surrounds, and was carried out in accordance with the *MNES significant impact guidelines 1.1* (MNES Guidelines) (DoE 2013a) (**Section 5**).

2 RELEVANT LEGISLATION

2.1 Commonwealth Legislation

2.1.1 *Environment Protection and Biodiversity Conservation Act 1999*

The EPBC Act is the key piece of Commonwealth legislation governing environmental protection in Australia. Administered by the DCCEEW, the EPBC Act defines and protects nine MNES including:

- World heritage properties
- National heritage places
- Wetlands of international importance (listed under the Ramsar Convention)
- Listed threatened species and ecological communities
- Migratory species protected under international agreements
- Commonwealth marine areas
- The Great Barrier Reef Marine Park
- Nuclear actions (including uranium mines)
- A water resource in relation to coal seam gas development and large coal mining development

Under Part 3 of the EPBC Act, a person must not undertake an action (e.g. a project, a development, an undertaking, an activity or a series of activities, or an alteration of any of these things) that will have, or is likely to have, a significant impact on a protected matter, without approval from the Minister.

Guidance is provided on assessing the potential for a project to impact on MNES through subordinate referral and impact assessment guidelines, particularly the MNES Guidelines for assessing impacts on threatened species and vegetation communities.

If after all reasonable avoidance and mitigation measure have been taken, there is still a residual impact on a protected matter, an offset may be required where the impact is, or is likely to be, significant.

2.1.2 Environmental Offsets Policy 2012

The EPBC Act *Environmental Offsets Policy October 2012* (EOP) provides upfront guidance on the role of offsets in environmental impact assessments, and how DCCEEW considers the suitability of a proposed offset. The EOP aims to improve environmental outcomes through the consistent application of best practice offset principles, provide more certainty and transparency, and encourage advanced planning of offsets.

3 REVIEW RESULTS

3.1 Matters of National Environmental Significance – PMR Report

The DCCEEW Protected Matters Report (PMR) identifies MNES protected under the EPBC Act that are considered as potentially occurring within the Study area and surrounds. The updated PMR identified three categories of MNES potentially present within the Study area or surrounds (as summarised in **Table 1**). A copy of the PMR is provided in **Appendix A**.

Table 1. EPBC Act PMR summary

MNES	PMR search result and relevance to assessment area
World heritage properties	Not applicable
National heritage properties	Not applicable
Wetlands of international importance	Not applicable
Great Barrier Reef Marine Park	Not applicable
Commonwealth marine area	Not applicable
Listed threatened ecological communities (TECs)	Three ecological communities listed as threatened predicted to be present
Listed threatened species	Twenty-eight threatened species including four flora and 24 fauna species listed as threatened predicted to be present (refer **Appendix A**)
Laited migratory species	Ten species listed as migratory predicted to be present (refer **Appendix A**)

3.2 Matters of National Environmental Significance - ground-truthed data

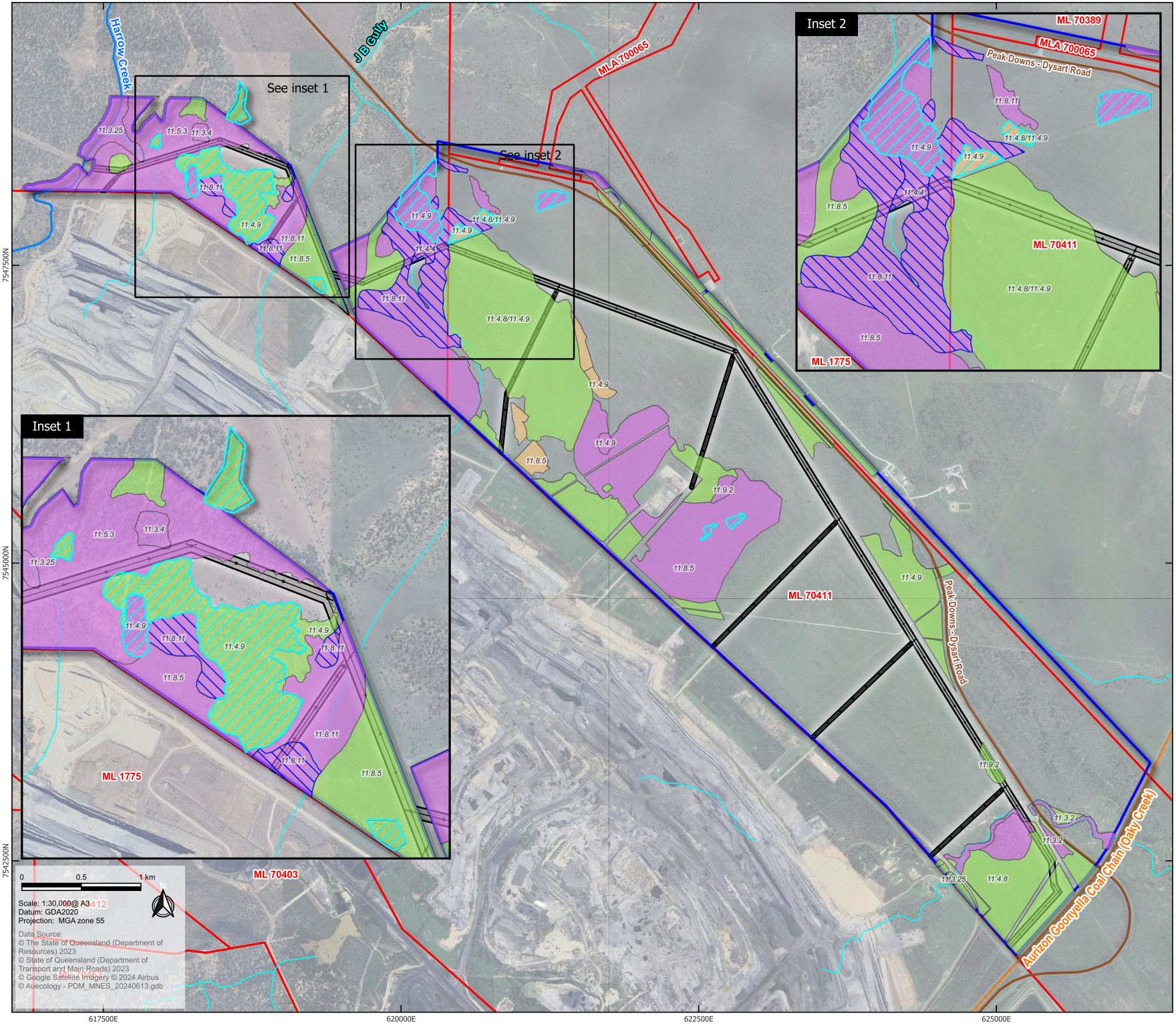
The Study area (as depicted in **Figure 1**) and surrounds have been the subject of a number of ecology surveys in recent years including surveys carried out by Ausecology in 2019, 2022 and 2023, as well as studies carried out by Eco Logical (2016 and 2020), AECOM (2020) and ERM (2021). These studies are detailed in the *7N5N2N Power line alignment MNES ecological report* (Ausecology 2024a). **Appendix B** depicts threatened species records derived from the surveys undertaken within and surrounding the Study area, as sourced from Ausecology (2024a). The Ausecology (2024a) report details the methods used for the Project surveys and how the survey effort relates to Commonwealth survey guidelines (where these apply).

The following sections summarise the results of the Ausecology (2024a) report. Only MNES considered potentially present are discussed. For a complete discussion including a likelihood of occurrence assessment of all species/TECs predicted to occur from database sources, refer to Ausecology (2024a).

3.2.1 Threatened Ecological Communities

Two TECs were identified as present within the Study area (**Figure 2**):

- Brigalow (*Acacia harpophylla* dominant and codominant) (Brigalow TEC) – Brigalow occurs as remnant, but more commonly regrowth communities (RE 11.4.8 and 11.4.9) in the eastern and north-western portions of the Study area. Assessments of these communities were carried out with regard to the diagnostic criteria and condition thresholds in the Approved Conservation Advice for the TEC (DoE 2013b). The assessments confirmed the presence of Brigalow TEC only in portions of the western extent of the Study area (**Plate 1**)
- Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin (Natural Grasslands TEC) – native grassland communities (RE 11.4.4 and 11.8.11) occur as large patches in the western portion of the Study area. Assessments of these communities were carried out with regard to the description and condition thresholds in the Commonwealth listing advice for the TEC (TSSC 2009). The assessments confirmed the presence of Natural Grasslands TEC only in portions of the overall extent of mapped grassland areas (**Plate 2**). These comprised patches considered to meet 'best quality' or 'good quality' condition class as defined by TSSC (2009)



Filepath: ~BE2020\BE200178.01 BHP Powerline Realignment Stage 2\Workspaces\5_MNES impact assessment\Rev 0\Figure 2 Ground-truthed vegetation communities within Study area.qgz

epic ENVIRONMENTAL

Legend

- Study area
- Project area
- Mining leases
- Infrastructure layout
- State controlled roads
- Railways

Vegetation management watercourses and drainage features v7.0

- Major
- Minor

Threatened ecological communities

- Brigalow TEC
- Natural Grasslands TEC

Ground-truthed regional ecosystems

- Remnant
- High-value regrowth
- Regrowth
- Non-remnant

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Figure 2
Ground-truthed vegetation communities within Study Area



Plate 1. Example of Brigalow TEC (RE 11.4.9) within the northern portion of the Study area



Plate 2. Example of Natural Grassland TEC (RE 11.4.4) from the Study area

3.2.2 Threatened Species

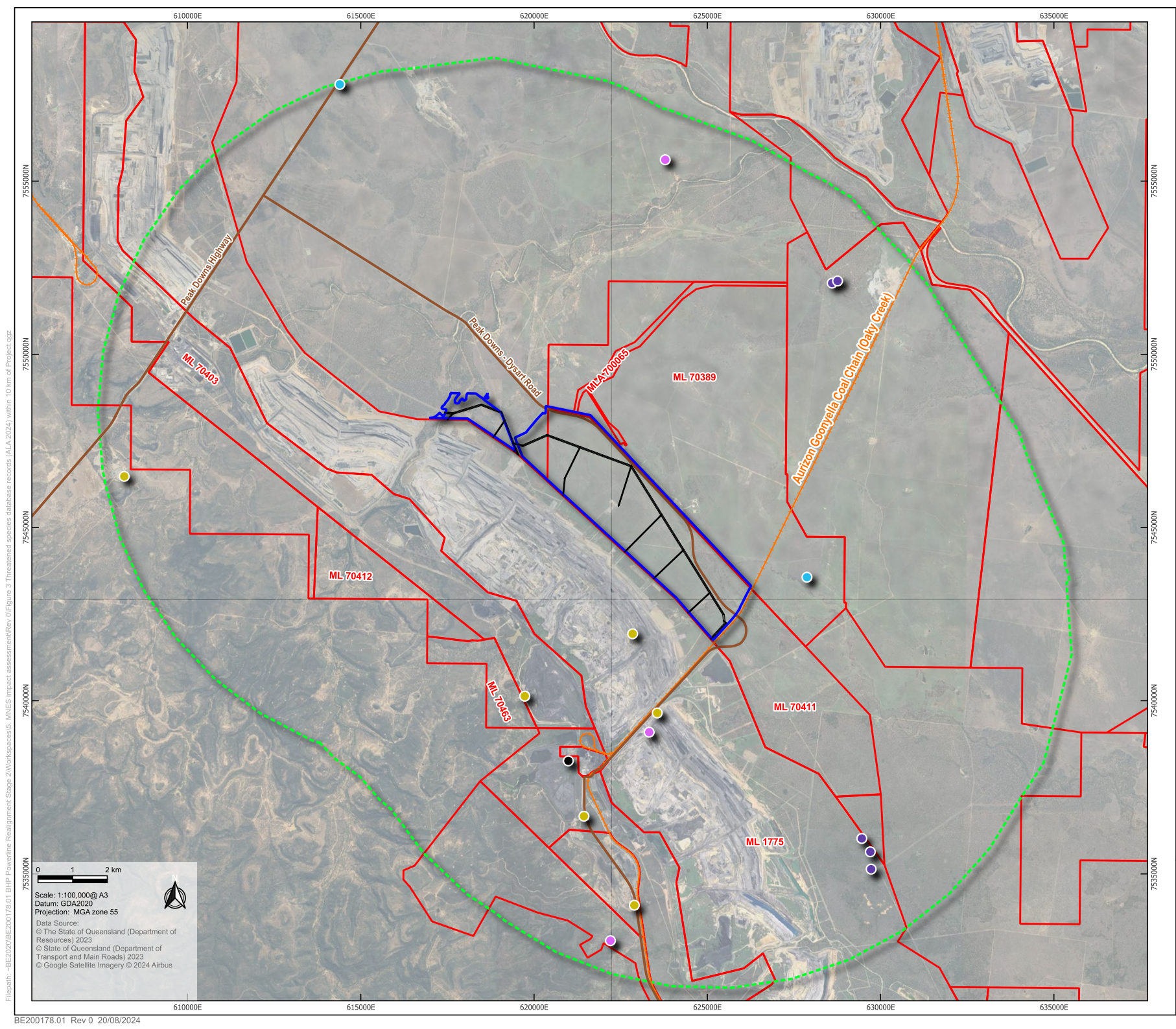
The threatened species' likelihood of occurrence assessment is located in Appendix B of Ausecology (2024a). The potential for species to occur were categorised as follows:

- **Known to occur** - the species or population has been observed within the Study area
- **Likely to occur** - the Study area is within the species' known distribution, suitable habitat occurs within the area and the species is known to occur in the region. Species not confirmed as occurring in the Study area
- **Potential to occur** - the Study area is within the species' known distribution, marginal habitat occurs within the area and the species is known to occur in the region. Species not confirmed as occurring within 10 km but recorded within 50 km of the Study area
- **Unlikely to occur** - low probability that the species will occur as it is outside the species known distribution, low quality habitat occurs within the Study area or the species is not known to occur within the region. No confirmed species records within 50 km of the Study area

The results of the Ausecology (2024a) assessment are summarised in the following sections.

3.2.2.1 Threatened Flora

A single flora species listed as Endangered under the EPBC Act is considered as a **potential** occurrence only (i.e. is not considered likely to occur) within the Study area, *Dichanthium queenslandicum*. There is a recent record (2022) located 1.5 km east of the eastern portion of the Study area and several records in the wider area (ALA 2024) (**Figure 3**). Suitable habitat is present (natural grasslands), however the grasslands in the Study area were generally observed as severely impacted by cattle grazing. The species is considered as potentially occurring only in areas identified as the Natural Grasslands TEC.



Filepath: ~BE2020\BE200178.01 BHP Powerline Realignment Stage 2\Workspaces\5. MNES impact assessment\Rev 0\Figure 3 Threatened species database records (ALA 2024) within 10 km of Project.qgz

epic ENVIRONMENTAL

Legend

- Study area
- Project area
- Project area buffer (10km)
- Mining leases
- State controlled roads
- Railways

Atlas of Living Australia database records

- King Bluegrass *(Dichanthium queensladicum)*
- Koala *(Phascolarctos cinereus)*
- Ornamental Snake *(Denisonia maculata)*
- Squatter Pigeon *(Geophaps scripta scripta)*
- Sharp-tailed Sandpiper *(Calidris acuminata)*

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Figure 3
Threatened species database records (ALA 2024) within 10 km of Project

3.2.2.2 Threatened fauna

Seven fauna species listed as threatened under the EPBC Act are considered as known, likely, or potentially occurring within the Project area or surrounding Study area. These species are summarised in **Table 2** and addressed in detail in Ausecology (2024a). Four of the species have been previously recorded within 10 km of the Project (ALA 2024) (**Figure 3**). Suitable habitat for threatened species was mapped for the Study area based on the habitat definitions described in *Habitat descriptions for 12 threatened species specific to central Queensland Version 5* (Kerswell et al 2020). The derived habitat (refer **Appendix C**) mapping forms the basis for the impact assessment within this report.

Table 2. Threatened fauna considered as occurring or may occur in the Study area (Ausecology 2024a)

Species	EPBC Act status	Likelihood of occurrence notes
Squatter Pigeon (southern) (*Geophaps scripta scripta*)	Vulnerable	**Known to occur.** Species recorded to the immediate southeast and west of the Study area during field survey effort for the Project (refer **Appendix B**). Species recorded in Study area during survey work for a different project (Aurecon 2013). Suitable woodland habitat present.
Australian Painted Snipe (*Rostratula australis*)	Endangered	**Likely to occur**. No Project records but confirmed record reported approximately 2 km north of the Study area (E2M 2021; refer **Appendix B**). Intermittent foraging habitat present within small, isolated patches of ephemeral wetland within the Study area.
Sharp-tailed Sandpiper (*Calidris acuminata*)	Vulnerable, Migratory	**Potential to occur**. Single ALA (2024) database record from 2001 located 5 km south of Study Area. Suitable habitat present within small isolated patches of ephemeral wetland within the Study area.
White-throated Needletail (*Hirundapus caudacutus*)	Vulnerable, Migratory	**Likely to occur**. No Project records. Few database records in wider region but species may utilise airspace above the Study area.
Koala (*Phascolarctos cinereus*)	Endangered	**Known to occur.** Individuals and signs of presence (scats) recorded in Study area including in relatively close proximity (within 150 m) to western portion of the Project area (refer **Appendix B**). Suitable eucalypt woodland habitat occurs in the Project area.
Greater Glider (*Petauroides volans*)	Endangered	**Known to occur.** Individuals recorded in Study area including in relatively close proximity (within 100 m) to the Project area (refer **Appendix B**). Suitable eucalypt woodland habitat occurs in the western portion of the Project area.
Ornamental Snake (*Denisonia maculata*)	Vulnerable	**Likely to occur**. Habitat occurs within the Study area. Confirmed record approximately 3 km south-east of the Study area from surveys in wider area (refer **Appendix B**). No Project-specific species records.

3.2.3 Migratory Fauna

Three additional bird species listed only as Migratory under the EPBC Act are considered as known or likely to occur within the Project area or surrounding Study area (Ausecology 2024a) These species are summarised below and addressed in detail in Ausecology (2024a):

- Fork-tailed Swift (*Apus pacificus*) – **Known to occur**. Previously observed flying over Study area (AECOM 2020)
- Caspian Tern (*Sterna caspia*) – **Likely to occur**. Observed just outside the Study area over a dam. Suitable habitat would become temporarily available within the Study Area after significant rainfall events
- Rufous Fantail (*Rhipidura rufifrons*) - **Known to occur**. Previously observed within the Study area (AECOM 2020)

These species are addressed in further detail in Ausecology (2024a, 2024b).

3.2.4 MNES Species Not Covered in Ausecology (2024a)

There are two threatened fauna species identified as having the potential to occur in the updated PMR generated as part of this assessment which are not covered in Appendix B of the Ausecology (2024a) assessment: Diamond Firetail (*Stagonopleura guttata*) (Vulnerable) and Grey Snake (*Hemiaspis damelii*) (Endangered).

These species and their potential to occur in the Study area are addressed in **Table 3**.

Table 3. Likelihood of occurrence of threatened fauna not considered in Ausecology (2024a)

Species and EPBC Act Status	Data source	Ecology and distribution	Likelihood of occurrence
Diamond Firetail (*Stagonopleura guttata*) Vulnerable	PMR	Occurs in lightly timbered habitats with high grass coverage. May occur in farmlands with scattered trees. Diet largely comprises grass seed. Once occurred as far north as Cardwell in Queensland but now only occurs in the far south of the state. Prefers areas with a low density of trees, little fallen timber or leaf litter and a heavy grass cover (Garnett & Baker 2021; DCCEEW 2023a).	**Unlikely to occur**. Not observed during surveys for the Project or other survey activities in the wider area. Species predicted as 'may occur' only in region (DCCEEW 2024). There are no records within 150 km of the Study area. There are only widely scattered records located north of the Capricorn Highway (which is 140 km south of the Study area) and these are all older than 1977. Further south there are sparsely scattered records although all of these are older records (pre-1982). The only recent record is from 2020 and located over 350 km to the south in Expedition Range National Park. Even this record appears very isolated from other recent records which are much further south (ALA 2024). It would appear the species may only have occurred as occasional vagrant individuals in the region in the past. The Study area is very unlikely to be within the range of the species currently.
Grey Snake (*Hemiaspis damelii*) Endangered	PMR	Occurs on floodplains (Ehmann 1992) and is often found in seasonally inundated areas, preferring cracking, flood-prone clay or loam soils and areas with gilgais. The preferred habitat for the species in southern Queensland is woodlands featuring Brigalow, *Casuarina cristata* and *Eucalyptus populnea* (Hobson 2012) on dark, cracking clay soils (Hobson 2012; DCCEEW 2022a). The species is often found in riverine habitats near watercourses, natural levees, gullies and ditches (Ehmann 1992; DCCEEW 2022a).	**Unlikely to occur**. Not observed during surveys for the Project or other survey activities in the wider area. The Study area is located on the north-west edge of the species predicted potential range and is considered as 'may occur' only (DCCEEW 2024). The nearest records are three records located 80 km south of the Project. All three records are from the 'Queensland historical fauna database' one of which is dated from 1870 (the remaining records are undated) (ALA 2024). There are no other records closer than 160 km to the Project. There are no records at all east, north or west of the Project (ALA 2024). There may be suitable clay floodplain habitat present in the Study area but much of this has been subject to disturbance and there seems little indication the species has ever occurred this far north.

4 POTENTIAL PROJECT IMPACTS AND MITIGATION MEASURES

4.1 Potential Project Impacts

The Project's potential to directly and/or indirectly impact MNES, including TECs and habitat for threatened flora and fauna, is described in the following subsections.

The proposed Project area (where direct impacts are limited to) is 83.39 ha and is shown in **Figure 1**. Given the relatively benign nature of the Project's operation phase, the majority of impacts (if not all) are expected to occur during Project construction, which comprises the following:

- Clearing of woody vegetation for a corridor up to 50 m wide located along the proposed power line's main axis, extending 12.66 km in length in an approximate north-west to south-east direction. Existing ground cover present in the Project area will be retained (i.e. there will be no topsoil disturbance and the root mass will remain intact), with the exception of the access track addressed below. Outside of the access track, grass slashing may occur in the corridor where required for safe access during construction
- Clearing of woody vegetation along a series of eight stub lines with corridors up to 30 m wide, located perpendicular to the southern side of the power line's main axis. The stub lines vary in length from 160 m to 1,500 m, with an overall length of 7.78 km (i.e. the total Project area length is approximately 20 km). As per the main corridor, ground cover within the stub lines will be retained through slashing only (where necessary), with the exception of the access track addressed below
- Clearing and grubbing of an access track up to 10 m wide along main corridor and stub line corridors to provide access for vehicles, plant and project materials. This will remove the ground cover present potentially including the root mass. On completion of construction this will be allowed to regenerate naturally. Where practicable during construction, the width of the access track may be reduced to further avoid MNES. A permanent formed access track will not be retained for the operation of the power line infrastructure, with only slashing required to maintain the track and ensure safe access
- Excavating and pouring foundations for the power line towers will be located within the 10 m wide access track area. Power line towers are generally located 165 m apart for the majority of the alignment
- Assembly and erecting the power line steel work including installation of stay anchors
- Stringing electrical cables, conductors and earth wires along the power line towers
- Tensioning of electrical cables to achieve minimum ground clearance
- Connection of conductor bridges and droppers
- Testing, commissioning and connection

The operational phase of the Project is anticipated to require little maintenance. Occasional slashing of ground cover within the main corridor and stub line corridors may be carried out when required and the entire area will be subject to continued cattle grazing as occurs currently.

4.1.1 Clearing of Vegetation

The clearing of woody vegetation is a direct impact of the Project on the ecological values of the Project area. Land clearance is listed as a key threatening process under the EPBC Act. The removal of habitat affects local populations of flora and fauna dependent on that habitat. These impacts are immediate and may be significant in the short-term for species that may use the impacted area. Impacts may persist in the long-term if habitat created during rehabilitation of impacted habitats does not closely resemble pre-disturbance ecosystems.

The Project area encompasses a total of 83.39 ha of which 52.91 ha is identified as modified non-remnant lands with little value to MNES (**Plate 3**). The Project will impact 8.67 ha of woody vegetation in remnant vegetation communities and a further 21.81 ha of immature and low-growing woody regrowth (**Table 4**). Much of this has been impacted by previous clearing to some degree, and some communities (such as RE 11.8.5) provide a very sparse open woodland canopy cover (**Plate 4**). The woody regrowth present within the Project area is considered to be of 'non-remnant' status under State vegetation mapping definitions (e.g. Neldner et al. 2023).



Plate 3. Non-remnant lands in south of Project area



Plate 4. *E. orgadophila* open woodland (RE 11.8.5) in north of Project area

Project infrastructure has been located away from sensitive ecological values as much as is feasible. The Project design layout has been subject to several revisions in order to further avoid identified higher value habitats. Through this process, the impact on Brigalow TEC has been largely avoided. Impacts on the Natural Grasslands TEC and habitat for *D. queenslandicum* have been substantially reduced through the elimination of 'clearing and grubbing' works through the majority of the Project area where this community occurs. A 10 m wide track within the Project area will be grubbed and graded for construction (thereby removing root mass of grasses). The disturbance associated with footings (minor earthworks and concreting) for the poles will also be located within the 10 m wide access track. Overall, this will disturb 0.57 ha of Natural Grasslands TEC. The access track will not be actively rehabilitated on completion of construction but will be allowed to regenerate naturally, with only intermittent slashing undertaken where required to maintain safe access.

The remainder of the Project area will be subject to removal of woody vegetation (where present) and slashing where required for safe access during construction, i.e. outside of the 10 m wide access track existing grass cover and root stock will be retained. Post construction, the Project area will be subject to maintenance slashing (when required) and will remain subject to cattle grazing (as is currently the case).

The predicted extent of overall impact to vegetation communities and their relevance to MNES is provided in **Table 4**. The extent of impact is based on the results of the ground-truthed vegetation mapping and onsite habitat assessments (Ausecology 2024a, 2024b).

Table 4. Ground-truthed RE mapping occurring within Project area and impacted by vegetation clearing (Ausecology 2024b)

RE	Description	MNES values	Extent (ha)
Remnant			
11.3.4	*Eucalyptus tereticornis* woodland to open forest on Cainozoic alluvial plains and terraces	Koala Greater Glider Squatter Pigeon	0.01
11.3.25	*Eucalyptus tereticornis* woodland to open forest on fringing levees and banks of major rivers and drainage lines	Koala Squatter Pigeon Greater Glider (partial)	0.34
11.4.4	*Dichanthium* spp. +/- *Astrebla* spp. tussock grassland on flat to gently undulating clay plains	Grassland TEC *D. queenslandicum*	0.20[1]
11.5.3	*Eucalyptus populnea* woodland +/- other eucalypts on flat to gently undulating plains formed from Cainozoic sediments	Koala Squatter Pigeon Greater Glider (partial)	6.83
11.8.5	*Eucalyptus orgadophila* open woodland on undulating plains, rises, low hills or sometimes flat tablelands	Koala Squatter Pigeon	0.92
11.8.11	Grassland dominated by *Dichanthium sericeum*, *Aristida* spp., *Astrebla* spp. and *Panicum decompositum* on moderately shallow to deep cracking clay soils	Grassland TEC *D. queenslandicum*	0.37[1]
		Total remnant	**8.67**
Regrowth and non-remnant vegetation			
11.4.8	*Eucalyptus cambageana* and *Acacia harpophylla* woodland to open forest on level to gently undulating Cainozoic plains	No values present	1.68
11.4.8/11.4.9	See above and below	No values present	10.52
11.4.9	*Acacia harpophylla* woodland to open forest on level to gently undulating Cainozoic plains	Brigalow TEC (partial) Ornamental Snake (partial)	0.82
11.8.5	*Eucalyptus orgadophila* open woodland on undulating plains, rises, low hills or sometimes flat tablelands	Koala Squatter Pigeon	7.08
11.9.2	*Eucalyptus melanophloia* and/or *E. orgadophila* woodland to open woodland on undulating plains with cracking clay or texture contrast soils	Squatter Pigeon	1.71
-	Non-remnant	Squatter Pigeon (partial)	52.91
		Total regrowth and non-remnant	**74.72**
		Total	**83.39**

Notes

[1]Impacts to grassland REs is limited only to the construction access track where grubbing and grading will occur in an area up to 10 m wide

The regrowth vegetation within the Project area provides more limited value for MNES. For example, very little of the regrowth Brigalow communities present are of a condition that would be characterised as the Brigalow TEC. Habitat for Greater Glider has been characterised by the presence of foraging habitat within or adjacent to large hollow-bearing trees which generally do not occur in regrowth areas. The habitat condition characteristics used to describe the habitat present within the Study area is detailed in Ausecology (2024a). The extent of MNES values identified within the Project area that are assessed for potential impacts is provided in **Table 5** and depicted in **Figure 2** (TECs) and **Appendix C** (species habitat mapping).

Table 5. Extent of ground-truthed habitat for MNES within the Project area (Ausecology 2024a)

MNES values	Project impact extent (ha)
TECs	
Natural Grassland TEC	0.57
Brigalow TEC	0.04
Threatened species habitat	
D. queenslandicum	0.57
Squatter Pigeon	22.77
Koala	17.57
Greater Glider	6.42
Ornamental Snake	0.19

The Project area occurs in a predominantly disturbed landscape impacted by cattle grazing activities, and is adjacent to existing mining-related disturbance. Nevertheless, substantial remnant vegetation present in the Survey area (outside the project area) and wider area will remain undisturbed and continue to provide habitat for MNES. To provide context to the localised impact associated with the Project a preliminary analysis of Queensland Department of Resources (DoR) vegetation community (RE) mapping was carried out. The analysis indicates there is over 25,000 ha of remnant vegetation located within a 10 km radius of the Project area. These communities are depicted by broad vegetation category in **Figure 4**.

Assessment of the available RE data indicates there is over 18,700 ha of remnant eucalypt woodland habitat within a 10 km radius of the Project area which is potentially suitable for Koala and Squatter Pigeon. Squatter Pigeon may utilise an additional 2,600 ha of acacia woodlands occurring on appropriate sandy/coarse soils. Furthermore, there is an estimated 11,000 ha of suitable habitat available for Greater Glider within 10 km of the Project area based on the eucalypts the species is associated with (as detailed in Eyre et al. 2022). The proposed disturbance of remnant vegetation associated with the Project (8.67 ha of remnant vegetation) is a very minor area given the extent remaining in the wider area.

4.1.2 Habitat Fragmentation, Connectivity and Edge Effects

Highly fragmented habitats support fewer species than connected blocks of habitat of the same size. This is because fragmentation restricts dispersal of fauna and plant seeds between available habitat. The impacts of habitat fragmentation depend on the degree to which dispersal is inhibited by habitat gaps, the size of the remaining habitat fragments, and ecological attributes of the species.

Much of the landscape associated with the Project area has been heavily impacted by tree clearing for cattle grazing purposes. A number of extant communities are either grasslands (RE 11.4.4 and 11.8.11) or comprise a very open canopy (RE 11.8.5). The Project infrastructure has been situated in areas already cleared of vegetation wherever possible. There will be minor clearing of remnant woody vegetation required. This impact will be linear and up to 50 m in width. Most of the MNES species with potential to be present are mobile species that will not be impacted by the Project. There will be little impact to landscape connectivity and habitat fragmentation as a result of the Project for these species. However, there is potential for Greater Glider to be impacted where the species habitat is intersected by the north-western section of the Project area (refer **Table 10** for further detail).

The habitats that remain extant in the Study area are already subject to the potential for edge effects caused by increased exposure to wind and sun (caused by previous tree clearing and thinning practices) as well as substantial weed invasion observed in the ground cover. As noted above, some of the vegetation communities present are already very open in structure. These are unlikely to be subject to edge effects as a result of the Project. The Project is proposing to clear a relatively minor extent of wooded habitat in an already disturbed landscape and is considered to have a negligible impact on increasing the impact of edge effects within the local area.

4.1.3 Fauna Mortality

Clearing of vegetation for the Project presents a risk of direct mortality or injury to fauna. Fauna of low mobility are at risk of injury or death from tree felling and heavy machinery/vehicular movements during the construction of the Project. The operational phase is unlikely to add to this impact due to the benign nature of the Project operation.

Tree clearing will only occur within designated areas and only during designated time periods. The extent of habitat providing potential fauna hollows is relatively limited. A suitably qualified fauna spotter-catcher/s will be present during vegetation clearing to eliminate incidences of fauna mortality during tree clearing (refer **Section 4.2**). Educating employees and contractors with regard to fauna and flora will further reduce direct mortality as part of the Project.

4.1.4 Weeds and Pest Animals

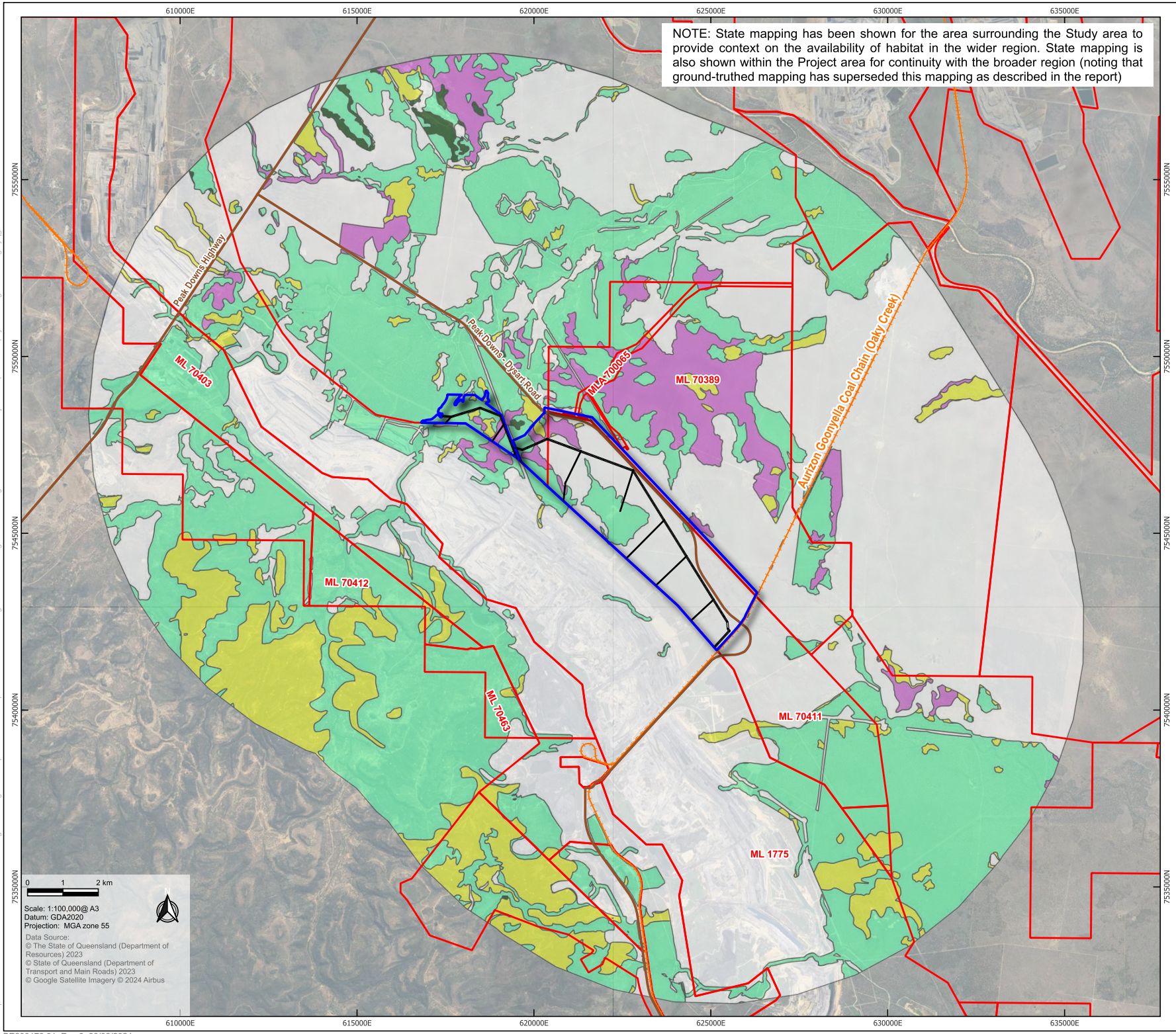
Introduced weeds have the potential to impact on terrestrial ecological values as native flora can become displaced through competition with weed species, and adversely affected by browsing and soil trampling caused by feral herbivores. Native fauna populations, particularly small to medium sized species, may be impacted by predation from introduced carnivores, such as feral cats. Wild dog and feral cats were recorded onsite and Red Fox is also likely present. These are indirect impacts which are already present and likely have been exacerbated by existing cattle grazing activities within and near the Project area.

The Project area (and broader Study area) is often dominated by Buffel Grass in the ground layer throughout and Parthenium was observed to be common. Both are weed species and Parthenium is listed as a Weed of National Significance.

The following activities associated with the Project have the potential to promote the proliferation of weeds and pests within the Project area (and Study area), or introduce new weeds and pests from surrounding areas:

- The use of construction machinery, plant and materials sourced from outside the region and increased vehicular traffic in general may introduce and spread weed seeds if biosecurity hygiene measures are not in place
- Land clearance favours the establishment of weeds due to increased light and soil disturbance
- Inappropriate disposal and storage of putrescible wastes may attract feral animals

Clearing of ground cover within the entire Project area will be minimal and restricted to the 10 m wide access track. This will minimise the potential for weeds to establish within the Project area (where they do not already occur). The main threat is the introduction of new weeds to the area via contaminated vehicles or soils. Impacts will be managed by implementing simple biosecurity hygiene and control measures during Project activities which are already utilised as part of environmental management systems associated with the operation of PDM. The pests and weeds currently occurring within the Project area (and Study area) are not expected to significantly proliferate in response to the Project activities.



epic ENVIRONMENTAL

Legend

- Study area
- Project area
- Mining leases
- Infrastructure layout
- State controlled roads
- Railways

Regional ecosystems v13 within 10 km of Project (by broad vegetation category)

- Acacia forest / woodland
- Eucalypt woodland
- Grassland
- Semi-evergreen vine thicket
- Non-remnant

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Figure 4
Remnant vegetation occurring within 10 km of the Project area (DoR 2024) by broad vegetation category

4.1.5 General Impacts

The Project is being constructed to service the expansion of the adjacent PDM which is currently located approximately 2 km south-west distant from the Project area at its farthest point. PDM is a large mining operation that already likely generates (and mitigates in accordance with the PDM's Environmental Authority obligations) a range of indirect impacts that already occur in the local landscape in which the Project is situated. As stated already, the majority of impacts associated with the Project will be restricted to the construction phase only. The following general impacts are addressed for the purpose of providing a complete assessment of the Project.

4.1.5.1 Airborne Dust, Noise and Lighting

Earthworks and vehicular traffic associated with Project construction and operation can generate dust, particularly during dry weather (Field et al. 2010). Dust can have both a physical and chemical impact on plants, either through the smothering of leaves, whereupon the rate of deposition is important, or through chemical changes to the soil or directly to the plant surface. Dust can form a hard crust on the leaf surface, increasing leaf temperature and increasing susceptibility to drought. Dust can also have adverse impacts on plant photosynthesis, respiration, transpiration and productivity (Farmer 1993; Chaston & Doley 2006). Nevertheless, evidence of potential impacts on entire vegetation communities is scarce. The clearing of ground cover within the entire Project area will be minimal and restricted to the 10 m wide access track. This will minimise the extent of exposed soils potentially subject to dust entrainment during dry and windy weather. The proposed access track will be allowed to regenerate naturally on completion of Project construction. Therefore the impact of dust settlement from the Project is considered temporary and negligible at worst.

Understanding of the impacts of noise on fauna is limited. There are no current government policies or guidelines that recommend noise thresholds or limits for development activities to mitigate potential harm to fauna. Noise may affect wildlife through a variety of impacts such as: interfering with communication calls; interfering with foraging/defence through cloaking the sound of predators and prey; causing general stress or avoidance reactions; or changes in reproductive or nesting behaviours. Excessive noise may lead some species to avoid noisy areas, which could result in the localised fragmentation of habitat at the species or individual territory level. Radle (2007) states the consensus that terrestrial fauna will avoid any industrial plant or construction area where noise or vibration presents an annoyance to them. Nevertheless, many animals may interpret a new noise as a potential danger at first, but rapidly understand the noise is not associated with any threats (Radle 2007).

Artificial lighting may have a range of impacts across different groups of taxa and between species within these groups. Some taxa such as rodents may avoid brightly lit areas at night. Alternatively, nocturnal fauna such as many microbat species, frogs and some reptiles may congregate at artificial lights to feed on insects attracted to light (Perry et al. 2008; Rich & Longcore 2006). Although, other microbat species may avoid well-lit areas (Threlfall et al. 2013). Artificial light can alter foraging and calling by frogs and probably impairs their vision (Buchanan 1993) and may lead to individuals being killed by vehicles when attracted to lights for feeding on invertebrates.

Overall, noise impacts from the Project to surrounding habitat will be almost entirely restricted to that emitted during construction activities. Construction activities will be carried out during daylight hours where practicable. Any lighting required as part of construction activities will be temporary and designed to only provide minimum lighting. Given PDM is located close to the Project and already generates noise and lighting impacts, the potential additional impacts from the Project are considered temporary (construction only) and negligible at worst.

4.1.6 Fire

The Project is located within largely cleared grazing lands with tracts of sclerophyll woodlands mainly in the west. The woodland areas have potential to be impacted by accidental fires caused by Project activities. Fire hazard mapping for Queensland indicates the mapped woodlands within the Study area as having a 'medium potential bushfire intensity'. Fire is noted as a threatening process on the Brigalow TEC which occurs within the Project area (and broader Study area). Fire management is an integral component of existing environmental

management activities associated with PDM. Impacts will be managed by extending these management measures to the Project activities.

4.1.7 Water Quality

The Project only requires minor excavation works (for power pole footings) and will have no impact on groundwaters. Clearing requiring disturbance of topsoil has also been minimised to the 10 m wide access track. The Project will require clearing along four minor drainage lines including three stream order 1 and one stream order 2 creek lines. Power line poles will be located outside of drainage lines. Only two of these currently retain woody vegetation cover. All of the creeks are considered highly ephemeral in nature and all drain north from PDM itself (i.e. there is very little catchment draining through the Project area and any flows would be minor in extent and short-lived).

The Project has potential to impact surface water and associated aquatic ecology values through a variety of processes:

- During construction disturbance, uncontrolled sedimentation of watercourses (particularly during and following heavy rainfall events) can impact aquatic values by smothering stream beds with fine material, and decreasing bed roughness and reducing habitat diversity
- Similarly, uncontrolled sedimentation movements associated with construction disturbance may lead to localised increased turbidity and suspended solids which may negatively impact fish and macroinvertebrates (through reduced respiratory and feeding efficiency), and adversely affect submerged aquatic plants as light penetration (required for photosynthesis) is reduced
- Poorly designed and constructed waterway crossings may create waterway barriers that prevent or impede movements of aquatic fauna
- Waterway crossings may cause bank instability if remediation works are not adequately designed and implemented. This may lead to bank erosion (causing impacts to instream sedimentation and turbidity) and adverse impacts to riparian vegetation

The Project will develop and implement erosion and sediment controls for the Project in line with BMA's ESCP implemented at the adjacent PDM.

4.2 Proposed Mitigation Measures

The Proponent will commit to a range of measures to minimise impacts to MNES and general ecological values associated with the Project area and broader Study area. The design process for the Project has gone through several revisions based on the results of ecological assessments carried out since 2019. The revisions have sought to reduce the area of impact to areas representing habitat for MNES as much as is feasible. This has been demonstrated through avoidance and minimising of vegetation clearing in TECs and threatened fauna habitat across the majority of the Project area. Where avoidance is not possible, a range of mitigation strategies will be implemented as detailed in **Table 6**. MNES-specific measures are detailed in **Sections 5.2 to 5.5**.

Table 6. Proposed mitigation measures for general impacts resulting from Project works

Impact	Management measure	Project timing
Vegetation clearing	Where possible the overall Project area will be refined and minimised further during the final design process and onsite 'micro-siting' during construction.	Final design and construction
	Project employees and contractors will be made aware of environmental obligations and compliance requirements through the induction program.	Project induction
	Vegetation clearing extents will be clearly demarcated.	Prior to clearing
	Disturbance to ground cover and topsoil will be restricted entirely to the designated 10 m wide access track. All other areas will only be subject to woody vegetation removal and slashing.	Construction

Impact	Management measure	Project timing
	Disturbed areas (i.e. 10 m wide access track) that are no longer required will be allowed to naturally regenerate. These areas will be subject to ongoing weed management.	Following construction
Fauna mortality	Qualified fauna spotter catchers will maintain records of fauna encountered during clearing.	Pre-construction
	Fauna spotter-catchers (licensed) will inspect sites prior to vegetation clearing. Fauna habitat shelter features (large hollows) will be clearly marked where they are unable to be accessed/inspected prior to tree felling.	Prior to clearing
	Clearing works will incorporate procedures for tree felling that will minimise potential impacts on resident fauna where habitat shelter features are identified.	Prior to clearing
	Procedures will be in place where injured fauna are encountered during clearing works. Local wildlife carer and/or veterinarian will be identified prior to works being carried out and be notified that clearing works are being carried out (prior to clearing).	Ongoing
	Onsite speed limits will be established to limit the potential for vehicle collisions.	Ongoing
Threatened flora and fauna	Threatened fauna and flora management will be in place as per existing management procedures carried out for the PDM.	Pre-construction
	Construction project inductions will outline species of significance that may occur on the Project area.	Project induction
	Qualified fauna spotter catchers will be present during clearing and maintain records of fauna encountered during clearing.	Construction
	The Project design process will incorporate the use of low light spill lighting components and directional lighting (away from adjacent fauna habitat) where night lighting is considered necessary (only for construction).	Final design
	All Project-associated construction/operational machinery will be maintained as per manufacturer design specifications to ensure project noise is minimised.	Ongoing
Airborne dust	Monitoring of weather conditions will be carried out to inform Project activities and planning during dry and high-wind weather conditions.	Ongoing
	Ensure employees are made aware of potential dust generating activities and mitigation measures to prevent nuisance.	Ongoing
	Dust from areas likely to be a source of airborne dust (such as tracks) will be suppressed during construction using water trucks/wetting to keep dust related impacts to a minimum.	During construction - as required
	Onsite speed limits will be established to minimise dust caused by vehicle movements.	Ongoing
	Disturbed areas (i.e. 10 m wide access track) that are no longer required will be allowed to naturally regenerate.	Ongoing
Weeds and pests	The existing BMA Weed and Feral Animal Management procedure will be implemented to manage invasive species. Measures will be in line with current best management practices associated with PDM.	Pre-construction
	Vehicle wash-downs will be required for all new vehicles (including earthmoving and other construction machinery) entering the Project area. This may be done by self-assessment.	Ongoing

Impact	Management measure	Project timing
	Disposal and storage of putrescible wastes must be undertaken appropriately to ensure feral animals aren't attracted to the Project area.	Ongoing
	Disturbed areas (i.e. 10 m wide access track) that are no longer required will be allowed to naturally regenerate and will be subject to ongoing weed management and maintenance activities.	Following construction
Fire	Monitoring of weather conditions will be carried out to inform Project activities and planning during high fire-risk weather conditions.	Ongoing
	The Project will maintain communications with the PDM Environmental Management Team regarding Project activities and bushfire hazard conditions.	Ongoing
	Work sites will include designated smoking areas.	Ongoing
	Onsite fire-fighting equipment will be regularly maintained. Staff will be trained in the appropriate use of fire-fighting equipment.	Ongoing
Surface water	Erosion and sediment controls for the project will be developed and implemented in line with the BMA's ESCP in place for the adjacent PDM.	Pre-construction
	Applicable Project materials/chemicals will be stored offsite within existing storage/bunded sites in the PDM mine infrastructure area.	Ongoing
	Washdowns and refuelling will be carried out offsite within existing designated areas at the PDM mine infrastructure area.	Ongoing
	Spill response equipment (e.g. booms and absorbent materials) will be available and staff will be trained in the appropriate use of spill response equipment.	Ongoing
	Wherever possible works within a watercourse will be conducted in the following order of preference: • Conducting works when no water is present • Conducting works in times of no flow	Construction
	Disturbed areas at watercourse crossing sites (i.e. 10 m wide access track) that are no longer required will be allowed to naturally regenerate.	Following construction
	Bed level crossings, where required, will be installed to minimise potential impacts to passage by aquatic biota.	Ongoing

4.3 Alignment Optimisation and Avoidance Measures

The Project has been through a design refinement process which included the relocation and refinement of the power line to avoid or minimise impacts to ground-truthed MNES wherever possible. The original disturbance impact included a corridor up to 60 m wide for both the main lines and the stub lines. The width of the main line has been reduced by 10 m (now 50 m wide) while the width of the stub lines has been reduced by 30 m (now 30 m wide). The main line width is required to remain at 50 m and could not be reduced any further due to safety and design requirements which are managed under BMA's internal procedure policies for a 66 kV power line.

Significant design changes have occurred to avoid fragmenting patches of potential habitat through shifting the alignment to the edges of these patches where possible. This includes shifting the alignment to almost completely avoid impacting on the Natural Grassland TEC. The current alignment avoids the clearing of mature trees as much as practical to minimise potential impact to Greater Glider and Koala, should the species occur. Further, where necessary clearing could not avoid ground-truthed MNES potential habitat, proposed disturbance has been limited to marginal habitat as much as practicable.

To minimise the proposed vegetation clearing impacts, activities involving grubbing and topsoil removal will be restricted to the construction access track situated within the power line corridor (i.e., located within the above-nominated widths for main lines and stub lines), which will be up to 10 m wide. Topsoil and natural grassland will remain intact within the remaining width of the corridor, with only trees and shrubs required to be removed to reduce the fire hazard and maintain safe operational clearance for the power lines. Regarding the Natural Grassland TEC, this results in a significantly reduced permanent impact, where the original extent to be impacted was 2.55 ha, which through the avoidance and mitigation process has been reduced to 0.57 ha.

Importantly, the 10 m wide construction access track will not be formalised as a gravel access track which would typically result in preventing the vegetation regrowth. Instead, it will be allowed to regenerate naturally following completion of construction of the power lines, and will be subject to weed management to support the regeneration of the natural grassland. During the operational life of the power line, the entire area will be managed through slashing and grazing to keep fuel loads controlled in the corridor and to allow continued maintenance access.

Overall, the refinement of the alignment has minimised the direct impact to vegetation communities that have been ground-truthed as potential habitat for MNES.

5 PROJECT ASSESSMENT FOR SIGNIFICANT IMPACTS ON MNES

Based on desktop and field survey observations a number of MNES are considered applicable to the Project comprising two TECs, eight species listed as threatened and three species listed as migratory under the EPBC Act:

- Threatened Ecological Communities
  - Known to occur:
    - Brigalow TEC – Endangered
    - Natural grasslands TEC – Endangered

- Threatened species:
  - Known to occur:
    - Squatter Pigeon (southern) – Vulnerable
    - Koala – Endangered
    - Greater Glider – Endangered
  - Likely occurs:
    - Ornamental Snake – Vulnerable
    - Australian Painted Snipe – Endangered
    - White-throated Needletail – Vulnerable, Migratory
  - Potentially occurs:
    - Sharp-tailed Sandpiper – Vulnerable, Migratory
    - *Dichanthium queenslandicum* - Endangered

- Migratory species:
  - Known to occur:
    - Fork-tailed Swift
    - Rufous Fantail
  - Likely occurs:
    - Caspian Tern

An assessment of the potential for significant impacts resulting from the Project activities was carried out only on those MNES considered as potentially subject to notable impacts. The assessments have been carried out in accordance with the *MNES significant impact guidelines 1.1* (MNES Guidelines) (DoE 2013b).

5.1 Significant Impact Assessment – Criteria Definitions

With regard to species listed as vulnerable, an assessment may require an evaluation of the likely importance of the population of vulnerable fauna species associated with the Project area (action area for the purpose of EPBC Act considerations) and immediate surrounds. Under four of the nine assessment criteria identified within the MNES Guidelines, vulnerable species are considered as subject to significant impacts when an 'important population' is impacted.

An 'important population' for vulnerable species as defined within the MNES Guidelines is as follows:

- 'An important population is a population that is necessary for a species' long-term survival and recovery. This may include populations identified as such in recovery plans, and/or that are:
  - Key source populations either for breeding or dispersal
  - Populations that are necessary for maintaining genetic diversity and/or
  - Populations that are near the limit of the species range

Given the specificity of the above definition and the often scarce ecological information and occurrence records available for many threatened species and populations in Australia, it is difficult to determine either of:

- Attributes such as breeding and dispersal behaviour and whether the population is a 'key source' or
- The genetic diversity of individuals inhabiting a regional population or sub-population

A single assessment criterion (for vulnerable, endangered and critically endangered species) refers to impacts on 'habitat critical to the survival of a species or ecological community' (critical habitat) which is defined under the MNES guidelines as areas that are necessary:

- For activities such as foraging, breeding, roosting, or dispersal
- For long-term maintenance of the species or ecological community
- To maintain genetic diversity and long-term evolutionary development and/or
- For the reintroduction of populations or recovery of the species or ecological community

Such habitats may be, but are not limited to:

- Habitat identified in a recovery plan for the species or ecological community as habitat critical for that species or ecological community

Many species do not have approved recovery plans and 'habitat critical to the survival of a species' is generally not identified in available literature. For species that have a wide distribution/occurrence, habitat considered as that necessary for 'foraging, breeding, roosting or dispersal' is a broad definition that is not necessarily analogous with the definition of critical at a species level. Given the relative lack of information that is often available, significance of impacts to threatened species has been based on the professional expertise of the assessment personnel and the latest available information relating to species habitat and ecological requirements and distribution.

5.2 MNES Not Subject to Significant Impact Assessment

While the following MNES are considered to have at least some potential to occur, the proposed impacts are not considered to be of a scale that warrants an assessment using the MNES Guidelines significant impact criteria. These MNES are briefly discussed in the following sections.

5.2.1 Brigalow TEC

The Project occurs in a highly disturbed landscape impacted by cattle grazing activity and Brigalow has been subject to substantial impact from past clearing as a result. The Project area (and broader Study area) also suffers from infestation of invasive weeds including Buffel Grass (*Cenchrus ciliaris*), *Harrisia martinii* and *Parthenium hysterophorus* (Ausecology 2024a). The Project area has been substantially revised during the design process and has minimised impact on occurrences of Brigalow TEC where possible. The Project proposes to impact approximately 380 m^2 of Brigalow TEC (0.04 ha) located along 60 m of the edge of a much larger patch (29.10 ha) (**Figure 2**). The patch comprises Brigalow regrowth with varying infestations of weedy ground cover (Ausecology 2024a).

Ground cover will be retained throughout the Project area except for the temporary ground cover removal along a 10 m wide access track. This disturbance will be allowed to naturally regenerate following completion of construction. The clearing within the small area of the TEC will not cause fragmentation of a larger patch. The Project does not require landform earthworks that may influence abiotic factors (such as groundwater levels or changes to surface water flows). The main impact from the Project will be during construction and is therefore considered temporary in nature. The proposed clearing is very minor in extent and there is no reason to believe the Project would have a significant impact on Brigalow TEC, and it is not referred to further in this assessment.

5.2.2 Ornamental Snake

The Project area and broader Study area are mapped as occurring within the known/likely distribution of the Ornamental Snake (DCCEEW 2024). The species was not recorded within the Study area during Project-specific surveys. However, individuals were recorded by Ausecology approximately 3 km south-east of the Study area during recent surveys for the Project (refer **Appendix B**). The Project will directly impact 0.19 ha of marginal habitat for the species as per the habitat definitions of Kerswell et al. (2020) (Ausecology 2024a). Marginal habitat is described as "*areas currently or previously dominated by brigalow or coolibah communities where gilgais or soil cracks are infrequent or are shallow or non-remnant areas where threats are high (high*

abundance of weed incursion and cattle compacting soils) but the species still have potential to occur." No preferred or suitable habitat was observed within the Project area (refer Figure C1 in **Appendix C**).

There are no identified important populations or definitions of habitat critical to the survival of Ornamental Snake. The *Draft referral guidelines for the nationally listed Brigalow Belt reptiles* (Referral guidelines) (DCCEEW 2023b) considers the presence of important habitat for this species a surrogate for an important population. The Referral guidelines describe important habitat as 'gilgai depressions and mounds'. The Project area only intersects habitat mapped as marginal for the species. As such, important habitat is not considered to occur.

The Referral guidelines note that clearing of two or more hectares of important habitat may comprise a high risk of a significant impact on the species. Clearing one hectare or less is considered a low risk of significant impact on the species. Given the Project is proposing to clear 0.19 ha of marginal habitat for Ornamental Snake a significant impact is considered very unlikely to occur and the species is not referred to further hereafter.

5.2.3 Australian Painted Snipe, Caspian Tern and Sharp-tailed Sandpiper

Australian Painted Snipe and Caspian Tern are considered likely to occur and Sharp-tailed Sandpiper is considered a possible occurrence as associated with the Study area assessed for the Ausecology (2024) studies. Caspian Tern has been recorded relatively close to the Study area in association with a large dam, but habitat within the Study area itself appears minor with suitable habitat becoming temporarily available only after significant rainfall events. Potential wetland habitat for these species is generally limited within the Study area to a single artificial and ephemeral wetland area (**Figure C1** in **Appendix C**). This area is relatively small and would be considered only as occasional foraging habitat for Australian Painted Snipe (suitable habitat features for breeding are not present) (Ausecology 2024a). Other potential ephemeral wetlands comprising gilgais are not intersected by the Project (refer Figure C1 in **Appendix C**).

The waterbody is located within 30 m of existing industrial disturbance (explosives yard). A single 30 m wide stub line intersects the edge of the wetland area. No power line footings are located within the wetland area. Clearing for the 10 m wide access track will be located outside (east of) the waterbody. Following construction of the power line there will be no more disturbance on the wetland area. There is no other suitable habitat located within the Study area or surrounds. A significant impact is not considered possible for any of these three species, therefore they are not addressed further in this assessment.

5.2.4 Aerial Foraging Bird Species

Fork-tailed Swift and White-throated Needletail are almost entirely aerial in their foraging and resting habits when in Australia (i.e. they are rarely recorded roosting). They are found over a variety of habitats, including open areas, modified lands and the ocean but are most often observed over wooded areas (Higgins 1999). The airspace above the Project area will only comprise ephemeral foraging habitat. The Project requires negligible clearing of woody vegetation and there is abundant woodland habitat in the wider area surrounding the Project area. The Project will have negligible (if any) impact on the availability of potential foraging habitat for either species.

5.3 Significant Impact – Threatened Ecological Communities

5.3.1 Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin - Endangered

The Natural Grassland TEC occurs as three separate patches comprising RE 11.8.11 and 11.4.4 which are intersected by the western portion of the Project area. Onsite classification of the native grassland habitat considered these patches to be of 'best quality' or 'good quality' (Ausecology 2024a) under the condition classes described in the Approved conservation advice for the Natural Grassland TEC (TSSC 2009).

There is 57.46 ha of Natural Grassland TEC located within the overall Study area. The Project area has been refined to minimise impacts and as a result proposes a temporary impact to an overall maximum area of 0.57 ha of the TEC spread across the four RE patches (**Figure 2**). The disturbance impact will be restricted to a 10 m wide access track subject to clearing and grubbing and used for locating the power line poles. The cleared

track will be allowed to regenerate naturally on the completion of construction of the Project, and will be subject to ongoing weed management in line with activities at PDM. The remainder of the Project area will be subject to slashing only (where necessary) which will not remove the grass species currently present. It is noted the Project area and broader Study area are subject to cattle grazing currently and this will continue on completion of construction works.

Table 7 provides an assessment of the potential for significant impacts on the Natural Grassland TEC based on the Project area using the assessment criteria for endangered ecological communities outlined in the MNES Guidelines.

Table 7. Significant impact criteria assessment: Natural Grassland TEC

Criteria	Endangered ecological communities assessment
Reduce the extent of an ecological community	The Natural Grassland TEC is known to occur within the Project area. The Project area will result in temporary clearing of 0.57 ha of Natural Grassland TEC. The clearing will occur as a narrow linear (up to 10 m wide) disturbance for Project access purposes. The remainder of the Project area may be subject to slashing only (where necessary) allowing the grass species present to remain in place. Following completion of construction, the access track will be allowed to regenerate naturally. The Project clearing is minor in overall extent and the impact is considered temporary. As such, in the longer term (i.e. following construction) the Project will not reduce the extent of an ecological community.
Fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines	The Project area will result in temporary clearing of 0.57 ha of the Natural Grassland TEC. The clearing will occur as a narrow linear (up to 10 m wide) disturbance for Project access purposes. The remainder of the Project area may be subject to slashing only (where necessary) allowing the grass species present to remain in place. Following completion of construction, the access track will be allowed to regenerate naturally. Although some fragmentation may occur the Project impact is considered minor and temporary. As such, in the longer term (i.e. following construction) the Project is not considered to result in increased fragmentation of Natural Grassland TEC.
Adversely affect habitat critical to the survival of an ecological community	There is no definition of habitat critical to the survival of the Natural Grassland TEC. As such, it is uncertain the Project would adversely affect habitat critical to the survival of the Natural Grassland TEC. The proposed Project clearing within the TEC is minor in overall extent and the impact is considered temporary. Cleared areas will be allowed to naturally regenerate following construction. The Project is considered unlikely to adversely affect habitat critical to the survival of Natural Grassland TEC.
Modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns	The Project impact is relatively benign being largely associated with limited tree clearing and more restricted clearing of the ground layer. The Project will not impact groundwater levels or surface water flows. Areas subject to clearing for the access track will be allowed to regenerate following construction. There is no reason to believe the Project will modify or destroy abiotic factors necessary for the survival of the Natural Grassland TEC.
Cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting	The Project area will result in temporary clearing of 0.57 ha of Natural Grassland TEC. This impact occurs as a narrow linear (up to 10 m wide) disturbance for Project access purposes. The remainder of the Project area may be subject to slashing only (where necessary) allowing the grass species present to remain in place. Following completion of construction, the access track will be allowed to regenerate naturally. The majority of the Project area is located within areas that have been cleared of vegetation and with a heavy cover of the introduced Buffel Grass. The Project does not require activities such as regular burning or timber harvesting. The Project will not cause a substantial change in the species composition of the Natural Grassland TEC

Criteria	Endangered ecological communities assessment
Cause a substantial reduction in the quality or integrity of an occurrence of an ecological community including but not limited to: • Assisting invasive species, that are harmful to the listed ecological community, to become established, or • Causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community	The *Threat abatement plan for the biological effects, including lethal toxic ingestion, caused by cane toads* (DSEWPC 2011) is considered relevant to this community. Cane Toads are likely to be common in the Study area and were observed on most surveys carried out by Ausecology from 2021 – 2023. Weed and pest management measures will be developed and implemented for the construction and operation phases of the Project avoid or minimise the introduction or spread of weeds and pests. The Project occurs within a landscape subject to cattle grazing impact and invasion by Buffel Grass and Parthenium. The plan will ensure that no herbicides are used which may be deleterious to an occurrence of the Natural Grassland TEC. The Project is considered unlikely to cause a substantial reduction in the quality or integrity of an occurrence of Natural Grassland TEC.
Interfere with the recovery of an ecological community	There is no adopted recovery plan for the Natural Grassland TEC. The Project proposes to cause a temporary impact to 0.57 ha of the TEC. There is 54.76 ha of the TEC within the surrounding Study area. This impact occurs as a narrow linear (10 m wide) disturbance for Project access purposes. The remainder of the Project area may be subject to slashing only (where necessary) allowing the grass species present to remain in place. Following completion of construction, the access track will be allowed to regenerate naturally. There is no reason to believe the minor extent of temporary clearing required will interfere with the recovery of Natural Grassland TEC.
Assessment result	**Based on the MNES criteria assessment above it is considered a significant residual impact to the Natural Grassland TEC is unlikely to occur as a result of the Project.**

5.4 Significant Impact – Threatened Species

5.4.1 *Dichanthium queenslandicum* – Endangered

Ecology

King blue-grass is a perennial grass species that occurs in association with other blue grass species (*Dichanthium* and *Bothriochloa* species) on black cracking clay soils. It is generally confined to native blue grass grassland communities on black clays (derived from basalt) on undulating plains. Associated species include: *Aristida leptopoda*, *Bothriochloa erianthoides*, *Dichanthium sericeum*, *Digitaria brownii*, *Digitaria divaricatissima*, *Ipomoea lonchophylla*, *Iseilema vaginiflorum*, *Panicum decompositum*, *Panicum queenslandicum* and *Paspalidium globoideum* (TSSC 2013; DESI 2024).

The species occurs in three widely separated regions including the Dalby area in southern Queensland, the Central Highlands from Glenden south to Rolleston and west to Clermont, and isolated records north of Hughenden and Charters Towers. The Central Highlands region is the main stronghold for the species (TSSC 2013; ALA 2024).

Association with the Study area

The species was not recorded during Project surveys despite targeted searches. There is a 2022 record located 2.5 km east of the eastern extent of the Project area. There is also a 2012 record located 10 km north and a 2011 record located 12 km north-west of the western extent of the Project area (ALA 2024).

Although suitable habitat is identified as occurring within the Project area it was observed that much of the area has been severely impacted by cattle grazing. Introduced species are also common including Buffel Grass and Parthenium (Ausecology 2024a). As such, the species is only considered as *potentially* present in the

Project area and broader Study area (rather than likely to occur) within occurrences of the Natural Grasslands TEC where the ground cover retains native grass species.

DCCEEW approved species documents

There is no approved recovery plan or threat abatement plan adopted for the species under the EPBC Act.

The *Approved conservation advice for Dichanthium queenslandicum (King blue-grass)* (DSEWPC 2013) identifies the following threats to the species:

- Clearing of habitat for agriculture, mining, road infrastructure and other development
- Cropping impact
- Livestock grazing impact (the species does not tolerate continual heavy stocking rates)
- Weed invasion by species including Parthenium, Buffel Grass and Zinnia (*Zinnia peruviana*) threatens the species habitat values (Butler 2007)

There is no definition of critical habitat for the species in the available literature. There is 57.46 ha of potential habitat (i.e. Natural Grassland TEC) located within the overall Study area. The Project area proposes a temporary impact to a maximum area of 0.57 ha of suitable habitat for *Dichanthium queenslandicum* (**Figure** 2).

The disturbance impact will be restricted to a 10 m wide access track subject to clearing and grubbing and used for locating the power line poles. The cleared track will be allowed to regenerate naturally on the completion of construction of the Project. The remainder of the Project area will be subject to slashing only (where necessary) which will not remove the grass species currently present. It is noted the Study area is subject to cattle grazing currently and this will continue on completion of construction works.

Table 8 provides an assessment of the potential for significant impacts on *Dichanthium queenslandicum* from the Project activities using the assessment criteria for Endangered species outlined in the MNES Guidelines.

Table 8. Significant impact criteria assessment: *Dichanthium queenslandicum*

Criteria	Endangered species assessment
Lead to a long-term decrease in the size of a population of the species	The species was not recorded within the Study area despite targeted surveys. Nevertheless, there are recent records of the species located nearby to the Study area. Most areas of potential habitat within the Study area were observed to be heavily impacted by cattle and weed invasion and were considered unsuitable for the species occurrence. Potential habitat for the species was identified within areas identified as Natural Grassland TEC. The Project area will result in temporary clearing of 0.57 ha of potential habitat for the species. The clearing will occur as a narrow linear (10 m wide) disturbance for Project access purposes. The remainder of the Project area may be subject to slashing only (where necessary) allowing the grass species currently present to remain in place. Following completion of construction, the access track will be allowed to regenerate naturally. The Project clearing is minor in overall extent and the impact is considered temporary. As such, the Project is highly unlikely to reduce the size of a population of *Dichanthium queenslandicum* (should a population actually occur within the Project area).
Reduce the area of occupancy a population	The species has not been recorded within the Study area despite targeted survey effort, but may potentially occur within areas identified as Natural Grassland TEC. The Project area will result in temporary clearing of 0.57 ha of potential habitat for the species. The clearing will occur as a narrow linear (10 m wide) disturbance for Project access purposes. The remainder of the Project area may be subject to slashing only (where necessary) and will not remove existing groundcover. Following completion of construction, the access track will be allowed to regenerate naturally. A population has not been identified, the Project clearing extent is minor and will be allowed to regenerate following construction. The Project is considered highly unlikely

Criteria	Endangered species assessment
	to reduce the area of occupancy of a population of *Dichanthium queenslandicum* (should a population actually occur within the Project area).
Fragment an existing population into two or more populations	Proposed clearing impact for the Project is linear and narrow (10 m wide). Following completion of construction, the access track will be allowed to regenerate naturally and slashed as part of ongoing management measures. The Project does not require elements that will represent a barrier to the species ability to disperse across the local landscape. The Project will not fragment an existing population of *Dichanthium queenslandicum* (should a population actually occur within the Project area).
Adversely affect habitat critical to the survival of the species	There is no definition of habitat critical to the survival of this species. The species has not been recorded in the Study area but is associated with Natural Grassland TEC which does occur within the Project area and broader Study area. The proposed Project clearing within the TEC is minor in overall extent and the impact is considered temporary. Cleared areas will be allowed to naturally regenerate following construction. The Project is considered unlikely to adversely affect habitat critical to the survival of *Dichanthium queenslandicum*.
Disrupt the breeding cycle of a population	The species has been recorded flowering throughout the year (QH 2012). It is not known if the species actually occurs in the Project area or wider Study area. Proposed clearing impact for the Project is linear and narrow (10 m wide). The Project does not require elements that will represent a barrier to the species ability to disperse across the local landscape. It is considered highly unlikely the Project will disrupt the breeding cycle of a population of *Dichanthium queenslandicum* (should a population actually occur within the Project area).
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The Project impact is relatively benign being largely associated with restricted and temporary impact on the ground layer. There will be no impact to habitat factors such as surface water flows and other potential general impacts on flora species (such as dust settlement) will be temporary and considered minor at worst. Proposed clearing impact for the Project is linear and narrow (10 m wide). Following completion of construction, the access track will be allowed to regenerate naturally. It is unlikely the Project will modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent the species is likely to decline.
Result in invasive species that are harmful to an endangered species becoming established in the endangered species habitat	Buffel Grass and Parthenium are both considered a threat to the species and were commonly recorded in the Study area during Project surveys. Buffel Grass was reported as often dominating the ground layer throughout the Study area (Ausecology 2024a). During the construction and operational phases of the Project, the existing BMA Weed and Feral Animal Management procedure will be implemented to manage invasive species. The Project is highly unlikely to result in the introduction of a novel invasive species, or proliferation of an existing invasive species in the species' habitat.
Introduce disease that may cause the species to decline	There are no identified introduced diseases or pathogens associated with this species. The Project activities do not require the importation of soils or other biological matters into the Study area. Machinery imported from outside the region for Project earthworks, transportation and other construction activities will be managed in accordance with the existing BMA Weed and Feral Animal Management procedure to reduce the risk on introducing pathogens. It is highly unlikely the Project activities will result in the introduction of a disease causing the species to decline.
Interfere with the recovery of the species	There is no recovery plan for this species. The Approved conservation advice for the species (DSEWPC 2013) identifies the following priority actions as relevant to the species and the Study area:

Criteria	Endangered species assessment
	• Identify high conservation value populations and monitor known populations including the effectiveness of applied management actions • Develop and implement a regional weed management plan for the control of Parthenium and Parkinsonia (*Parkinsonia aculeata*) • Develop a stock management plan for road easements and stock routes • Raise awareness of the species including engagement, improving land management and arranging conservation agreements with relevant landowners The Project is considered highly unlikely to interfere with the actions identified above. The Project will not substantially interfere with the recovery of the species.
Assessment result	**Based on the assessment above it is considered highly unlikely a significant residual impact to *Dichanthium queenslandicum* will occur as a result of the Project.**

5.4.2 Koala – Endangered

Ecology

Koalas have a distinct association with eucalypt woodland and forest habitats comprising suitable food trees, mainly of the following genus: Eucalyptus, Corymbia, Angophora and Melaleuca (Moore & Foley, 2000; Martin et al. 2008). They are not necessarily restricted to bushland areas and are known to occur and breed where suitable tree species occur within farmland and the urban environment (Dique et al. 2004). Similarly, movement is not confined to vegetated corridors, as they also move across cleared rural land and through suburbs (Martin et al. 2008). They may use a variety of trees, including many non-eucalypts, for feeding, shelter and breeding purposes (Dique et al. 2004; Martin et al. 2008).

They are known to have localised and variable preferences throughout their range, favouring some tree species over others (Pahl & Hume 1990). At the local level they are known to prefer individual trees. It has been suggested this could be a response to a number of factors such as high leaf moisture and/or nitrogen content, and low levels of toxic chemical compounds which are expressed by eucalypts as a result of herbivory (Pahl & Hume 1990; Hume & Esson 1993; Moore & Foley 2000).

Breeding occurs in spring / summer when males become territorial. Young permanently leave the pouch after seven months but may continue to ride on the mothers back until approximately 12 months. After this time adolescent females may remain in the natal habitat. Males generally disperse to new territories from one to three years of age (Dique et al. 2003; Martin et al. 2008).

Association with the Study area

At least one Koala individual and signs of presence (scats or tree scratches) have been recorded close (approximately 100 m) to the Study area. Additional individuals have been recorded in the surrounding wider area associated with PDM during the surveys by Ausecology (from 2019 to 2023) and other consultants, mainly to the south of the Study area (refer Figure A-3 in **Appendix B**). With regard to the Study area, an individual and signs of presence were recorded in close proximity in the wooded area in the west in riparian Queensland Blue Gum (*Eucalyptus tereticornis*) open forest (RE 11.3.25) and Poplar Box (*E. populnea*) dominated woodland (RE 11.5.3).

Project specific habitat mapping indicates the Project area will impact up to 17.57 ha of Koala habitat (refer **Figure C2** in **Appendix C**) comprising the following habitat areas as defined by Kerswell et al. (2020):

- 6.72 ha of preferred habitat – eucalypt woodlands with likely connection to groundwater and frequent palatable food trees (RE 11.3.25, 11.3.4 and 11.5.3)
- 0.45 ha of suitable habitat – other eucalypt woodlands connected to preferred habitat and at least one palatable food tree present (RE 11.5.3)
- 10.40 ha of Marginal habitat – other fragmented and sparse woodlands with some food trees and subject to water stress and/or periodic high intensity fires (remnant and non-remnant sparse *E. orgadophila* woodland - RE 11.8.5)

DCCEEW approved species documents

The *National recovery plan for the Koala Phascolarctos cinereus combined populations of Queensland, New South Wales and the Australian Capital Territory* (the Koala Recovery Plan) (DAWE 2022a) was approved on 8th April 2022. The Koala Recovery plan notes the following threats to the species:

- Habitat loss, fragmentation and modification including the impact of native forestry activities
- Drought, extreme heat events including associated with climate change
- Altered fire regimes
- Mortality from dog attack and vehicle collisions
- Diseases including Chlamydia and Koala retrovirus
- Plant pathogens impacting Koala habitat such as Myrtle Rust

The *Conservation Advice for Phascolarctos cinereus (Koala) combined populations of Queensland, New South Wales and the Australian Capital Territory* (DAWE 2022b) notes (with relevance to Queensland) the priority management actions associated with the south-east Queensland population and that sub-populations on the western edge of the species range may be 'climate-sensitive' and comprise genes adapted to environmental extremes which may prove critical to populations elsewhere in the future through translocation programs.

The Koala Recovery plan does not specifically identify any areas comprising 'valued populations' of Koala but does note an imperative to conserve populations:

- That may act as source populations to adjacent areas
- Occur in areas of climatic refugia (specifically from droughts and heat waves)
- Genetically diverse
- Contain adaptive genes to potential environmental stressors or
- Are geographical or environmental outliers

Koalas and signs of presence have been observed close to the Study area in recent years. The woodlands associated with the area comprise widespread communities much of which is disturbed and located within a heavily cleared landscape. Based on the habitat mapping definitions used for the Project (Kerswell et al. 2020) portions of the Project area may impact habitats with access to groundwater which may potentially act as 'climate refuge' habitat for Koala.

Similarly, the Koala Recovery plan does not provide a clear description of 'habitat critical to the survival' of Koala but does note that evaluation of the following may be required:

- Is the habitat used during periods of stress (fire, floods or drought)
- Is the habitat used for breeding, foraging, social behaviour or dispersal
- Is an important population present
- Does the habitat support genetic diversity
- Is the habitat used as a corridor
- Is the habitat necessary to maintain the long-term future of Koala

The Koala Recovery plan also notes that in order to halt the decline and promote recovery of the species the following activities should be avoided:

- Clearing of habitat used by Koalas for feeding and resting
- Reducing connectivity between patches used by Koala
- Clearing habitat used during extreme events
- Avoiding activities that will expose Koalas to additional threats

The overall Study area is largely disturbed by past vegetation clearing or thinning for cattle grazing. The Project will not erect structures that will provide an impermeable barrier to movement across the landscape. The Project will not increase additional threats to the species in the area. Evidently the species occurs in the local region (based on records near to the Study area) and uses the habitat for foraging and possibly breeding. The Project area for the most part avoids impacting preferred Queensland Blue Gum dominated habitat (0.04 ha) but does impact 6.72 ha of habitat that may be considered as a refuge during drought or extreme heat events (habitats likely connected to groundwater). Given the species is known to occur, the habitat identified within the Project area may be broadly interpreted as habitat critical to the survival of the species.

The Project is proposing to impact up to 17.57 ha of potential habitat for Koala (Ausecology 2024a). A preliminary analysis based on existing Queensland vegetation (RE) mapping indicates there is approximately 18,800 ha of potential eucalypt dominated habitat (as defined above) occurring within a 10 km radius of the Project area. As such, the Project proposes to impact 0.09% of potential available habitat within the wider area.

Table 9 provides an assessment of the potential for significant impacts on Koala from the Project activities using the assessment criteria for Endangered species outlined in the MNES Guidelines.

Table 9. Significant impact criteria assessment: Koala

Criteria	Endangered species assessment
Lead to a long-term decrease in the size of a population of the species	Koala individuals and signs of presence were recorded in close vicinity to the western portion of the Study area (and Project area). The species was also identified as occurring in the wider region. Preferred forage tree species in inland Queensland includes habitat supporting Queensland Blue Gum. The Project area has minimised clearing of such habitat to 0.04 ha. The Project will impact 7.13 ha of habitat comprising Poplar Box as the dominant canopy species and 10.40 ha of *E. orgadophila* dominated habitat. Both are considered locally important Koala trees in the Brigalow Belt Bioregion (Youngentob et al. 2021). There is abundant eucalypt-dominated habitat in the surrounding area that will remain undisturbed. The majority of the Project area that will be impacted comprises grassland habitat sometimes with scattered regrowth Brigalow (which is not a forage tree for Koala). With site specific measures in place (such as pre-clearance inspections and vehicle speed limits) mortality events are considered highly unlikely. A fauna spotter will be present during vegetation clearing within suitable habitat for Koala to eliminate any potential impact on Koala individuals (should any be present at the time). Indirect impacts to Koala habitat from Project activities (such as noise, lighting and dust settlement) will be temporary (during construction only) and have a very minor impact at worst. The Project is considered highly unlikely to lead to a long-term decrease in the size of a population of Koala.
Reduce the area of occupancy a population	The species is known to occur in the local area near to the Project. For the most part the Project area is devoid of eucalypt vegetation which may support the species. The Project proposes to clear 17.57 ha of potential habitat for Koala. This area is spread across scattered patches largely in the western extent of the Project area. There is abundant similar habitat located adjacent to the Project area and in the surrounding area which will remain undisturbed. The majority of the Project area does not comprise forage habitat for Koala. The project is considered highly unlikely to reduce the area of occupancy of a population of Koala.
Fragment an existing population into two or more populations	Koalas are a mobile species known to traverse long distances (up to 20 km) during dispersal movements (DCCEEW 2022b). Clearing for the Project is linear and does not require elements that will represent a barrier to the species movement across the Project area and surrounds. The Project will not fragment an existing population of Koala.
Adversely affect habitat critical to the survival of the species	Under the broad descriptions provided in the Koala Recovery plan habitat critical to the survival of the species is present. The Project area is currently proposing to impact 6.72 ha of habitat which may be interpreted as a refuge during drought conditions (i.e. vegetation with access to groundwater). The Project area will impact a maximum area of 17.57 ha of potentially suitable habitat for the species. There is approximately 18,800 ha of eucalypt dominated habitat mapped as occurring within 10 km of the Project area.

Criteria	Endangered species assessment
	Nevertheless, given critical habitat is considered as occurring there is potential for the Project to adversely affect habitat critical to the survival of Koala.
Disrupt the breeding cycle of a population	The Project will impact habitat in which Koala may occur. Pre-clearing inspections by a suitably qualified Fauna Spotter Catcher will be carried out to identify presence of Koala and where required, the Spotter Catcher will monitor individuals within the Project area during clearing activities. Measures will be in place where Koalas are identified within or adjacent to the Project area. This will include suspending clearing where individuals are found within designated clearing areas. Clearing will recommence only when the individual has been allowed to vacate the area of its own volition. It is considered unlikely the Project will disrupt the breeding cycle of a population of Koala.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The Project proposes to clear 17.57 ha of potential habitat for Koala. There is abundant potential habitat located in the wider area which will remain undisturbed. The Project impacts largely occur in unsuitable grasslands and regrowth acacia vegetation. The Project will not impact the availability or quality of habitat to the extent that the species is likely to decline.
Result in invasive species that are harmful to an endangered species becoming established in the endangered species habitat	Weed invasion is not considered a threat to the species. Feral dogs are considered a threat to the species and were recorded in the local area during project surveys (Ausecology 2024a). During the construction and operational phases of the Project, the existing BMA Weed and Feral Animal Management procedure will be implemented to manage invasive species. The Project is highly unlikely to result in the introduction of a novel invasive species, or proliferation of an existing invasive species in the Project area or surrounds.
Introduce disease that may cause the species to decline	Myrtle rust may impact a range of eucalypt species and may be a potential threat to habitat for Koala (DAWE 2022a). The Project activities do not require the importation of soils or other biological matters into the Project area. Machinery imported from outside the region for Project earthworks, transportation and other construction activities will be managed in accordance with the existing BMA Weed and Feral Animal Management procedure to reduce the risk on introducing pathogens. It is highly unlikely the Project activities will result in the introduction of a disease causing the species to decline.
Interfere with the recovery of the species	The Koala Recovery plan outlines a number of recovery strategies and actions for the species including the following: • Identify nationally important populations and strategic areas for restoration, climate/fire refugia and movement corridors • Coordinate research programs including implementing a national monitoring program • Increase the area of protected Koala habitat through incorporation into State protected areas and on private lands and improve land management practises • Ensure koala conservation is integrated into policy, and statutory and land-use plans • Develop and implement strategic restoration of habitat including through natural resource management and land care groups and develop revegetation and restoration guidelines • Develop a strategy of active management practices Koala metapopulations including monitoring population health, fire management, and guidelines for managing Koala translocations and post-care release of individuals (DAWE 2022a) The majority of the Project area and broader Study area has been heavily impacted by previous grazing practices. There is abundant habitat present in the surrounding area which will remain undisturbed. With mitigation measures in place during construction works the proposed impact is minor in extent and is considered unlikely to interfere

Criteria	Endangered species assessment
	substantially with the management actions identified above or the recovery of the species.
Assessment result	**Based on the assessment above it is considered there is *potential* for a significant impact to Koala to occur as a result of the Project through impact on habitat considered critical to the survival of the species.**

5.4.3 Greater Glider – Endangered

Ecology

The Greater Glider is typically found in mature eucalypt forests and woodlands with a variety of eucalypt species and a high density of large tree hollows (van der Ree et al. 2004). Large hollows in old trees are preferred as daytime shelter sites (Goldingay 2012). Sites with a high abundance of suitable hollows appear to support higher populations. Eyre (2006) reported a single individual required three living hollow-bearing trees per hectare to be present in an area. Suitable trees with large hollows used for den sites were found to be largely trees with a diameter of 50 cm or greater (Smith et al. 2007). Its diet is largely composed of eucalypt leaves and occasionally flowers. Greater Glider utilises small home ranges of between 1 ha and 4 ha recorded in more productive forests (Gibbons & Lindenmayer 2002). In more open and dry habitats it has been recorded using home ranges up to 16 ha in size (Smith et al. 2007).

Females breed at two years of age and may produce a single young each year from March to June (Woinarski et al. 2014). Recent genetic evidence indicates the species may comprise three separate species with individuals in the Study area potentially representing Central Greater Glider (currently *P. volans armillatus*) (McGregor et al. 2020). The central and southern species occur across eastern Australia and is generally associated with the Great Dividing Range and habitat to the east towards the coast. Occurs from central Victoria north to approximately Ayr. The southern range of the Central Greater Glider is uncertain but may be around the Queensland – New South Wales border (McGregor et al. 2020).

Association with the Study area

Greater Glider has been recorded close (approximately 100 m) to the Project area and as well as in the surrounding wider area associated with PDM during surveys by Ausecology (from 2019 to 2023) and other consultants (refer Figure A-3 in **Appendix B**). With regard to the Study area, several individuals were recorded in close proximity in the wooded area in the west in riparian Queensland Blue Gum open forest (RE 11.3.25) and Poplar Box dominated woodland (RE 11.5.3). All individuals were recorded outside the Project area.

In Queensland the species has been commonly recorded using Queensland Blue Gum for denning and foraging purposes and it is evidently a favoured species. The species association with Poplar Box is much less certain (refer Table 4 in Eyre et al. 2022). Other eucalypts recorded in the Project area include *Eucalyptus orgadophila*, *E. cambageana*, *Corymbia tessellaris* and *C erythrophloia* (data supplied by Ausecology 2024a). Of these, the Greater Glider is only associated with *C. tessellaris* (refer Table 4 in Eyre et al. 2022).

Much of the Project area was unsuitable for Greater Glider as it comprised either grasslands, unsuitable woody regrowth, isolated small patches, or other unsuitable habitats such as Brigalow communities or very sparse woodlands (such as RE 11.8.5). Project specific habitat mapping indicates the Project area will impact up to 6.42 ha of Greater Glider habitat (refer **Figure C1** in **Appendix C**) comprising the following habitat areas as defined by Kerswell et al. (2020):

- 6.00 ha of preferred habitat – connected eucalypt woodlands with one or more food trees and more than two hollow bearing trees per hectare with hollows medium-large in size (>10 cm entrance) (RE 11.3.25, 11.3.4 and 11.5.3)
- 0.42 ha of suitable habitat – other eucalypt woodlands connected to preferred habitat with at least one food tree present but not more than two hollow bearing trees per hectare with hollows medium-large in size (RE 11.5.3)

DCCEEW approved species documents

There is no approved recovery plan or threat abatement plan adopted for the species under the EPBC Act.

The *Conservation advice for* Petauroides volans *(Greater Glider (southern and central))* (DCCEEW 2022b) identifies the following threats to the species:

- Inappropriate fire regimes leading to high intensity and widespread bushfires impacting populations and habitat values (removing old growth trees with hollows)
- Habitat clearing and fragmentation of habitat for development, agriculture and forestry harvesting
- Climate change impacts to weather patterns increasing the potential for bushfire, heat stress for individuals and declining forage tree moisture levels
- Predation by, or competition for hollows from native species such as owls and cockatoos
- Predation from feral cats and European Red Fox

The Conservation Advice for the species identifies five 'broadly defined' habitat types that may provide habitat critical to the survival of the species:

- Large contiguous areas of eucalypt forest, which contain mature hollow-bearing trees and a diverse range of the species' preferred food species in a particular region
- Smaller or fragmented habitat patches connected to larger patches of habitat, that can facilitate dispersal of the species and/or that enable recolonization
- Cool microclimate forest/woodland areas (e.g. protected gullies, sheltered high elevation areas, coastal lowland areas, southern slopes)
- Areas identified as refuges under future climate changes scenarios
- Short-term or long-term post-fire refuges (i.e. unburnt habitat within or adjacent to recently burnt landscapes) that allow the species to persist, recover and recolonise burnt areas (DCCEEW 2022b)

As noted, large hollow bearing trees occur to a limited extent within the western portion of the Project area. This portion of the Project area intersects a tract of eucalypt forest which extends to the north and west from the area. The Project area is not located in a cool micro-climate woodland and there is no reason to believe the area would be a refuge from wildfires. The woodlands located within the Project area are generally sparse and it is uncertain if they comprise a 'diverse' range of preferred food tree species.

The Project will impact up to 6.42 ha of suitable eucalypt vegetation. This includes 0.04 ha of the more favoured Queensland Blue Gum vegetation (RE 11.3.4 and 11.3.25) with the remainder comprising Poplar Box vegetation (RE 11.5.3) (a species which appears less favoured). There is little evidence this habitat may be considered as habitat critical to the survival of the species. A preliminary analysis based on existing Queensland vegetation (RE) mapping indicates there is approximately 11,000 ha of potential preferred or suitable habitat (as defined above) occurring within a 10 km radius of the Project area. As such, the Project proposes to impact 0.06% of potential available habitat within the wider area. It is noted the extent to which the habitat in the wider area is suitable (i.e. availability of large tree hollows) is unknown.

Table 10 provides an assessment of the potential for significant impacts on Greater Glider from the Project activities using the assessment criteria for Endangered species outlined in the MNES Guidelines.

Table 10. Significant impact criteria assessment: Greater Glider

Criteria	Endangered species assessment
Lead to a long-term decrease in the size of a population of the species	The species has been recorded close to the Project area as well as in the wider area during surveys in recent years. Known preferred tree species which are present includes Queensland Blue Gum and *Corymbia tesselaris*. Large hollow-bearing trees are limited to the western extent of the Project area. The Project proposes clearing up to 6.42 ha of potential habitat for the species. Only 0.04 ha comprises REs associated with Queensland Blue Gum. There is abundant similar habitat in the surrounding area that will remain undisturbed. Existing Queensland Government vegetation mapping indicates there is over 11,000 ha of potential habitat located within 10 km of the Project area.

Criteria	Endangered species assessment
	A fauna spotter-catcher will be present to mark trees with suitable large hollows prior to clearing and present during vegetation clearing to inspect hollows in felled trees. Indirect impacts to Greater Glider habitat from Project activities (such as noise, lighting and dust settlement) will be temporary and have a very minor impact at worst. Given the availability of eucalypt habitat surrounding the Project it is considered unlikely to lead to a long-term decrease in the size of a population of Greater Glider.
Reduce the area of occupancy a population	The species has been recorded close to the Project area as well as in the wider area during surveys in recent years. The Project proposes to clear up to 6.42 ha of potential habitat for Greater Glider. There is abundant similar habitat in the wider area (within 10 km) which will remain undisturbed. Although the Project will reduce the area of available foraging habitat in the local area, given the abundant identical habitat in the surrounding area, the clearing is not considered to be of a scale to reduce the area of occupancy of a population of Greater Glider and thereby cause a significant impact.
Fragment an existing population into two or more populations	The Project area comprises linear disturbance of 50 m (main corridor) and 30 m (stub line corridors). Cleared corridors within forested lands are considered a barrier to dispersal for Greater Glider (Taylor and Goldingay 2009). Glide distances associated with the species will be influenced in particular by the height of the launch site as well as other temporal factors such as weather conditions. Project-specific Greater Glider tree assessments were carried out by Ausecology. The assessments included measurements of tree height, species and diameter at breast height. Average tree height within RE 11.5.3 was 16.8 m with a maximum height of 27.8 m recorded. Horizontal glide distance for Greater Glider was calculated via a Taylor & Goldingay (2009) study of the species' ability to cross road infrastructure in south-east Queensland. Based on the site data the local glide distance would be limited to 27.8 m. As such, the width of the main corridor and stub line corridors appear likely to prevent the species ability to traverse from one side to the other. It is noted the species was only recorded to the north of the Project area. It is not known if the species occurs to the south and would traverse the proposed Project area. An approximate length of 800 m along the western extent of the Project area will bisect mapped Greater Glider habitat. This has potential to isolate 20 ha of mapped preferred or suitable habitat for the species from contiguous habitat located north of the Project area. Although, it is noted the species has not been recorded to the south of the Project area during Project surveys, the Project has some potential to fragment an existing population of Greater Glider.
Adversely affect habitat critical to the survival of the species	Based on the broad definitions within the conservation advice for the species, it is uncertain the project area supports habitat critical to the survival of the species. The Project proposes to impact up to 6.42 ha of suitable eucalypt habitat. Nevertheless, there is abundant identical habitat in the surrounding area. The Project is considered unlikely to adversely affect habitat critical to the survival of the species.
Disrupt the breeding cycle of a population	There is some *potential* for the Project to impact potential den trees during tree clearing. Young are born from March to June (Baker and Gynther 2023). Pre-clearing inspections by a suitably qualified Fauna Spotter Catcher will be carried out to identify trees with large hollows which may provide roosting habitat for Greater Glider. Measures will be in place where suitable hollows are identified within the Project area. This will include felling trees in a manner such that injury to potential hollow occupants will be minimised. The Fauna Spotter Catcher will have further procedures in place should Greater Glider occur within trees felled for the Project construction, including salvage and relocation protocols. There is a minor potential for the Project to disturb Greater Glider individuals with young during construction, but this is considered unlikely to result in disruption to the breeding cycle of a population.

Criteria	Endangered species assessment
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The Project proposes to clear up to 6.42 ha of suitable habitat for Greater Glider. There is abundant similar habitat located in the wider area which will remain undisturbed. The Project is not considered likely to impact the availability or quality of habitat to the extent that the species is likely to decline.
Result in invasive species that are harmful to an endangered species becoming established in the endangered species habitat	Weed invasion is not considered a threat to the species. Feral dogs and cats are considered a threat to the species and were recorded in the local area during project surveys (Ausecology 2024a). During the construction and operational phases of the Project, the existing BMA Weed and Feral Animal Management procedure will be implemented to manage invasive species. The Project is highly unlikely to result in the introduction of a novel invasive species, or proliferation of an existing invasive species in the Study area or surrounds.
Introduce disease that may cause the species to decline	There are no known vectors of disease or pathogens associated with the species. The Project activities do not require the importation of soils or other biological matters into the Study area. Machinery imported from outside the region for Project earthworks, transportation and other construction activities will be managed in accordance with the existing BMA Weed and Feral Animal Management procedure to reduce the risk on introducing pathogens. It is highly unlikely the Project activities will result in the introduction of a disease causing the species to decline.
Interfere with the recovery of the species	The Approved conservation advice identifies a number of conservation and recovery actions for the species including the following: • Identify strategic areas for restoration, climate/fire refugia and movement corridors • Protect unburnt habitat to support populations following bushfires • Protect hollow-bearing trees on private property, roadside reserves and along roads and avoid fragmentation/loss of habitat due to development of transport infrastructure • Where threats from cats and Red Fox are locally significant implement control measures (especially in unburnt areas) • Investigate the feasibility of reintroductions and translocation of the species • Define appropriate levels of timber harvesting exclusion where these activities occur within the species distribution • Develop fire management guidelines for land managers and implement applied research to assess the impact of fires and management activities on the species habitat • Information and research priorities undertaken to improve knowledge of the species and populations including genetic sampling, monitoring surveys across the species range (DCCEEW 2022b) The Project will result in the clearing of up to 6.42 ha of habitat for Greater Glider. The Project may also result in the further isolation of approximately 20 ha of habitat, although it is not known if the species utilises this area. Nevertheless, there is extensive potential habitat surrounding the project area and the proposed extent of impact will be minor. The project is considered unlikely to interfere substantially with the management actions identified above or the recovery of the species.
Assessment result	**Based on the assessment above it is considered there is some *potential* for a significant impact to Greater Glider through fragmentation of existing suitable habitat for the species.**

5.4.4 Squatter Pigeon (southern) – Vulnerable

Ecology

The Squatter Pigeon is largely a terrestrial pigeon species, foraging and breeding on the ground. The species mainly occurs in dry grassy eucalypt woodlands and open forests (Frith 1982; Crome and Shields 1992). It may also inhabit Callitris/Acacia dominated woodlands and has been reported from open plains in its historical southern range (Frith 1982). Most individuals live in sandy sites within 3 km of a permanent water source (Blakers et al. 1984). They remain common in heavily grazed country in tropical Queensland (Reis 2012) but they are typically more common in ungrazed lands (Woinarski and Ash 2002; Reis 2012). This species mainly feeds on grass seed although insects are seasonally important in the diet (Reis 2012).

The species may breed throughout the year, but this appears to be greatly influenced by rainfall and abundance of foraging resources. Peak breeding is likely to occur during the dry season (April to October) (Squatter Pigeon Workshop 2011). The nest is a shallow depression on the ground usually sheltered by a bush or log (Reis 2012). The total population size is estimated at 220,000 mature birds. Individuals located north of Roma occur as a single continuous interbreeding population (Garnett & Baker 2021).

The subspecies was historically found from the Dubbo region in New South Wales north to the Burdekin River area in in Queensland. There have been no official records in New South Wales since the 1970s. Although the species has declined greatly in southern Queensland in the past it appears this decline has slowed, and the species now persists over a wide area and can be locally abundant in central Queensland (Garnett et al. 2011) where groups of up to 30 individuals can still be seen (Reis 2012). South of the Carnarvon Range the species appears to occur only in scattered areas.

Association with the Study area

Squatter Pigeon was not recorded close to the Project area but has been recorded in the surrounding wider area associated with PDM during other surveys by Ausecology, and has been recorded within the south-east of the Study area by a separate consultant (refer **Appendix B**). With regard to the Study area, individuals were recorded in RE 11.4.8 but in close proximity to more suitable habitats including riparian Queensland Blue Gum open forest (RE 11.3.25) and Poplar Box dominated woodland (RE 11.5.3).

The species may occur in woodlands on sandy soils within 3 km of permanent water (including farm dams), particularly within REs on Land Zone 5 and 7 (DCCEEW 2024) as well as Land Zones 3 and 10. The species forages/breeds in areas where the ground cover is no more than 33%. Much of the Project area was unsuitable for the species as it comprised grasslands with dense cover, woody regrowth, or other unsuitable habitats located on clay soils such as Brigalow communities. Project specific habitat mapping indicates the Project area will impact up to 22.77 ha of Squatter Pigeon habitat (refer **Figure C3** in **Appendix C**) comprising the following habitat areas as defined by Kerswell et al. (2020):

- 13.45 ha of preferred habitat – eucalypt or acacia woodlands with <33% ground cover on well-draining soils (land zone 3, 5, 7, 8, 9 and 10) within 1 km of a permanent waterbody
- 6.39 ha of suitable habitat – eucalypt or acacia woodlands with <33% ground cover on well-draining soils (land zone 3, 5, 7, 8, 9 and 10) within 1-3 km of a permanent waterbody (includes non-remnant areas within 100 m of preferred habitat)
- 2.94 ha of marginal habitat – other non-remnant (regrowth) or remnant woodland areas more than 3 km from a waterbody that allow for movement between preferred and suitable habitat

DCCEEW approved species documents

There is no approved recovery plan for the species.

Relevant threat abatement plans applicable to the species include:

- Threat abatement plan for competition and land degradation by rabbits (DEE 2016)
- Threat abatement plan for predation by feral cats (DE 2015b)
- Threat abatement plan for predation by the European red fox (DEWHA 2008c)

The Approved Conservation Advice for the species (TSSC 2015a) notes the following threats to the species:

- Habitat loss through land clearing, particularly for livestock grazing which decreases foraging resources
- Overgrazing by livestock and feral herbivores
- Unsuitable fire regimes
- Changes to habitats caused by invasive weeds and/or thickening of understorey vegetation (Higgins & Davies 1996; Garnett et al 2011)

All of small, isolated and sparsely distributed populations south of the Carnarvon Range area are considered as important subpopulations including:

- populations occurring in the Condamine River catchment and Darling Downs
- populations known to occur in the Warwick-Inglewood-Texas area
- populations potentially occurring in northern NSW (Squatter Pigeon Workshop 2011; DCCEEW 2024).

All individuals to the north of the Carnarvon Range are considered to be part of a single, widely distributed, interbreeding population (Squatter Pigeon Workshop 2011; Garnett & Baker 2021). Therefore, given the Study area is located over 250 km north of the Carnarvon Range any individuals present are not considered part of an 'important subpopulation'.

No definition of habitat critical to the survival of the species is defined for this species. This is likely due to the relatively broad habitat requirements of the species and the abundance of similar habitat across the wider landscape.

The Project proposes to impact 22.77 ha of suitable habitat for Squatter Pigeon. A preliminary analysis based on existing Queensland vegetation (RE) mapping indicates there is approximately 21,400 ha of potentially suitable habitat (as defined above) occurring within a 10 km radius of the Project area. As such, the Project proposes to impact 0.1% of likely available habitat within the wider area.

Table 11 provides an assessment of the potential for significant impacts on Squatter Pigeon from the Project activities using the assessment criteria outlined in the MNES Guidelines.

Table 11. Significant impact criteria assessment: Squatter Pigeon

Criteria	Vulnerable species assessment
Lead to a long-term decrease in the size of an important population of the species	The species has not been recorded in the Project area, though has been recorded locally during surveys in the Study area and surrounds, and suitable habitat is present in the Project area. The Project area lies north of the Carnarvon Range and as such, the individuals present in the local region are not considered as part of an important subpopulation. The species prefers wooded areas on sandy substrates within 3 km of a permanent water source (including farm dams). Much of the vegetation within the Project area and broader Study area is unsuitable as it comprises grasslands or other vegetation on clay soils. The Project area is proposed to impact 22.77 ha of potentially suitable habitat for Squatter Pigeon. It is noted overgrazing by livestock is considered a threat to the species. The habitats located within the Project area and surrounds are currently subject to cattle grazing. Vegetation clearing for the Project does not involve broad-scale clearing of habitat. Although the Project requires clearing of 22.77 ha there will be over 21,400 ha of similar habitat remaining in the wider area (within 10 km) surrounding the Project area. The nature of the clearing comprises linear clearing (access tracks and footings), and tree removal or slashing of grasses (for the remaining power line corridors) within tracts of woodlands, grasslands and previously cleared areas which will remain undisturbed. Grasses will be allowed to revegetate the 10 m wide access track on completion of construction.

Criteria	Vulnerable species assessment
	The species is mobile and should individuals be present they are expected to simply move from the clearing area. With site specific measures in place (such as pre-clearance inspections and vehicle speed limits) mortality events are considered highly unlikely. The project is considered highly unlikely to lead to a long-term decrease in the size of an important population or subpopulation of Squatter Pigeon.
Reduce the area of occupancy of an important population	The species has been recorded locally and suitable habitat is present in the Project area. The individuals present in the local region are not considered as part of an important subpopulation. Vegetation clearing for the Project does not involve broad-scale clearing of habitat. Although the Project requires clearing of 22.77 ha there will be over 21,400 ha of similar habitat remaining in the wider area (within 10 km) surrounding the Project area. The nature of the clearing comprises linear clearing (access tracks and footings) and tree removal or slashing of grasses (for the power line corridors) within tracts of woodlands, grasslands and previously cleared areas which will remain undisturbed. Grasses will be allowed to revegetate the 10 m wide access track on completion of construction. Given the relatively minor extent of impact to habitat in the context of the wider area the project is considered highly unlikely to reduce the area of occupancy of an important subpopulation.
Fragment an existing important population into two or more populations	The species has been recorded locally and suitable habitat is present in the Project area. The individuals present in the area are not considered as part of an important subpopulation. The nature of the clearing comprises linear clearing (access tracks and footings) and tree removal or slashing of grasses (for the power line corridors) within tracts of woodlands, grasslands and previously cleared areas which will remain undisturbed. Grasses will be allowed to revegetate the 10 m wide access track on completion of construction. The species is highly mobile and the Project will not fragment an existing important subpopulation.
Adversely affect habitat critical to the survival of the species	There is no definition of habitat critical to the survival of Squatter Pigeon. The species has broad habitat requirements and there is abundant suitable habitat for the species within and surrounding the Project area. The Project will not adversely affect habitat critical to the survival of Squatter Pigeon.
Disrupt the breeding cycle of an important population	The species has been recorded locally and suitable habitat is present in the Project area. The individuals present in the area are not considered as part of an important subpopulation. The Project area lies on relatively flat plain with little topographic relief. Breeding habitat is identified as stony rises with sandy or gravel soils and within 1 km of permanent water (Squatter Pigeon Workshop 2011). Under this definition there is unlikely to be breeding habitat for the species present. Regardless, potential habitat for the species (as identified in this report) will be subject to preclearance surveys prior to vegetation clearing for construction. Mitigation measures will be in place as discussed in **Section 4.2**. Where an active nest site for the species is identified within or adjacent to the Project area the site will be avoided during the nesting period. The species may breed throughout the year with a likely peak from April to October. While there is a potential for the Project construction activities to disrupt the breeding cycle of individuals this impact will be temporary (restricted to the construction period). It is considered any impact would be minor (at worst) and is not considered to be to the extent a significant impact would occur on an important subpopulation of Squatter Pigeon.
Modify, destroy, remove, isolate or decrease the availability or quality of	The species occurs in the Study area and surrounds. There is abundant suitable habitat for the species within the wider area surrounding the Project area. The Project requires

Criteria	Vulnerable species assessment
habitat to the extent that the species is likely to decline	clearing of 22.77 ha of suitable habitat. There will be over 21,400 ha of similar habitat remaining in the wider area (within 10 km) surrounding the Project area. Given the relatively minor extent of impact to habitat in the context of the wider area the project is considered highly unlikely to impact the availability or quality of habitat to the extent that the species is likely to decline.
Result in invasive species that are harmful to an endangered species becoming established in the endangered species habitat	Weed invasion is not considered a threat to the species. Browsing and land degradation by feral species (such as rabbits) and livestock (such as cattle) is considered a threat to the species habitat. Both are currently known to be present in the Project area and broader Study area (Ausecology 2024a). During the construction and operational phases of the Project, the existing BMA Weed and Feral Animal Management procedure will be implemented to manage invasive species. The Project is highly unlikely to result in the introduction of a novel invasive species, or proliferation of an existing invasive species in the Study area or surrounds.
Introduce disease that may cause the species to decline	There are no identified introduced diseases or pathogens associated with this species. The Project activities do not require the importation of soils or other biological matters into the Project area. Machinery imported from outside the region for Project earthworks, transportation and other construction activities will be required to be certified free of weed seeds and soil matter prior to entry onsite. It is highly unlikely the Project activities will result in the introduction of a disease causing the species to decline.
Interfere substantially with the recovery of the species	There is no recovery plan for this species. The Approved conservation advice for the species (TSSC 2015) identifies the following conservation and management actions as relevant to the species and the Study area: • Identify high priority sub-populations (particularly in southern areas) and establish conservation protections, habitat rehabilitation and management plans for threats including stock and feral herbivore management • Develop and implement stock management plans and management plans for introduced herbivores at key sites and in areas inhabited by the species • Monitor sub-populations throughout the distribution of the species • Further research on the species ecology including preferred food plants, movement/dispersal patterns and reproductive factors The Project is considered highly unlikely to interfere with the actions identified above. The Project will not substantially interfere with the recovery of the species.
Assessment result	**Based on the assessment above it is considered unlikely a significant impact to Squatter Pigeon (southern) will occur as a result of the Project.**

5.5 Significant Impact – Migratory Species

The Project proposes to impact 7.18 ha of suitable habitat for the Rufous Fantail (Ausecology 2024b). The MNES Guideline criteria for Migratory species requires an assessment of the potential for 'important habitat' to be present within or near the Project area or that an 'ecologically significant proportion of the population' may be disrupted by the Project. Important habitat is defined as the following:

- Habitat utilised by a migratory species occasionally or periodically within a region that supports an ecologically significant proportion of the population of the species
- Habitat that is of critical importance to the species at particular life-cycle stages
- Habitat utilised by a migratory species which is at the limit of the species range and/or
- Habitat within an area where the species is declining

Rufous Fantail occurs in moist habitats, including closed forests, coastal scrubs, mangroves and along watercourses and gullies, and urban/rural areas during mid-year migration (Higgins et al. 2006). The species migrates north in early autumn and returns to southern Australia in early spring to breed, wintering on Cape

York Peninsula, the Torres Strait and New Guinea (Higgins et al. 2006; Menkhorst et al. 2017). Rufous Fantail is common in suitable habitat along the eastern seaboard (Menkhorst et al. 2017).

Rufous Fantail becomes more common to the east of the Project area where it is associated with the forests of the ranges located close to the coast. Within the local region it would be mostly confined to well-vegetated creek lines, which are absent from the Project area and broader Study area. Nevertheless, it may occur in the remnant and regrowth woodlands associated the Project area.

The species remains widespread across eastern Australia. The Study area is not at the limit of the range of Rufous Fantail, nor is it within an area where the species is declining. The majority of the Project area and Study area is cleared of vegetation. The remnant vegetation present remains common in the wider area.

An ecologically or nationally significant proportion of the north-eastern population of Rufous Fantail (at 0.1% of the population as described in DoE 2015) comprises 1,500 individuals. There is no reason to believe the habitats within the Project area or Study area would support an ecologically significant proportion of the population of the species. As such, the potential for significant impacts on Rufous Fantail is negligible at worst.

6 CONCLUSION

The Proponent owns and operates PDM an open cut coal mining operation located south of Moranbah. The expansion of mining operations at the mine has triggered the need to relocate three 66 kV power lines (the Project) that run adjacent to the current ML 1775 and ML 70411 boundaries. The Project comprises the construction of power line infrastructure along a length of 20 km (including the main corridor and eight associated stub line corridors).

The Project area encompasses 83.39 ha which comprises 8.67 ha of remnant vegetation, 21.81 ha of regrowth vegetation and 52.91 ha of modified non-remnant lands. Desktop review and Project-specific field surveys (carried out from 2021 to 2023) characterised the terrestrial ecology and MNES values associated with the Project area and surrounds. A number of other surveys in the local area carried out for different projects have also provided additional information for the assessment.

Flora surveys identified nine remnant and regrowth REs within the Project area. There are two TECs listed under the EPBC Act present as large patches in the east of the Project area: Brigalow TEC and Natural Grasslands TEC. No threatened flora species were observed during the Project surveys, although *Dichanthium queenslandicum* (Endangered - EPBC Act) has some potential to occur.

Three fauna species have been recorded within, or in close proximity to, the Study area surrounding the Project area, and habitat is present within the Project area. Koala and Greater Glider (both Endangered – EPBC Act) were recorded close to the north-western extent of the Project area in riparian Queensland Blue Gum open forest (RE 11.3.25) and Poplar Box dominated woodland (RE 11.5.3). Squatter Pigeon (southern) (Vulnerable – EPBC Act) has been previously recorded in the Study area surrounding the Project area. Ornamental Snake (Vulnerable – EPBC Act) and Australian Painted Snipe (Endangered – EPBC Act) are considered likely to occur. The Project area provides potential habitat for a further two threatened species and three migratory bird species.

In general, impacts resulting from Project activities will be minor and likely only restricted to the construction phase. Impacts from the operational phase are likely to be benign and restricted to occasional slashing of grasses within the corridors and maintenance activities. Project infrastructure has been located away from MNES values as much as is feasible. The Project area has been substantially revised and is predicted to impact 0.04 ha of Brigalow TEC and 0.57 ha of Natural Grassland TEC through vegetation clearing. The Project will impact 22.77 ha of habitat for Squatter Pigeon, 17.57 ha of habitat for Koala and 6.42 ha of habitat for Greater Glider. The project may also impact minor areas of habitat for Ornamental Snake and *D. queenslandicum.*

The Project's impacts to MNES were subject to an assessment for significant impacts under the Commonwealth MNES Guideline criteria. The assessment results indicate a *potential* for a significant impact to occur on Koala and Greater Glider as a result of clearing for the Project.

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8 LIMITATIONS AND DISCLAIMER

Epic Environmental Pty Ltd (Epic) has prepared the following report for the exclusive benefit of BM Alliance Coal Operations Pty Ltd and for the singular purpose of providing an assessment for potential significant impact to MNES associated with power line realignment works at Peak Downs Mine. All interpretations, finding or recommendations outlined in this report should be read and relied upon only in the context of the report as a whole.

The following report cannot be relied upon for any other purpose, at any other location or for the benefit of any other person, without the prior written consent of Epic. Except with Epic's prior written consent, this report may not be:

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APPENDIX A DATABASE SEARCH RESULTS

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 19-Jul-2024

Summary
Details
- Matters of NES
- Other Matters Protected by the EPBC Act
- Extra Information

Caveat
Acknowledgements

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	28
Listed Migratory Species:	10

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	15
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	29
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Brigalow (Acacia harpophylla dominant and co-dominant)	Endangered	Community known to occur within area	In feature area
Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin	Endangered	Community likely to occur within area	In feature area
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	Community likely to occur within area	In feature area

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Calidris acuminata			
Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris ferruginea			
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Erythrotriorchis radiatus			
Red Goshawk [942]	Endangered	Species or species habitat may occur within area	In feature area
Falco hypoleucos			
Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat known to occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area	In feature area
Neochmia ruficauda ruficauda Star Finch (eastern), Star Finch (southern) [26027]	Endangered	Species or species habitat likely to occur within area	In feature area
Poephila cincta cincta Southern Black-throated Finch [64447]	Endangered	Species or species habitat may occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat may occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat may occur within area	In buffer area only
MAMMAL			
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat likely to occur within area	In feature area
Macroderma gigas Ghost Bat [174]	Vulnerable	Species or species habitat may occur within area	In feature area
Nyctophilus corbeni Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Petauroides volans			
Greater Glider (southern and central) [254]	Endangered	Species or species habitat known to occur within area	In feature area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)			
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat known to occur within area	In feature area
PLANT			
Dichanthium queenslandicum			
King Blue-grass [5481]	Endangered	Species or species habitat known to occur within area	In feature area
Eucalyptus raveretiana			
Black Ironbox [16344]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Polianthion minutiflorum			
[82772]	Vulnerable	Species or species habitat may occur within area	In feature area
Samadera bidwillii			
Quassia [29708]	Vulnerable	Species or species habitat may occur within area	In feature area
REPTILE			
Denisonia maculata			
Ornamental Snake [1193]	Vulnerable	Species or species habitat known to occur within area	In feature area
Egernia rugosa			
Yakka Skink [1420]	Vulnerable	Species or species habitat may occur within area	In feature area
Elseya albagula			
Southern Snapping Turtle, White-throated Snapping Turtle [81648]	Critically Endangered	Species or species habitat may occur within area	In feature area
Furina dunmalli			
Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area	In feature area
Hemiaspis damelii			
Grey Snake [1179]	Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Lerista allanae			
Allan's Lerista, Retro Slider [1378]	Endangered	Species or species habitat may occur within area	In feature area
Rheodytes leukops			
Fitzroy River Turtle, Fitzroy Tortoise, Fitzroy Turtle, White-eyed River Diver [1761]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Listed Migratory Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Cuculus optatus			
Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area	In feature area
Motacilla flava			
Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata			
Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris ferruginea			
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos			
Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii			
Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pandion haliaetus			
Osprey [952]		Species or species habitat likely to occur within area	In buffer area only
Tringa nebularia			
Common Greenshank, Greenshank [832]	Endangered	Species or species habitat may occur within area	In buffer area only

Other Matters Protected by the EPBC Act

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Anseranas semipalmata			
Magpie Goose [978]		Species or species habitat may occur within area overfly marine area	In feature area
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis			
Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata			
Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris ferruginea			
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat may occur within area overfly marine area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area	In buffer area only
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat may occur within area overfly marine area	In buffer area only

Extra Information

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Caval Ridge Mine Horse Pit Extension, Bowen Basin	2021/9031		Assessment	In buffer area only
Isaac Downs coal mine project, near Moranbah, Qld	2019/8413		Post-Approval	In buffer area only
Olive Downs Project	2005/2377		Post-Approval	In buffer area only
Olive Downs Project Mine Site and Access Road	2017/7867		Post-Approval	In buffer area only
Peak Downs Mine Continuation Project	2022/09350		Assessment	In feature area
Vulcan Coal Mine ? Matilda Pit and Ancillary Infrastructure	2022/09361		Assessment	In buffer area only
Vulcan South Coal Mine	2023/09708		Assessment	In buffer area only
Winchester South Project Electricity Transmission Line, near Moranbah, Qld	2019/8458		Approval	In feature area
Winchester South Project Mine Site and Access Road, near Moranbah, Qld	2019/8460		Approval	In feature area
Winchester South Project Water Pipeline, near Moranbah, Qld	2019/8459		Approval	In feature area
Controlled action				
7 North Dam Extension Project - Peak Downs Mine	2012/6260	Controlled Action	Completed	In buffer area only
Arrow Bowen Pipeline (CSG), QLD	2012/6459	Controlled Action	Post-Approval	In buffer area only
Bowen Gas Project	2012/6377	Controlled Action	Post-Approval	In feature area
Caval Ridge Open Cut Coal Mine Project	2008/4417	Controlled Action	Post-Approval	In feature area
Eagle Downs Coal Mine Central Queensland	2008/3945	Controlled Action	Post-Approval	In feature area
install & operate gas pipeline	2005/2059	Controlled Action	Post-Approval	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Moranbah South Project Coal Mine, QLD	2012/6337	Controlled Action	Post-Approval	In feature area
Olive Downs Project Rail Spur	2017/7870	Controlled Action	Post-Approval	In buffer area only
Olive Downs Project Water Pipeline	2017/7868	Controlled Action	Post-Approval	In buffer area only
Open Cut Coal Mining	2004/1770	Controlled Action	Post-Approval	In feature area
Relocation of approximately 16km of Dysart Road and associated service infrastructure	2013/6868	Controlled Action	Post-Approval	In feature area
Vulcan Complex Project	2020/8676	Controlled Action	Post-Approval	In buffer area only
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
Integrated Isaac Plains Project	2006/3043	Not Controlled Action	Completed	In buffer area only
Open cut coal mine 7km NE of Moranbah (Isaac Plains)	2005/2070	Not Controlled Action	Completed	In buffer area only
Vulcan Bulk Sample Project	2019/8504	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
Moranbah South Feasibility Seismic Survey	2010/5497	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Moranbah South Project 2013 Seismic Exploration Program, Qld	2013/6814	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Referral decision				
Expansion of open cut coal mine and diversion of creeks in existing mine operati	2006/2845	Referral Decision	Completed	In buffer area only

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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Queensland Government

WildNet species list

Search Criteria: Species List for a Specified Point
Species: All
Type: Native
Queensland status: Rare and threatened species
Records: All
Date: Since 1980
Latitude: -22.1912
Longitude: 148.1874
Distance: 25
Email: [redacted]
Date submitted: Monday 22 Jul 2024 09:02:05
Date extracted: Monday 22 Jul 2024 09:10:02

The number of records retrieved = 10

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Information about your Species lists request is logged for quality assurance, user support and product enhancement purposes only.
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Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Columbidae	*Geophaps scripta scripta*	squatter pigeon (southern subspecies)		V	V	27
animals	mammals	Phascolarctidae	*Phascolarctos cinereus*	koala		E	E	87
animals	mammals	Pseudocheiridae	*Petauroides volans volans*	southern greater glider		E	E	107
animals	reptiles	Elapidae	*Acanthophis antarcticus*	common death adder		V		1
animals	reptiles	Elapidae	*Denisonia maculata*	ornamental snake		V	V	42
plants	land plants	Amaranthaceae	*Ptilotus uncinellus*			E		2/2
plants	land plants	Euphorbiaceae	*Bertya pedicellata*			NT		14/6
plants	land plants	Poaceae	*Dichanthium queenslandicum*			V	E	3/3
plants	land plants	Solanaceae	*Solanum adenophorum*			E		1/1
plants	land plants	Solanaceae	*Solanum elachophyllum*			E		1/1

CODES

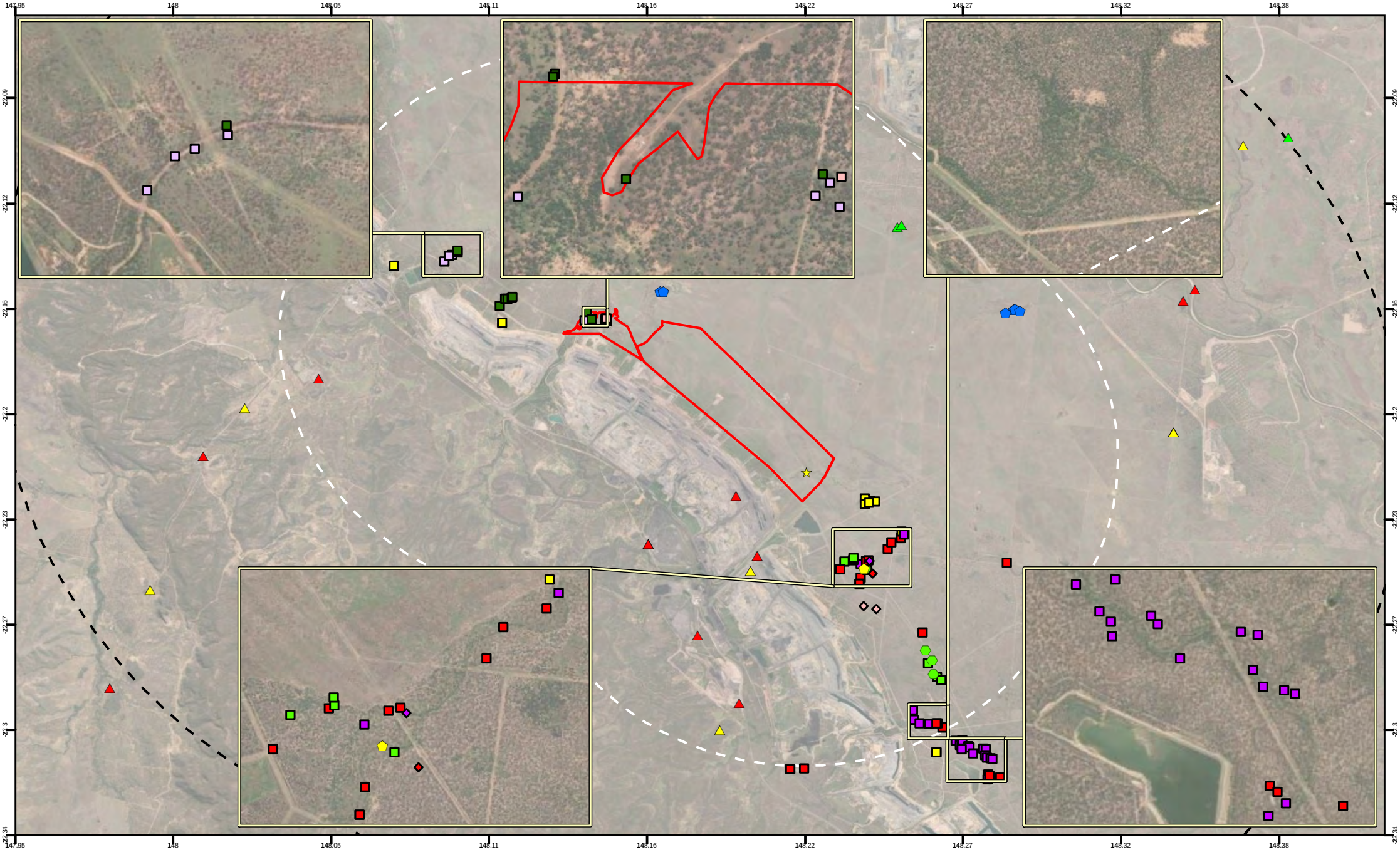
I - Y indicates that the taxon is introduced to Queensland and has naturalised.

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992.*
The codes are Extinct (EX), Extinct in the Wild (PE), Critically Endangered (CR), Endangered (E), Vulnerable (V), Near Threatened (NT), Special Least Concern (SL) and Least Concern (C).

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999.*
The values of EPBC are Extinct (EX), Extinct in the Wild (XW), Critically Endangered (CE), Endangered (E), Vulnerable (V) and Conservation Dependent (CD).

Records - The first number indicates the total number of records of the taxon (wildlife records and species listings for selected areas).
This number is output as 99999 if it equals or exceeds this value. A second number located after a / indicates the number of specimen records for the taxon.
This number is output as 999 if it equals or exceeds this value.

APPENDIX B THREATENED SPECIES RECORDS FROM WIDER AREA (AUSECOLOGY 2024)



Ausecology

APPENDIX A-3:

EVNT Records Overview
Study Area and Powerline Alignment
MNES - Peak Down Mine

AECOM
- Greater glider (E/E)
- Koala (E/E)
- Koala- Indirect evidence (scat or scratches) (E/E)

ALA
- Koala (E/E)
- Ornamental snake (V/V)
- Squatter pigeon (southern subspecies) (V/V)

Aurecon
- Squatter pigeon (southern subspecies) (V/V)

Ausecology (2019)
- Greater glider (E/E)
- Koala (E/E)
- Koala- Indirect evidence (scat or scratches) (E/E)

Ausecology (in prep)
- Greater glider (E/E)
- Koala (E/E)
- Ornamental snake (V/V)
- Squatter pigeon (southern subspecies) (V/V)

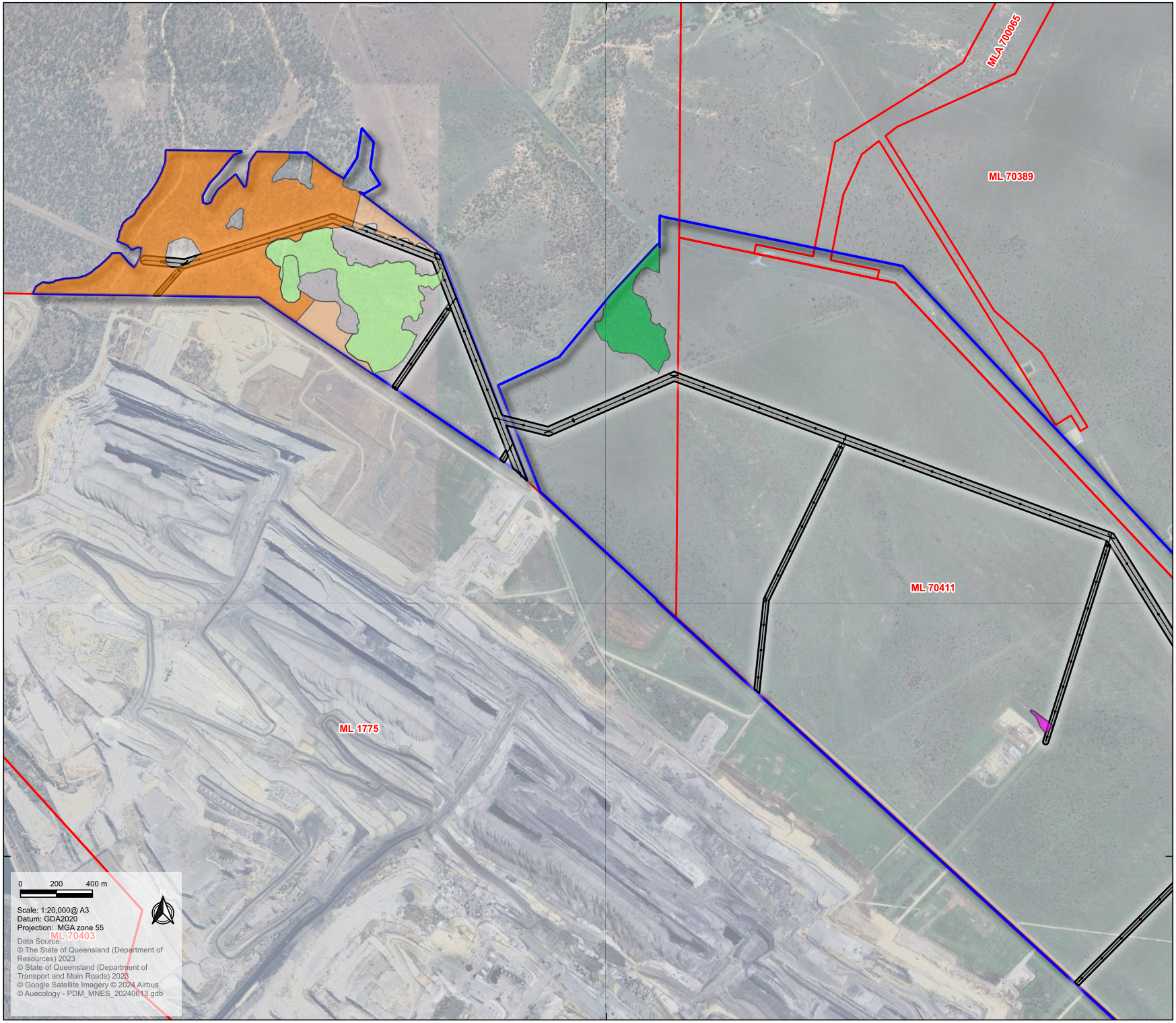
E2M (2021)
- Australian Painted-snipe (E/E)
- Squatter pigeon (southern subspecies) (V/V)

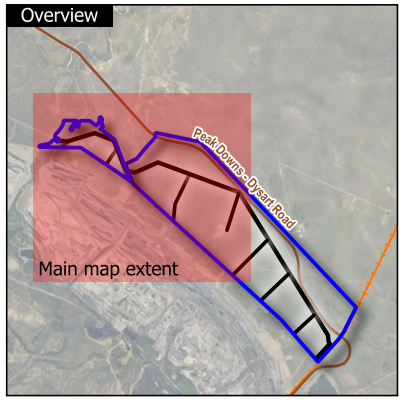
Wildnet
- Ornamental snake (V/V)

REVISION	AUTHOR	REVIEWER	DATE
0	JS	RR	10/08/2023
1	NC	LO	18/04/2024

COORDINATE SYSTEM: GCS GDA 1994
SCALE: 1:180,000
0 2 4
Kilometres

APPENDIX C THREATENED SPECIES HABITAT MAPPING





Legend

- Study area
- Project area
- Mining leases
- Infrastructure layout
- Wetland bird habitat

Greater Glider habitat

- Preferred
- Suitable

Ornamental Snake habitat

- Preferred
- Marginal

BM Alliance Coal Operations Pty Ltd
Peak Downs Power Line Realignment
MNES Impact Assessment

Figure C1
Habitat mapping for Greater Glider, Ornamental Snake and wetland bird species



Filepath: ~\BE2020\BE200178.01 BHP Powerline Realignment Stage 2\Workspaces\5. MNES impact assessment\Rev 0\Figure C2 Habitat mapping for Koala.qgz

epic ENVIRONMENTAL

Legend

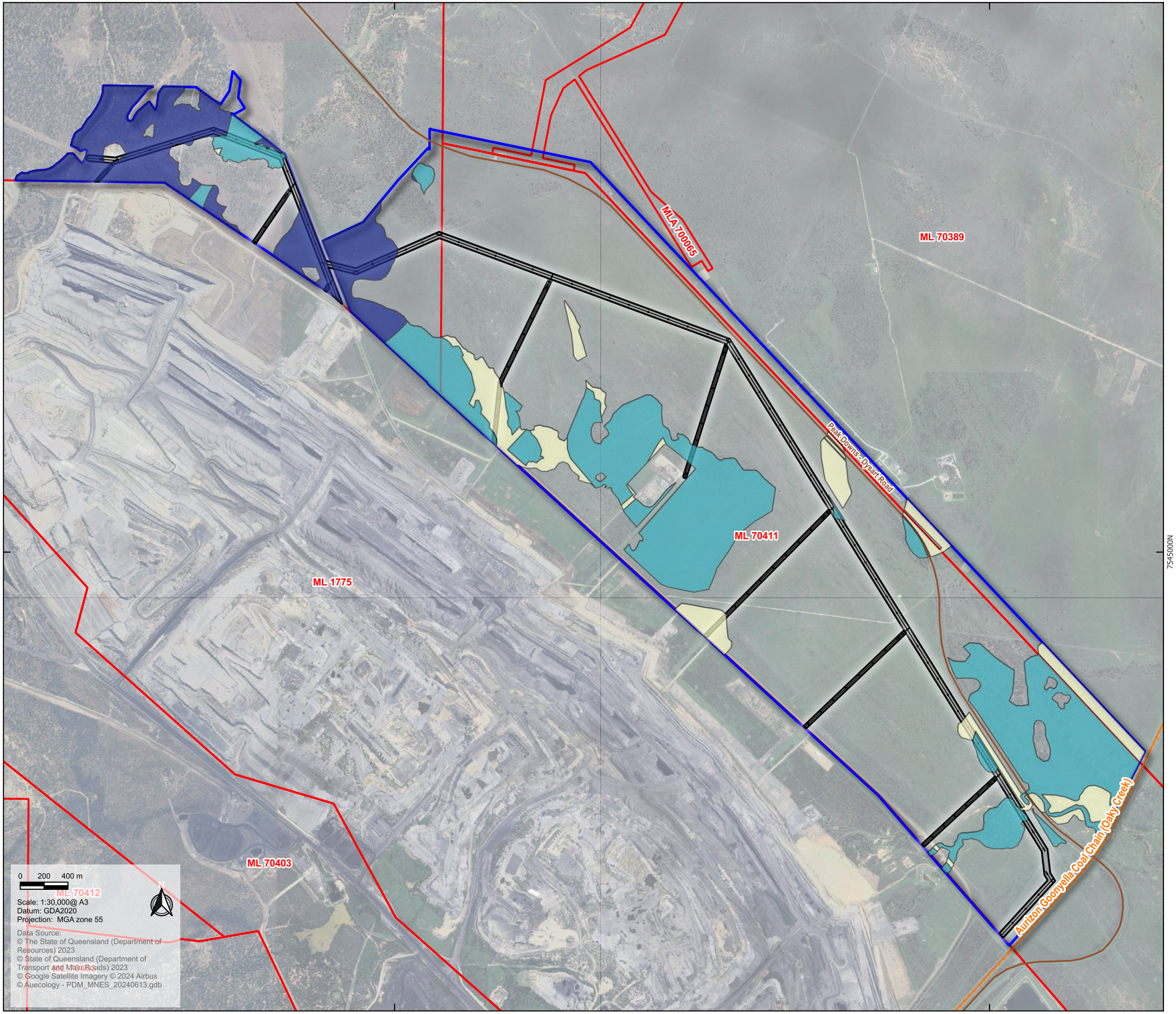
- Study area
- Project area
- Mining leases
- Infrastructure layout
- State controlled roads
- Railways

Koala habitat

- Preferred
- Suitable
- Marginal

BM Alliance Coal Operations Pty Ltd
Peak Downs Power Line Realignment
MNES Impact Assessment

Figure C2
Habitat mapping for Koala



epic ENVIRONMENTAL

Legend

- Study area
- Project area
- Mining leases
- Infrastructure layout
- State controlled roads
- Railways

Squatter Pigeon habitat

- Preferred
- Suitable
- Marginal

BM Alliance Coal Operations Pty Ltd
Peak Downs Power Line Realignment
MNES Impact Assessment

Figure C3
Habitat mapping for Squatter Pigeon

Filepath: ~\BE2020\BE200178.01 BHP Powerline Realignment Stage 2\Workspaces\5. MNES impact assessment\Rev 0\Figure C3 Habitat mapping for Squatter Pigeon.qgz

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7N5N2N Power line Alignment
MNES Ecological Report

Prepared for:
BHP

Report issued:
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Document status

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2	Issue to client	[redacted]		BHP	10/06/2024

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Glossary of Terms

Acronym	Description
ALA	Atlas of Living Australia
BHP	Broken Hill Proprietary Ltd.
Brigalow TEC	Brigalow (*Acacia harpophylla* dominant and co-dominant) Threatened Ecological Community
BMA	BM Alliance Coal Operations
BVG	Broad Vegetation Group
DAWE	Department of Agriculture, Water and the Environment (Cth)
DBH	Diameter at Breast Height
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Cth)
DEE	Department of the Environment and Energy (Cth)
DES	Department of Environment and Science (Qld)
DEWHA	Department of the Environment, Water, Heritage, and the Arts (Cth)
DotE	Department of the Environment (Cth)
DoR	Department of Resources (Qld)
EDL	Ecologically Dominant Layer
EIS	Environmental Impact Statement
EP Act	*Environmental Protection Act 1994* (Qld)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
GDTHQ	Guide to Determining Terrestrial Habitat Quality – Version 1.3 (DES, 2020b)
ha	Hectares
HVR	High Value Regrowth
LoO	Likelihood of Occurrence
ML	Mining Lease
MNES	Matter of National Environmental Significance
MP Act	*Marine Parks Act 2004* (Qld)
Natural grasslands TEC	Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin Threatened Ecological Community
NRM	Natural Resource Management
PDM	Peak Downs Mine
PMST	Protected Matters Search Tool
Qld	Queensland
RE	Regional Ecosystem
REDD	Regional Ecosystem Description Database
SAT	Spot Assessment Technique

Acronym	Description
SEWPaC	Department of Sustainability, Environment, Water, Population and Communities (Cth)
TEC	Threatened Ecological Community
VM Act	*Vegetation Management Act 1999* (Qld)

1 Introduction

1.1 Background

The Peak Downs Mine (PDM) is an open cut metallurgical coal mine located approximately 30 kilometres (km) south-east of Moranbah and is situated within the Isaac Regional Local Government Area, within the Bowen Basin mining region. The surrounding region contains both remnant and non-remnant woodlands, open forests, natural grasslands and paddocks. Cattle grazing is the primary land use (DES, 2020), with the region in general subject to a history of vegetation clearing and thinning.

Three mine pits, 7 North, 5 North and 2 North (7N, 5N and 2N respectively), are planned to be expanded, with this pit progression requiring the relocation of 66 kV power lines. The proposed alignment of the 7N/5N/2N power line is comprised of three components, with the current proposed alignment of the 7N/5N/2N power line shown in Appendix A-1:

- 7N power line realignment – entirely off lease;
- 5N power line realignment – partly within Mining Lease (ML)70411, partly off lease; and
- 2N power line realignment – ML70411.

For the purposes of this report, the 'Power line Alignment' refers to the 83.45 ha footprint of the proposed 7N/5N/2N power line easement that falls within the Study Area. The total area of the Power line alignment is 86.34 ha, with 2.9 ha within existing clearing and approvals. In order to provide additional context to the Power line Alignment, additional areas outside of the alignment have been mapped, with this area referred to as the 'Study Area'. Details of the Study Area delineation is detailed within Section 2.1.1 and mapping within Appendix A-1.

Previous ecological surveys have been conducted by Ausecology for BM Alliance Coal Operations (BMA) within the Study Area, including those reported within:

- Ausecology (2019) Heyford Power line Ecological Assessment. Report prepared for Epic Environmental. September 2019.
    - This report includes a wider area, a component of which is the 7N component of the 7N/5N/2N power line.
- Ausecology (2022a) 7N Power line Ecological Survey Report. Report prepared for BMA. March 2022.
    - This report relates to the 5N off-lease component of the 7N/5N/2N power line.
- Ausecology (2022b) 7N Power line Ecological Survey Report. Report prepared for BMA. June 2022.
    - This report relates to the assessment of Grassland TEC status and targeted threatened flora species searches within a section of the Study Area.
- Ausecology (2023b) 7N-5N-2N Power line Project Off-lease – MSES Technical Memo. Report prepared for BMA. August 2023.
    - This report relates to the assessment of the MSES within the off-lease component of the Study Area.
- Ausecology (in prep) Peak Downs Mine Continuation Project – Terrestrial Ecological Assessment. Report prepared for Resource Strategies. 2023.
    - This report contributes significantly to the flora and fauna survey efforts within the Power line Alignment, Study Area and surrounding landscape.

Subsequent to the surveys and reporting outlined above, additional surveys and assessment were undertaken by Ausecology to provide additional and updated ecological information for the Study Area.

1.2 Project Scope

Ausecology was engaged by BHP to prepare an Ecological Assessment on the Matters of National Environmental Significance (MNES) applicable to the Study Area and Power line Alignment. Presented within this report is the following information:

- Identification of relevant legislation and policy;
- Survey timing, methodology and effort – including references to relevant guidelines;
- Desktop assessment results;
- Field survey results;
- Potential Project impacts and mitigation;
- MNES Significant impact assessments;
- Identification of MNSES offset requirements.

1.3 Limitations

The information, opinions, recommendations, and conclusions, contained in this document are:

- Limited to the scope of the engagement agreed between Ausecology and BHP;
- Based on information supplied to Ausecology by BHP and government departments;
- Based on Ausecology's prevailing knowledge and approach, and the conditions encountered during field surveys, information reviewed by Ausecology, as at the date of the preparation of this report

The ability to detect and accurately identify fauna and flora species can vary greatly with the surrounding environment, seasonality and the location of a specific survey site. Nonetheless, seasonal conditions were considered to be suitable for the detection of targeted threatened flora and fauna.

Historically, the regional area has been subject to range of land management practices including clearing, woody vegetation poisoning, fire, and grazing. These practices have resulted in large areas of regrowth and non-remnant vegetation. Distinguishing between similar Regional Ecosystems (REs), 11.4.8 – *Eucalyptus cambageana* woodland to open forest with *Acacia harpophylla* or *A. argyrodendron* on Cainozoic clay plains and 11.4.9 - *Acacia harpophylla* shrubby woodland with *Terminalia oblongata* on Cainozoic clay plains, proved unreliable in areas that experienced increased levels of such practices as clearing and grazing. These areas were assigned heterogenous polygon labelling i.e. 11.4.8/11.4.9. For purposes of Habitat Quality Scoring applicable heterogenous areas were scored against the 11.4.9 benchmarks, as the vegetation structure best reflected this RE.

2 Methodology

2.1 Desktop assessment and literature review

A desktop assessment was undertaken entailing the review of environmental databases, maps, and literature, as well as previous ecological reports applicable to the PDM region. Desktop searches were undertaken prior to field investigations, identifying the potential presence of Matter of National Environmental Significance (MNES) prescribed under the *Environment Protection and Biodiversity Conservation* (EPBC) *Act 1999* (Cth). Desktop searches were conducted in accordance with the BHP PRO Queensland Coal Ecological Survey Procedure (BHP, 2020). A summary of databases, mapping and information sources is listed below, with relevant search results provided in Appendix H.

- Commonwealth Protected Matters Search Tool (PMST) (DAWE, 2023) - 20km buffer)
- Species Profile and Threats Database (DAWE, 2021)
- Atlas of Living Australia (ALA, 2023) - 50km buffer
- Wildlife Online Search (DES, 2023) - 10km, 20km and 50km buffer
- Protected Plants Flora Survey Trigger mapping (DNRME, 2021a)
- Regulated Vegetation mapping (DNRME, 2021a)
- Regional Ecosystem (RE) mapping (DNRME, 2021a)
- Property Map of Assessable Vegetation mapping (DNRME, 2021a)
- Essential Habitat mapping (DNRME, 2021a)
- Queensland historical imagery (DoR, 2022)
- Queensland wetland data series (DES, 2013)
- Queensland wetland environmental values mapping (DES, 2013)
- Vegetation Management Act 1999 (VM Act) wetland data (DES, 2013)
- VM Act watercourse data (DNRME, 2021a).
- Watercourse identification map (DES, 2013)
- International Union for Conservation of Nature and Natural Resources Red List (IUCN, 2022)
- Environmental Sensitive Area mapping (DES, 2021a)
- Pre-clearance RE mapping (DNRME, 2021a)

In addition to Ausecology's survey efforts, this report also utilises information obtained by various ecological consultancies, conducted over a series of field surveys. Historical surveys conducted by previous environmental consultancies that help inform this report include:

- Assessment of Koalas and Koala Habitat Use on BMA Peak Downs Mine (FEC, 2009)
- Ausecology (2019) Heyford Power line Ecological Assessment. Report prepared for Epic Environmental. September 2019.
- AECOM (2020) Peak Downs East Mining Lease Terrestrial Ecology Baseline Report. Report prepared for BMA. April 2020.
- Ecology Technical Memo BHP Peak Downs Expansion Project (ERM, 2021)
- Ausecology (2022a) 7N Power line Ecological Survey Report. Report prepared for BMA. March 2022.
- Ausecology (2022b) 7N Power line Ecological Survey Report. Report prepared for BMA. June 2022. This report relates to the assessment of Grassland TEC status and targeted searches for threatened flora species.

- Ausecology (2023a) Ripstone Pit Development Project – Ecological Assessment. Report prepared for Engeny. January 2023.
- Ausecology (in prep) Peak Downs Mine Continuation Project – Terrestrial Ecological Assessment. Report prepared for Resource Strategies. February 2023.
- Eco Logical Australia 2016. Caval Ridge South Circuit Ecological Assessment. Prepared for BHP.
- Eco Logical Australia 2020. Harrow Creek Ecological Assessment. Prepared for BHP.

Field surveys were undertaken in accordance with relevant survey guidelines and recommendations:

- Draft Referral guidelines for the nationally listed Brigalow Belt reptiles (DCCEEW, 2024);
- Recommended survey methods for wetland birds: Bitterns in Survey Guidelines for Australia's Threatened Birds (DEWHA, 2010);
- Survey guidelines for Australia's threatened bats (DEWHA 2010b);
- Survey guidelines for Australia's threatened birds (DEWHA 2010a);
- Survey guidelines for Australia's threatened reptiles (DSEWPC 2011b);
- Survey guidelines for Australia's threatened mammals (DSEWPC 2011a);
- Terrestrial Vertebrate Fauna Survey Guidelines for Queensland (Eyre et al. 2018);
- Targeted species survey guidelines – Ghost Bat, *Macroderma gigas* (Hourigan 2011);
- Targeted species survey guidelines – Yakka Skink, *Egernia rugosa* (Ferguson & Mathieson, 2014);
- Targeted species survey guidelines – Painted honeyeater, *Grantiella picta* (Rowland, 2012);
- Approved Conservation Advice for *Phascolarctos cinereus* (Koala) (DAWE, 2022)
- Referral Guidelines for the Vulnerable Koala (DotE, 2014) (Note - this document became defunct in 12 Feb 2022)
- Conservation Advice for *Petauroides volans* (greater glider (southern and central) (DCCEEW, 2022);
- Approved Conservation Advice for the Brigalow (*Acacia harpophylla* dominant and co-dominant) ecological community (DOE, 2013).
- Commonwealth Listing Advice on Natural Grasslands of the Queensland Central Highlands and the northern Fitzroy Basin (Department of the Environment, Water, Heritage, and the Arts, 2009)
- Flora Survey Guidelines – Protected Plants (DES, 2020a).
- Guide to Determining Terrestrial Habitat Quality, Version 1.3 (DES, 2020b).
- BioCondition – A Condition Assessment Framework for Terrestrial Biodiversity in Queensland, Assessment Manual (Eyre et al., 2015).

2.1.1 The Study Area

In order to provide additional context to the Power line Alignment, additional areas outside of the alignment have been mapped, with this area referred to as the 'Study Area'(Appendix A-1). The Study Area is inclusive of the Power line Alignment, and has been expanded to utilise the Ausecology ground-truthed regional ecosystem (GTRE) mapping, as per Ausecology (2019), Ausecology (2022a), Ausecology (2022b), Ausecology (2023), Ausecology (in prep) and Ausecology (2023b – this report) (Appendix A-4).

2.1.1.1 Flora survey effort

The flora surveys utilised are considered relevant and applicable to the Study Area and Power line Alignment due to connectivity and consistency of vegetation and habitat quality. Therefore the results of flora surveys

(e.g. BioCondition, Quaternary, Tertiary, Habitat assessments and TEC assessments) are considered applicable to the Study Area and Power line Alignment. Flora survey efforts applicable to this report and the Power line Alignment are summarised within Table 2-1 with mapping provided in Appendix A-4.

Table 2-1 Applicable flora survey effort conducted within the Study Area

Assessment Type	Ausecology Survey					Total
	2019	2022a	2022b	2023	In prep	
BioCondition	-	5	-	11	37	53
Habitat	8	6	-	30	80	124
Quaternary	15	15	-	5	188	223
Tertiary	1	-	-	-	6	7
TEC	1	-	4	2	26	33

TEC – Threatened Ecological Community

2.1.1.2 Fauna survey effort

This report utilises fauna survey efforts of the ecological reports listed in Section 2.1, with these reports detailing fauna surveys conducted both within and outside of the Study Area. For the purposes of this report, fauna survey effort sited within this report have been clipped to the Study Area.

The survey efforts and results are considered relevant and applicable to the Power line Alignment due to connectivity and consistency of vegetation and habitat quality. The findings of the Study Area provide increased context and information with regards to threatened species presence. Therefore, the detection of a threatened species within the Study Area is considered a detection for the Power line Alignment regardless of whether it falls directly within the Power line Alignment or not. Ausecology fauna survey efforts applicable to this report are summarised in Table 2-2, with mapping provided in Appendix A-2.

Table 2-2 Applicable fauna survey efforts per company within the Study Area

Survey Type	Ausecology (2019)	Ausecology (in prep)	Total	Units Measured
Active Search	120	250	370	person minutes
Anabat	4	63	67	recorder nights
Cage Trap	8	5	13	days
Call Playback	-	20	20	person minutes
Camera	8	82	90	days
Elliott Trap	176	110	286	days
Funnel Trap	12	48	60	days
Harp trap	4	2	6	trap nights
Modified SAT Survey	-	370	370	person minutes
Pitfall Trap	32	32	64	days
Spotlight	120	395	515	person minutes
Stationary Bird Survey	120	110	230	person minutes

2.2 Taxonomic nomenclature

The descriptions of fauna species follows the taxonomic nomenclature as per QLD Wildlife Data API, 2022 (State of Queensland, 2024). The current accepted scientific names presented in *The Census of Queensland Flora 2021* (Bean, 2024) has been utilised for all flora species referred to within this report. Introduced, exotic species are denoted with an asterisk (*).

2.3 Likelihood of occurrence assessment

The Likelihood of Occurrence (LoO) assessment (Appendix B) leaned heavily upon the assessment contained within Ausecology, in prep – *Peak Downs Mine Continuation Project – Terrestrial Ecological Assessment*, also utilising information within Ausecology, 2019 – *Heyford Power line Ecological Assessment. Report prepared for Epic Environmental.*

Matters identified via the desktop LoO assessment as possibly occurring within the survey area, were assigned a category as per the BHP PRO Queensland (QLD) Coal Ecological Survey Procedure BHP-PRO-0007 Document ID # 000173537 (BHP, 2020), being:

Known[1] – the species or population has been observed within the Study Area

Likely – the Study Area is within the species' known distribution, suitable habitat occurs within the area and the species is known to occur in the region. Species not yet confirmed as occurring within the Study area.

Potential – the Study Area is within the species' known distribution, marginal habitat occurs within the area and the species is known to occur in the region. There are no confirmed species records within 10 km of the Study area; however, there are confirmed species records within 50 km of the Study area.

Unlikely – there is a low probability that the species will occur within the Study Area as it is outside the species known distribution, low quality habitat occurs within the area or the species is not known to occur within the region. There are no confirmed species records within 50 km of the Study area.

No – the species will not occur within the Study Area (e.g. marine species in a terrestrial study site). There is no habitat for the species and the Study Area is outside the species known distribution.

2.4 Field survey timing and conditions

Between the years of 2019 and 2024, a total of 14 flora and six fauna survey field trips were undertaken by Ausecology (Table 2-3). Field surveys were conducted in line with optimal survey times as much as possible, whilst adhering to safe site access and work hours as per BHP mining operational rules and regulations. The relevant species survey guidelines are outlined in Section 2.1.

To ensure the most accurate evaluation of ecosystem quality, surveys were postponed until favourable conditions were present (e.g. after recent, significant rainfall). This was of particular importance when assessing areas highly influenced by seasonal variation e.g. Natural Grasslands of the Queensland Central Highlands and the northern Fitzroy Basin Threatened Ecological Community (TEC).

[1] Category included and defined by Ausecology, as definition not outlined within BHP PRO Queensland (QLD) Coal Ecological Survey Procedure BHP-PRO-0007 Document ID # 000173537 (BHP, 2020).

Table 2-3 Summary of field surveys undertaken by Ausecology

Year	Month	Date Start	Date End
Flora survey			
2019	August	06/08/2019	11/08/2019
2021	December	13/12/2021	17/12/2021
2022	March-April	28/03/2022	2/04/2022
2022	April	25/04/2022	26/04/2022
2022	June	13/06/2022	19/06/2022
2022	August	22/08/2022	27/08/2022
2022	September	19/09/2022	24/09/2022
2022	November	21/11/2022	26/11/2022
2023	March	6/03/2023	10/03/2023
2023	May-June	29/05/2023	02/06/2023
2024	Feb	12/02/2024	16/02/2024
2024	March	18/03/2024	23/03/2024
2024	April	22/04/2024	27/04/2024
2024*	May*	13/05/2024*	19/05/2024*
Fauna survey			
2019	August	06/08/2019	11/08/2019
2021	November	4/11/2021	12/11/2021
2022	March-April	31/03/2022	6/04/2022
2022	April	18/04/2022	24/04/2022
2022	September	8/09/2022	12/09/2022
2023	March	21/03/2023	27/03/2023

**Predicted*

2.5 Flora survey methodology

Fourteen flora surveys were undertaken between 2019 and 2024 across the Study Area, with each survey conducted by two suitably qualified ecologists.

2.5.1 Ground-truthing Regional Ecosystems

Tertiary and Quaternary assessments were conducted as per *the Methodology for Surveying and Mapping Regional Ecosystems and Vegetation Communities in Queensland Version 5, 5.1 and 6.0*[2] (Neldner *et al*., 2019, 2020 & 2022). These assessments collected data on vegetation structure and composition characteristics, broad ecological condition and the extent and classification of Regional Ecosystems (REs). Field survey efforts enabled the ground-truthing and separation, of heterogenous RE polygons as mapped by DoR, to be delineated into homogenous polygons.

2.5.2 Threatened Ecological Communities

Potential TEC present within the Study Area were assessed against approved descriptions, key diagnostic characteristics and condition thresholds, as per the respective approved documents:

- Commonwealth Approved Conservation Advice for the Brigalow (*Acacia harpophylla* dominant and co-dominant) ecological community (Department of the Environment, 2013).

[2]The most current version of *Mapping Regional Ecosystems and Vegetation Communities in Queensland* was utilised at the respective time of each survey period.

- Commonwealth Listing Advice on Natural Grasslands of the Queensland Central Highlands and the northern Fitzroy Basin (DEWHA, 2008).
- Conservation Advice (including listing advice) for the Poplar Box Grassy Woodland on Alluvial Plains (Department of the Environment and Energy, 2019).
- Commonwealth Listing Advice on Weeping Myall Woodland (DEWHA, 2008)

2.5.3 Terrestrial habitat quality assessment

Habitat quality assessment surveys were undertaken in accordance with *Guide to Determining Terrestrial Habitat Quality – Version 1.3* (DES, 2020b) (GDTHQ) and consistent with the *BHP QLD Coal Ecological Survey Procedure* (BHP, 2020). Surveys conducted by Ausecology in 2019, were undertaken in accordance with the methodology current at the time, *Guide to Determining Terrestrial Habitat Quality – Version 1.2* (DES, 2017), with field data collection comparable to current methodology. Habitat assessments were predominately undertaken in conjunction with other surveys. BioCondition surveys were conducted as per *BioCondition – A Condition Assessment Framework for Terrestrial Biodiversity in Queensland, Assessment Manual* (Eyre *et al*., 2015).

2.5.4 Threatened flora surveys

A formal protected plant survey was not required, with the survey area not containing any mapped protected plant flora trigger areas (Appendix H). For species considered potential (Appendix B) to occur within the Study Area based on desktop assessment results, Ausecology conducted targeted opportunistic searches in suitable habitat areas. Targeted flora species namely included *Dichanthium queenslandicum* (king blue grass).

2.6 Fauna survey methodology

Fauna surveys conducted throughout the Study Area included fauna trapping (pitfalls, funnels, Elliotts, cages, harp trapping), bird surveys, diurnal active searches, nocturnal active searches, call playback, modified SAT surveys, spotlighting, baited motion detection cameras and passive microbat echolocation call recording devices. Fauna surveys were undertaken in accordance with relevant Commonwealth and State guidelines and species specific guidelines (Section 2.1). Where no targeted survey guidelines were available, the Queensland Government Terrestrial vertebrate fauna survey guidelines (Eyre et al., 2018) were referred to.

As previously stated, this report utilises previously conducted fauna survey efforts, combining to form the Study Area. The below sections summarise the general methodology employed during Ausecology conducted surveys.

2.6.1 Fauna trapping sites

Fauna trapping sites were established in a variety of representative locations throughout the Study Area, with each site consisting of a 30 m t-shaped drift fence, 4 pitfall buckets, 6 funnels, 20 small Elliot traps, 2 large Elliot traps and one cage trap as per *Terrestrial Vertebrate Fauna Survey Guidelines for Queensland* (Eyre et al., 2018) (Appendix A-2).

2.6.2 Diurnal bird surveys

Diurnal bird surveys involved the visual and acoustic identification of bird species, with time spent at each survey location being recorded, spanning a minimum of 5 person minutes per survey. Surveys were not exclusively co-located with fauna trapping sites (Appendix A-2). Where practical, bird surveys were conducted per site as the following:

- two surveys in the early morning (<2 hrs after sunrise)
- two surveys in mid-morning (2 to 4 hrs after sunrise), and

- the remaining two surveys during less optimal times in the day (i.e. between 4 hrs after sunrise and 2 hrs before sunset).

2.6.3 Diurnal herpetofauna searches

Diurnal herpetofauna searches involved actively searching suitable microhabitat features (e.g. leaf litter, coarse woody debris, under rocks, etc) for fauna within a defined area (~50 m x 50 m). Time spent searching was recorded, averaging 30 person minutes per search. Surveys were not exclusively co-located with fauna trapping sites (Appendix A-2).

2.6.4 Modified SAT Survey

Modified SAT Surveys are based on the those described within *The Spot Assessment Technique: a tool for determining localised levels of habitat use by Koalas* *Phascolarctos cinereus* (Phillips and Callaghan, 2011). Differences from SAT methodology described by Phillips and Callaghan (2011) include; tree species not recorded, centre tree not marked, no maximum or minimum of trees searched, DBH (cm) not recorded and total search time variable at each survey site. Surveys were not exclusively co-located with fauna trapping sites (Appendix A-2).

2.6.5 Spotlighting

Spotlight searches involved traversing through vegetation actively scanning all strata levels for fauna. Suitable binoculars and high-powered LED head-torches and hand torches were used. Time spent searching was recorded, with survey start, end and route GPS tracked utilising Bad Elf GNSS Surveyor devices. Surveys were not exclusively co-located with fauna trapping sites (Appendix A-2).

2.6.6 Camera trapping

Passive infrared camera trapping was undertaken, with one camera and bait tube deployed at each camera trap location. Cameras were installed at ~1.3 m above ground level and angled to ensure the bait tube is within frame, ≤3 m away from the camera. Camera models utilised were the Reconyx Hyperfire HC600 and Browning Patriot BTC FHD. Cameras were set to take a burst of three photos, with a five second delay between photos and no rest period between bursts. Bait tubes were constructed utilising PVC piping (~20 cm long x 5 cm diameter), pinned in place by a metal peg. Tubes were baited with sardines and a mixture of peanut butter, oats, honey and, vanilla essence. Camera traps were typically nested with systematic fauna trap survey sites, however additional locations were also targeted throughout the area (Appendix A-2).

2.6.7 Bat detector recording

One Titley Scientific Anabat (i.e. Anabat Swift or Express) passive detector fitted with an extension cable and Omni-directional ultrasonic microphone was deployed at each location. Anabats were fastened to an appropriate tree, central to suitable detection areas e.g. flyways. Anabats were programmed to operate from dusk to dawn, until collected, and set to a sensitivity of 16 with frequency range of 10kHz – 250kHz. Files were captured in .WAV format at a sample rate of 500ksps, with a max file length of 10 seconds. Anabat data was analysed via the third party, Balance! Environmental (2022). Anabats were typically situated with systematic fauna trap survey sites, however additional locations were also targeted throughout the area (Appendix A-2).

2.6.8 Harp trapping

Harp traps were erected in areas, where natural features acted to concentrate microbat activity, focusing them towards the harp nets to increase the likelihood of capture e.g. within flyways of vegetated areas and creek beds. Harp traps and vegetation was positioned as to limit 'empty space' between the harp trap and the flyway, helping to focus microbats towards the trap. Harp traps were opened after sunset, checked throughout the night and closed prior to sunrise. Upon closure, harp traps were moved out of flyways, with capture bags removed.

Harp traps were deployed at various locations using a Austbat - 2 Bank Harp trap, with net dimensions of ~2 m x ~2 m.

2.6.9 Incidental sightings

Incidental sightings within the Study Area were recorded throughout the survey period.

2.6.10 Fauna habitat assessment

Habitat assessments were predominately conducted in conjunction with other surveys including; fauna survey sites, quaternary sites and BioCondition assessment sites. Habitat assessments included assessments of terrestrial habitat resources and threats guided by species specific literature and expert knowledge. To be consistent with the *BHP QLD Coal Ecological Survey Procedure* (BHP, 2020), at each habitat assessment site, the following attributes were captured:

- Site ID
- Date Observed
- Observer Name
- Validated RE Condition
- Validated RE Code
- Landform Pattern
- Landform Element
- Soil Texture
- Vegetated Groundcover (%)
- Exotic Vegetation Ground Cover (%)
- Native Vegetation Ground Cover (%)
- Flowering Eucalypts Abundance
- Species Name of Eucalypt Species in Flower
- Decorticating Bark
- Small Hollow Log (5-10 centimetres [cm]) Abundance (per ha)
- Medium Hollow Log (11-20 cm) Abundance (per ha)
- Large Hollow Log (More than 20 cm) Abundance (per ha)
- Extra Large Hollow Log (More than 40 cm) Abundance (per ha)
- Hollow Log Length (per ha) Linear metres of medium and large hollow logs
- Hollow Bearing Tree Species
- Hollow Tree Abundance (per ha)
- Hollow Bearing Tree Size (cm)
- Dead Stag Abundance (per ha) Greater than 3m height and 40 cm diameter
- Easting (Geocentric Datum of Australia 1994 [GDA94])
- Soil Crack Presence and abundance
- Gilgai Presence and abundance
- Fallen Woody Debris Abundance
- Leaf Litter Cover (%) and Depth (millimetres [mm])
- Proximity to Water (km)
- Water Type
- Rocky Outcrop
- Roost Sites for Microbats
- Koala Food Trees (Type, Abundance %, Canopy cover %, or NA)
- Koala Food Trees Percentage (%) Compared with non KFT
- Connectivity
- Presence of Threat
- Associated Severity to Threat
- Extra Bat Roosting
- Extra Threats
- Comments
- Northing (GDA94)
- Number of small hollows (2-10 cm) (per ha)[4]
- Number of medium hollows (10-20 cm) (per ha) [4]
- Number of large hollows (20-40 cm) (per ha)[4]
- Number of extra-large hollows (>40 cm) (per ha)[4]
- Mistletoe abundance (per ha)[4]
- Total canopy cover (%)[4]
- Evidence of significant flora species recruitment (e.g. *Eucalyptus* spp., *Allocasuarina* spp., *Casuarina* spp. etc)[4]
- Evidence of fire[3]

2.6.11 Habitat mapping – preferred, suitable and marginal habitat

Habitat categorisation was conducted as per Ausecology, in prep – *Peak Downs Mine Continuation Project – Terrestrial Ecological Assessment*, where habitats were separated into three categories for the fauna included within *Habitat descriptions for 12 threatened species, specific to central Queensland* (Kerswell *et al*., 2020) – preferred, suitable and marginal habitat. Habitat type was not delineated out into categories for species not included within Kerswell *et al*., (2020). Ausecology (in prep) utilised the information pertained within

[3] Additional metric captured by Ausecology not outlined within the *BHP QLD Coal Ecological Survey Procedure* (BHP, 2020)

Kerswell *et al*., (2020) as a baseline for habitat categorisation, sourcing additional information from relevant guidelines, known species records and pers comms. Decision matrix tables that outline the categorisation of habitat quality, subject to area specific context, are located within Appendix F – Table 6-6 to Table 6-9 (Ausecology, in prep).

The habitat categorisations are described in Kerswell *et al*., 2020 as follows:

> **Preferred habitats** are those that are most important to the species and contain the features that are crucial for the species' persistence in an area. It includes habitats in which key activities are undertaken e.g. breeding, roosting and/or where high quality/species limiting foraging resources are found. If the species is present in a region, individuals will usually be found in preferred habitat.
>
> **Suitable habitat** provides resources for the species but is not crucial for its persistence in an area. Individuals may be found in suitable habitat but are not likely to be undertaking key activities such as breeding or roosting. Foraging resources may be lower quality or used opportunistically (rather than being depended upon). If the species is present in a region, individuals may be found in suitable habitat but this habitat type may also remain unoccupied.
>
> **Marginal habitat** provides limited resources for the species and is not crucial for its persistence in an area. Individuals may be occasionally found in marginal habitat but will not be undertaking key activities such as breeding, roosting or extensive foraging. If the species present in a region, individuals would be found in marginal habitat only rarely and this habitat type is likely to be unoccupied most of the time.

2.7 Terrestrial habitat quality assessment

Habitat quality assessment surveys were undertaken as per DES' *Guide to Determining Terrestrial Habitat Quality, Version 1.3* (DES, 2020b) (GTDTHQ), whilst also conforming to the *BHP QLD Coal Ecological Survey Procedure* (BHP, 2020). As per the GTDTHQ, habitat quality was determined based on assessment of both site-based attributes and species habitat attributes as outlined below.

2.7.1 Site-based attributes

Site-based attributes were assessed in accordance with Queensland Herbarium's BioCondition Assessment Version 2.2 (Eyre et al., 2015). Measured attributes (Table 2-4) were compared to relevant BioCondition benchmarks scores to determine habitat quality.

Table 2-4 Site-based attributes

Assessment plot	Attribute	Description
100 m x 50 m plot	Large trees	Number of large trees per hectare (determined by BioCondition benchmarks for relevant RE)
	Tree canopy height	Median canopy height in metres of the ecologically dominant layer (EDL)
	Recruitment (%)	Proportion of canopy EDL species regenerating (<5 cm DBH)
	Tree species richness	Number of native tree species
100 m transect	Tree canopy cover (%)	Vertical projection of living, native tree canopy cover overlapping the transect
	Shrub layer cover (%)	Vertical projection of living, native shrub layer cover overlapping the transect
50 m x 20 m plot	Coarse wood debris	Length of fallen woody logs and other coarse woody debris (>1cm diameter, 0.5 m length) per hectare
50 m x 10m plot	Native plant species richness	Number of species in each of the three-life forms: shrubs, grasses and forbs/other
	Non-native plant cover	Cover of exotic species as a component of overall vegetation cover

Assessment plot	Attribute	Description
Five 1 m x 1 m quadrat	Native perennial grass cover (%)	Average percentage cover of native perennial grass species
	Litter cover	Average percentage cover of fine and coarse organic material such as fallen leaves, twigs and branches <10 cm diameter

BioCondition assessment sites were conducted throughout the Study Area, in representative REs. As per the GTDTHQ, Assessment Units (AUs) consisted of REs exhibiting similar condition characteristics (e.g. remnant, HVR, regrowth or non-remnant), with the number of sampling sites following the recommendations (Table 2-5).

Table 2-5 Guide to number of sampling sites relative to assessment unit size (DES, 2020b)

Assessment Unit size (ha)	Number of sampling sites
0 - 50	≥ 2
50 - 100	3
100 - 500	4
500 - 1000	5
>1000	6

2.7.2 Species habitat attributes

Species habitat attributes were assessed in accordance with the GTDTHQ for species considered likely or known to occur within the Study Area. A combination of BioCondition assessment attributes and fauna habitat assessment data were utilised to assess species habitat attributes per species. As per the GTDTHQ these indicators were determined based on a literature review. A summary of the habitat attributes, threats and associated indicators used for each species is presented in Appendix D.

2.8 Field survey efforts

2.8.1 Flora

As mentioned in Section 2.1, this report utilises flora survey efforts conducted by Ausecology as part of *Peak Downs Mine Continuation Project – Terrestrial Ecological Assessment* (Ausecology, in prep) and *Heyford Power line Ecological Assessment* (Ausecology, 2019) to help form GTRE mapping of the Power line Alignment and Study Area (Appendix A-4). In total the Power line Alignment was found to contain approximately 1.67 ha of infrastructure and roads, and approximately ~81.78 ha of vegetation including remnant, regrowth and cleared vegetated areas.

2.8.2 Fauna

As mentioned in Section 2.1, this report utilises fauna survey efforts conducted by Ausecology and prior consultancies (Table 2-2). Fauna surveys conducted included, fauna trapping (pitfalls, funnels, Elliott traps, cages, harp trapping), avifauna surveys, diurnal active searches, nocturnal active searches, call playback, modified SAT assessments, spotlighting, baited camera trapping and Anabat passive call detection recording. All fauna survey efforts are contained within the Study Area, with some surveys falling within the Power line Alignment (Appendix A-2). The findings of the larger Study Area provide increased context and information with regards to threatened species presence and are applicable to the Power line Alignment due to the connectivity and consistency of habitat.

Fauna surveys for each targeted fauna species aimed to meet the applicable State and Commonwealth survey effort guidelines. As detailed within Ausecology (in prep), in some instances, meeting the recommended survey effort guidelines for some species was considered unfeasible and/or unnecessary. This primarily stemmed when

guidelines were based off survey hours per potential habitat area. This calculation of required survey effort is considered most compatible for smaller scale projects, however, this fixed survey effort ratio becomes impractical for larger scale projects. Ausecology deems the fauna survey effort undertaken to be sufficient, especially when considering the numerous confirmed threatened species records and detailed habitat assessments conducted throughout the Study Area.

A summary of cumulative fauna survey efforts per fauna method per company within the Study Area is presented in Table 2-7. Further details of cumulative Ausecology fauna survey efforts per fauna method per BGV and RE within the Study Area is outlined in Table 2-6 (Ausecology 2019; Ausecology, in prep).

Table 2-6 Cumulative fauna survey efforts per BVG and RE within the Study Area (Ausecology 2019, Ausecology in prep)

BVG (1M)	11a		16a	17a	17b	25a					-	Totals
Regional Ecosystem (RE)	11.8.5		11.3.2	11.5.3	11.9.2	11.4.8	11.4.8/ 11.4.9	11.4.8/ 11.4.9	11.4.9	11.4.9	-	
Condition	Remnant	Regrowth	Remnant	Remnant	Regrowth	HVR	Regrowth	Non Remnant	Regrowth	Non Remnant	Non Remnant	
Fauna Survey Type												
Active Search (person minutes)	120	-	90	20	60	20	-	-	60	-	-	**370**
Anabat (recorder nights)	54	-	2	-	-	-	-	4	2	5	-	**67**
Bird Survey (person minutes)	70	10	60	10	-	10	-	10	60	-	-	**230**
Cage Trap (days)	3	-	4	-	-	-	-	-	4	2	-	**13**
Call Playback (person minutes)	10	-	-	10	-	-	-	-	-	-	-	**20**
Camera trap (days)	3	-	4	-	-	-	-	41	4	38	-	**90**
Elliott Trap (days)	66	-	88	-	-	-	-	-	88	44	-	**286**
Funnel Trap (days)	18	-	6	-	-	-	-		6	30	-	**60**
Harp trap (trap nights)	-	-	2	-	-	-	-	2	2	-	-	**6**
Modified SAT Survey (person minutes)	160	-	60	-	120	-	-	30	-	-	-	**370**
Pitfall Trap (days)	12	-	16	-	-	-	-	-	16	20	-	**64**
Spotlight (person minutes)	-	-	60	-	-	-	120	95	60	-	180	**515**

Table 2-7 Fauna species survey guidelines and Ausecology Study Area Survey Effort

Common Name	Scientific Name	Survey Recommendations					Source(s)	Ausecology survey effort (Ausecology 2019, Ausecology in prep)
		Timing	Technique(s)	Recommended intensity	Duration	Notes		
Reptilia								
Allan's lerista	*Lerista allanae*	Survey during warmer months of the year (September/October – March/April)	a) Raking through leaf litter and surface soil under logs or at the base of trees/bushes b) pitfall and funnel trapping	a) Not specified b) 6 x 20 L buckets over 30 of drift fencing-funnel traps placed at either end. At least 2 replicates per habitat type	a) Not specified b) 4 days/nights	Not specified	Survey guidelines for Australia's threatened reptiles (DEWHA, 2011a) Draft referral guidelines for the nationally listed Brigalow Belt reptiles (DEWHA, 2011b)	Active herpetofauna searches^: 740 pm Pitfall trap: 64 days
Common death adder	*Acanthophis antarcticus*	Spring to early autumn (September to March)	a) Nocturnal vehicle transect b) Pitfall and funnel trapping	a) 2 surveys b) > 100 pitfall and 100 funnel trap nights per ha	a) 2 nights b) extended period required	Driving slowly ~10km/hr, surveying al suitable roads numerous times ~500 km (or all suitable roads surveyed multiple times). Pitfall and funnel trapping could be used in addition to nocturnal vehicle transects. The survey effort is considerable given the highly cryptic nature of the species and possible genuine rarity over much of their distribution.	Common death adder, Acanthophis antarcticus. Targeted species survey guidelines (Rowland and Ferguson, 2012)	Active herpetofauna searches^: 740 pm Elliot trap: 286 days Funnel trap: 60 days Pitfall trap: 64 days Spotlight: 515 pm
##Dunmalls snake	*Furina dunmalli*	Spring to early autumn (September to March) Coolest part of the day >25ºC	a) Diurnal searches b) Transects c) Spotlighting d) Opportunistic road surveys e) Pitfall/funnel traps	a) 1.5-personhours per hectare b) Not specified c) 1.5-personhours per hectare d) Not specified e) 6 x 20 L buckets over 30 of drift fencing-funnel traps placed ateither end. At least 2 replicates per habitat type	a) 3 days b) Not specified c) 3 nights d) Not specified e) 4 days/nights	Especially following heavy rainfall events and during warm evenings for snakes	Draft referral guidelines for thenationally listed Brigalow Belt reptiles (DEWHA, 2011b)	Active herpetofauna searches^: 740 pm Spotlight: 515 pm Elliot trap: 286 days Cage trap: 13 days Funnel trap: 60 days Pitfall trap: 64 days
Ornamental snake	*Denisonia maculata*	Spring to early autumn (September to March) Warm nights. After wet weather.	a) Diurnal searches b) Spotlighting c) Opportunistic surveys of roads d) Pitfall and funnel trapping	a) 1.5-person hours per hectare b) 1.5-person hours per hectare c) Not specified d) 6 x 20 L buckets over 30 of drift fencing. Funnel placed at each end. At least 2 replicates per habitat type	a) 3 days b) 3 nights c) Not specified d) 4 days/nights	Targeting water-inundated gilgais, wetlands, riparian habitats and the surrounding environment (e.g., roads) and large logs between dusk and early morning hours.	Draft referral guidelines for thenationally listed Brigalow Belt reptiles (DEWHA, 2011b)	Active herpetofauna searches^: 740 pm Spotlight: 515 pm Elliot trap: 286 days Cage trap: 13 days Funnel trap: 60 days Pitfall trap: 64 days
Yakka skink	*Egernia rugosa*	Spring to earlyautumn (September toMarch) Coolest part of the day/>25ºC	a) Diurnal searches b) Transects c) Spotlighting d) Elliot and cage traps	a) 1.5-person hours per hectare b) Not specified c) 1.5-person hours per ha d) 1 Elliot and 1 cage trap placed as close as possible to burrow network-checkevery morningand evening	a) 3 days b) Not specified c) 3 night d) 4 days/night	Diurnal searches- searches for burrows or latrine sites. Yakka skinks can be watched using binoculars or a telescope, focusing on burrow systems orlatrine sites. Transects should bestrategically designed/positionedin large habitat patches (>10ha) Spotlighting-targeting water inundated gilgais, wetlands, riparian habitat. More effective on warm and humid nights.	Survey guidelines for Australia's threatened reptiles (DEWHA, 2011a) Draft referral guidelines for thenationally listed Brigalow Belt reptiles (DEWHA, 2011b) Targeted species survey guidelines – *Egernia rugosa* (Ferguson & Mathieson, 2014).	Active herpetofauna searches^: 740 pm Spotlight: 515 pm Elliot trap: 286 days Cage trap: 13 days Funnel trap: 60 days Pitfall trap: 64 days

Common Name	Scientific Name	Survey Recommendations					Source(s)	Ausecology survey effort (Ausecology 2019, Ausecology in prep)
		Timing	Technique(s)	Recommended intensity	Duration	Notes		
Aves								
Australian painted snipe	*Rostratula australis*	Not specified	a) Targeted stationary observations b) Land-based areas searches or line transects for sites of less than 50 ha when wetland holds water but is not flooded.	a) 10 hrs. b) 10 hrs	a) 5 days b) 3 days	Difficult to detect evenwhen present. Thought to be mainly crepuscular but can be detected during the day. Secretive but conspicuous when in the open.	Survey Guidelines for Australia's Threatened Birds (DEWHA, 2010)	Bird Survey: 230 pm Active herpetofauna searches^: 740 pm
Curlew sandpiper	*Calidris ferruginea*	Early August -March	a) Nocturnal survey b) Aerial surveys of foraging habitat	Not specified	Not specified	Nocturnal area or transect spotlight surveys in suitable habitat either on foot or from a slow-moving vehicle. Aerial surveys of foraging habitat in large or remote study areas.	Survey Guidelines for Australia's Threatened Birds (DEWHA, 2010)	Bird Survey: 230 pm Active herpetofauna searches^: 740 pm Spotlight: 515 pm
Painted honeyeater	*Grantiella picta*	Early spring tolate summer	a) Area searches	a) 4 hrs (per 50ha of suitable habitat)	a) 4 days	For example, at least1 hour of surveying per day for a minimum of 4 days. During daylight hours and preferably in the early morning (< 2hrs after sunrise) and late afternoon(<2 hrs before sunset) and avoid inclement weather(i.e. rain and wind)	Painted honeyeater, *Grantiella picta*. Targeted speciessurvey guidelines (Rowland, 2012)	Bird Survey: 230 pm Active herpetofauna searches^: 740 pm
Red goshawk	*Erythrotriorchis radiatus*	Not specified	a) Area searches	a) 80 hrs*	a) 10 days*	Area searches forindividuals and/or distinctive nests. Nest searches in areas with tallest trees, in particular along riverbanks. *effort for 50 ha area is 50 hrs. over 8 days	Survey Guidelines for Australia's Threatened Birds (DEWHA, 2010)	Bird Survey: 230 pm Active herpetofauna searches^: 740 pm
Squatter pigeon (southern)	*Geophaps scripta scripta*	Not specified	a) Areas searches or transect surveys b) Flushing surveys	a) 15 hrs b) 10 hrs	a) 3 days b) 3 days	For areas <50ha	Survey Guidelines for Australia's Threatened Birds (DEWHA, 2010)	Bird Survey: 230 pm Active herpetofauna searches^: 740 pm
White-throated Needletail	*Hirundapus caudacutus*	between October and April in northern and eastern Australia (DotE, 2024)	a) Area searches	Not specified	Not specified	Species is quite distinct, as it is larger than other swifts that occur in Australia. Needletails may occur at very high elevations, where they are visible only as 'specks in the sky'. Difficult to conduct systematic surveys due to its mobility and ability to cover huge distances in a day.	Hirundapus caudacutus in Species Profile and Threats Database (DotE, 2024)	Bird Survey: 210 pm (conducted between October and April)
Mammalia								
Northern quoll	*Dasyurus hallucatus*	May and August to minimise disturbance during the reproductive period.	a) Cage trapping and large Elliot trapping b) Camera trapping c) Diurnal searches d) Spotlighting	a) 20 x Elliot. 10 x Cage traps . Minimum of 2 sites per 5 ha. b) Not specified c) 1 x 100m transect per 5 ha. d) survey at least two 200 metre transects per 5 hectare site (or longer transects for larger sites)	a) 4 consecutive nights b) Not specified c) Not specified d) 2 nights	For areas up to 5 ha. Traps should be baited with oats, sardines and peanut butter Traps should be rebaited at least every second day (baits should be fresh) Trapping to focus in areas with potential denning sites (rocky denning habitat).	Survey guidelines for Australia's threatened mammals (DSEWPC 2011a)	Active herpetofauna searches^: 740 pm Spotlight: 515 pm Camera trapping: 90 days Elliot trap: 286 days Cage trap: 13 days Funnel trap: 60 days Pitfall trap: 64 days

Common Name	Scientific Name	Survey Recommendations					Source(s)	Ausecology survey effort (Ausecology 2019, Ausecology in prep)
		Timing	Technique(s)	Recommended intensity	Duration	Notes		
Central greater glider	*Petauroides armillatus*	Nectar availabilityand monthly lunarphases (i.e. brightmoon can reduce detectability).	a) Spotlight survey b) Scat and scratch search c) Incidental	a) 1 per generic survey site B & c) not specified	a) 30 minutes b & c) not specified	Within 1 ha survey area	Terrestrial Vertebrate Fauna Survey Guidelines for Queensland (Eyre et al., 2018)	Active herpetofauna searches^: 370 pm Spotlight: 515 pm Camera trapping: 90 days Modified SAT: 370 pm
Koala	*Phascolarctos cinereus*	In the inland context, there maybe seasonal variation in koalas'use of different habitat types.	a) Strip transects b) Nocturnal c) Spotlighting d) Call playback e) Camera trap f) Mark resight/mark recapture g) Detection dogs h) Radio/satellitecollars i) Indirect methods; scratches, SAT, KRAM	Not explicitly stated	Not explicitly stated	None specified	Terrestrial Vertebrate Fauna Survey Guidelines for Queensland (Eyre et al., 2018)	Active herpetofauna searches^: 370 pm Spotlight: 515 pm Call playback: 20 pm Camera trapping: 90 days Modified SAT: 370 pm
Ghost bat	*Macroderma gigas*	September and April	a) Harp traps b) Mist nets c) Active monitoring d) Roost searches	a) 8 trap nights b) 8 trap nights c) 8 detection hours d) 2 hours per survey day	a) 4 nights b) 4 nights c) 4 nights d) Not specified	Recommended per 100 ha of Study Area:	Targeted species survey guidelines – Ghost Bat, *Macroderma gigas* (Hourigan, 2011)	Harp trap: 16 trap nights Anabat: 67 recording nights Spotlight: 515 pm
Corben's long-eared bat	*Nyctophilus corbeni*	Warmer nights from October–April.	a) Passive acoustic detection b) Harp traps c) Mist nets	a) Not specified b) 20 trap nights c) 20 trap nights	a) Not specified b) 5 nights c) 5 nights	Trapping details are for project area <50ha. Bat detectors can be used to identify areas used by long-eared bats, even if they cannot be identified to species level. Acoustic detection can then be followed up with an appropriate level of trapping.	Survey Guidelines for Australia's Threatened Bats (DEWHA, 2010)	Harp trap: 16 trap nights Anabat: 67 recording nights Spotlight: 515 pm
Short-beaked echidna	*Tachyglossus aculeatus*	Not specified	a) Active searches	Not specified	Not specified	No species-specific guideline	No species-specific guideline	Active herpetofauna searches^: 740 pm Spotlight: 515 pm Camera trapping: 90 days

pm: person minutes; ^Active herpetofauna searches + modified SAT person minutes

3 Results

3.1 Regional Ecosystems

Survey efforts (Table 2-1) confirmed a total of 7 broad vegetation groups (Neldner et al, 2021) and 9 regional ecosystems (RE) occurring within the Power line Alignment (Table 3-1). Ausecology found the vegetation frequently differed from government regulated vegetation mapping (DoR, 2023). Ausecology updated the status, extent and condition accordingly, with Ausecology's ground-truthed regional ecosystem mapping provided in Appendix A-4.

Table 3-1 Regional Ecosystems (REs) per Broad Vegetation Group (BVGs) present within the Power line Alignment

BVG	RE	VM Act Status	Biodiversity status	Short Description (Qld Herbarium, 2023)	Condition	Power line Alignment Area (ha)
11a	11.8.5	Least concern	No concern at present	*Eucalyptus orgadophila* open woodland on Cainozoic igneous rocks	Remnant	0.37
					Regrowth	7.42
					Non Remnant	4.71
16a	11.3.25	Least concern	Of concern	*Eucalyptus tereticornis* or *E. camaldulensis* woodland fringing drainage lines	Remnant	0.34
					Non Remnant	0.03
16c	11.3.4	Of concern	Of concern	*Eucalyptus tereticornis* and/or *Eucalyptus spp.* woodland on alluvial plains	Remnant	0.01
17a	11.5.3	Least concern	No concern at present	*Eucalyptus populnea +/- E. melanophloia +/- Corymbia clarksoniana* woodland on Cainozoic sand plains and/or remnant surfaces	Remnant	6.83
17b	11.9.2	Least concern	No concern at present	*Eucalyptus melanophloia +/- E. orgadophila* woodland to open woodland on fine-grained sedimentary rocks	Regrowth	2.56
25a	11.4.8/ 11.4.9	Endangered	Endangered	11.4.8: *Eucalyptus cambageana* woodland to open forest with *Acacia harpophylla* or *A. argyrodendron* on Cainozoic clay plains	Regrowth	12.83
					Non Remnant	38.63
	11.4.9	Endangered	Endangered	*Acacia harpophylla* shrubby woodland with *Terminalia oblongata* on Cainozoic clay plains	Regrowth	0.82
					Non Remnant	0.21
30b	11.4.4	Least concern	Of concern	*Dichanthium spp.*, *Astrebla spp.* grassland on Cainozoic clay plains	Remnant	0.89
					Non Remnant	0.14
	11.8.11	Of concern	Of concern	*Dichanthium sericeum* grassland on Cainozoic igneous rocks	Remnant	4.16
					Non Remnant	2.33
					Total	82.28

3.2 Matters of National Environmental Significance

Upon completion of field survey investigations and summation of information, two TECs and 11 threatened fauna species were determined to be likely or known to occur within the Study Area, as summarised in Table 3-2. No MNES threatened flora species were determined to be likely or known to occur. The comprehensive Likelihood of Occurrence (LoO) table, including matters determined unlikely to occur, is provided within Appendix B.

Table 3-2 MNES likelihood of occurrence (LoO) within the Study Area based upon field survey results summary

Scientific name	Common name	NC Act	EPBC Act	Likelihood of Occurrence		Ausecology Field Survey Detection	Post-field survey LoO rationale
				Pre-field survey	Post-field survey		
TEC							
Brigalow (*Acacia harpophylla* dominant and co dominant)	Brigalow TEC	-	E	Known	Known	Detected	Brigalow TEC confirmed to occur within Study Area.
Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin	Grassland TEC	-	E	Known	Known	Detected	Grassland TEC confirmed to occur within Study Area.
Fauna							
Aves							
Apus pacificus	fork-tailed swift	SL	Ma/Mi	Known	Known	Not detected	Previously observed flying over Study Area (AECOM, 2020).
Geophaps scripta scripta	squatter pigeon (southern)	V	V	Known	Known	Detected	Known to occur within the Study Area and surrounding region (Ausecology, in prep; ERM 2021; AURECON 2013)
Hirundapus caudacutus	White-throated Needletail	V	V	Likely	Likely	Not detected	Species habitat located within Study Area. Potential for species to utilise airspace above Study Area.
Hydroprogne caspia	Caspian tern	SL	Ma/Mi	Known	Known	Detected	Species detected within large dam immediately adjacent to Study Area (Ausecology, in prep; AECOM 2020).
Rhipidura rufifrons	rufous fantail	SL	Ma/Mi	Known	Known	Not detected	Species detected onsite by previous survey efforts (AECOM, 2020)
Rostratula australis	Australian painted snipe	E	E	Likely	Likely	Not detected	Intermittent foraging habitat present within small, isolated patches of ephemeral wetland. Confirmed record ~2 km north of Study Area (E2M, 2021).

Scientific name	Common name	NC Act	EPBC Act	Likelihood of Occurrence		Ausecology Field Survey Detection	Post-field survey LoO rationale
				Pre-field survey	Post-field survey		
Mammalia							
Petauroides volans	greater glider	E	E	Likely	Known	Detected	Known to occur within the Study Area and surrounding region (AECOM, 2020; Ausecology, 2019)
Phascolarctos cinereus	koala	E	E	Known	Known	Detected	Known to occur within the Study Area and surrounding region (Ausecology, in prep; AECOM, 2020; Ausecology, 2019; FOOTPRINTS, 2009)
Reptilia							
Denisonia maculata	ornamental snake	V	V	Likely	Likely	Not detected	Habitat identified to occur within the Study Area. Species not detected within Study Area. Confirmed record ~3 km south of Study Area (Ausecology, in prep).
Flora							
Dichanthium queenslandicum	king blue-grass	V	E	Likely	Potential	Not detected	Suitable habitat identified to occur within Study Area, however, area severely impacted by cattle grazing, reducing the likelihood of detection.

NC Act: Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992*; Critically Endangered (CR), Endangered (E), Vulnerable (V), Near Threatened (NT), Special Least Concern (SL) and Least Concern (C). EPBC Act: Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999*; Critically Endangered (CE), Endangered (E), Vulnerable (V) and Conservation Dependent (CD)

3.2.1 Threatened Ecological Communities listed under the EPBC Act

Desktop review of databases initially identified five TECs potentially occurring within the Study Area. Ausecology field surveys agreed with the findings of previous consultancies, confirming two TECs within the Power line Alignment. A breakdown of associated area is provided within Table 3-3, and associated mapping within Appendix A-4. A full LoO analysis is provided in Appendix B.

Table 3-3 Ground-truthed TECs within the Power line Alignment

Threatened Ecological Community	TEC Condition	RE	RE Condition	Power line Alignment Area (ha)
Brigalow (*Acacia harpophylla* dominant and co-dominant)	NA	11.4.9	Regrowth	0.02
			Total	0.02
Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin	Best	11.4.4	Remnant	0.88
		11.8.11	Remnant	1.12
		11.8.11	Remnant	0.12^
	Good	11.8.11	Remnant	0.44
			Total	2.56

^Continuation of TEC patch into the Powerline Alignment outside of the Study Area

3.2.1.1 Brigalow TEC – Brigalow (Acacia harpophylla dominant and co-dominant) Ecology Community

The condition of the Brigalow TEC varied considerably across the Study Area, predominantly influenced by extensive historical land clearing and grazing practices. As per the conditions outlined within the Commonwealth Approved Conservation Advice for the Brigalow (*Acacia harpophylla* dominant and co-dominant) ecological community (Department of the Environment, 2013), only patches of Brigalow TEC >0.5 ha in size and containing <50% exotic perennial pant cover as a percentage of the total vegetation cover, were mapped as the TEC. Analysis of historical imagery was utilised to confirm that all patches of Brigalow TEC had not been cleared within the last 15 years.

Brigalow TEC within the Power line Alignment was confirmed within the following RE:

- 11.4.9 – *Acacia harpophylla* shrubby woodland with *Terminalia oblongata* on Cainozoic clay plains



Figure 3-1 Edge of a Brigalow TEC patch identified within the Power line Alignment, RE 11.4.9.

3.2.1.2 *Natural Grassland TEC – Natural Grasslands of the Queensland Central Highlands and Northern Fitzroy Basin Ecological Community*

Natural grasslands within the Study Area have been subject to extensive historical levels of livestock grazing, with cattle often present at the time surveys were conducted. Areas of Natural Grassland TEC were dominated by native *Dichanthium sericeum* (Queensland bluegrass) and with the non-native species *Cenchrus ciliaris* (buffel grass) (perennial) common. The invasive annual weed *Parthenium hysterophorus* (parthenium) was also abundant throughout. Natural Grassland TEC identified within the Power line Alignment was found within the following RE's:

- 11.8.11 – *Dichanthium sericeum* grassland on Cainozoic igneous rocks.
- 11.4.4 – *Dichanthium spp*., *Astrebla spp*. grassland on Cainozoic clay plains

The areas of Natural Grassland TEC occurred in four separate patches of approximately 1 ha, 3.5 ha, 1.5 ha and 48 ha, the area of which extending to outside of the Power line Alignment. When assessed against the key diagnostic characteristics and condition thresholds for Natural Grassland TEC as per Approved Conservation Advice for Natural grasslands of the Queensland Central Highlands and the northern Fitzroy Basin (DEWHA, 2009), three patches met the condition class for 'Best Quality' and one 'Good Quality'. A breakdown of the impact on each patch is provided in Table 3-4, with patches depicted within Appendix A-5.

Table 3-4 Natural Grassland TEC impact on patches breakdown

Natural Grassland total TEC patch size (ha)^	TEC Patch Condition	TEC area within Power line Alignment footprint (ha)	Relative %	Impact location
1	Best	0.1	10%	Extremity, does not dissect patch
3.5	Good	0.44	13%	Patch dissected, 30m corridor
1.5	Best	0.12	8%	Patch dissected, 30m corridor
48	Best	1.9	4%	Patch dissected, 50m corridor

^TEC patch area extends outside of the Power line Alignment



Figure 3-2 Natural Grassland TEC identified within the Power line Alignment, RE 11.8.11, featuring Dichanthium sericeum (Queensland bluegrass)

3.2.2 EPBC Act listed flora and fauna

Based upon the results of the desktop assessment, one flora and nine threatened fauna matters were identified under the provisions of the EPBC Act have a likelihood of occurrence of at least 'Likely' within the Study Area (Appendix B). Following field survey efforts, Ausecology determined no flora species and nine EPBC Act listed fauna species have a likelihood of occurrence of at least 'Likely' to occur within the Study Area (Table 3-5).

Table 3-5 EPBC Act listed species

Scientific name	Common name	NC Act	EPBC Act	Post-field survey LoO
Fauna				
Aves				
Apus pacificus	fork-tailed swift	SL	Ma/Mi	Known
Geophaps scripta scripta	squatter pigeon (southern)	V	V	Known
Hirundapus caudacutus	White-throated Needletail	V	V	Likely
Hydroprogne caspia	Caspian tern	SL	Ma/Mi	Known
Rhipidura rufifrons	rufous fantail	SL	Ma/Mi	Known
Rostratula australis	Australian painted snipe	E	E	Likely
Mammalia				
Petauroides volans	greater glider	V	E	Known
Phascolarctos cinereus	koala	V	E	Known
Reptilia				
Denisonia maculata	ornamental snake	V	V	Likely

Species profiles and habitat mapping has been provided below, for the four species determined to be likely or known to occur within the Study Area and where a significant impact is considered likely. These species include; koala (*Phascolarctos cinereus*), greater glider (*Petauroides volans*), ornamental snake (*Denisonia maculata*) and squatter pigeon (southern) (*Geophaps scripta scripta*). The following five species from Table 3-5 are not considered to be significantly impacted by the Project and therefore a profile and habitat mapping is not provided: Australian painted snipe (*Rostratula australis*), rufous fantail (*Rhipidura rufifrons*), Caspian tern (*Hydroprogne caspia*), White-throated Needletail (*Hirundapus caudacutus*) and fork-tailed swift (*Apus pacificus*).

3.2.2.1 Koala (Phascolarctos cinereus)

Koala habitat can be broadly described as woodlands or open forests containing known koala habitat trees. Koala habitat trees are defined as trees of the Corymbia, Melaleuca, Lophostemon, Eucalyptus and Angophora genera (Qld. Gov, 2017). Koalas are obligate folivores with a highly specialised diet, predominately feeding upon trees of the genera Eucalyptus, Corymbia, and Angophora (DAWE, 2022). Koalas are also known to occur in modified or regenerating native vegetation communities, as well as urban and rural landscapes where food trees or shelter trees may be highly scattered (DAWE, 2021). Distribution of koala within north-western Queensland was found to be patchy, and associated with creek-lines correlating with higher leaf-moisture content (Munks et al. 1996 and DAWE, 2022).

General habitat types within the Study Area and surrounding region associated with the koala include; Dry sclerophyll (Eucalypt) woodlands, Open dry sclerophyll (Eucalypt) woodland and fringing watercourse and

riparian vegetation. Within the Study Area, koalas and/or evidence of koala (e.g. scat) were recorded within the following RE's: 11.3.25 and 11.5.3. Areas mapped as habitat within the Study Area and Power line Alignment is shown in Appendix A-7.



Figure 3-3 Koalas (Phascolarctos cinereus) recorded within the surrounding region.

3.2.2.2 Greater glider (Petauroides volans)

Greater gliders are a strictly arboreal, nocturnal species, restricted to tall, expansive eucalyptus forests (Grzimek, 1990). Greater gliders are highly reliant on hollow-bearing trees for shelter and breeding (Eyre et al., 2022; Lindenmayer et al. 1993; Smith et al. 2007). Recent studies have found tree DBH to be an appropriate surrogate for tree hollows, compared to ground-based estimates of hollow bearing trees (Eyre et al., 2022). Eucalypt trees with a DBH >30 cm have been found to be preferentially selected for foraging, with trees >50 cm DBH more likely to contain suitable hollows for sheltering by greater glider (Eyre et al., 2022).

Greater gliders rely upon leaf moisture for their water intake and as a result are generally restricted to watercourses and associated riparian vegetation (DCCEEW, 2022; Melzer et al. 2014), with home ranges of between 1 to 16 ha depending upon forest productivity (Kerswell et al., 2020). Greater gliders are not known to disperse across vegetation that does not contain suitable habitat trees, resulting in an increased reliance on connectivity of suitable vegetation.

General habitat types confirmed within the Study area and surrounding region associated with the greater glider include; dry sclerophyll (Eucalypt) woodlands, open dry sclerophyll (Eucalypt) woodland and fringing watercourse and riparian vegetation. Within the Study Area, greater gliders were recorded within the following RE's: 11.3.25 and 11.5.3. Areas mapped as habitat within the Study Area and Power line Alignment is presented in Appendix A-6.



Figure 3-4 Greater gliders (Petauroides volans) detected within the surrounding region.

3.2.2.3 Ornamental snake (Denisonia maculata)

Ornamental snakes are typically associated with low-lying areas with cracking clay soils, gilgai depressions within proximity to their prey – amphibians (Wilson and Swan 2013; DEE, 2019). Coarse woody debris is also noted as an important microhabitat feature for the ornamental snake (Brigalow Belt Reptiles Workshop 2010).

Ornamental snakes were not recorded within the Study Area, with the nearest record located ~3 km south of the Study Area (Ausecology, in prep). Within the surrounding region, ornamental snakes were recorded within the following REs applicable to the Study Area: 11.3.25 and 11.4.9. Areas of RE 11.4.9 were considered the most suitable habitat, featuring cracking clay soils and gilgai depressions. Within the surrounding region, areas of RE 11.3.25 where ornamental snakes were observed exhibited an abundance of coarse woody debris and were associated with providing connectivity to more typical suitable habitat land zone four RE's, namely, 11.4.8 and 11.4.9.

Detailed habitat assessments conducted throughout the Study Area captured the following habitat features relevant to ornamental snake; gilgai abundance, gilgai depth, soil crack abundance, soil crack depth and coarse woody debris abundance. Areas mapped as habitat within the Study Area and Power line Alignment is presented in Appendix A-8.



Figure 3-5 Ornamental snakes (Denisonia maculata) detected within the surrounding region.

3.2.2.4 *Squatter pigeon (southern) (Geophaps scripta scripta)*

Squatter pigeons typically occur in dry grassy eucalypt woodlands, open-forests and scrub. They are known to also forage along roads, rail lines, homesteads, cattle yards and other highly modified surfaces. Squatter pigeons are often recorded near waterbodies, such as rivers, creeks and waterholes, with open and short grass cover, and are less commonly found on heavy soils with dense grass (Curtis et al. 2012; Higgins & Davies, 1996; Garnett & Crowley, 2000). Habitat is considered to be located on land zones 3, 5, 7, 8, 9 and 10 (Kerswell et al., 2020). Distance to suitable water sources is regarded as a limiting factor to squatter pigeon habitat, with higher quality habitat occurring within 3km of suitable waterbodies (Squatter Pigeon Workshop 2011).Within the Study Area, squatter pigeons was recorded within RE 11.4.8 however, the area was highly degraded, adjacent to a dirt access track and in extreme proximity (~10 m) to the RE boundaries of more suitable RE's 11.3.25 and 11.5.3. Areas mapped as habitat within the Study Area and Power line Alignment is presented in Appendix A-9.





Figure 3-6 Squatter pigeons (southern) (Geophaps scripta scripta) were recorded within the Study Area, however no photos were captured. Examples above are photos by R. Regeer captured as part of another project.

3.3 Introduced flora species

Pest flora was common throughout the Study Area. The *Biosecurity Act 2014* (Qld) imposes a general biosecurity obligation on landholders to manage Biosecurity risks on their land. Four flora species listed as 'Restricted Invasive' flora species listed under the *Biosecurity Act 2014* were recorded within the Study Area (Table 3-6).

Table 3-6 Restricted Biosecurity Act 2014 flora species recorded within the Study Area

Scientific Name	Common Name	Status – Biosecurity Act 2014 (Qld)	Survey Results
Flora			
Harrisia martinii	harrisia cactus	Category 3 Restricted Invasive	Known. Detected on site. Common throughout Study Area.
Opuntia tomentosa	prickly pear	Category 3 Restricted Invasive	Known. Detected on site. Scattered individuals throughout Study Area.
Parthenium hysterophorus	parthenium	Category 3 Restricted Invasive	Known. Detected on site. Abundant throughout Study Area.

Scientific Name	Common Name	Status – Biosecurity Act 2014 (Qld)	Survey Results
Parkinsonia aculeata	parkinsonia	Category 3 Restricted Invasive	Known. Isolated patch detected. One mature individual with approx. nine young saplings.

Furthermore, pest flora species not listed under the *Biosecurity Act 2014* were also abundant throughout the Study Area. *Cenchrus ciliaris* (buffel grass), which is considered an environmental weed, was by far the most prolific non-native grass species, often dominating the ground layer throughout extensive areas of the Study Area. *C. ciliaris* was originally introduced as a pasture grass, but is known to out-compete native pastures (New South Wales Department of Primary Industries, 2012). *C. ciliaris* is also highly flammable, with infested areas capable of burning very hot and known to destroy native woodlands, transforming them into pastures (AuseMade, 2022).

Another notable mention is *Acacia farnesiana* (mimosa bush), which was found scattered throughout the Study Area, sprawling within the ground layer.





Figure 3-7 Examples of pest flora observed within the Study Area, left – Harrisia martinii (harrisia cactus); right – Parkinsonia aculeata (Parkinsonia)

3.4 Introduced fauna species

Pest fauna was common throughout the Study Area, with results equivalent for the Power line Alignment. Four fauna species listed as 'Restricted Invasive' flora species listed under the *Biosecurity Act 2014* were recorded within the Study Area (Table 3-7 and Figure 3-8).

Table 3-7 Restricted Biosecurity Act 2014 fauna species recorded within the Study Area

Scientific Name	Common Name	Status – Biosecurity Act 2014 (Qld)	Survey Results
Fauna			
Canis lupus familiaris	wild dog	Category 3, 4 & 6 Restricted Invasive	Known. Detected throughout Study Area.
Felis catus	feral cat	Category 3, 4 & 6 Restricted Invasive	Known. Detected throughout Study Area.
Oryctolagus cuniculus	European rabbit	Category 3, 4 & 6 Restricted Invasive	Known. Detected throughout Study Area.
Sus scrofa	feral pig	Category 3, 4 & 6 Restricted Invasive	Known. Detected throughout Study Area.

Cattle grazing was common throughout the majority of the Study Area. Areas where cattle activity was particularly concentrated (e.g. watering holes, creek crossings and general cattle tracks) often were subject to a significant increase in bare ground cover when compared to the surrounding vegetation (Figure 3-9).



Figure 3-8 Examples of pest fauna observed within the Study Area. Left to right; wild dog (Canis lupus familiaris), feral cat (Felis catus), feral pig (Sus scrofa) and European rabbit (Oryctolagus cuniculus).



Figure 3-9 Examples of cattle (Bos taurus) trampling found within the Study Area.

3.5 Terrestrial habitat quality

Throughout the Study Area, habitat features were identified as part of detailed habitat assessments and general observations. Habitat features identified as part of survey efforts are outlined within Section 2.6.10, with representative examples presented in Figure 3-10.



Figure 3-10 Example habitat features located within the Study Area – left to right; koala tree canopy cover, hollow log, water holding trough and soil cracks.

3.5.1 Landscape-scale Attributes

Landscape-scale Attributes were calculated for each applicable BC assessment as per GDTHQ version 1.3, with mean results per RE and condition summarised within Table 3-8.

Table 3-8 Mean Landscape-scale Attributes per Regional Ecosystem (RE) and condition

RE	Condition	Mean Connectivity Score (/10)	Mean Site Context (/5)	Mean Size Of Patch (/10)	Mean Total (/25)
11.3.25	**Remnant**	10	4	7	21
11.3.4	**Remnant**	2	4	7	13
11.4.4	**Remnant**	0	4	7	11
	Non Remnant	0	4	7	11
11.4.8/ 11.4.9	**Regrowth**	0	2.7	7	9.7
11.4.9	**Remnant**	2	4	7	13
	Regrowth	0	5	10	15
11.5.3	**Remnant**	0.8	3.6	8.2	12.6
11.8.11	**Remnant**	0.8	4.4	8.2	13.4
	Non Remnant	0.7	1.3	6.3	8.3
11.8.5	**Remnant**	0	4	7	11

RE	Condition	Mean Connectivity Score (/10)	Mean Site Context (/5)	Mean Size Of Patch (/10)	Mean Total (/25)
	HVR	0	4	6	10
	Regrowth	1.3	4	9	14.3
	Non Remnant	0.5	4.25	7.25	12
11.9.2	**Remnant**	0	4	7	11
	Regrowth	0	0	7	7

3.5.2 Habitat Quality Scoring

Habitat Quality Scoring was calculated for those species for which it was determined that the Power line Alignment was most likely to result in a significant impact. Species BioCondition Scores and Species Habitat Scores were calculated as per GDTHQ version 1.3, with results summarised within Table 3-9 with additional breakdown provided in Appendix C.

Table 3-9 Summary table – Habitat Quality Scoring calculated as per GDTHQ v1.3

Matter	Habitat Category	RE Condition	RE Code	Mean decimal BC Score (/1)	Mean Habitat Score (/100)	HQS per Habitat Category		HQS per Entire Matter	
						BC Score (/10)	Species Habitat Score (/10)	BC Score (/10)	Species Habitat Score (/10)
greater glider	Preferred	Remnant	11.3.25	0.65	54.44	5.65	5.17	5.65	5.17
		Remnant	11.3.4	0.71	57.67				
		Remnant	11.5.3	0.56	51.70				
	Suitable	Remnant	11.5.3	0.56	51.70	5.65	5.17		
koala	Preferred	Remnant	11.3.25	0.65	63.50	5.69	5.38	5.13	4.52
		Remnant	11.3.4	0.71	64.00				
		Remnant	11.5.3	0.56	53.22				
	Suitable	Remnant	11.5.3	0.56	53.22	5.65	5.32		
	Marginal	Remnant	11.8.5	0.66	46.00	4.75	3.94		
		Regrowth	11.8.5	0.47	46.50				
		Non-remnant	11.8.5	0.47	16.00				
ornamental snake	Marginal	Regrowth	11.4.9	0.60	28.31	5.97	2.83	5.97	2.83
squatter pigeon	Preferred	Remnant	11.3.25	0.65	55.33	5.17	4.37	5.05	4.70
		Remnant	11.3.4	0.71	69.00				
		Remnant	11.5.3	0.56	32.44				
		Remnant	11.8.5	0.66	54.83				
		Regrowth	11.8.5	0.47	53.00				
	Suitable	Remnant	11.3.25	0.65	55.33	5.18	5.07		
		Remnant	11.5.3	0.56	32.44				
		Regrowth	11.8.5	0.47	53.00				
		Regrowth	11.9.2	0.61	48.29				
		Non-remnant	11.8.5	0.47	59.00				
		Non-remnant	Road	-	-				
	Marginal	Regrowth	11.9.2	0.61	48.29	4.51	5.14		
		Non-remnant	11.3.25	-	-				
		Non-remnant	11.8.5	0.47	59.00				
		Non-remnant	Road	-	-				

3.6 Habitat Mapping

Habitat mapping has been conducted for matters that have been determined to likely result in a significant impact, including:

- greater glider (southern and central) (*Petauroides volans*)
- koala (*Phascolarctos cinereus*)
- ornamental snake (*Denisonia maculata*)
- squatter pigeon (southern) (*Geophaps scripta scripta*)

As previously mentioned in Section 2.6.11, habitat categorisation was conducted as per Ausecology (in prep), with the information within Kerswell et al., (2020) utilised as a baseline for habitat categorisation, sourcing additional information from relevant guidelines, known species records and pers comms. Applicable information pertaining to the above species contained within Kerswell et al. (2020) is outlined below. The decision matrix tables that outline the categorisation of habitat quality, subject to area specific context, are located within Appendix F – Table 8-6 to Table 8-9 (Ausecology, in prep).

3.6.1 Koala (*Phascolarctos cinereus*)

As per Kerswell et al., (2020) v5, prepared January 2023:

"Preferred koala habitat in central Queensland is defined as:

- Contiguous remnant and high-value regrowth Eucalyptus open forest to woodlands on alluvial and/or cracked rock groundwater where palatable food tree species occur frequently (and are usually dominant)
- This specifically includes stream-fringing open forest, open forest or woodland on alluvial terraces where Eucalyptus tereticornis/camaldulensis are dominant or common subdominant elements. Other important food species on the alluvial terraces can include *E. coolabah, E. crebra, E. melanophloia and E. populnea*. These listed Eucalyptus species comprise a subsample of locally important koala habitat trees in the Brigalow Belt across various geological contexts

Preferred habitat areas located where aquifers persist through most drought cycles, substrates have high fertility and food tree species occur at relatively high frequencies have the potential to support moderate to high density koala populations. Preferred habitat areas represented as *Eucalyptus crebra/drepanophylla* tall woodland on hills and ranges with aquifers that persist in most drought cycles (commonly cracked rock aquifers) have the potential to support a low to moderate density koala population e.g. Clarke-Connors Ranges, Minerva Hills.

Suitable koala habitat in central Queensland is defined as:

- Remnant and regrowth Eucalyptus open forest to woodlands with more variable aquifers (often seasonal) and that have connectivity to other areas of suitable or preferred habitat. Must incorporate one or more palatable food tree species of relative abundance.

Marginal koala habitat in central Queensland is defined as:

- All other fragmented and sparsely distributed woodlands and open woodlands, shrub lands and forests, with some food trees and which experience significant seasonal water deficits and/or are subject to periodic high intensity fires.

An example of a marginal habitat type is *Acacia harpophylla* open forest with isolated *Eucalyptus tereticornis/camaldulensis, E. coolabah* and/or *E. populnea*. These areas have the potential to support only very low density koala populations.

NOTE: A landscape across which koalas move, but does not contain (1) palatable tree species, and/or (2) a persistent freshwater aquifer sufficient to maintain leaf moisture at levels sufficient to sustain a resident koala population and/or (3) a habitat structure that provides refuge from predators or the capacity to avoid heat stress, is not considered to provide habitat values for the species."

3.6.2 Greater glider (*Petauroides volans*)

As per Kerswell et al., (2020) v5, prepared January 2023:

"Preferred greater glider habitat in central Queensland is defined as:

- Remnant, connected eucalypt woodlands containing one or more feed tree species and more than two hollow bearing trees/ha, with hollows medium-large in size (> 10 cm entrance), usually on fertile, wetter soils of riparian zones.
- In central Queensland, preferred foraging and den trees include *E. camaldulensis, E. tereticornis, E. fibrosa* and *Corymbia citriodor*a. The species has also been observed in *Angophora floribunda, Eucalyptus cambageana, E. coolabah, E. crebra, E. laevopinea, E. moluccana, E. orgadophila, E. populnea, E. melanophloia* and *C. tessellaris* in which it may use for foraging and/or denning.

Suitable greater glider habitat in central Queensland is defined as:

- Remnant eucalypt woodlands containing one or more feed tree species connected to areas of denning habitat that does not contain more than two hollow bearing trees/ha, medium-large in size (> 10 cm entrance). Generally within ~ 120 m of breeding / denning habitat, reflecting the home range of the species.

Marginal greater glider habitat in central Queensland is defined as:

- Remnant or high value regrowth eucalypt vegetation, adjacent to preferred greater glider habitat where hollows are smaller and/or less frequent. Isolated patches of marginal habitat >100 m from adjacent habitat do not provide habitat for the species due to gliding capabilities.
- Remnant or high value regrowth eucalypt vegetation on low fertility and low moisture soils, regardless of hollow densities."

Supplementary to Kerswell et al., (2020), Ausecology also utilised information as per Eyre et al., (2022), with greater glider habitat and REs in Queensland separated into three categories; habitat, potential habitat and not habitat;

- "Habitat:
    - Regional ecosystems with confirmed greater glider records
    - Contains habitat attributes (but not necessarily all attributes), such as live and dead hollow-bearing trees for denning, feed trees, large trees, habitat connectivity across the landscape
- Potential habitat:
    - Regional ecosystems that do not have confirmed greater glider records but are identified by experts as potential greater glider habitat
    - Contains habitat attributes (but not necessarily all attributes), such as live and dead hollow-bearing trees for denning, feed trees, large trees, habitat connectivity across the landscape
- Not habitat:
    - Regional ecosystems with no confirmed records of greater gliders, and identified by experts as non-habitat

- Does not contain habitat attributes such as live and dead hollow-bearing trees for denning, feed trees, large trees, habitat connectivity across the landscape."

3.6.3 Squatter pigeon (southern; *Geophaps scripta scripta*)

As per Kerswell et al., (2020) v5, prepared January 2023:

"All squatter pigeon habitat is located on low, gently sloping, flat to undulating plains, foothills and plateaus.

Preferred squatter pigeon habitat in central Queensland is defined as:

- Remnant or regrowth grassy open forest to woodland dominated by Eucalyptus, Corymbia, Callitris or Acacia with patchy, relatively sparse ground cover vegetation (33 %) and sparse shrub layer on well-draining sandy, loamy or gravelly soils within 1 km of a suitable permanent34 waterbody.
- Preferred habitat may be located on land zones 3, 5, 7, 8, 9 and 10.

Preferred habitat does not include areas dominated by introduced pasture grasses, in particular *Cenchrus ciliaris*, nor heavily grazed areas but these areas may be included in suitable and marginal habitat as defined below.

Suitable squatter pigeon habitat in central Queensland is defined as:

- Remnant or regrowth grassy open forest to woodland dominated by Eucalyptus, Corymbia, Callitris or Acacia with patchy, relatively sparse ground cover vegetation (<33 %) on well-draining sandy, loamy or gravelly soils between 1 and 3 km of a suitable permanent or seasonal waterbody; and
- Non-remnant areas within 100 m of preferred habitat.
- Suitable habitat may be located on land zones 3, 5, 7, 8, 9 and 10.

Marginal squatter pigeon habitat in central Queensland is defined as:

- Non-remnant areas, regrowth and remnant woodland or forest areas more than 3 km from a permanent or seasonal waterbody that facilities the movement of the species between patches of preferred or suitable habitat."

3.6.4 Ornamental snake (*Denisonia maculata*)

As per Kerswell et al., (2020):

"Preferred ornamental snake habitat in central Queensland is defined as:

- Gilgai depressions (with or without the presence of brigalow or other canopy vegetation), mounds and wetlands on cracking clays (predominantly land zone 4) where essential microhabitat features are present including an abundance of deep soil cracks. Other microhabitat features such as fallen woody debris may or may not be present. Seasonal flooding of habitat areas is a requirement.

Suitable ornamental snake habitat in central Queensland is defined as:

- Dispersal areas within 1 km of preferred habitat, which are currently or previously dominated by brigalow or coolibah communities where gilgais or soil cracks are infrequent and/or shallow, including non-remnant areas.

Marginal ornamental snake habitat in central Queensland is defined as:

- Areas currently or previously dominated by brigalow or coolibah communities where gilgais or soil cracks are infrequent or are shallow or non-remnant areas where threats are high (high abundance of weed incursion and cattle compacting soils) but the species still have potential to occur, especially in times where water is present and prey abundance (frogs) is high."

3.6.5 Habitat Area Calculations

Habitat was confirmed to occur within the Power line Alignment for the koala, greater glider, ornamental snake and squatter pigeon, with habitat areas summarised in Table 3-10 further broken down into associated REs in Appendix C – Table 6-2.

Table 3-10 Habitat area (ha) summary within the Power line Alignment

Matter	Power line Alignment – Habitat Area (ha)			
	Preferred	Suitable	Marginal	Total
greater glider	6.00	0.42	-	6.42
koala	6.72	0.45	10.40	17.57
ornamental Snake	-	-	0.19	0.19
squatter pigeon	13.45	6.39	2.94	22.77

4 Potential impacts

4.1 Native vegetation clearance

The total area of vegetation within the Power line Alignment footprint is ~82 ha. Within the Power line Alignment, habitat has been identified for MNES matters including threatened species and threatened ecological communities:

- 0.01 ha Brigalow TEC
- 2.55 ha Natural Grassland TEC
- 6.42 ha greater glider (southern and central) (*Petauroides volans*)
- 17.57 ha koala (*Phascolarctos cinereus*)
- 0.19 ha ornamental snake (*Denisonia maculata*)
- 22.77 ha squatter pigeon (southern) (*Geophaps scripta scripta*)

4.2 Fauna habitat removal

A total of 9 unique REs were identified within the Power line Alignment, with general floristic structure and composition characteristic of five broader habitat types namely, dry sclerophyll woodlands, open dry sclerophyll woodland, fringing watercourse and riparian vegetation, Acacia dominated woodlands and grasslands.

Within these habitat types, Ausecology identified numerous examples of habitat resources of varying quality, including, but not limited too; gilgais, soil cracks, coarse woody debris, leaf litter, hollow logs, tree hollows and koala food trees.

Ausecology identified a total of 234 unique terrestrial vertebrate fauna species as occurring within the Study Area comprising of amphibians, birds, mammals and reptiles (Table 4-1 and Appendix G).

Table 4-1 Unique fauna species identified by Ausecology as occurring within the Study Area

Fauna class	No. of species
Amphibia	13
Aves	137
Mammalia	44
Reptilia	40
Total	**234**

The required habitat clearing will negatively impact threatened and non-threatened species within the Power line Alignment, through habitat loss and barriers to movement. Vegetation within the easement will be slashed throughout the lifetime of the Power line, therefore removing cover for safe passage of native fauna, increasing the risk of exposure and predation. Clearing activities will likely result in injury and the death of individual fauna within the Power line Alignment. Potential mitigatory actions to reduce these impacts are discussed within Section 5.

4.3 Hydrological changes

The Surrounding Area is located within the Isaac River catchment area. Harrow Creek and various unnamed tributaries occur within the Study Area and represent part of the catchment area for the Isaac River. It is anticipated that watercourses within the Power line Alignment footprint will not be impacted upon. If Power line footings or other structures are required to be erected within close proximity to watercourses, Ausecology

recommends that hydrological experts are consulted to ensure the efficacy of management measures. In general, the following controls are recommended:

- Prompt erection of temporary and permanent erosion and sediment control barriers;
- Barriers preventing the flow of contaminated water and sediment into waterways;
- Diversion of surface water run-off around sensitive areas;
- Utilisation of sediment ponds prior to the release of captured run-off.

4.4 Introduced flora

Invasive flora species were encountered regularly throughout the Power line Alignment. Invasive flora species have the potential to drastically alter the floristic composition and structure of a given native vegetation community, impacting the functioning capacity of an ecosystem. Plant material that can facilitate the spread of an invasive species includes; seeds, fruiting bodies and root systems.

The ground layer will be significantly disturbed during construction and vegetation within the easement will be slashed throughout the lifetime of the Power line. Slashing increases the likelihood of non-native grass seeds being introduced, with the potential to establish and outcompete native grasses, changing the composition of the ground layer. Areas of particular risk include Grassland TECs areas.

The spread of invasive plant material will be an ongoing risk throughout the lifetime of the Power line Alignment. Vegetative material can be transported through a variety of means including; machinery, contaminated fill, vehicles and personnel.

Weed hygiene management procedures are to be implemented to help manage the introduction invasive species, however this will not prevent the spread of non-native grass seed (e.g. *Cenchrus ciliaris*) already present within the area. Mitigation and management measures are further discussed within Section 5.

4.5 Introduced fauna

Non-native invasive fauna including some that are listed under the *Biosecurity Act 2014* (Qld) were encountered regularly throughout the entire Study Area. Non-native fauna identified within the Study Area include (further details outlined in Section 7.7):

- wild dog and/or dingo *(Canis sp.)*
- feral cat (*Felis catus*)
- European rabbit (*Oryctolagus cuniculus*)
- feral pig (*Sus scrofa*)
- cane toad (*Rhinella marina*)
- common myna (*Acridotheres tristis*)
- cattle (*Bos sp.*)

It is anticipated that the non-native fauna located within the Power line Alignment are as equally present within the surrounding landscape. The overall impact of the Power line Alignment on such measures as the abundance, distribution and spread of introduced fauna is anticipated to be minimal.

4.6 Bushfire risk

Large portions of the Power line Alignment span across agricultural paddocks with a high abundance of *Cenchrus ciliaris* (buffel grass), which is known for being highly flammable (AuseMade, 2022). The risk of bushfire will be present during construction and continue throughout the life of the project, with the risk extending to vegetation and properties adjacent to the Power line Alignment. Accidental ignition sources include;

machinery/equipment malfunction, vehicle/machinery radiant heat, vehicle collision, hot works, incorrect disposal of cigarettes, power line wire malfunction. Strict mitigation and management measures will need to be followed throughout the lifetime of the project, with such measures discussed within Section 5.

4.7 Artificial lighting, noise and vibration

An increase of artificial lighting, noise and vibration is anticipated to be present during the construction phase of the Power line Alignment. Artificial lighting, noise and vibration can temporarily and/or permanently disrupt fauna activity (foraging, breeding, roosting) within the vicinity. It is anticipated that some fauna species/individuals will adapt, continuing their activities as per usual, whilst others will avoid the area. Noise and vibrations are known impose an overall negative impact upon fauna with potential impacts including; ear trauma, raised hormone levels, elevated stress levels and forced acoustic adjustment (Dawe and Goosem, 2008). The overall impact of artificial lighting, noise and vibration as a result of the Power line Alignment are anticipated to be minimal.

4.8 Dust

Dust present on the upper and lower surfaces of leaves is known to result in decreased ability of plants to photosynthesis, in turn affecting their growth rate and general health (Thompson, et al., 1984). The negative effects of increased dust deposition on vegetation within the surrounding landscape is not limited to native vegetation. Large portions of the surrounding landscape is comprised of pasture grasses, with their health, condition vital to their function as livestock feed. The overall impact of dust as a result of the Power line Alignment are anticipated to be minimal, provided mitigation and management measures are followed, with such measures discussed within Section 5.

5 Impact avoidance and mitigation measures

The 'avoid, mitigate, offset' approach described within the Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy (DSEWPC, 2012) requires impacts on environmental matters be avoided in the first instance. If avoidance cannot be reasonably achieved, applicants are required to demonstrate that residual impacts have been mitigated. Where significant residual impacts remain following implementation of mitigation measures, these impacts will require offsetting, which is further detailed in Section 5. This section describes possible measures to avoid and/or mitigate impacts on terrestrial ecology within the Power line Alignment.

5.1 Impact avoidance measures

The nature of the project will require the permanent removal of vegetation where Power line pads and access tracks are placed. Woody vegetation beneath the Power line easement itself will be removed, with the easement subject to slashing throughout the lifetime of the Power line. The placement of the Power line Alignment was not fixed, with the ability to altered – subject to such restraints as financial and engineering.

Following consultation with Ausecology, the Power line Alignment has been adjusted, to avoid MNES as best as practicable. Furthermore, in comparison to the original alignment, the final Power line Alignment stub lines width have been reduced from 50 m to 30 m, reducing the overall impact footprint from 98.5 ha to 83.45 ha, a reduction of 15.05 ha.

This reduction in impact footprint and realignment to avoid MNES as best as practicable, have resulted in the reduction of impact for all impacted MNES fauna and TEC matters (Table 5-1 and Table 5-2).

Table 5-1 Fauna habitat impact areas (ha) comparison – original verse final Power line Alignment

Habitat Category	greater glider		koala		ornamental snake		squatter pigeon	
	Original	Final	Original	Final	Original	Final	Original	Final
Not Suitable	90.03	77.04	79.48	65.88	97.91	83.26	74.22	60.68
Marginal	-	-	9.62	10.40	0.18	0.19	3.05	2.94
Suitable	2.07	0.42	0.45	0.45	-	-	7	6.39
Preferred	6.39	6	8.78	6.72	0.23	-	14.05	13.45
Total habitat Impacted (ha)	8.47	6.42	18.84	17.57	0.41	0.19	24.11	22.77
Total habitat area difference (ha)	-2.05		-1.27		-0.22		-1.34	

Table 5-2 TEC impact areas (ha) comparison – original versus final Power line Alignment

TEC condition	Brigalow (Acacia harpophylla dominant and co-dominant)		Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin	
	Original	Final	Original	Final
Good	0.22	0.01	0.72	0.44
Best			2.3	2.11
Total Impacted (ha)	0.22	0.01	3.02	2.55
Total area avoided (ha)	-0.21		-0.47	

5.2 Impact mitigation measures

Impact mitigation measures proposed to be implemented for MNES are detailed in Table 5-3.

Table 5-3 Potential impacts and mitigation measures

Potential Impact	Recommended Mitigation Measure
Vegetation and habitat clearing	▪ Development of rehabilitation program(s) ▪ Prior to disturbance, seed collection of native seed throughout Study Area for use in rehabilitation program ▪ Stockpiling, preservation and reinstating of local topsoil for rehabilitation ▪ Salvaging of hollow logs, hollow trees and other significant habitat features for use in rehabilitation ▪ Clear demarcation of vegetation that is not to be cleared ▪ Clearing advice to be sort from present licensed fauna spotter-catchers
Fauna mortality	▪ Development and implementation of low-risk species management plan(s) ▪ Development and implementation of high-risk species management plan(s) ▪ Development of and implementation of fauna information presentations, made compulsory to all personnel involved in vegetation clearing activities ▪ Licensed fauna spotter-catchers are allocated sufficient time to inspect areas immediately prior to clearing activities ▪ Presence of licensed fauna spotter-catchers during all clearing activities ▪ Site procedures in place for fauna requiring medical attention (vet and/or wildlife carer) ▪ Conducting clearing activities outside of breeding seasons, where practical
Hydrological changes	▪ Consultation with hydrological experts to minimise hydrological changes (including impact upon GDE). ▪ Sediment and erosion controls to be implemented as per management plan
Invasive flora and fauna	▪ Implementation of weed and pest management plans e.g.: o Weed hygiene washdowns conducted by suitably trained staff o Weed hygiene washdowns to be conducted prior to entry and exiting site – including movement between onsite areas of differing contamination levels. o Regular vehicle and machinery weed and seed compliance inspections o Regular surveys of the Power line Alignment identifying areas containing restricted matter (*Biosecurity Act 2014*).

Potential Impact	Recommended Mitigation Measure
	○ Restricted matter (*Biosecurity Act 2014*) within the impact area to be sufficiently treated prior to stripping and storage of topsoil, with topsoil contaminated by restricted matter to be stored separately.
Bushfire risk	▪ Safe fuel loads to be maintained within remaining vegetation ▪ Safe handling, use, storage, transport and disposal of all chemicals as per relevant Safety Data Sheets. ▪ Development of and Emergency Response Plans with consultation of emergency services ▪ Development and maintenance of site access tracks with consultation of emergency services ▪ Frequent machinery/vehicle/equipment maintenance to limit likelihood of equipment failure
Artificial lighting	▪ No installation or temporary use of lighting is proposed
Noise and vibration	▪ Frequent machinery maintenance to limit unnecessary noise and vibration ▪ Operation of equipment at speeds that minimise noise / vibrations
Dust	▪ Active dust suppression as required – watering of exposed surfaces and roadways ▪ Operation of equipment at speeds that minimise dust lift-off ▪ Active monitoring of wind direction and conditions

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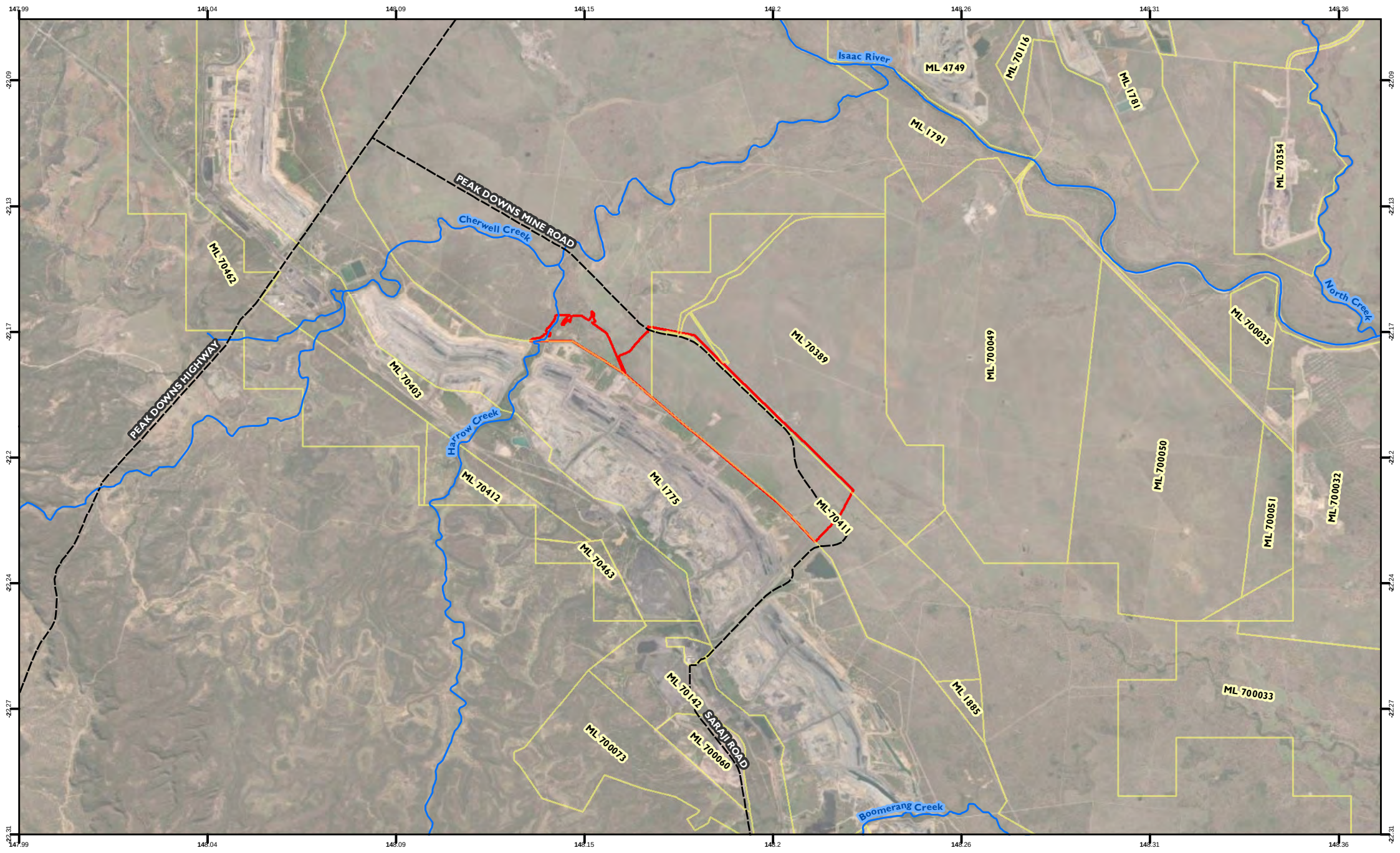
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Appendix A – Mapping

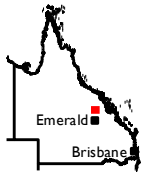


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APPENDIX A-1:

Study Area and Power line Alignment
MNES - Peak Down Mine

- Major Roads
- Major Watercourse
- Mining Lease
- Study Area



REVISION	AUTHOR	REVIEWER	DATE
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1	NC	LO	18/04/2024

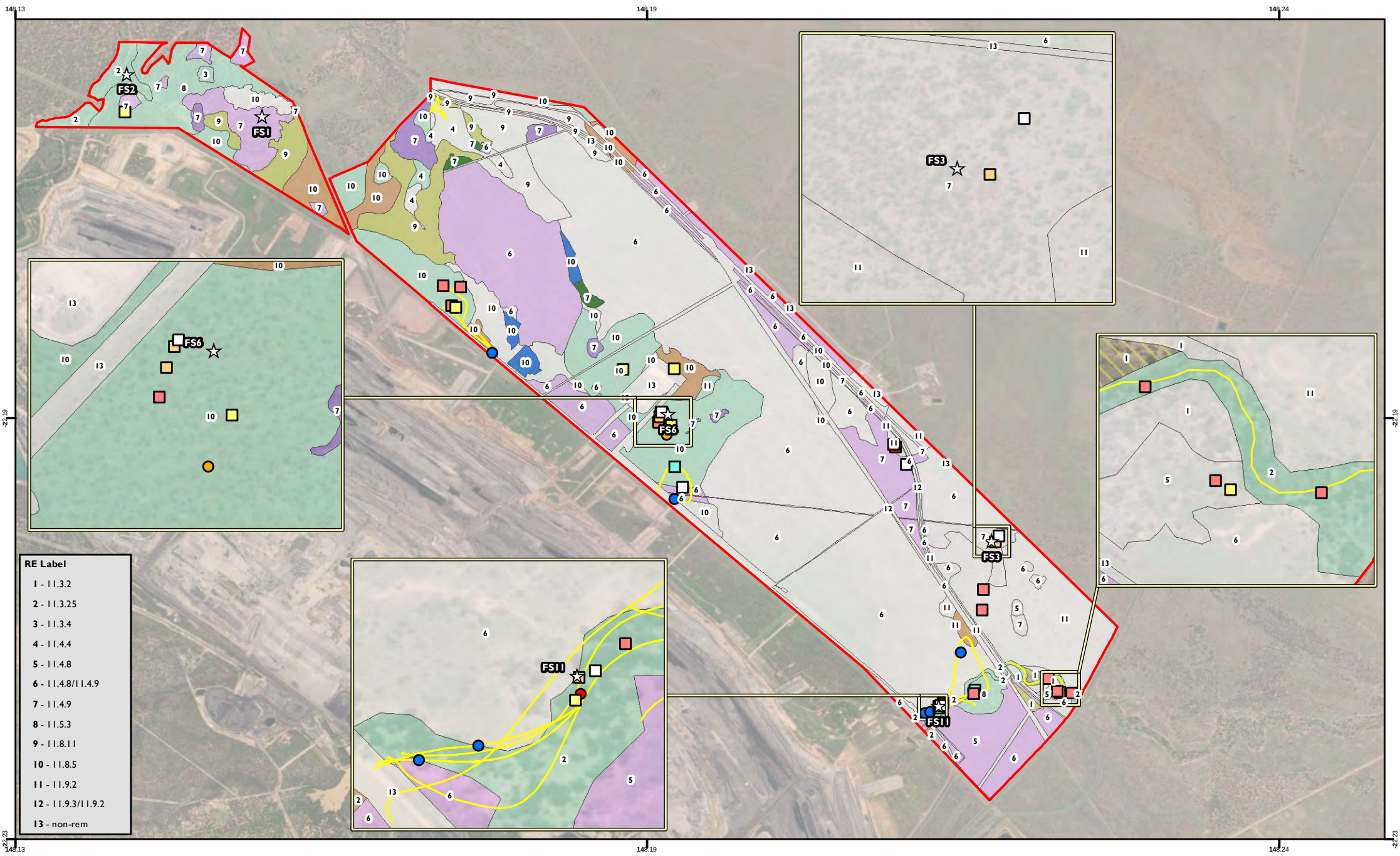
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SCALE: 1:150,000

N W E S

0 1 2 3

Kilometres



Ausecology

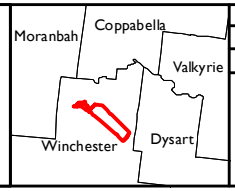
APPENDIX A-2:

Fauna Surveys
MNES - Peak Down Mine

Ausecology Fauna Survey Locations
Spotlight Tracks
Study Area

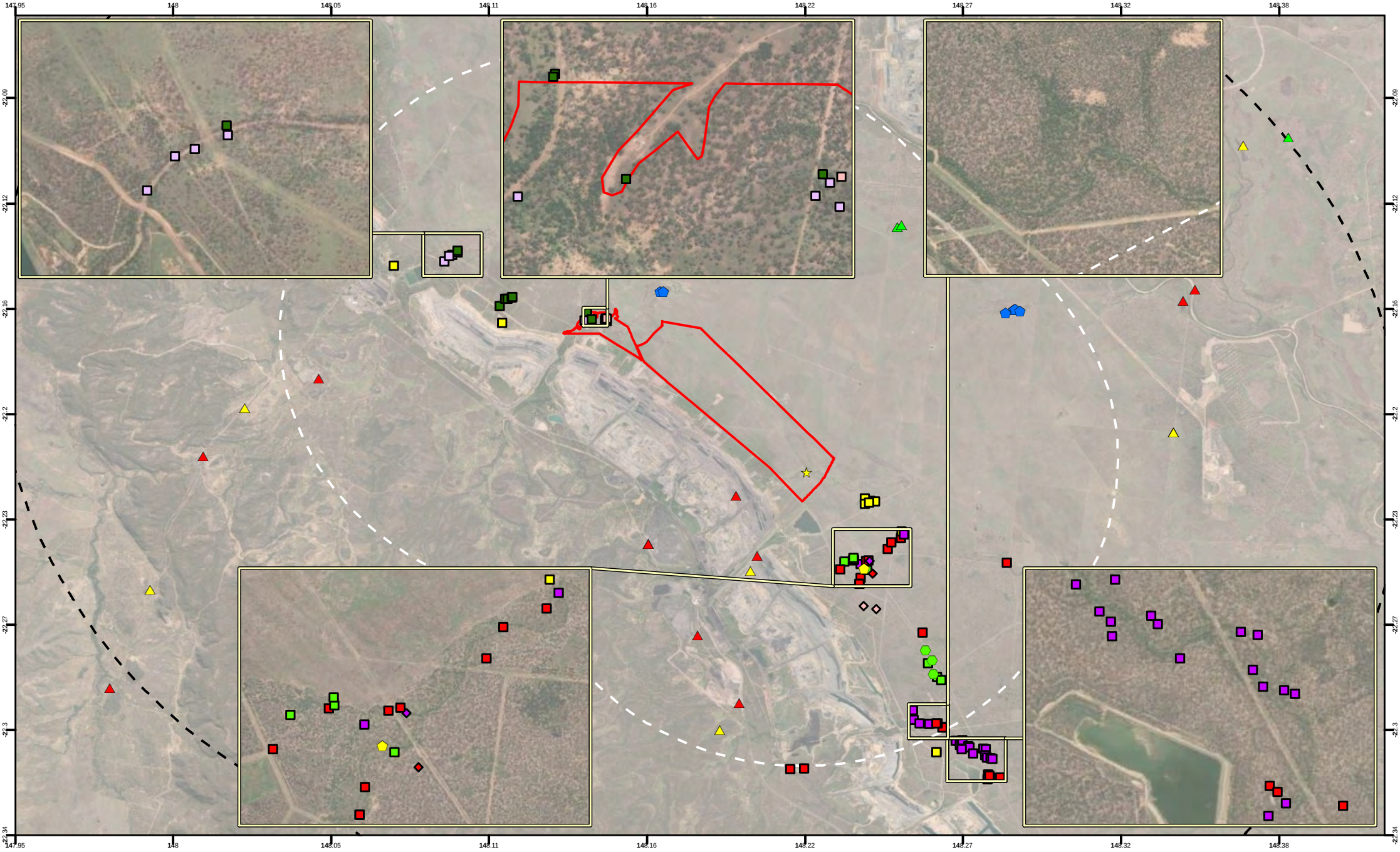
Survey Type
- Modified SAT
- Anabat
- Stationary Bird Survey
- Call Playback
- Camera
- Harptrap
- Herptofauna Searches
- Spotlight

GTRE (VM Status)
- Remnant - Endangered
- Remnant - Of Concern
- Remnant - Least Concern
- HVR - Endangered
- HVR - Least Concern
- Regrowth - Endangered
- Regrowth - Of Concern
- Regrowth - Least Concern
- Non Remnant



REVISION	AUTHOR	REVIEWER	DATE
0	JS	RR	10/08/2023
1	NC	LO	18/04/2024

COORDINATE SYSTEM: GCS GDA 1994
SCALE: 1:45,000
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Kilometres



Ausecology

APPENDIX A-3:

EVNT Records Overview
Study Area and Powerline Alignment
MNES - Peak Down Mine

AECOM
- Greater glider (E/E)
- Koala (E/E)
- Koala- Indirect evidence (scat or scratches) (E/E)

ALA
- Koala (E/E)
- Ornamental snake (V/V)
- Squatter pigeon (southern subspecies) (V/V)

Aurecon
- Squatter pigeon (southern subspecies) (V/V)

Ausecology (2019)
- Greater glider (E/E)
- Koala (E/E)
- Koala- Indirect evidence (scat or scratches) (E/E)

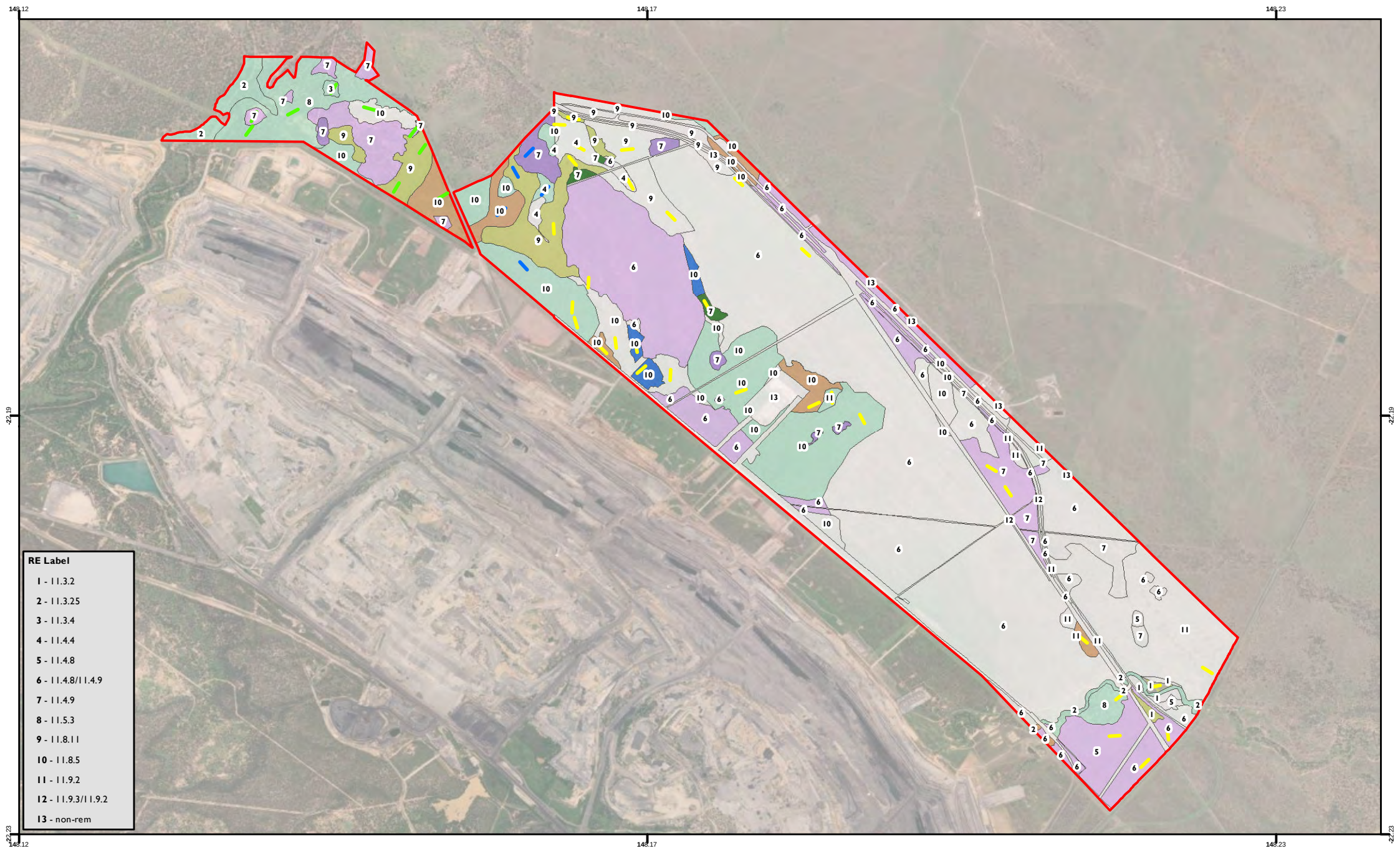
Ausecology (in prep)
- Greater glider (E/E)
- Koala (E/E)
- Ornamental snake (V/V)
- Squatter pigeon (southern subspecies) (V/V)

E2M (2021)
- Australian Painted-snipe (E/E)
- Squatter pigeon (southern subspecies) (V/V)

Wildnet
- Ornamental snake (V/V)

REVISION	AUTHOR	REVIEWER	DATE
0	JS	RR	10/08/2023
1	NC	LO	18/04/2024

COORDINATE SYSTEM: GCS GDA 1994
SCALE: 1:180,000
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Kilometres



Ausecology

APPENDIX A-4a:

Flora Survey: Bioconditions
Study Area and Powerline Alignment
MNES - Peak Down Mine

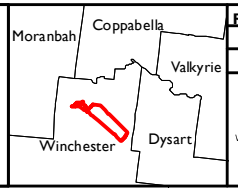
Study Area

Biocondition Surveys

- Ausecology (2022a)
- Ausecology (2023b)
- Ausecology (in prep)

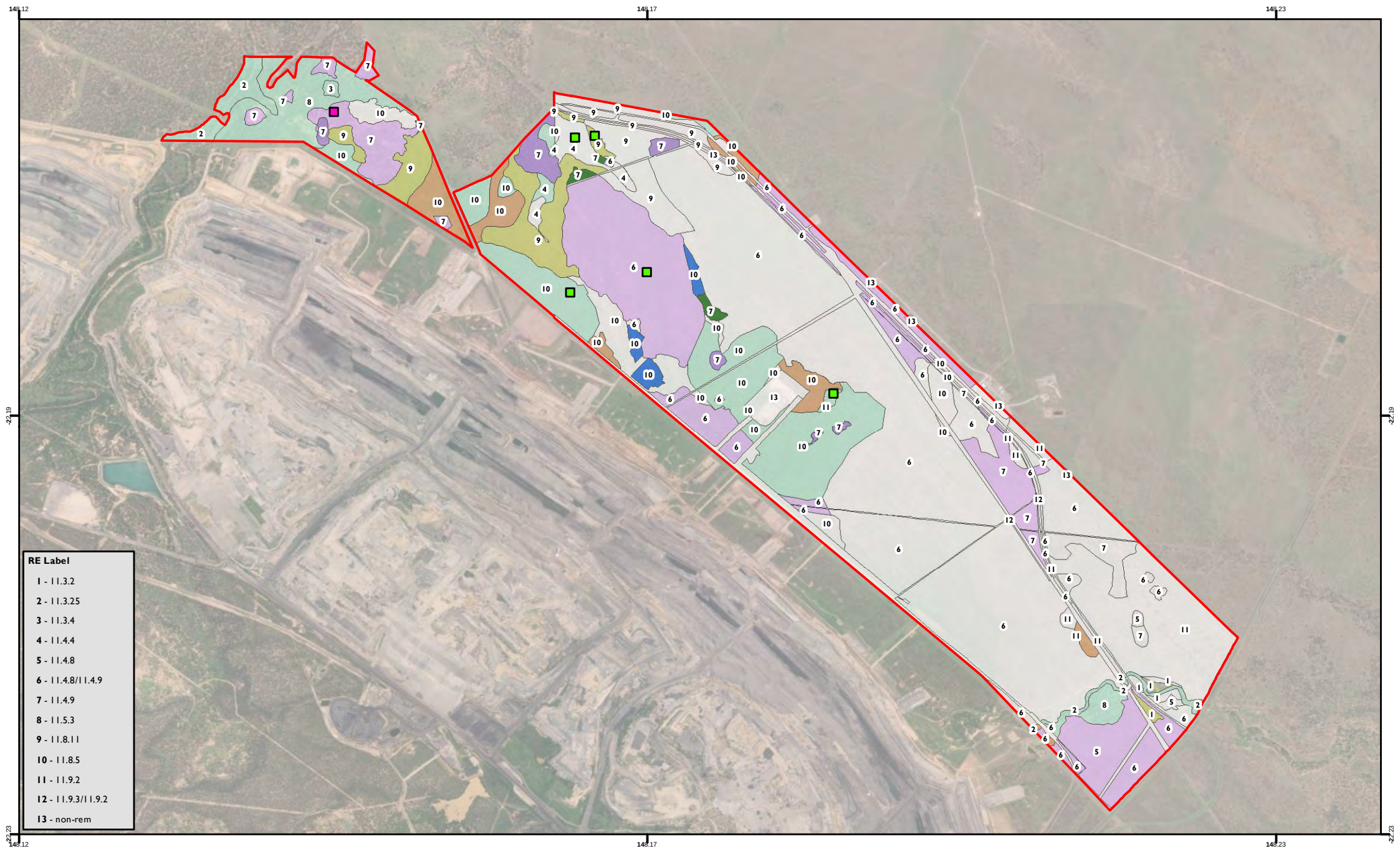
GTRE (VM Status)

- Remnant - Endangered
- Remnant - Of Concern
- Remnant - Least Concern
- HVR - Endangered
- HVR - Least Concern
- Regrowth - Endangered
- Regrowth - Of Concern
- Regrowth - Least Concern
- Non Remnant



REVISION	AUTHOR	REVIEWER	DATE
0	JS	RR	10/08/2023
1	NC	LO	18/04/2024

COORDINATE SYSTEM: GCS GDA 1994
SCALE: 1:45,000
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Kilometres



Ausecology

APPENDIX A-4b:

Flora Survey: Tertiary
Study Area and Powerline Alignment
MNES - Peak Down Mine

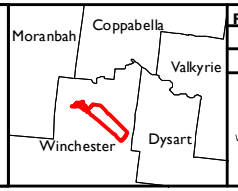
Study Area

Tertiary Surveys

- Ausecology 2019
- Ausecology In Prep

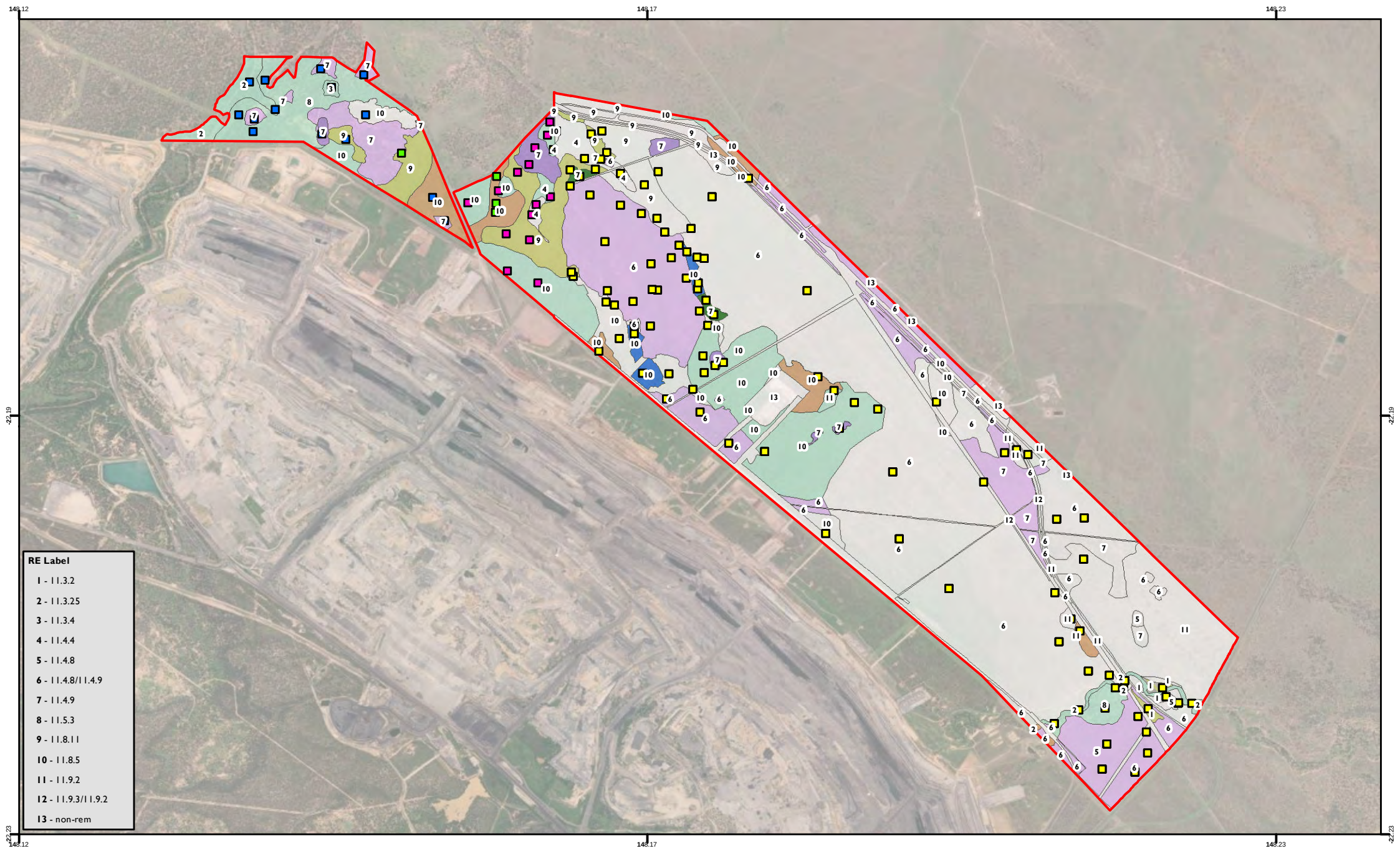
GTRE (VM Status)

- Remnant - Endangered
- Remnant - Of Concern
- Remnant - Least Concern
- HVR - Endangered
- HVR - Least Concern
- Regrowth - Endangered
- Regrowth - Of Concern
- Regrowth - Least Concern
- Non Remnant



REVISION	AUTHOR	REVIEWER	DATE
0	JS	RR	10/08/2023
1	NC	LO	18/04/2024

COORDINATE SYSTEM: GCS GDA 1994
SCALE: 1:45,000
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Kilometres



Ausecology

APPENDIX A-4c:

Flora Survey: Quaternary
Study Area and Powerline Alignment
MNES - Peak Down Mine

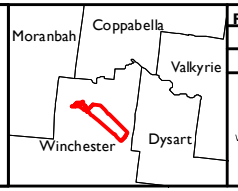
Study Area

Quaternary Surveys

- Ausecology (2019)
- Ausecology (2022a)
- Ausecology (2023b)
- Ausecology (in prep)

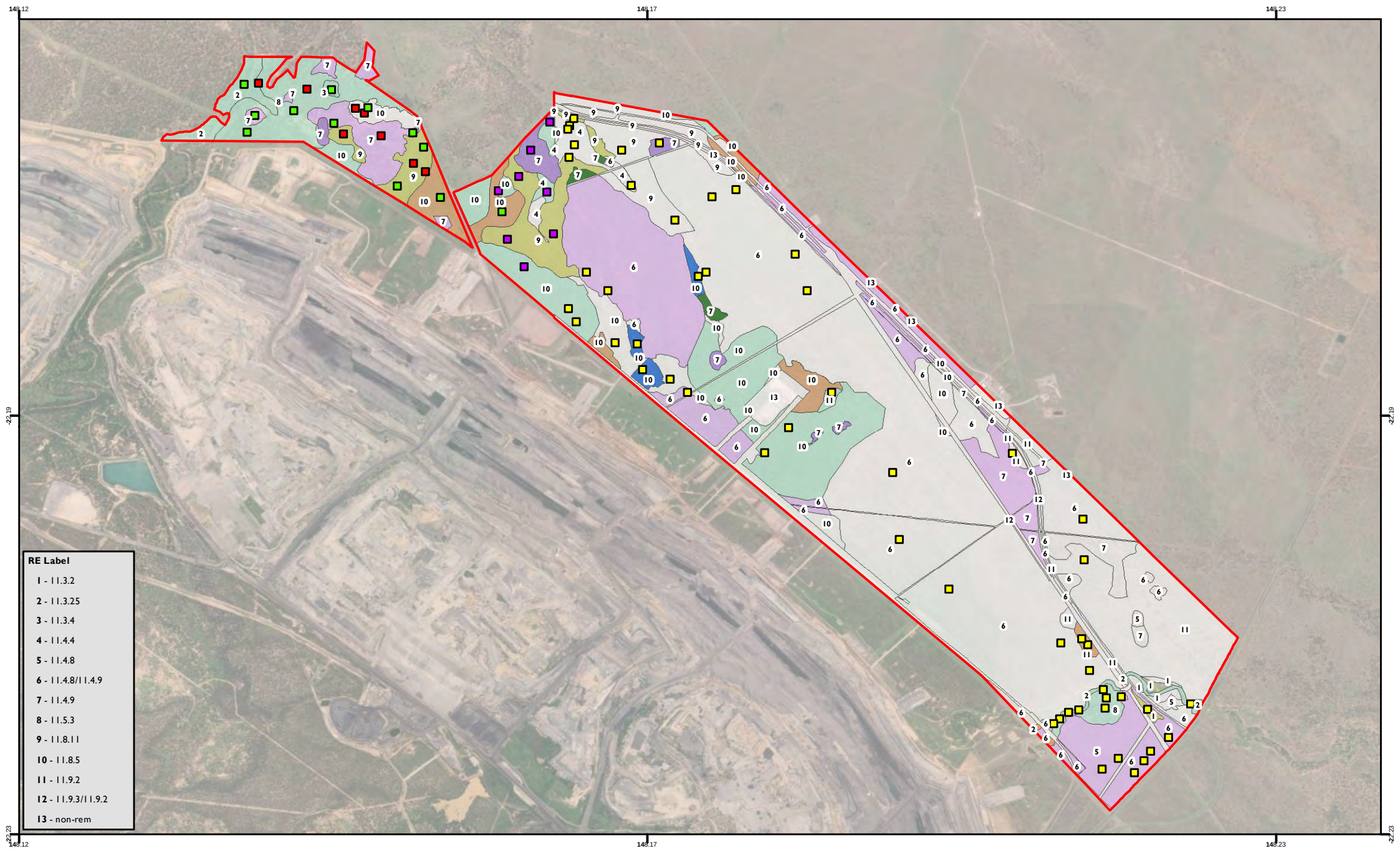
GTRE (VM Status)

- Remnant - Endangered
- Remnant - Of Concern
- Remnant - Least Concern
- HVR - Endangered
- HVR - Least Concern
- Regrowth - Endangered
- Regrowth - Of Concern
- Regrowth - Least Concern
- Non Remnant



REVISION	AUTHOR	REVIEWER	DATE
0	JS	RR	10/08/2023
1	NC	LO	18/04/2024

COORDINATE SYSTEM: GCS GDA 1994
SCALE: 1:45,000
N E S W
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Kilometres



Ausecology

APPENDIX A-4c:

Habitat Assessment Surveys
Study Area and Powerline Alignment
MNES - Peak Down Mine

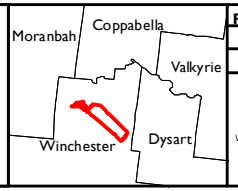
Study Area

Habitat Assessments

- Ausecology (2019)
- Ausecology (2022b)
- Ausecology (2023b)
- Ausecology (in prep)

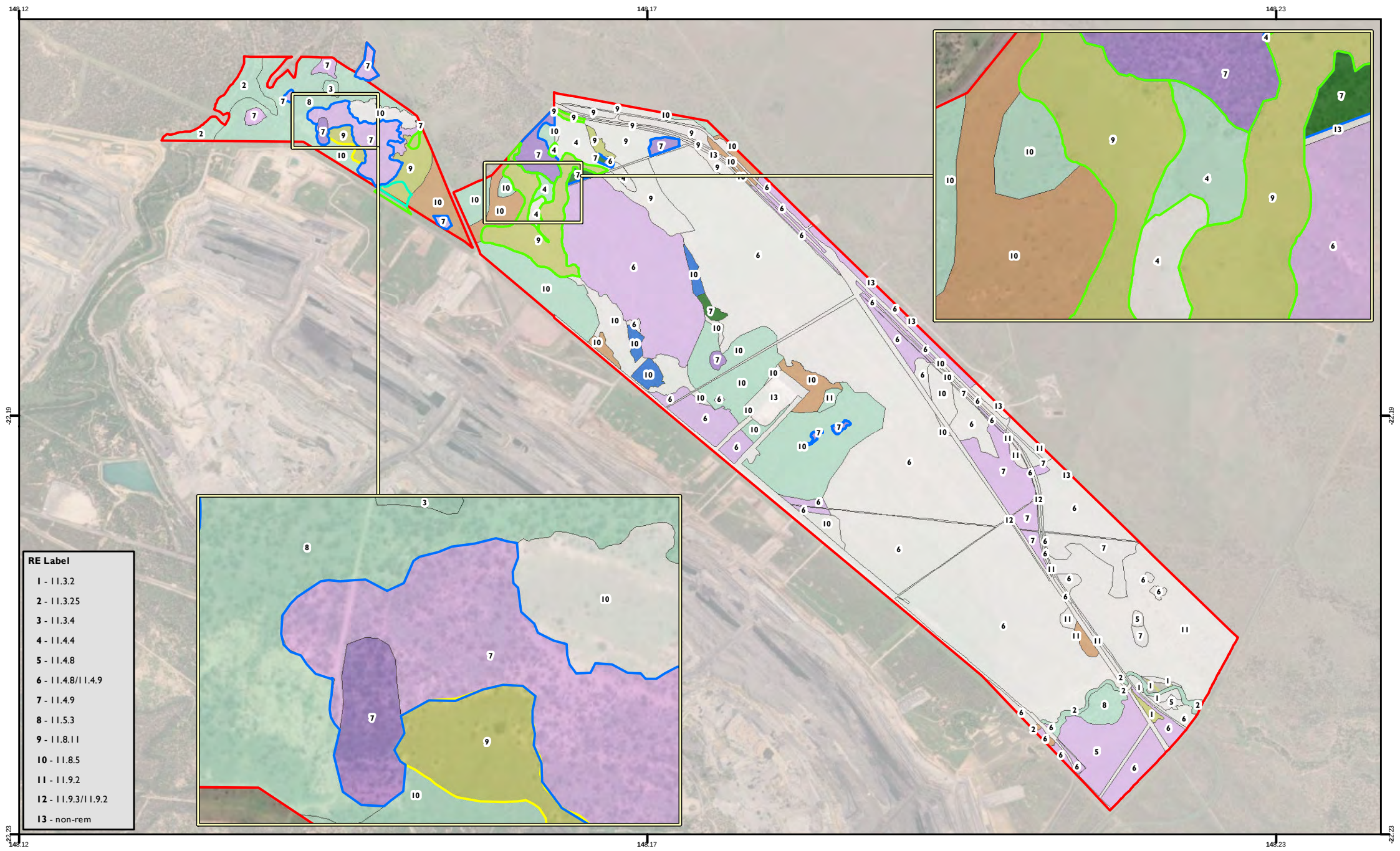
GTRE (VM Status)

- Remnant - Endangered
- Remnant - Of Concern
- Remnant - Least Concern
- HVR - Endangered
- HVR - Least Concern
- Regrowth - Endangered
- Regrowth - Of Concern
- Regrowth - Least Concern
- Non Remnant



REVISION	AUTHOR	REVIEWER	DATE
0	JS	RR	10/08/2023
1	NC	LO	18/04/2024

COORDINATE SYSTEM: GCS GDA 1994
SCALE: 1:45,000
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Kilometres



Ausecology

APPENDIX A-5:

GTRE and TEC
Study Area and Powerline Alignment
MNES - Peak Down Mine

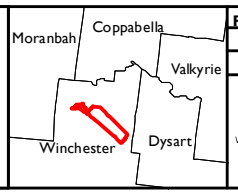
Study Area

Threatened Ecological Communities

- Brigalow (Acacia harpophylla dominant and co-dominant)
- Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin - Best
- Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin - Good
- Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin

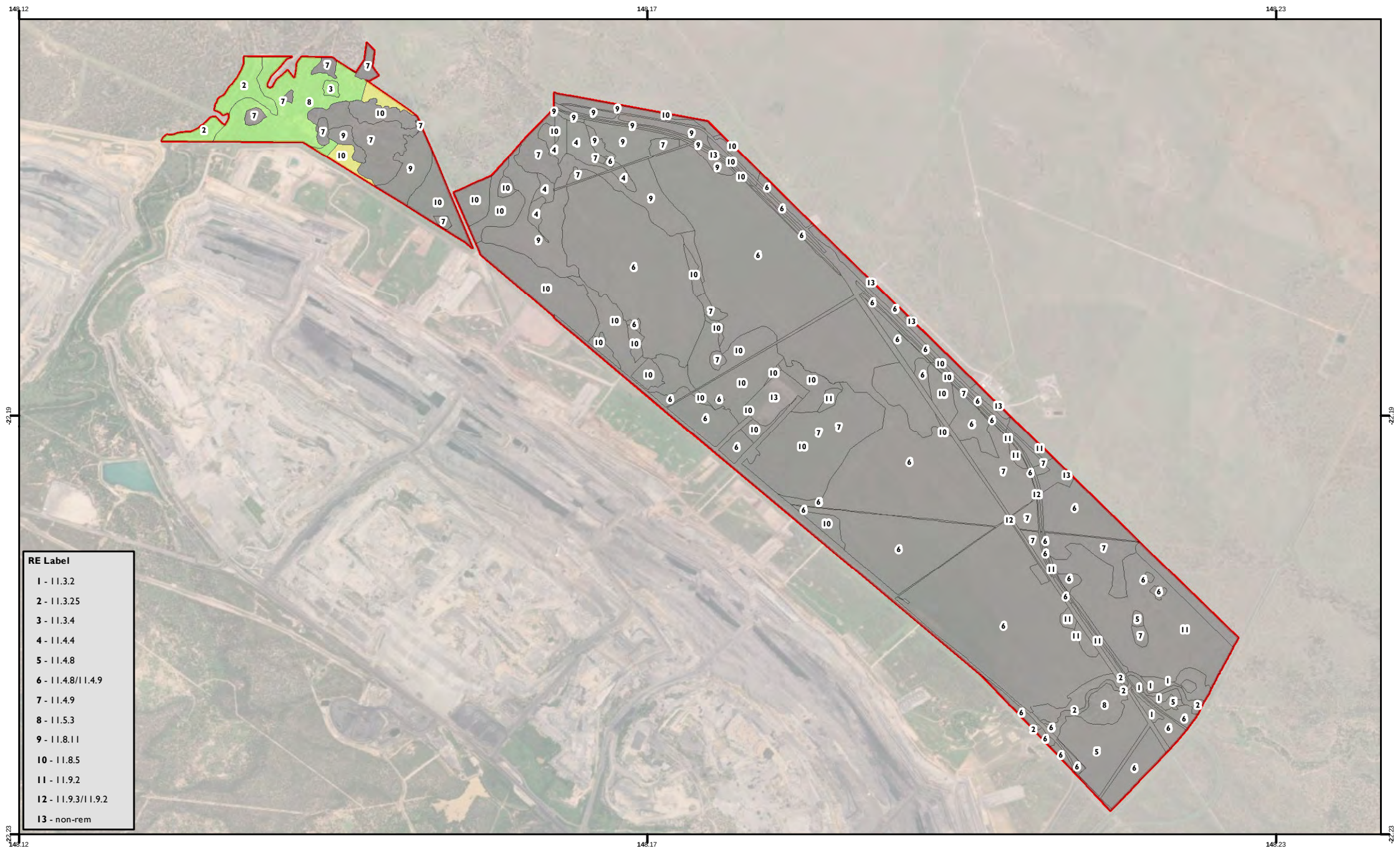
GTRE (VM Status)

- Remnant - Endangered
- Remnant - Of Concern
- Remnant - Least Concern
- HVR - Endangered
- HVR - Least Concern
- Regrowth - Endangered
- Regrowth - Of Concern
- Regrowth - Least Concern
- Non Remnant



REVISION	AUTHOR	REVIEWER	DATE
0	JS	RR	10/08/2023
1	NC	LO	18/04/2024

COORDINATE SYSTEM: GCS GDA 1994
SCALE: 1:45,000
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Kilometres



Ausecology

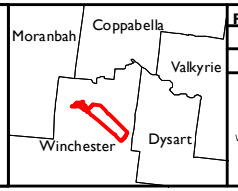
APPENDIX A-6:

Greater Glider
Study Area and Powerline Alignment
MNES - Peak Down Mine

Study Area

Greater Glider Habitat

Preferred
Suitable
Not Suitable



REVISION	AUTHOR	REVIEWER	DATE
0	JS	RR	10/08/2023
1	NC	LO	18/04/2024

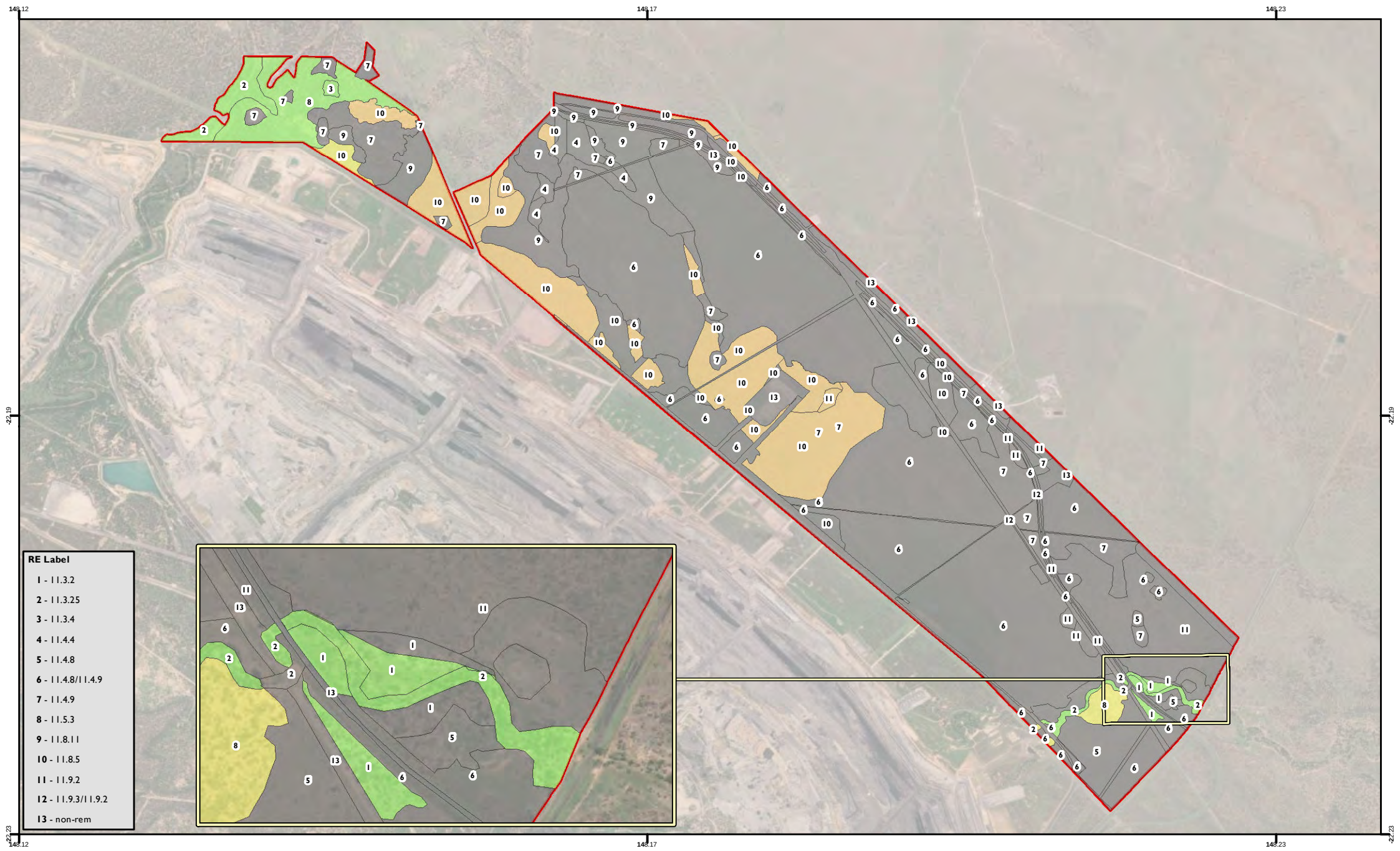
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0 0.5 1

Kilometres



Ausecology

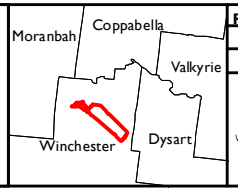
APPENDIX A-7:

Koala Habitat
Study Area and Powerline Alignment
MNES - Peak Down Mine

Study Area

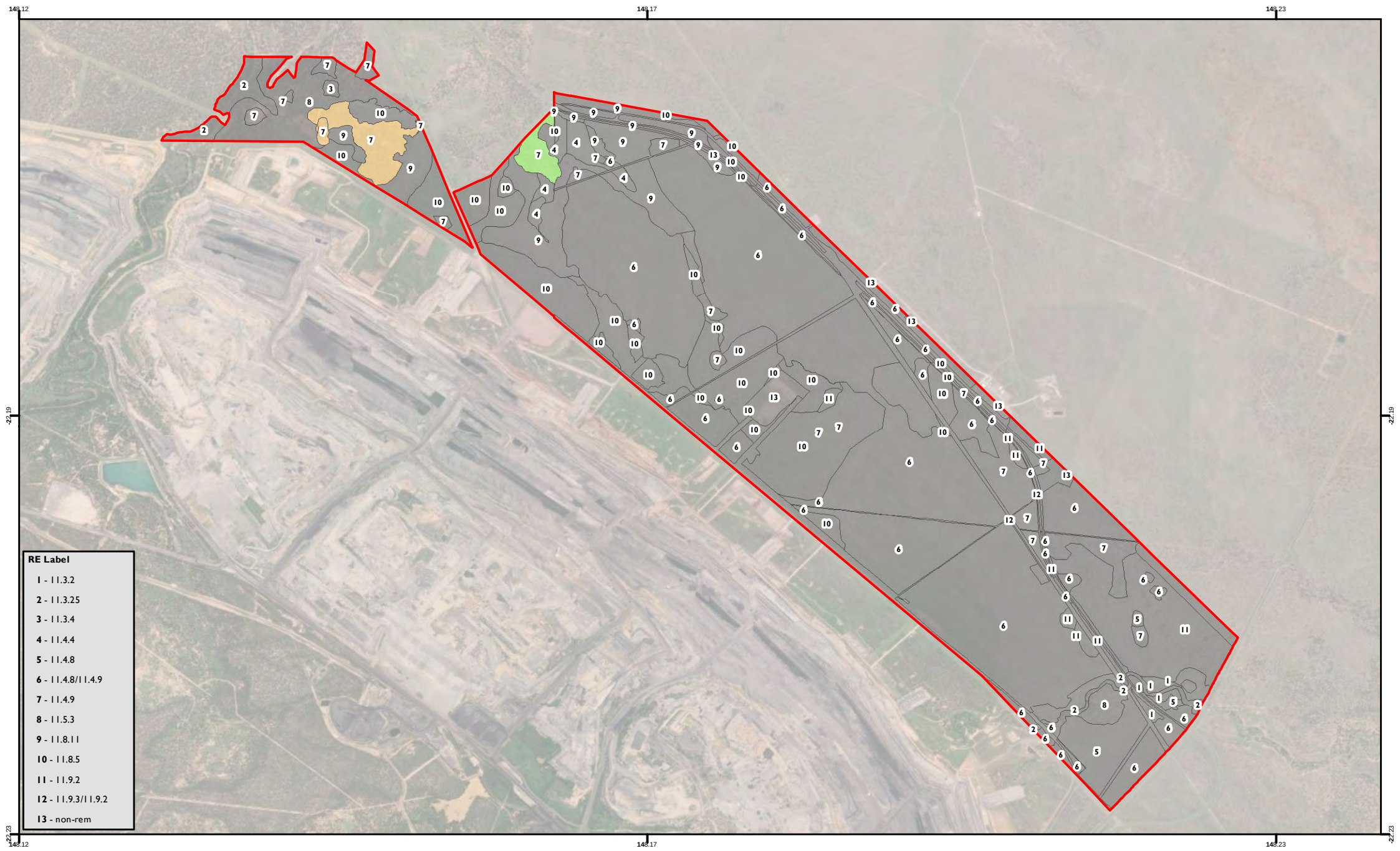
Koala Habitat

- Preferred
- Suitable
- Marginal
- Not Suitable



REVISION	AUTHOR	REVIEWER	DATE
0	JS	RR	10/08/2023
1	NC	LO	18/04/2024

COORDINATE SYSTEM: GCS GDA 1994
SCALE: 1:45,000
N W E S
0 0.5 1
Kilometres



Ausecology

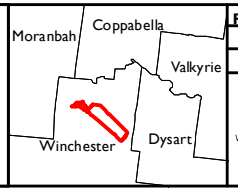
APPENDIX A-8:

Ornamental Snake Habitat
Study Area and Powerline Alignment
MNES - Peak Down Mine

Study Area

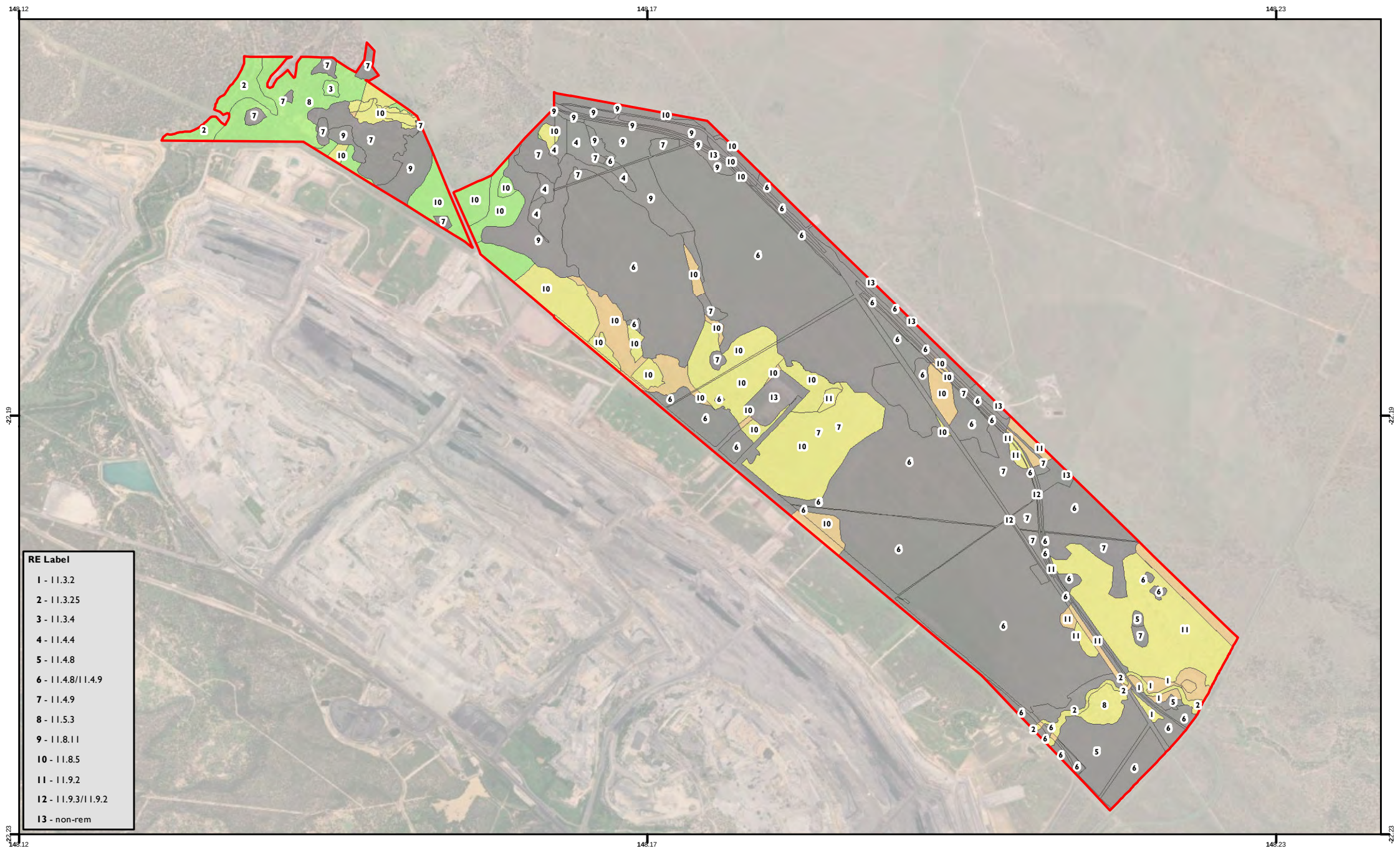
Ornamental Snake Habitat

- Preferred
- Suitable
- Marginal
- Not Suitable



REVISION	AUTHOR	REVIEWER	DATE
0	JS	RR	10/08/2023
1	NC	LO	18/04/2024

COORDINATE SYSTEM: GCS GDA 1994
SCALE: 1:45,000
N W E S
0 0.5 1
Kilometres



Ausecology

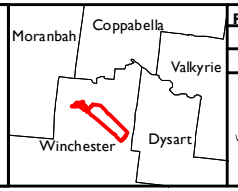
APPENDIX A-9:

Squatter Pigeon Habitat
Study Area and Powerline Alignment
MNES - Peak Down Mine

Study Area

Squatter Pigeon Habitat

- Preferred
- Suitable
- Marginal
- Not Suitable



REVISION	AUTHOR	REVIEWER	DATE
0	JS	RR	10/08/2023
1	NC	LO	18/04/2024

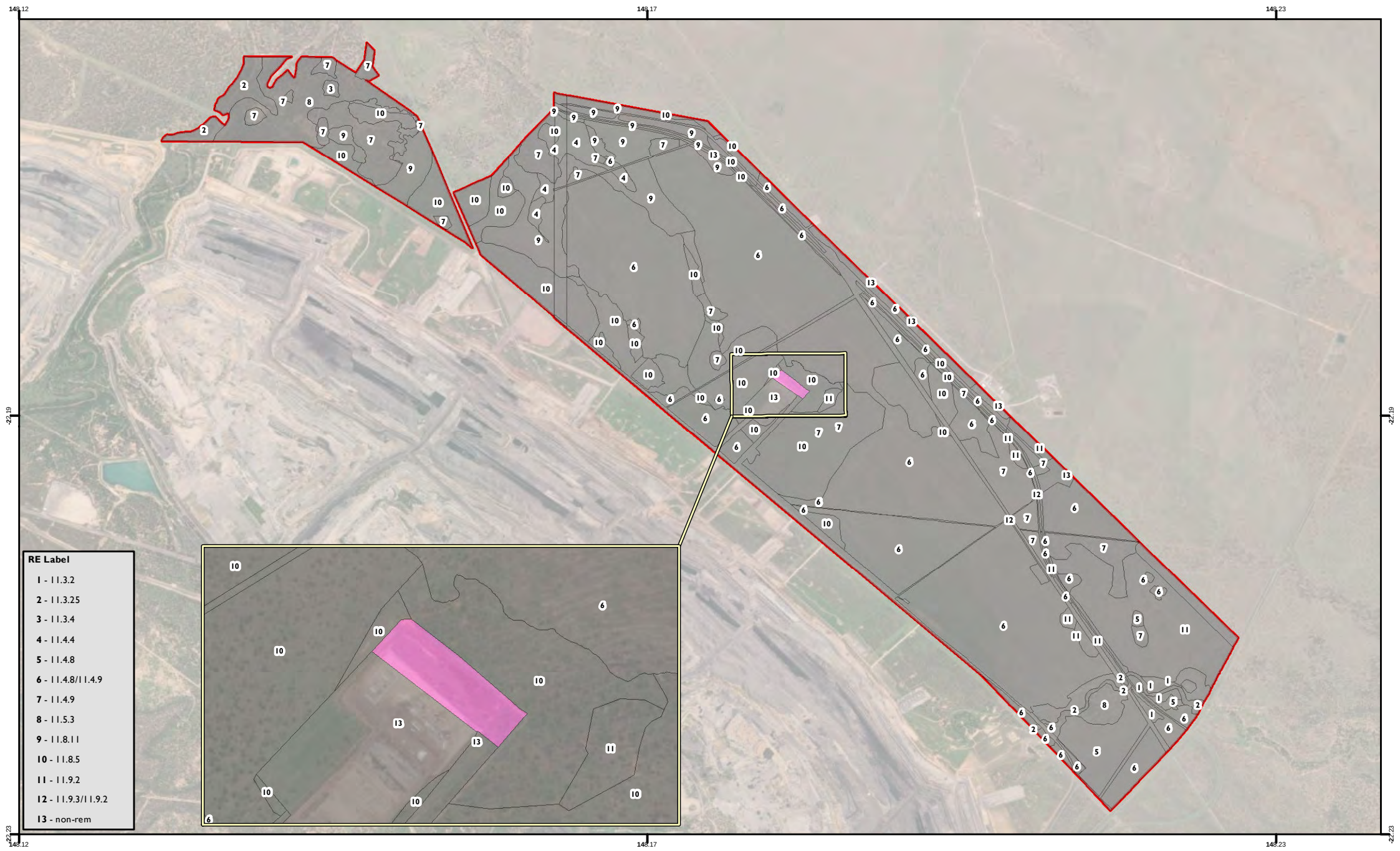
COORDINATE SYSTEM: GCS GDA 1994

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N W E S

0 0.5 1

Kilometres



Ausecology

APPENDIX A-10:

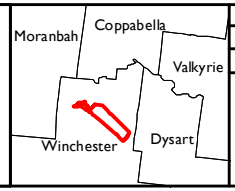
Painted Snipe Habitat
Study Area and Powerline Alignment
MNES - Peak Down Mine

Study Area

Painted Snipe Habitat

Intermittent foraging area

Not Suitable



REVISION	AUTHOR	REVIEWER	DATE
0	JS	RR	10/08/2023
1	NC	LO	18/04/2024

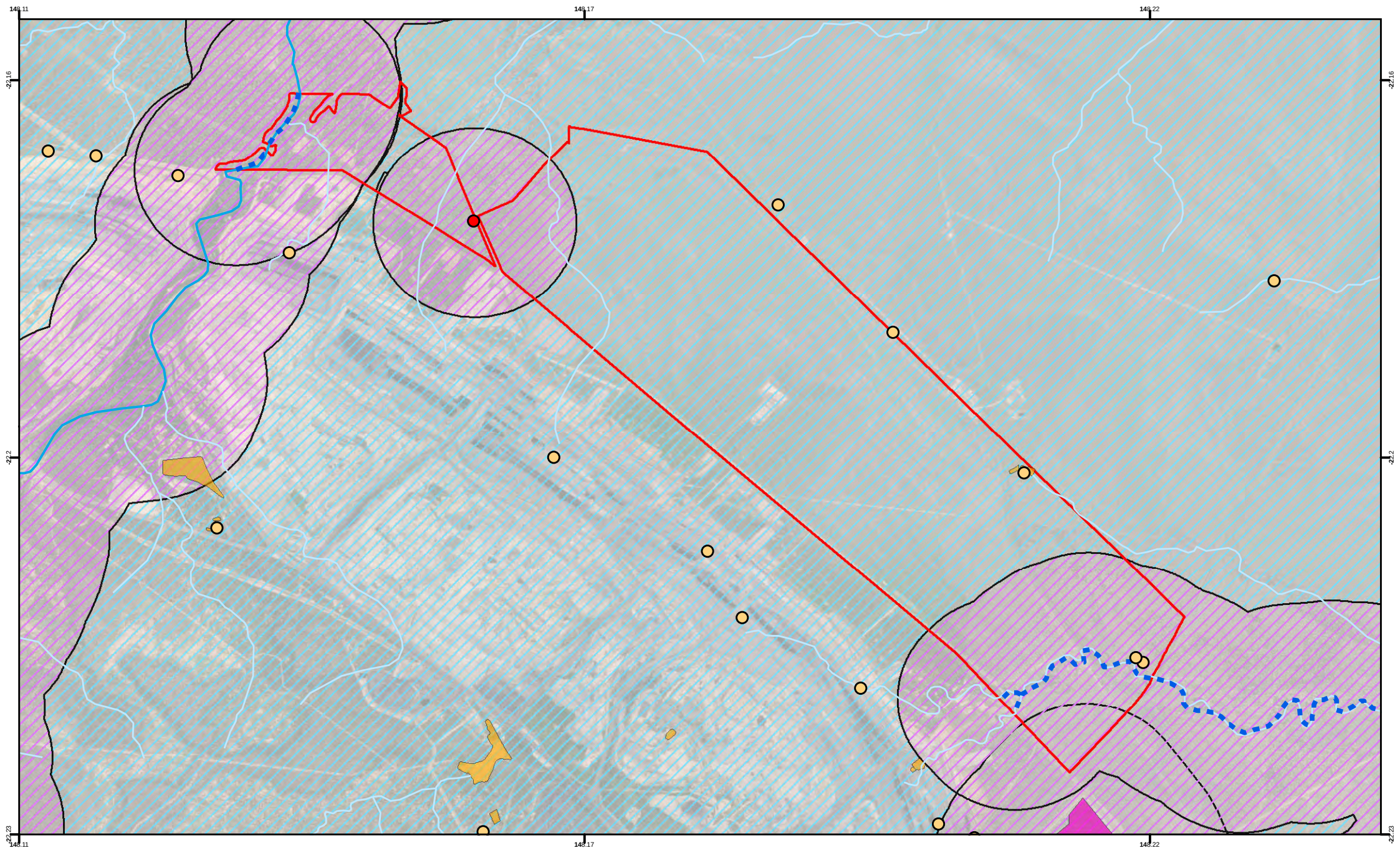
COORDINATE SYSTEM: GCS GDA 1994

SCALE: 1:45,000

N W E S

0 0.5 1

Kilometres



Ausecology

APPENDIX A-11:

Squatter Pigeon Water Sources
Study Area and Powerline Alignment
MNES - Peak Down Mine

- Water Reservoirs
- Water Trough
- RE 11.3.25 Creek Centerline
- Study Area

Vegetation Management Watercourse and Drainage Map

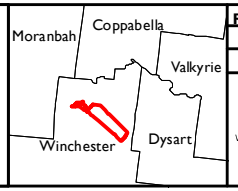
- >=3 Stream Order
- <3 Stream Order

Water Areas

- Mine Dam
- Water Reservoirs

Squatter Pigeon - Watercourse Buffers

- Ephemeral Waterbody
- Permanent Waterbody



REVISION	AUTHOR	REVIEWER	DATE
0	JS	RR	10/08/2023
1	NC	LO	18/04/2024

COORDINATE SYSTEM: GCS GDA 1994
SCALE: 1:50,000
N W E S
0 0.5 1
Kilometres

Appendix B – Likelihood of Occurrence

Table 6-1 Likelihood of Occurrence for MNES within the Study Area

Scientific name	Common name	NC Act	EPBC Act	Preferred Habitat	Desktop analysis		Post field survey			PMST (20km)	ALA (50km)	Wildlife Online			Detection within Study Area of previous survey efforts							
					Likelihood	Rationale	Detection	Likelihood	Rationale			10km	20km	50km	Ausecology in prep	AECOM 2020	AURECON 2013	ELA 2020	Ausecology 2019	ELA 2016	ERM 2021	FEC 2009
Aves																						
Calidris ferruginea	curlew sandpiper	E	CE, Ma/Mi	Summer migrant. Primarily coastal wetlands, estuaries, sandy or muddy intertidal flats, brackish lagoons, and less often they use saltmarshes, rocky shores, exposed coral (Garnet and Baker, 2021) and Van Gils et al., 2020).	Unlikely	Species habitat may occur within the Study Area (DEE, 2021). Outside species known distribution. No confirmed species records within 50km of the Study Area.	Not detected	Unlikely	Outside species known distribution, low quality habitat occurs and no confirmed species records within 50km of the Study Area.	May	-	-	-	-	-	-	-	-	-	-	-	-
Erythrotriorchis radiatus	red goshawk	E	V	Primarily in coastal and subcoastal woodland and tall open forest (including Eucalyptus), and tropica savannas often associated with wooded riparian zones, and along edges of rainforests, usually on fertile soils (Garnett and Baker, 2021). The species generally avoids very densely vegetated or very open habitats, but will hunt along ecotones between such habitats and woodlands or forests (Debus et al., 2020b). Nesting habitat consists of tall stands of trees. All identified nest trees have been within 1 km of permanent water, often adjacent to rivers or clearings, and usually the tallest (mean height = 31 m) and most massive trees (Aumann and Baker-Gabb, 1991; Czechura, 2001).	Unlikely	Species habitat likely to occur within the Study Area (DEE, 2021), but Study Area away from coast. No confirmed species records within 50km of the Study Area.	Not detected	Unlikely	Suitable habitat present, mainly along creek lines. No confirmed species records within 50km of the Study Area.	Likely	-	-	-	-	-	-	-	-	-	-	-	-
Falco hypoleucos	grey falcon	V	V	Typically confined to the arid and semi-arid zone of Australia west or north of the Great Dividing Range (Garnett and Baker, 2021). Timbered lowland plains, particularly acacia shrublands crossed by tree-lined watercourses; found also in other grassland and woodland habitats. The species nests in riparian woodland in the arid zone (Debus, Kirwan & Christie, 2020a).	Unlikely	Species habitat likely to occur within the Study Area (DEE, 2021). No confirmed species records within 50km of the Study Area.	Not detected	Unlikely	Suitable habitat present, mainly along creek lines. No confirmed species records within 50km of the Study Area.	Likely	-	-	-	-	-	-	-	-	-	-	-	-
Geophaps scripta scripta	squatter pigeon (southern)	V	V	Mostly found in dry grassy eucalypt woodlands, open-forests and scrub. It typically forages along roads, rail lines, homesteads, cattle yards and other highly modified surfaces. Often found near permanent water such as rivers, creeks and waterholes, with open and short grass cover. Less commonly found on heavy soils with dense grass. More common in ungrazed land (Curtis et al. 2012; Higgins & Davies, 1996; Garnett & Crowley, 2000).	Known	Species known to occur onsite (ERM, 2021; Aurecon, 2013).	Detected	Known	Identified within Study Area	Known	✓	✓	✓	✓	✓	-	✓	-	-	-	✓	-
Grantiella picta	painted honeyeater	V	V	Strongly associated with the presence of mistletoes (e.g. Amyema spp.) (Higgins et al. 2020). Mostly occurring in box-ironbark eucalypt woodlands and forests on inland foothills of the Great Diving Range; box eucalypt-casuarina woodlands dominated by yellow gum (*E. leucoxylon*) and buloke (Allocasuarina luehmannii) or belah (*Casuarina cristata*); riparian forests of river sheoak (*Casuarina cunninghamiana*); and scattered eucalypts scattered eucalypts or remnant patches of woodland . Occasionally found in patches of *Acacia sp., Callitris spp., E. camaldulensis, E. largiflorens*, mallee woodland and Melaleuca associations with mistletoe.	Unlikely	Species habitat may occur within Study Area (DEE, 2022).	Not detected	Unlikely	Food sources (mistletoes) scarce in the Study Area. No records of species occurring in area.	May	-	-	-	-	-	-	-	-	-	-	-	-
Neochmia ruficauda ruficauda	star finch	E	E	Damp tall grass, sedges (Cyperaceae) and reed beds in swamps, sandflats, rice and sugar-cane fields, and watercourses. Also in open grassy sclerophyll woodland (Van Gils et al. 2020 and Payne, 2019).	Unlikely	Species habitat likely to occur within Study Area (DEE, 2022). However, no confirmed records within 50km of Study Area. The total population of the star finch (eastern) is estimated to consist of <=50 breeding birds, no sightings in the wild since 1995 (DEE, 2021).	Not detected	Unlikely	Species habitat likely to occur within Study Area (DEE, 2022). However, no confirmed records within 50km of Study Area. The total population of the star finch (eastern) is estimated to consist of <=50 breeding birds, no sightings in the wild since 1995 (DEE, 2021).	Likely	-	-	-	-	-	-	-	-	-	-	-	-
Poephila cincta cincta	southern black-throated finch	E	E	Grassy woodland dominated by Eucalypts, paperbarks or Acacias, where there is access to seeding grasses and water. Particularly in north Queensland during the wet season, the species likely needs a mosaic of different habitats in which to forage for seed (Mitchell, 1996).	Unlikely	Species habitat may occur within Study Area (DEE, 2021). However, no confirmed records within 50km of Study Area.	Not detected	Unlikely	Suitable habitat present, however, no confirmed records within 50km of Study Area.	May	-	-	-	-	-	-	-	-	-	-	-	-

Scientific name	Common name	NC Act	EPBC Act	Preferred Habitat	Desktop analysis		Post field survey			PMST (20km)	ALA (50km)	Wildlife Online			Detection within Study Area of previous survey efforts							
					Likelihood	Rationale	Detection	Likelihood	Rationale			10km	20km	50km	Ausecology in prep	AECOM 2020	AURECON 2013	ELA 2020	Ausecology 2019	ELA 2016	ERM 2021	FEC 2009
Rostratula australis	Australian painted snipe	E	E	Shallow freshwater (occasionally brackish) ephemeral and permanent wetlands, including lakes, swamps, pans, inundated or waterlogged grasslands or saltmarshes, dams, rice fields, sewage farms and bore drains with emergent grass, sedges, rushes or reeds, often with scattered Muehlenbeckia, canegrass or Melaleuca spp., and sometimes tree-lined (del Hoyo et al. 2020).	Likely	Species habitat may occur within Study Area (DEE, 2022). The species was not detected within the Study Area, however, the species has been recorded ~2 km north of the Study Area in 2013 by EcoSM (2013) as cited in E2M (2021). Notwithstanding, these records were observed in wetlands considered potential breeding and foraging habitat.	Not detected	Likely	Intermittent foraging habitat present within small, isolated patches of ephemeral wetland. Confirmed record ~2 km north of Study Area (E2M, 2021).	May	✓	-	-	-	-	-	-	-	-	-	-	-
Mammalia																						
Dasyurus hallucatus	northern quoll	C	E	Variety of habitats, including open dry sclerophyll forest and woodland, riparian woodland, low dry vine thicket, the margins of notophyll vineforest, mangroves, sugarcane farms and in urban areas. Most abundant in hilly or rocky areas close to permanent water. Shelter sites are also non-specific and include rocky outcrops, tree hollows, hollow logs, termite mounds, goanna burrows and human dwellings (Oakwood, 2002).	Unlikely	Species habitat likely to occur within Study Area (DEE, 2022). However, no records from within 50 km of the Study Area.	Not detected	Unlikely	Preferred habitat not present, only general habitat present within Study Area. No confirmed records within 50km of Study Area.	Likely	-	-	-	-	-	-	-	-	-	-	-	-
Lasiorhinus krefftii	northern hairy-nosed wombat	CR	CE	Occurs in semi-arid cattle grazing country with deep sandy soils which are required for burrow construction. Burrows are located close to trees where the roots can provide support in the soft, sandy soil and while crowns are able to provide shade (Horsup 1999). The species are found within (R.E) 11.3.7, 11.3.19, 11.3.39 (Horsup, 2004).	Unlikely	Species habitat not known to occur within Study Area. Single sighting ~45km to south of Study Area, dated 1930.	Not detected	Unlikely	General habitat present within survey area, though not specific REs.	-	-	-	-	✓	-	-	-	-	-	-	-	-
Macroderma gigas	ghost bat	E	V	Broad range of habitats, including spinifex hillsides, black soil grasslands, open savannah woodland, tall open forest and tropical rainforest. Ghost bats roost in caves and old mine tunnels (Churchill, 2008).	Unlikely	Species habitat likely to occur within Study Area (DEE, 2022). However, no records from within 50 km of the Study Area.	Not detected	Unlikely	No suitable roosting habitat identified. Suitable general foraging habitat present.	Likely	-	-	-	-	-	-	-	-	-	-	-	-
Nyctophilus corbeni	Corben's long-eared bat	V	V	Preference towards box, ironbark and cypress pine woodlands (Schulz and Lumsden, 2010). Areas of high stem density, particularly those containing dead trees (Law et al. 2016; Law et al. 2018).	Unlikely	Species habitat may occur within Study Area (DEE, 2022). Unknown Nyctophilus species was identified by previous survey efforts (AECOM 2020). Closest record too far from Study Area. Suitable habitat present.	Not detected	Unlikely	Suitable habitat present within the Study Area. However, no records from within 50 km of the Study Area. The northerly limit of *N. corbeni* estimated to be around the Blackdown Tableland National Park, ~180 km south of the Study Area, resulting in *N. Corbeni* being highly unlikely to occur north of the Tropic of Capricorn (pers comms Ford, 2023).	May	-	-	-	-	-	-	-	-	-	-	-	-
Petauroides volans	greater glider	E	E	Restricted to tall, expansive eucalyptus forests (Grzimek, 1990) with large, old living trees with hollows (Lindenmayer et al. 1993; Smith et al. 2007).	Likely	Species habitat known to occur within Study Area (DEE, 2022). Confirmed occurrences within 10km.	Detected	Known	Known to occur within the Study Area	Known	✓	✓	✓	✓	✓	✓	-	-	✓	-	-	-

Scientific name	Common name	NC Act	EPBC Act	Preferred Habitat	Desktop analysis		Post field survey			PMST (20km)	ALA (50km)	Wildlife Online			Detection within Study Area of previous survey efforts							
					Likelihood	Rationale	Detection	Likelihood	Rationale			10km	20km	50km	Ausecology in prep	AECOM 2020	AURECON 2013	ELA 2020	Ausecology 2019	ELA 2016	ERM 2021	FEC 2009
Phascolarctos cinereus	koala	E	E	Eucalypt dominated woodlands. Also known to occur in modified or regenerating native vegetation communities, as well as urban and rural landscapes where food trees or shelter trees may be highly scattered (Department of Agriculture, Water and the Environment, 2021).	Known	Species known to occur within Study Area (Ausecology, 2019; AECOM, 2020). Indirect evidence (scats and scratchings) identified throughout Study Area (Footprints, 2009). Species habitat known to occur throughout Study Area (DEE, 2022).	Detected	Known	Known to occur within the Study Area	Known	✓	✓	✓	✓	✓	✓	-	-	✓	-	-	✓
Pteropus poliocephalus	grey-headed flying-fox	V	V	The species requires habitat for both foraging and roosting. Primary food source - blossoming Eucalypt and related genera. Known to fly as far as 40 km to feed, before returning to their roost the same night (Eby, 1991).	Unlikely	Species habitat likely to occur within Study Area (DEE, 2022). However, no records from within 50 km of the Study Area.	Not detected	Unlikely	Species habitat present onsite, however, no records from within 50 km of the Study Area.	Likely	-	-	-	-	-	-	-	-	-	-	-	-
Actitis hypoleucos	common sandpiper	SL	Ma/Mi	Uncommon summer migrant. Coastal shores, estuaries, saltmarshes, inland wetlands, dams and tidal creeks. (Van Gils et al., 2019d).	Unlikely	Species habitat may occur within Study Area (DEE, 2022). Large dam located in close proximity, with ephemeral wetland areas potentially scattered throughout Study Area. However, no confirmed records within 50km of Study Area.	Not detected	Unlikely	Suitable habitat present within small isolated patches of ephemeral wetland, however, no confirmed records within 50km of Study Area.	May	-	-	-	-	-	-	-	-	-	-	-	-
Apus pacificus	fork-tailed swift	SL	Ma/Mi	Fork-tailed swifts are almost entirely aerial and occur over a vast range of habitats, ranging from inland plains to coastal areas over a wide range of vegetation communities and often seen flying above human habitation. In Australia, there is rare anecdotal evidence of them landing, but in general this is regarded extremely rare. (Chantler et al., 2019; DEE, 2019)	Known	Species identified flying over the Study Area (AECOM, 2020). Species habitat likely to occur within Surrounding Area (DEE, 2022).	Not detected	Known	Previously observed flying over Study Area (AECOM, 2020).	Likely	✓	-	-	-	-	✓	-	-	-	-	-	-
Calidris acuminata	sharp-tailed sandpiper	SL	Ma/Mi	Summer migrant. Wide variety of shallow coastal and inland wetlands (Van Gils et al., 2019c)	Likely	Species habitat known to occur within Study Area (DEE, 2022). Large dam located in close proximity, with ephemeral wetland areas potentially scattered throughout Study Area. Single confirmed record ~5km west, 2001.	Not detected	Potential	Suitable habitat present within small isolated patches of ephemeral wetland.	Known	✓	-	-	-	-	-	-	-	-	-	-	-
Calidris melanotos	pectoral sandpiper	SL	Ma/Mi	Summer migrant. Variety of coastal and inland wetlands (Van Gils et al., 2019e).	Unlikely	Species habitat may occur within Study Area (DEE, 2022). Large dam located directly adjacent to Study Area. However, no confirmed records within 50km of Study Area.	Not detected	Unlikely	Suitable habitat present within small isolated patches of ephemeral wetland.	May	-	-	-	-	-	-	-	-	-	-	-	-
Gallinago hardwickii	Latham's snipe	SL	Ma/Mi	Summer migrant. Inland and coastal permanent or ephemeral freshwater wetlands (Van Gils et al., 2019f).	Unlikely	Species habitat may occur within Study Area (DEE, 2022). Large dam located in close proximity, with ephemeral wetland areas potentially scattered throughout Study Area. However, no confirmed records within 50km of Study Area.	Not detected	Unlikely	Suitable habitat present within small isolated patches of ephemeral wetland, however, no confirmed records within 50km of Study Area.	May	-	-	-	-	-	-	-	-	-	-	-	-

Scientific name	Common name	NC Act	EPBC Act	Preferred Habitat	Desktop analysis		Post field survey			PMST (20km)	ALA (50km)	Wildlife Online			Detection within Study Area of previous survey efforts							
					Likelihood	Rationale	Detection	Likelihood	Rationale			10km	20km	50km	Ausecology in prep	AECOM 2020	AURECON 2013	ELA 2020	Ausecology 2019	ELA 2016	ERM 2021	FEC 2009
Hydroprogne caspia	Caspian tern	SL	Ma/Mi	Mostly found in sheltered, sandy or muddy, coastal embayments (harbours, lagoons, inlets, bays, estuaries and river deltas). Also found on inland wetlands, both natural and artificial (DEE, 2022)	Likely	Species detected ~500m south of Study Area by previous survey efforts (AECOM, 2020; Ausecology, in prep). Species detected within large dam immediately south of Study Area. Dam is not part of impact area, however, suitable habitat would become temporarily available within the Study Area after significant rainfall events.	Not detected	Likely	Dam in which species was detected is not part of the Study Area, however, suitable habitat would become temporarily available within the Study Area after significant rainfall events.	-	✓	-	-	-	✓	✓	-	-	-	-	-	-
Motacilla flava	yellow wagtail	SL	Ma/Mi	Occurs in a variety of damp or wet habitats with low vegetation, from damp meadows, marshes, waterside pastures, sewage farms and bogs. In Australia, records are mainly coastal (Tyler & Christie, 2019).	Unlikely	Species habitat may occur within Study Area (DEE, 2022). However, no confirmed records within 50km of Study Area	Not detected	Unlikely	Suitable habitat present within small isolated patches of ephemeral wetland, however, no confirmed records within 50km of Study Area.	May	-	-	-	-	-	-	-	-	-	-	-	-
Myiagra cyanoleuca	satin flycatcher	SL	Ma/Mi	Predominantly found in heavily vegetated areas, including wet sclerophyll forest and Eucalypt woodlands, preferring tall moist forests at high elevations, often near wetlands. (Gregory, 2020)	Unlikely	Species habitat may occur within Study Area (DEE, 2022). However, no confirmed records within 50km of Study Area	Not detected	Unlikely	Suitable habitat present, however, no confirmed records within 50km.	May	-	-	-	-	-	-	-	-	-	-	-	-
Pandion haliaetus	osprey	SL	Ma/Mi	Shallow fresh, brackish or marine waters with availability of fish close to the surface (Bierregaard *et al.,* 2020).	Unlikely	Species habitat likely to occur within Study Area (DEE, 2022). Creeks likely to not hold water long enough to provide sufficient food source. Large dam south of Study Area may be capable of providing sufficient food source, however, is outside of Study Area.	Not detected	Unlikely	Low quality species habitat occurs within Study Area and no confirmed records within 50km.	Likely	-	-	-	-	-	-	-	-	-	-	-	-
Rhipidura rufifrons	rufous fantail	SL	Ma/Mi	Prefers rainforests, wet sclerophyll forests, mangroves, swamp woodland, often in areas with shade (gullies) and often moving around close to the ground. May occur in more open habitat or urban situations during migration. (Boles and Christie, 2020).	Known	Species detected onsite by previous survey efforts (AECOM, 2020)	Detected	Known	Species detected onsite by previous survey efforts (AECOM, 2020)	-	✓	-	-	-	✓	✓	-	-	-	-	-	-
Tringa nebularia	common greenshank	SL	Ma/Mi	Found in a wide variety of inland wetlands and (sheltered) coastal habitats. Typically found in areas with mudflats, salt marshes, mangroves or seagrass, where it forages in the shallows or edges of wetlands or in soft mud on mudflats. (DEE, 2019; Van Gils et al., 2019b).	Unlikely	Species habitat may occur within Study Area (DEE, 2022).Single confirmed record located within ~5km, however, dates back to 1999. Downgraded to unlikely based off records and species habitat requirements.	Not detected	Unlikely	Low quality habitat present within small isolated patches of ephemeral wetland, however, no recent (<20 years) records within surrounding regions.	May	✓	-	-	-	-	-	-	-	-	-	-	-
Cuculus optatus	oriental cuckoo	C	Mi	Variety of habitats, from open woodland, mulga, scrub, including dry interior, spinifex, coastal saltmarsh. Generally in arid and semi-arid zones. (Payne and Bonan, 2020).	Unlikely	Species habitat may occur within Study Area (DEE, 2022). However, no confirmed records within 50km of Study Area.	Not detected	Unlikely	General species habitat located within Study Area. However, no confirmed records within 50km of Study Area.	May	-	-	-	-	-	-	-	-	-	-	-	-
Hirundapus caudacutus	*white-throated needletail*	V	V/Ma/MI	Almost exclusively aerial, from 1m to 1000m above ground. Recorded in dense tree cover and open clearings. Recorded in small numbers over woodland in Brisbane Forest Park, Australia (Chantler and Kirwan, 2020).	Likely	Species habitat may occur within Study Area. However, one record within 50km of the Study Area (ALA, 2021).	Not detected	Likely	Species habitat located within Study Area. Potential for species to utilise airspace above Study Area.	-	✓	-	-	-	-	-	-	-	-	-	-	-
Flora																						

Scientific name	Common name	NC Act	EPBC Act	Preferred Habitat	Desktop analysis		Post field survey			PMST (20km)	ALA (50km)	Wildlife Online			Detection within Study Area of previous survey efforts							
					Likelihood	Rationale	Detection	Likelihood	Rationale			10km	20km	50km	Ausecology in prep	AECOM 2020	AURECON 2013	ELA 2020	Ausecology 2019	ELA 2016	ERM 2021	FEC 2009
Aristida annua	-	V	V	Restricted to central Queensland in Emerald and Springsure districts. Found within eucalypt woodland, restricted to black clay soils and basalt soils. Associated with the 'Natural Grasslands of the Qld Central Highlands and Northern Fitzroy Basin' EPBC listed ecological community (DES, 2022; DEWHA, 2014).	Unlikely	Species habitat likely to occur within Study Area (DEE, 2022). Single confirmed record approximately 50km to south west of Study Area, 1999.	Not detected	Unlikely	General species habitat present on site, however, outside of restricted distribution. Single confirmed record approximately 50km to south west of Study Area, 1999.	Likely	✓	-	-	✓	-	-	-	-	-	-	-
Dichanthium queenslandicum	king blue-grass	V	E	Dichanthium queenslandicum is mostly confined to natural grassland on the heavy black clay soils (basalt downs, basalt cracking clay, open downs) on undulating plains (Simon, 1982; Fletcher, 2001).	Likely	Species habitat likely to occur within Study Area (DEE, 2022). Two records within 10km located , numerous within 50km. Associated Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin found by previous surveys to occur within Study Area (AECOM, 2020; Ausecology, in prep).	Not detected	Potential	Suitable habitat (natural grasslands) identified to occur within Study Area, however, area severely impacted by cattle grazing, reducing the likelihood of detection.	Likely	✓	✓	✓	✓	-	-	-	-	-	-	-	-
Dichanthium setosum	bluegrass	C	V	Dichanthium setosum prefers heavy basaltic black soil and stony red-brown hard-setting loam with a clay subsoil. The extent to which the species can tolerate disturbance is not known. However, it is commonly found in disturbed areas such as cleared woodland, roadside remnants, grazed land and highly disturbed pasture. It is also found on variously grazed pasture where the soil is nutrient-enriched and water-enriched (Ayers et al., 1996).	Unlikely	Species habitat may occur within Study Area (DEE, 2022). However, no records within 50km of the Study Area.	Not detected	Unlikely	Suitable habitat located within Study Area, however, no records within 50km of the Study Area.	Likely	-	-	-	-	-	-	-	-	-	-	-	-
Eucalyptus raveretiana	black ironbox	C	V	Wide distribution in coastal and sub-coastal Queensland, primarily along watercourses. Also found within river flats and open woodlands. Soils varying from sand through to heavy clay (DEWHA, 2008).	Unlikely	Species habitat likely to occur within Study Area (DEE, 2022). However no records within 50km of Study Area.	Not detected	Unlikely	Species habitat located within Study Area, however, no records within 50km of Study Area.	Likely	-	-	-	-	-	-	-	-	-	-	-	-
Samadera bidwillii	quassia	V	V	Occurs in or by waterways on the edges of lowland rainforest and less commonly in open forest and woodland environments (DoE, 2021).	Unlikely	Species habitat may occur within Study Area (DEE, 2022). However, no records within 50km of the Study Area.	Not detected	Unlikely	General species habitat identified within the Study Area, however, no records within 50km.	Likely	-	-	-	-	-	-	-	-	-	-	-	-
Reptilia																						
Denisonia maculata	ornamental snake	V	V	Preferred habitat of low-lying areas with cracking clay soils (Wilson and Swan 2013). within, or close to, habitat that is favoured by its prey – frogs. Often associated with gilgai and depressions. (DEE, 2019).	Likely	Species habitat known to occur within Study Area (DEE, 2022). Habitat identified to occur within the Study Area. Confirmed record ~3 km south of Study Area (Ausecology, in prep).	Detected	Likely	Habitat identified to occur within the Study Area. Confirmed record ~3 km south of Study Area (Ausecology, in prep).	Known	✓	✓	✓	✓	✓	-	-	-	-	-	-	-
Egernia rugosa	yakka skink	V	V	The species is known to occur in woodland, scrub and open dry sclerophyll forest Microhabitat consists of cavities under and between logs or tree stumps, root cavities, abandoned burrows (e.g. rabbit warrens) and under rocks. (DoE, 2021).	Unlikely	Species habitat may occur within Study Area (DEE, 2022). However, no records within 50km of the Study Area.	Not detected	Unlikely	Suitable habitat identified within Study Area, however, no records within 50km of the Study Area.	May	-	-	-	-	-	-	-	-	-	-	-	-
Elseya albagula	southern snapping turtle	E	CE	Flowing waters in Mary, Burnett, Fitzroy-Dawson and associated drainage systems. (Wilson and Swan, 2013).	Unlikely	Species habitat likely to occur within Study Area (DEE, 2022). However, no records withing 50km of Study Area. Only ephemeral creeks within Study Area, no flowing water.	Not detected	Unlikely	Species habitat not detected within Study Area, ephemeral creeks only.	Likely	-	-	-	-	-	-	-	-	-	-	-	-

Scientific name	Common name	NC Act	EPBC Act	Preferred Habitat	Desktop analysis		Post field survey			PMST (20km)	ALA (50km)	Wildlife Online			Detection within Study Area of previous survey efforts							
					Likelihood	Rationale	Detection	Likelihood	Rationale			10km	20km	50km	Ausecology in prep	AECOM 2020	AURECON 2013	ELA 2020	Ausecology 2019	ELA 2016	ERM 2021	FEC 2009
Furina dunmalli	Dunmall's snake	V	V	Favours brigalow (Acacia harpophylla) forest and woodland growing on floodplains of deep-cracking black clay and clay loam soils (DoE, 2014). Thought to seek shelter under fallen timber and in ground litter, and potentially may use cracks in alluvial clay soils (DSEWPAC, 2011).	Unlikely	Species habitat may occur within Study Area (DEE, 2022). However, no records withing 50km of Study Area.	Not detected	Unlikely	Species habitat identified within Study Area, however, no records withing 50km of Study Area.	May	-	-	-	-	-	-	-	-	-	-	-	-
Lerista allanae	Allan's lerista	E	E	Preferred habitat restricted to Capella, Clermont and Logan Downs Station area. Restricted to road verges and other small areas with friable soils, amid pastoral land dominated by heavy soils (Wilson and Swan, 2013).	Unlikely	Species habitat likely to occur within Study Area (DEE, 2022).	Not detected	Unlikely	Suitable habitat present within Survey area, however, no records within 50km of the Study Area.	Likely	-	-	-	-	-	-	-	-	-	-	-	-
Rheodytes leukops	Fitzroy river turtle	V	V	Fitzroy River and its tributaries. Prefers fast flowing clear water. Shelters amongst roots and submerged timber (Wilson and Swan, 2013).	Unlikely	Species habitat likely to occur within Study Area (DEE, 2022). However, no records withing 50km of Study Area. Only ephemeral creeks within Study Area, no flowing water.	Not detected	Unlikely	Species habitat not detected within Study Area, ephemeral creeks only.	Likely	-	-	-	-	-	-	-	-	-	-	-	-
threatened ecological community																						
Brigalow (*Acacia harpophylla* dominant and co dominant)	Brigalow TEC	-	E	Characterised by *Acacia harpophylla* dominant or co-dominant withing the tree layer and in line with additional criteria as per Approved Conservation Advice for the Brigalow (*Acacia harpophylla* dominant and co-dominant) ecological community (DEE, 2013).	Likely	Confirmed to occur within Study Area (Ausecology, in prep).	Detected	Known	Brigalow TEC confirmed to occur within Study Area.	Known	-	-	-	-	✓	-	✓	✓	✓	-	-	-
Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin	Grassland TEC	-	E	Typically composed of native perennial grasses, on fine textured soils (often cracking clays) on flat or gently undulating terrain. The projective crown cover must not exceed 10% (DEWHA, 2008)	Known	Confirmed by previous survey efforts to occur within Study Area (ERM, 2021; AECOM 2020; Ausecology, in prep).	Detected	Known	Grassland TEC confirmed to occur within Study Area.	Likely	-	-	-	-	✓	✓	-	-	✓	-	✓	-
Poplar Box Grassy Woodlands TEC	Poplar Box TEC	-	E	Typically a grassy woodland with a canopy dominated by Eucalyptus populnea and understorey of native grasses and herbs/forbs. Occurs on gently undulating to flat landscapes and occasionally on gentle slopes, with alluvial soils (DEE, 2019). Aligns with criteria outlined within Conservation Advice (including listing advice) for the Poplar Box Grassy Woodland on Alluvial Plains (DEE, 2019)	Unlikely	Confirmed to occur ~3.5km south of Study Area by previous survey efforts (Ausecology, in prep).	Not Detected	No	Poplar Box TEC does not occur within the Study Area.	Likely	-	-	-	-	✓	-	-	✓	-	-	✓	-
Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions	SEVT Tec	-	E	RE contained within the listed REs as per Commonwealth Listing Advice on Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions (Threatened Species Scientific Committee, 2001).	Unlikely	Likely to occur within Study Area (DEE, 2022).	Not detected	No	SEVT TEC does not occur within the Study Area	Likely	-	-	-	-	-	-	-	-	-	-	-	-
Weeping Myall Woodlands	Myall Tec	-	E	Occurs on the inland alluvial plains west of the Great Dividing Range in NSW and Queensland (DEE, 2008) . Dominated by Acacia pendula and aligning with additional criteria as per the Commonwealth Listing Advice on Weeping Myall Woodlands (Threatened Species Scientific Committee, 2009)	Unlikely	Likely to occur within Study Area (DEE, 2022).	Not detected	No	Myall TEC does not occur within the Study Area	Likely	-	-	-	-	-	-	-	-	-	-	-	-

NC Act: Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992*; Critically Endangered (CR), Endangered (E), Vulnerable (V), Near Threatened (NT), Special Least Concern (SL) and Least Concern (C). EPBC Act: Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999*; Critically Endangered (CE), Endangered (E), Vulnerable (V) and Conservation Dependent (CD). ^AECOM (2020) ultrasonic detection survey efforts detected *Nyctophilus* sp., however, the Nyctophilus genus cannot be identified to species level through the use of ultrasonic detection alone, with physical capture being the only possible method (DEWHA, 2010). Additional bat trapping survey efforts are required to confirm whether it is the listed species (i.e. *Nyctophilus corbeni*). ToR – Terms of Reference; TBA – To Be Advised; LoO – Likelihood of Occurrence; * – Detection within the Study Area; ✓ – detected within search parameters

Appendix C – Habitat areas and quality calculations

Table 6-2 Habitat area (ha) per Matter within the Power line Alignment

Habitat Category	RE	Condition	greater glider	koala	ornamental snake	squatter pigeon
Preferred	11.3.25	Remnant	0.01	0.32		0.01
	11.3.4	Remnant	0.01	0.01		0.01
	11.5.3	Remnant	5.97	6.39		6.00
	11.8.5	Remnant				0.94
	11.8.5	Regrowth				6.48
	Preferred Total (ha)		6.00	6.72		13.45
Suitable	11.3.25	Remnant				0.31
	11.5.3	Remnant	0.42	0.45		0.84
	11.8.5	Regrowth				0.61
	11.8.5	Non Remnant				2.82
	11.9.2	Regrowth				1.72
	Dirt tracks and grassy verges	Non Remnant				0.10
	Suitable Total (ha)		0.42	0.45		6.39
Marginal	11.3.25	Non Remnant				0.04
	11.4.9	Regrowth			0.19	
	11.8.5	Remnant		0.94		
	11.8.5	Regrowth		7.09		
	11.8.5	Non Remnant		2.37		1.83
	11.9.2	Regrowth				0.84
	Road	Non Remnant				0.23
	Marginal Total (ha)			10.40	0.19	2.94
Total Habitat Area (ha)			6.42	17.57	0.19	22.77
Not Suitable	11.3.25	Remnant	0.31		0.32	
	11.3.25	Non Remnant	0.04	0.04	0.04	
	11.3.4	Remnant			0.01	
	11.4.4	Remnant	0.90	0.90	0.90	0.90
	11.4.4	Non Remnant	0.13	0.13	0.13	0.13
	11.4.8/11.4.9	Regrowth	44.72	44.72	44.72	44.72
	11.4.8/11.4.9	Non Remnant	6.04	6.04	6.04	6.04
	11.4.9	Regrowth	0.84	0.83	0.64	0.83
	11.4.9	Non Remnant	0.22	0.22	0.22	0.22
	11.4.9	High Value Regrowth	0.003	0.003	0.003	0.003
	11.5.3	Remnant	0.45		6.84	
	11.8.11	Remnant	3.99	3.99	3.99	3.99
	11.8.11	Non Remnant	2.34	2.34	2.34	2.34
	11.8.5	Remnant	0.94		0.94	
	11.8.5	Regrowth	7.09		7.09	
	11.8.5	Non Remnant	4.65	2.28	4.65	
	11.9.2	Regrowth	2.55	2.55	2.55	
	Infrastructure	Non Remnant	0.30	0.30	0.30	0.30
	Not Suitable Total (ha)		77.04	65.88	83.26	60.68
Total Area (ha)			83.46	83.46	83.46	83.46

Table 6-3 Habitat Quality Scoring calculated as per GDTHQ v1.3 – BioCondition Scores and Habitat Assessment Scores

Matter	Habitat Category	Validated RE Condition	Validated RE Code	Area (ha)	Area per Habitat Category (ha)	Total Matter Area (ha)	Mean Total BC Score	BC Score Max	Mean decimal BC Score	Mean Habitat Score	Habitat Score Per Habitat Category					Habitat Score Per Entire Matter				
											Area Weighting	Area weighted BC score	Total BC Score (/10)	Area weighted Habitat Score	Total Habitat Score (/10)	Area Weighting	Area weighted BC score	Total BC Score (/10)	Area weighted Habitat Score	Total Habitat Score (/10)
greater glider	Preferred	Remnant	11.3.25	0.01	5.99	6.41	52.00	80	0.65	54.44	0.0013	0.0008	5.65	0.07	5.17	0.0012	0.0008	5.65	0.07	5.17
		Remnant	11.3.4	0.01	5.99	6.41	56.50	80	0.71	57.67	0.0014	0.0010		0.08		0.0013	0.0009		0.07	
		Remnant	11.5.3	5.97	5.99	6.41	45.17	80	0.56	51.70	0.9973	0.5631		51.56		0.9319	0.5261		48.18	
	Suitable	Remnant	11.5.3	0.42	0.42	6.41	45.17	80	0.56	51.70	1.0000	0.5646	5.65	51.70	5.17	0.0656	0.0370		3.39	
koala	Preferred	Remnant	11.3.25	0.32	6.72	17.57	52.00	80	0.65	63.50	0.0476	0.0310	5.69	3.02	5.37	0.0182	0.0118	5.20	1.16	4.53
		Remnant	11.3.4	0.01	6.72	17.57	56.50	80	0.71	64.00	0.0012	0.0009		0.08		0.0005	0.0003		0.03	
		Remnant	11.5.3	6.39	6.72	17.57	45.17	80	0.56	53.22	0.9511	0.5370		50.62		0.3637	0.2054		19.36	
	Suitable	Remnant	11.5.3	0.45	0.45	17.57	45.17	80	0.56	53.22	1.0000	0.5646	5.65	53.22	5.32	0.0256	0.0145		1.36	
	Marginal	Remnant	11.8.5	0.94	10.40	17.57	52.63	80	0.66	46.00	0.0904	0.0595	4.86	4.16	3.95	0.0535	0.0352		2.46	
		Regrowth	11.8.5	7.09	10.40	17.57	37.42	80	0.47	46.50	0.6817	0.3189		31.70		0.4036	0.1888		18.77	
		Non-remnant	11.8.5	2.37	10.40	17.57	37.83	80	0.47	16.00	0.2279	0.1078		3.65		0.1349	0.0638		2.16	
ornamental snake	Marginal	Regrowth	11.4.9	0.19	0.19	0.19	47.75	80	0.60	28.31	1.0000	0.5969	5.97	28.31	2.83	1.0000	0.5969	5.97	28.31	2.83
squatter pigeon	Preferred	Remnant	11.3.25	0.01	13.44	22.78	52.00	80	0.65	55.33	0.0006	0.0004	5.25	0.03	4.40	0.0003	0.0002	5.16	0.02	4.68
		Remnant	11.3.4	0.01	13.44	22.78	56.50	80	0.71	69.00	0.0006	0.0004		0.04		0.0004	0.0003		0.03	
		Remnant	11.5.3	6.00	13.44	22.78	45.17	80	0.56	32.44	0.4466	0.2521		14.49		0.2634	0.1487		8.55	
		Remnant	11.8.5	0.94	13.44	22.78	52.63	80	0.66	54.83	0.0700	0.0460		3.84		0.0413	0.0271		2.26	
		Regrowth	11.8.5	6.48	13.44	22.78	37.42	80	0.47	53.00	0.4823	0.2256		25.56		0.2845	0.1330		15.08	
	Suitable	Remnant	11.3.25	0.31	6.40	22.78	52.00	80	0.65	55.33	0.0484	0.0315	5.21	2.68	5.10	0.0136	0.0088		0.75	
		Remnant	11.5.3	0.84	6.40	22.78	45.17	80	0.56	32.44	0.1313	0.0741		4.26		0.0369	0.0208		1.20	
		Regrowth	11.8.5	0.61	6.40	22.78	37.42	80	0.47	53.00	0.0953	0.0446		5.05		0.0268	0.0125		1.42	
		Regrowth	11.9.2	1.72	6.40	22.78	48.50	80	0.61	48.29	0.2688	0.1629		12.98		0.0755	0.0458		3.65	
		Non-remnant	11.8.5	2.82	6.40	22.78	37.83	80	0.47	59.00	0.4406	0.2084		26.00		0.1238	0.0585		7.30	
		Non-remnant	Road	0.10	6.40	22.78	-	80	-	-	0.0156	-		-		0.0044	-		-	
	Marginal	Regrowth	11.9.2	0.84	2.94	22.78	48.50	80	0.61	48.29	0.2865	0.1737	4.68	13.83	5.05	0.0370	0.0224		1.79	
		Non-remnant	11.3.25	0.04	2.94	22.78	-	80	-	-	0.0136	-		-		0.0018	-		-	
		Non-remnant	11.8.5	1.83	2.94	22.78	37.83	80	0.47	59.00	0.6218	0.2940		36.68		0.0803	0.0380		4.74	
		Non-remnant	Road	0.23	2.94	22.78	-	80	-	-	0.0781	-		-		0.0101	-		-	

Appendix D – Habitat quality indicator questions

Table 6-4 Habitat Quality Scoring Indicator Questions

Scientific name	Common name	Habitat attribute	Indicator	Poor Score (1)	Moderate Score (15)	High Score (25)
Phascolarctos cinereus	koala	1. Quality and availability of food and habitat required for foraging	Canopy cover of koala food trees	Absent	Scattered to common (1-50%)	Abundant (>50%)
		1. Quality and availability of food and habitat required for foraging	Distance to water (riparian corridor, Wetland, Dam etc)	>1km	500m-1km	>500m
		2. Quality and availability of habitat required for shelter and breeding	Canopy cover of koala food trees	Absent	Scattered to common (1-50%)	Abundant (>50%)
		3. Quality and availability of habitat required for mobility	Connectivity	No connectivity	Connected with adjacent remnant vegetation along >10% to <50% of its perimeter **OR** is connected with adjacent remnant vegetation along <10% of its perimeter **AND** is connected with adjacent regrowth native vegetation >25% of its perimeter	Connected with adjacent remnant vegetation >50% of its perimeter
			Severity of vegetation clearing	High to severe (<30% of BM canopy height **and/or** <25% of BM canopy cover)	Moderate (30-69% of BM canopy height **and/or** 25-49% of BM canopy cover) **OR** For grassland REs - grassland meets 2 out of the 3 criteria to meet remnant status	Low to absent (>=70% of BM canopy height **and** >=50% of BM canopy cover)
		4. Absence of threats	Severity of vegetation clearing	High to severe (<30% of BM canopy height **and/or** <25% of BM canopy cover)	Moderate (30-69% of BM canopy height **and/or** 25-49% of BM canopy cover)	Low to absent (>=70% of BM canopy height **and** >=50% of BM canopy cover)
			Likelihood of feral predator presence	No active pest management **AND/OR** High risk of exposure due to low levels of cover/shelter	Low risk of exposure due to high levels of cover/shelter	Active pest management **AND/OR** Low risk of exposure due to high levels of cover/shelter
			Presence of fuel loads	Not inline with RE fire management guidelines **AND** presence of high fuel loads/risk	Not burnt and/or burnt more the RE fire management guidelines	Inline with recommended RE fire management guidelines
			Vehicle strike risk	High	Moderate	Very low to low
Petauroides volans sensu lato	greater glider	1. Quality and availability of food and habitat required for foraging	Presence of large trees (eucalypts and allies)	<50% of the RE benchmark for number of large trees (eucalypts)	≥50% of RE benchmark for number of large trees (eucalypts)	≥50% of RE benchmark for number of large trees (eucalypts) **AND** recruitment of canopy species
			Distance to riparian vegetation	>1km from creek	-	within 1km from creek
			Eucalypts with DBH >=30cm present within RE at sufficient density	No	-	Yes

Scientific name	Common name	Habitat attribute	Indicator	Poor Score (1)	Moderate Score (15)	High Score (25)
		2. Quality and availability of habitat required for shelter and breeding	Number of medium tree hollows and fissures (10-20cm diameter)	Absent to Scattered (0-5)	Common (6-10)	Abundant (>10)
			Number of large tree hollows and fissures (>20cm diameter)	Absent to scattered (0-5)	Common (6-10)	Abundant (>10)
			Eucalypts with DBH >=50cm present within RE at sufficient density	No	-	Yes
		3. Quality and availability of habitat required for mobility	Connectivity	No connectivity	Connected with adjacent remnant vegetation along >10% to <50% of its perimeter **OR** is connected with adjacent remnant vegetation along <10% of its perimeter **AND** is connected with adjacent regrowth native vegetation >25% of its perimeter	Connected with adjacent remnant vegetation >50% of its perimeter
			Average patch size	<25 ha remnant **AND/OR** regrowth	≥25-100 ha remnant **OR** ≥25-200 ha remnant and regrowth **OR** ≥25-200 ha regrowth	≥100 ha remnant **OR** >200 ha remnant and regrowth **OR** >200ha regrowth
		4.Absence of threats	Presence of fuel loads	Not inline with RE fire management guidelines **AND** presence of high fuel loads/risk	Not burnt and/or burnt more the RE fire management guidelines	Inline with recommended RE fire management guidelines
			Barbwire fence easement	Anywhere with a 20 m gap in canopy either side of fence	Anywhere with a 10 m gap in canopy either side of fence	No gap in canopy either side of fenceline
			Barbwire entanglement risk	High (top rung barbed wire) and structurally sound	Moderate (top rung not barbed wire, remaining rungs barbed)	No barbed wire, OR very low to low (no rungs barbed) **OR** in disrepair
			Likelihood of feral predator presence	No active pest management **AND/OR** High risk of exposure due to low levels of cover/shelter	Low risk of exposure due to high levels of cover/shelter	Active pest management **AND/OR** Low risk of exposure due to high levels of cover/shelter
Denisonia maculata	Ornamental Snake	1. Quality and availability of food and habitat required for foraging	Presence of gilgai microrelief	Absent	Rare to Occasional	Common to Abundant
			Gilgai microrelief depth	Absent	Shallow to Diverse	Deep
			Coarse woody debris abundance	Absent	Rare to Occasional	Common to Abundant
		2. Quality and availability of habitat required for shelter and breeding	Soil crack abundance	Absent	Rare to Occasional	Common to Abundant
			Soil crack depth	Absent	Shallow to Diverse	Deep
			Coarse woody debris abundance	Absent	Rare to Occasional	Common to Abundant

Scientific name	Common name	Habitat attribute	Indicator	Poor Score (1)	Moderate Score (15)	High Score (25)
		3.Quality and availability of habitat required for mobility	Connectivity	No connectivity	Connected with adjacent remnant vegetation along >10% to <50% of its perimeter OR is connected with adjacent remnant vegetation along <10% of its perimeter AND is connected with adjacent regrowth native vegetation >25% of its perimeter	Connected with adjacent remnant vegetation >50% of its perimeter
		4. Absence of threats	Severity of vegetation clearing	High to severe (<30% of BM canopy height and/or <25% of BM canopy cover)	Moderate (30-69% of BM canopy height and/or 25-49% of BM canopy cover)	Low to absent (≥70% of BM canopy height and ≥50% of BM canopy cover)
			Vehicle strike risk	High	Moderate	Low to very low
			High impact cattle trampling	High to Severe	Moderate	Absent to Low
Geophaps scripta scripta	squatter pigeon (southern subspecies)	1. Quality and availability of food and habitat required for foraging	Native grass cover	Absent to sparse (0 to <15%)	Very Common to Abundant (>45%)	Scattered to Common (15-45%)
		2. Quality and availability of habitat required for shelter and breeding	Native grass cover	Absent to sparse (0 to <15%)	Very Common to Abundant (>45%)	Scattered to Common (15-45%)
			Distance to water	>3km	1 to 3km	<1km
		3. Quality and availability of habitat required for mobility	Connectivity	No connectivity	Connected with adjacent remnant vegetation along >10% to <50% of its perimeter **OR** is connected with adjacent remnant vegetation along <10% of its perimeter **AND** is connected with adjacent regrowth native vegetation >25% of its perimeter	Connected with adjacent remnant vegetation >50% of its perimeter
			Average patch size	<25 ha remnant **AND/OR** regrowth	≥25-100 ha remnant **OR** ≥25-200 ha remnant and regrowth **OR** ≥25-200 ha regrowth	≥100 ha remnant **OR** >200 ha remnant and regrowth **OR** >200ha regrowth
		4. Absence of threats	Presence of grazing pressure	High to Severe	Moderate	Absent to Low
			Likelihood of pest fauna presence	No active pest management **AND/OR** High risk of exposure due to low levels of cover/shelter	Low risk of exposure due to high levels of cover/shelter	Active pest management **AND/OR** Low risk of exposure due to high levels of cover/shelter

Appendix E – BioCondition field results

Table 6-5 BioCondition Assessment scoring results

Site Data	Site ID	Total BC Score	Max Score for RE	No. Large Eucs (per ha)	No. Large Non-Eucs (per ha)	Total Large Trees (per ha)	EDL Recruitment	Emergent Tree Height	Canopy Tree Height	Subcanopy Tree Height	Mean Tree Height	Emergent Tree Cover	Canopy Tree Cover	Subcanopy Tree Cover	Mean Tree Cover	Shrub Cover	Native Perennial Grass Cover	Litter Cover	Non-native Cover	Native Tree Species Richness	Native Shrub Species Richness	Native Grass Species	Native Forbs & Other Species Richness	CWD (m/ha)
RE Benchmark	**11.3.25 - Remnant**		**80**	**19**	**13**	**32**	**100**	**na**	**23**	**11**	**-**	**na**	**34**	**12**	**-**	**7**	**35**	**21**	**0**	**4**	**4**	**8**	**13**	**473**
Site Data	BC51			4	8	24	100	-	20	12		-	13.6	10.4		3.4	73.6	4	3	0	9	3	2	0
% of BM	BC51			21%	62%	75%	1	-	87%	109%	-	-	40%	87%	-	49%	210%	19%	3%	0%	225%	38%	15%	0%
Site BC Score	BC51	52	80	-	-	10.00	5	-	5	5	5	-	2	5	3.5	3	5	3	10	0	5	2.5	0	0
RE Benchmark	**11.3.4 - Remnant**		**80**	**26**	**9**	**35**	**100**	**na**	**22**	**12**	**-**	**na**	**17**	**5**	**-**	**1**	**43**	**20**	**0**	**4**	**2**	**7**	**10**	**384**
Site Data	BC05			30	0	30	0	0	22.52	11	-	0	79.9	32.9	-	0	31.4	53.6	4	7	3	4	9	417
% of BM	BC05			115%	0%	86%	0%	-	102%	92%	-	-	470%	658%	-	0%	73%	268%	4%	175%	150%	57%	90%	109%
Site BC Score	BC05	56.5	80	-	-	10	0	-	5	5	5	-	3	3	3	0	3	3	10	5	5	2.5	5	5
RE Benchmark	**11.4.4 - Non-remnant**		**35**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**-**	**na**	**na**	**na**	**-**	**na**	**50**	**21**	**0**	**na**	**1**	**7**	**12**	**na**
Site Data	BC100			-	-	-	-	-	-	-	-	-	-	-	-	-	3.8	11.6	50	-	0	6	7	-
% of BM	BC100			-	-	-	-	-	-	-	-	-	-	-	-	-	8%	55%	50%	-	0%	86%	58%	-
Site BC Score	BC100	13	35	-	-	-	-	-	-	-	-	-	-	-	-	-	0	5	3	-	0	2.5	2.5	-
Site Data	BC102			-	-	-	-	-	-	-	-	-	-	-	-	-	22.4	3.6	85	-	2	3	7	-
% of BM	BC102			-	-	-	-	-	-	-	-	-	-	-	-	-	45%	17%	85%	-	200%	43%	58%	-
Site BC Score	BC102	14	35	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3	0	-	5	2.5	2.5	-
RE Benchmark	**11.4.4 - Remnant**		**35**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**-**	**na**	**na**	**na**	**-**	**na**	**50**	**21**	**0**	**na**	**1**	**7**	**12**	**na**
Site Data	BC4			-	-	-	-	-	-	-	-	-	-	-	-	-	73.6	4	3	-	0	12	15	-
% of BM	BC4			-	-	-	-	-	-	-	-	-	-	-	-	-	147%	19%	3%	-	0%	171%	125%	-
Site BC Score	BC4	28	35	-	-	-	-	-	-	-	-	-	-	-	-	-	5	3	10	-	0	5	5	-
Site Data	BC46			-	-	-	-	-	-	-	-	-	-	-	-	-	33.8	44.8	4	-	3	6	3	-
% of BM	BC46			-	-	-	-	-	-	-	-	-	-	-	-	-	68%	213%	4%	-	300%	86%	25%	-
Site BC Score	BC46	26	35	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	10	-	5	2.5	2.5	-
RE Benchmark	**11.4.9 - Regrowth**		**80**	**0**	**47**	**47**	**100**	**na**	**10**	**6**	**-**	**na**	**25**	**11**	**-**	**5**	**16**	**45**	**0**	**2**	**5**	**5**	**10**	**980**
Site Data	BC22			-	0	0	100	-	2.7	0	-	-	0	0	-	2.1	5	16	5	15	10	1	0	45
% of BM	BC22			-	0%	0%	100%	-	27%	0%	-	-	0%	0%	-	42%	31%	36%	5%	750%	200%	20%	0%	5%
Site BC Score	BC22	28.5	80	-	-	0	5	-	3	0	1.5	-	0	0	0	3	1	3	5	5	5	0	0	0
Site Data	BC23			-	0	0	100	-	2.5	0	-	-	0	0	-	6.5	0.4	22.4	18	3	11	1	0	0
% of BM	BC23			-	0%	0%	100%	-	25%	0%	-	-	0%	0%	-	130%	3%	50%	18%	150%	220%	20%	0%	0%
Site BC Score	BC23	29.5	80	-	-	0	5	-	3	0	1.5	-	0	0	0	5	0	3	5	5	5	0	0	0
Site Data	BC40			-	0	0	100	-	0	0	-	-	0	0	-	14.2	4.6	32.4	25	9	8	2	2	1265
% of BM	BC40			-	0%	0%	100%	-	0%	0%	-	-	0%	0%	-	284%	29%	72%	25%	450%	160%	40%	20%	129%
Site BC Score	BC40	34.5	80	-	-	0	5	-	0	0	0	-	0	0	0	3	1	5	3	5	5	2.5	0	5
Site Data	BC03			0	2	2	100	0	7.28	3	-	0	9.5	2.2	-	10.3	3.8	1.2	2	5	2	2	5	46
% of BM	BC03			0%	4%	4%	100%	-	73%	50%	-	-	38%	20%	-	206%	24%	3%	2%	250%	40%	40%	50%	5%
Site BC Score	BC03	42.5	80	-	-	5	5	-	5	3	4	-	2	2	2	3	1	0	10	5	2.5	2.5	2.5	0
Site Data	BC06			0	0	0	100	13.3	6.94	0	-	0	36.8	2.7	-	9.5	1.8	36	2	6	11	6	17	431
% of BM	BC06			0%	0%	0%	100%	-	69%	0%	-	-	147%	25%	-	190%	11%	80%	2%	300%	220%	120%	170%	44%
Site BC Score	BC06	53	80	-	-	0	5	-	3	0	1.5	-	5	2	3.5	5	1	5	10	5	5	5	5	2
RE Benchmark	**11.4.9 - Remnant**		**80**	**na**	**47**	**47**	**100**	**na**	**10**	**6**	**-**	**na**	**25**	**11**	**-**	**5**	**16**	**45**	**0**	**2**	**5**	**5**	**10**	**980**
Site Data	BC5			-	6	12	100	-	11.4	0	-	-	50.9	0	-	14.3	0.2	4.4	4	0	7	10	23	430

Site Data	Site ID	Total BC Score	Max Score for RE	No. Large Eucs (per ha)	No. Large Non-Eucs (per ha)	Total Large Trees (per ha)	EDL Recruitment	Emergent Tree Height	Canopy Tree Height	Subcanopy Tree Height	Mean Tree Height	Emergent Tree Cover	Canopy Tree Cover	Subcanopy Tree Cover	Mean Tree Cover	Shrub Cover	Native Perennial Grass Cover	Litter Cover	Non-native Cover	Native Tree Species Richness	Native Shrub Species Richness	Native Grass Species	Native Forbs & Other Species Richness	CWD (m/ha)
% of BM	BC5			-	13%	26%	100%	-	114%	0%	-	-	204%	0%	-	286%	1%	10%	4%	0%	140%	200%	230%	44%
Site BC Score	BC5	44	80	-	-	5	5	-	5	0	2.5	-	3	0	1.5	3	0	0	10	0	5	5	5	2
RE Benchmark	**11.5.3 - Remnant**		**80**	**9**	**1**	**10**	**100**	**0**	**16**	**0**	**-**	**na**	**20**	**na**	**-**	**3**	**19**	**20**	**0**	**6**	**6**	**6**	**10**	**314**
Site Data	BC02			8	0	8	100	0	19.12	9.52	-	0	30.3	7.9	-	2.6	0	9.4	60	4	5	0	9	183
% of BM	BC02			89%	0%	80%	100%	0%	120%	10%	-	-	152%	-	-	87%	0%	47%	60%	67%	83%	0%	90%	58%
Site BC Score	BC02	45.5	80	-	-	10	5	-	5	0	2.5	-	5	-	5	5	0	3	0	2.5	2.5	0	5	5
Site Data	BC04			0	0	0	50	0	14	8	-	0	10.2	6.1	-	1.3	0.8	26.4	60	14	7	2	4	222
% of BM	BC04			0%	0%	0%	50%	0%	88%	8%	-	-	51%	-	-	43%	4%	132%	60%	233%	117%	33%	40%	71%
Site BC Score	BC04	38.5	80	-	-	0	3	-	5	0	2.5	-	5	-	5	3	0	5	0	5	5	2.5	2.5	5
Site Data	BC901			4	0	4	100	0	14	8.14	-	0	24.4	1	-	23.6	6	3	20	8	14	9	7	74
% of BM	BC901			44%	0%	40%	100%	-	88%	-	-	-	122%	-	-	787%	32%	15%	20%	133%	233%	150%	70%	24%
Site BC Score	BC901	51.5	80	-	-	5	5	-	5	-	5	-	5	-	5	3	1	3	5	5	5	5	2.5	2
RE Benchmark	**11.8.11 - Non-remnant**		**30**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**43**	**13**	**0**	**na**	**na**	**11**	**17**	**na**
Site Data	BC103			-	-	-	-	-	-	-	-	-	-	-	-	-	0	2.4	90	-	-	2	7	-
% of BM	BC103			-	-	-	-	-	-	-	-	-	-	-	-	-	0%	18%	90%	-	-	18%	41%	-
Site BC Score	BC103	5.5	30	-	-	-	-	-	-	-	-	-	-	-	-	-	0	3	0	-	-	0	2.5	-
Site Data	BC104			-	-	-	-	-	-	-	-	-	-	-	-	-	12	9.8	90	-	-	5	8	-
% of BM	BC104			-	-	-	-	-	-	-	-	-	-	-	-	-	28%	75%	90%	-	-	45%	47%	-
Site BC Score	BC104	11	30	-	-	-	-	-	-	-	-	-	-	-	-	-	1	5	0	-	-	2.5	2.5	-
RE Benchmark	**11.8.11 - Remnant**		**30**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**43**	**13**	**0**	**na**	**na**	**11**	**17**	**na**
Site Data	BC1			-	-	-	-	-	-	-	-	-	-	-	-	-	65.4	3.8	1.5	-	-	12	22	-
% of BM	BC1			-	-	-	-	-	-	-	-	-	-	-	-	-	152%	29%	2%	-	-	109%	129%	-
Site BC Score	BC1	28	30	-	-	-	-	-	-	-	-	-	-	-	-	-	5	3	10	-	-	5	5	-
Site Data	BC10			-	-	-	-	-	-	-	-	-	-	-	-	-	67.8	3.2	4	1	2	3	2	0
% of BM	BC10			-	-	-	-	-	-	-	-	-	-	-	-	-	158%	25%	4%	1%	2%	27%	12%	0%
Site BC Score	BC10	20.5	30	-	-	-	-	-	-	-	-	-	-	-	-	-	5	3	10	0	0	2.5	0	0
Site Data	BC101			-	-	-	-	-	-	-	-	-	-	-	-	-	73	8.4	9	-	-	13	16	-
% of BM	BC101			-	-	-	-	-	-	-	-	-	-	-	-	-	170%	65%	9%	-	-	118%	94%	-
Site BC Score	BC101	25	30	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5	5	-	-	5	5	-
Site Data	BC105			-	-	-	-	-	-	-	-	-	-	-	-	-	64.8	3.2	3	-	-	12	10	-
% of BM	BC105			-	-	-	-	-	-	-	-	-	-	-	-	-	151%	25%	3%	-	-	109%	59%	-
Site BC Score	BC105	25.5	30	-	-	-	-	-	-	-	-	-	-	-	-	-	5	3	10	-	-	5	2.5	-
Site Data	BC11			-	-	-	-	-	-	-	-	-	-	-	-	-	2.4	4.2	55	1	0	2	4	0
% of BM	BC11			-	-	-	-	-	-	-	-	-	-	-	-	-	6%	32%	55%	1%	0%	18%	24%	0%
Site BC Score	BC11	3	30	-	-	-	-	-	-	-	-	-	-	-	-	-	0	3	0	0	0	0	0	0
Site Data	BC2			-	-	-	-	-	-	-	-	-	-	-	-	-	42.8	6	14	-	-	11	15	-
% of BM	BC2			-	-	-	-	-	-	-	-	-	-	-	-	-	100%	46%	14%	-	-	100%	88%	-
Site BC Score	BC2	20.5	30	-	-	-	-	-	-	-	-	-	-	-	-	-	5	3	5	-	-	5	2.5	-
Site Data	BC2a			-	-	-	-	-	-	-	-	-	-	-	-	-	11	27	0	-	-	11	15	-
% of BM	BC2a			-	-	-	-	-	-	-	-	-	-	-	-	-	26%	208%	0%	-	-	100%	88%	-
Site BC Score	BC2a	21.5	30	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3	10	-	-	5	2.5	-

Site Data	Site ID	Total BC Score	Max Score for RE	No. Large Eucs (per ha)	No. Large Non-Eucs (per ha)	Total Large Trees (per ha)	EDL Recruitment	Emergent Tree Height	Canopy Tree Height	Subcanopy Tree Height	Mean Tree Height	Emergent Tree Cover	Canopy Tree Cover	Subcanopy Tree Cover	Mean Tree Cover	Shrub Cover	Native Perennial Grass Cover	Litter Cover	Non-native Cover	Native Tree Species Richness	Native Shrub Species Richness	Native Grass Species	Native Forbs & Other Species Richness	CWD (m/ha)
RE Benchmark	**11.8.5 - Non-remnant**		**80**	**9**	**0**	**9**	**100**	**0**	**15**	**6**	**-**	**na**	**13**	**3**	**-**	**3**	**59**	**15**	**0**	**3**	**3**	**9**	**8**	**175**
Site Data	BC07			0	0	0	0	0	0	3.5	-	0	0	1.9	-	3.4	51.2	7.6	8	2	3	4	8	97
% of BM	BC07			0%	0%	0%	0%	0%	0%	58%	-	-	0%	63%	-	113%	87%	51%	8%	67%	100%	44%	100%	55%
Site BC Score	BC07	42	80	-	-	0	0	-	0	3	1.5	-	0	5	2.5	5	3	5	5	2.5	5	2.5	5	5
Site Data	BC301			0	-	0	0	-	0	0	-	-	0	0	-	3.2	16.6	8.6	49	2	3	3	7	149
% of BM	BC301			0%	-	0%	0%	-	0%	0%	-	-	0%	0%	-	107%	28%	57%	49%	67%	100%	33%	88%	85%
Site BC Score	BC301	31.5	80	-	-	0	0	-	0	0	0	-	0	0	0	5	1	5	3	2.5	5	2.5	2.5	5
Site Data	BC303			0	0	0	100	-	0	0	-	-	0	0	-	7.2	57.2	12	20	2	6	8	15	789
% of BM	BC303			0%	-	0%	100%	-	0%	0%	-	-	0%	0%	-	240%	97%	80%	20%	67%	200%	89%	188%	451%
Site BC Score	BC303	40	80	-	-	0	5	-	0	0	0	-	0	0	0	3	5	5	5	2.5	5	2.5	5	2
RE Benchmark	**11.8.5 - Regrowth**		**80**	**9**	**0**	**9**	**100**	**0**	**15**	**6**	**-**	**na**	**13**	**3**	**-**	**3**	**59**	**15**	**0**	**3**	**3**	**9**	**8**	**175**
Site Data	BC08			0	0	0	0	0	15.96	8	-	0	8.9	1.6	-	0.4	0	19	75	2	3	1	1	318
% of BM	BC08			0%	0%	0%	0%	0%	106%	133%	-	-	68%	53%	-	13%	0%	127%	75%	67%	100%	11%	13%	182%
Site BC Score	BC08	30.5	80	-	-	0	0	-	5	5	5	-	5	5	5	3	0	5	0	2.5	5	0	0	5
RE Benchmark	**11.8.5 - Non-remnant**		**80**	**9**	**0**	**9**	**100**	**0**	**15**	**6**	**-**	**na**	**13**	**3**	**-**	**3**	**59**	**15**	**0**	**3**	**3**	**9**	**8**	**175**
Site Data	BC09			0	0	0	100	0	16.1	6.4	-	0	5.2	2	-	10.4	35	5.6	50	8	9	6	11	0
% of BM	BC09			0%	0%	0%	100%	0%	107%	107%	-	-	40%	67%	-	347%	59%	37%	50%	267%	300%	67%	138%	0%
Site BC Score	BC09	43	80	-	-	0	5	-	5	5	5	-	2	5	3.5	3	3	3	3	5	5	2.5	5	0
Site Data	BC27			0	0	0	100	-	2.8	0	-	-	0	0	-	13.2	0.6	32.6	70	1	14	1	1	153
% of BM	BC27			0%	-	0%	100%	-	19%	0%	-	-	0%	0%	-	440%	1%	217%	70%	33%	467%	11%	13%	87%
Site BC Score	BC27	23.5	80	-	-	0	5	-	0	0	0	-	0	0	0	3	0	3	0	2.5	5	0	0	5
Site Data	BC18			0	-	0	100	-	8.9	5.3	-	-	8.5	0	-	1.9	0	19.6	60	1	12	1	6	498
% of BM	BC18			0%	-	0%	100%	-	59%	88%	-	-	65%	0%	-	63%	0%	131%	60%	33%	400%	11%	75%	285%
Site BC Score	BC18	33.5	80	-	-	0	5	-	3	5	4	-	5	0	2.5	5	0	5	0	2.5	5	0	2.5	2
Site Data	BC302			0	-	0	100	-	13.18	6.4	-	-	2.8	3.4	-	0.5	16.4	16.6	38	10	10	3	15	461
% of BM	BC302			0%	-	0%	100%	-	88%	107%	-	-	22%	113%	-	17%	28%	111%	38%	333%	333%	33%	188%	263%
Site BC Score	BC302	45	80	-	-	0	5	-	5	5	5	-	2	5	3.5	3	1	5	3	5	5	2.5	5	2
Site Data	BC304			0	-	0	100	-	13.96	7.74	-	-	6.8	0	-	10.3	8.4	13.6	9	7	11	4	18	297
% of BM	BC304			0%	-	0%	100%	-	93%	129%	-	-	52%	0%	-	343%	14%	91%	9%	233%	367%	44%	225%	170%
Site BC Score	BC304	49	80	-	-	0	5	-	5	5	5	-	5	0	2.5	3	1	5	5	5	5	2.5	5	5
RE Benchmark	**11.8.5 - Remnant**		**80**	**9**	**na**	**9**	**100**	**na**	**15**	**6**	**-**	**na**	**13**	**3**	**-**	**3**	**59**	**15**	**0**	**3**	**3**	**9**	**8**	**175**
Site Data	BC3			2	-	4	100	0	15.1	4.4	-	0	25.9	5.1	-	3.9	9	14	25	5	7	9	30	160
% of BM	BC3			22%	-	44%	100%	-	101%	73%	-	-	199%	170%	-	130%	15%	93%	25%	167%	233%	100%	375%	91%
Site BC Score	BC3	59	80	-	-	5	5	-	5	5	5	-	5	5	5	5	1	5	3	5	5	5	5	5
Site Data	BC300			0	-	0	100	-	13.14	7.76	-	-	11.1	3.4	-	7.9	54.2	15.2	12	6	7	5	9	713
% of BM	BC300			0%	-	0%	100%	-	88%	129%	-	-	85%	113%	-	263%	92%	101%	12%	200%	233%	56%	113%	407%
Site BC Score	BC300	52.5	80	-	-	0	5	-	5	5	5	-	5	5	5	3	5	5	5	5	5	2.5	5	2
Site Data	BC56			0	-	0	100	-	12.2	5.8	-	-	15	6.2	-	16.3	42.8	6	14	0	10	5	7	0
% of BM	BC56			0%	-	0%	100%	-	81%	97%	-	-	115%	207%	-	543%	73%	40%	14%	0%	333%	56%	88%	0%
Site BC Score	BC56	38	80	-	-	0	5	-	5	5	5	-	5	3	4	3	3	3	5	0	5	2.5	2.5	0
Site Data	BC3a			2	-	4	100	-	15.1	4.4	-	-	25.9	5.1	-	3.9	8.6	19.6	20	9	7	9	30	303

Site Data	Site ID	Total BC Score	Max Score for RE	No. Large Eucs (per ha)	No. Large Non-Eucs (per ha)	Total Large Trees (per ha)	EDL Recruitment	Emergent Tree Height	Canopy Tree Height	Subcanopy Tree Height	Mean Tree Height	Emergent Tree Cover	Canopy Tree Cover	Subcanopy Tree Cover	Mean Tree Cover	Shrub Cover	Native Perennial Grass Cover	Litter Cover	Non-native Cover	Native Tree Species Richness	Native Shrub Species Richness	Native Grass Species	Native Forbs & Other Species Richness	CWD (m/ha)
% of BM	BC3a			22%	-	44%	100%	-	101%	73%	-	-	199%	170%	-	130%	15%	131%	20%	300%	233%	100%	375%	173%
Site BC Score	BC3a	61	80	-	-	5	5	-	5	5	5	-	5	5	5	5	1	5	5	5	5	5	5	5
RE Benchmark	**11.9.2 - Regrowth**		**80**	**13**	**0**	**13**	**100**	**0**	**15**	**6**	**-**	**na**	**25**	**3**	**-**	**25**	**18**	**30**	**0**	**2**	**10**	**7**	**12**	**366**
Site Data	BC01			0	0	0	100	0	7.54	3.7	-	0	0	3.2	-	8.7	60.8	21.4	8	7	10	10	14	10
% of BM	BC01			0%	0%	0%	100%	0%	50%	62%	-	-	0%	107%	-	35%	338%	71%	8%	350%	100%	143%	117%	3%
Site BC Score	BC01	48.5	80	-	-	0	5	-	3	3	3	-	0	5	2.5	3	5	5	5	5	5	5	5	0
RE Benchmark	**11.9.2 - Remnant**		**80**	**13**	**na**	**13**	**100**	**na**	**15**	**6**	**-**	**na**	**25**	**3**	**-**	**25**	**18**	**30**	**0**	**2**	**10**	**7**	**12**	**366**
Site Data	BC215			0	0	0	50	-	12.7	5.22	-	-	19.1	5.2	-	25.1	2.8	10.8	10	8	8	6	18	151
% of BM	BC215			0%	-	0%	50%	-	85%	87%	-	-	76%	173%	-	100%	16%	36%	10%	400%	80%	86%	150%	41%
Site BC Score	BC215	44	80	-	-	0	3	-	5	5	5	-	5	5	5	5	1	3	5	5	2.5	2.5	5	2

Appendix F – Habitat categorisation matrices

Table 6-6 Greater glider (Petauroides volans) habitat mapping categorisation matrix (Ausecology, in prep)

Attribute				Habitat Category*			
				Preferred	Suitable	Marginal	Not habitat
Assessment unit (RE + Condition) contains Large Trees with DBH >30cm	Compliant RE listed under GG Guide as "Habitat" *+ 11.3.27b, 11.3.2 and 11.4.8 (remnant)*	Within 1km from creek (with suitable connectivity to creek)		✓			
		>1km from creek	Highly connected to habitat *(not 11.3.2)*		✓		
			Highly connected to habitat *(is 11.3.2)*			✓	
			Highly isolated, poor condition patch				✓
	Compliant RE listed under GG Guide as "Potential Habitat"	Within 1km from creek	Confirmed Ausecology records	✓			
			No confirmed Ausecology records		✓		
		>1km from creek	Confirmed Ausecology records		✓		
			No confirmed Ausecology records			✓	
Assessment unit (RE + Condition) contains Large Trees with DBH <30cm							✓
Not listed under GG Guide (*except for 11.3.2 and 11.4.8*)							✓

*All habitat category selections are subject to site-context i.e. an area may be assigned a particular category as per the above work flow, however, site-context may result in the final habitat category differing.
'GG Guide' – *Guide to greater glider habitat in Queensland* (Eyre et al., 2022)

Table 6-7 koala (Phascolarctos cinereus) habitat mapping categorisation matrix (Ausecology, in prep)

Attribute			Habitat Category*			
			Preferred	Suitable	Marginal	Not habitat
Non-juvenile Koala Habitat Trees present	Remnant or regrowth Eucalyptus dominated open forest to woodland	In alluvial areas dominance of important palatable food tree species	✓			
		In areas with seasonal aquifers and some connectivity to areas of Preferred or Suitable habitat		✓		
	Fragmented and sparsely distributed Eucalyptus dominated REs	Reasonable connectivity to areas of Preferred or Suitable habitat		✓		
		Isolated from areas of Preferred or Suitable habitat			✓	
	Acacia harpophylla open forest with isolated *Eucalyptus cambageana* present					✓
Non-juvenile Koala Habitat Trees not present						✓

*All habitat category selections are subject to site-context i.e. an area may be assigned a particular category as per the above work flow, however, site-context may result in the final habitat category differing.

Table 6-8 Ornamental snake (Denisonia maculata) habitat mapping categorisation matrix (Ausecology, in prep)

Attribute					Habitat Category*			
					Preferred	Suitable	Marginal	Not habitat
Compliant RE	Gilgais very evident visible via satellite imagery				✓			
	Gilgais less evident visible via satellite imagery					✓		
	Gilgais not evident visible via satellite imagery	Overall high habitat quality (gilgai abundance, CWD abundance)	RE 11.3.25 associated with LZ4 determined to be habitat			✓		
			RE 11.4.8 or 11.4.9		✓			
			Facilitates dispersal between Preferred/Suitable habitat			✓		
		Overall low habitat quality (gilgai abundance, CWD abundance)	Facilitates dispersal between Preferred/Suitable habitat					✓
			Does not facilitate dispersal between Preferred/Suitable habitat					✓
			Non-remnant RE	Intersecting creek line			✓	
				Not intersecting creek line				✓
Non-compliant RE	Facilitates dispersal between Preferred/Suitable habitat						✓	
	Does not facilitate dispersal between Preferred/Suitable habitat							✓

*All habitat category selections are subject to site-context i.e. an area may be assigned a particular category as per the above work flow, however, site-context may result in the final habitat category differing.

Table 6-9 Squatter pigeon (southern) (Geophaps scripta scripta) habitat mapping categorisation matrix

Attribute					Habitat Category*			
					Preferred	Suitable	Marginal	Not habitat
Compliant RE	Within 3 km from waterbody (stream order ≥1, farm dam etc)	Regrowth or Remnant RE	≤1 km of waterbody	Permanent waterbody (Stream order ≥3, accessible permanent mine dam)	✓			
				Ephemeral waterbody (Stream order <3, small farm mine dam)		✓		
			>1 – 3 km of waterbody	Permanent waterbody (Stream order ≥3, accessible permanent mine dam)		✓		
				Ephemeral waterbody (Stream order <3, small farm mine dam)		✓		
		Non-remnant RE	≤100 m of Preferred habitat			✓		
			>100 m of Preferred habitat and facilitates movement between Preferred and/or Suitable habitat				✓	
			>100 m of Preferred habitat and does not facilitate movement between Preferred and/or Suitable habitat					✓
	>3 km from waterbody (stream order ≥1, farm dam etc)	Facilitates movement between Preferred and/or Suitable habitat					✓	
		Does not facilitate movement between Preferred and/or Suitable habitat						✓
Non-compliant RE								✓

*All habitat category selections are subject to site-context i.e. an area may be assigned a particular category as per the above work flow, however, site-context may result in the final habitat category differing.

Appendix G – Fauna species list

Table 6-10 Fauna species detected per company per survey type within the Study Area

Scientific Name	Common Name	NC Act Status	EPBC Act Status	Total	AECOM		ERM	Ausecology							
					Oct 2018	May 2019	March 2021	Nov 2021	Dec 2021	March 2022	April 2022	Nov 2022	Oct 2022	Sept 2022	March 2023
Amphibia															
Cyclorana alboguttata	Green-striped Burrowing Frog	C	-	1											I(1)
Cyclorana brevipes	superb collared frog	C	-	4				P(3)			S(1)				
Cyclorana cultripes	knife-footed frog	C	-	2				I(1), P(1)							
Cyclorana novaehollandiae	eastern snapping frog	C	-	6							I(1)	I(1)			I(1), P(3)
Limnodynastes fletcheri	barking frog	C	-	3							H(1)		P(2)		
Limnodynastes tasmaniensis	spotted marsh frog	C	-	3				I(1)						S(1)	H(1)
Limnodynastes terraereginae	scarlet sided pobblebonk	C	-	5									P(5)		
Litoria caerulea	common green treefrog	C	-	11				I(1), S(3)			H(1), S(2)			I(1), S(3)	
Litoria peronii	emerald-spotted tree frog	C	-	1										S(1)	
Litoria rubella	ruddy treefrog	C	-	2				S(1)			I(1)				
Platyplectrum ornatum	ornate burrowing frog	C	-	19				P(5), S(3)						S(2)	P(9)
Rhinella marina	cane toad	*	*	29	U(1)	U(1)		H(1), S(10)		CT(5)	H(2), S(1)	I(1)		I(1), S(4)	P(2)
Uperoleia littlejohni	Einasleigh gungan	C	-	1									P(1)		
Aves															
Acanthagenys rufogularis	spiny-cheeked honeyeater	C	-	1					I(1)						
Acanthiza nana	yellow thornbill	C	-	2		U(1)					I(1)				
Accipiter fasciatus	grown goshawk	C	-	3								I(1)		BS(1)	B(1)
Acridotheres tristis	common myna	*	*	28	U(1)	U(1)		I(2)			BS(9)				B(15)
Acrocephalus australis	Australian reed-warbler	C	-	1								I(1)			
Aegotheles cristatus	Australian owlet-nightjar	C	-	4							S(3)			S(1)	
Alisterus scapularis	Australian king-parrot	C	-	1								I(1)			
Anas castanea	Chestnut Teal	C	-	1											I(1)
Anas gracilis	grey teal	C	-	1							BS(1)				
Anas superciliosa	pacific black duck	C	-	4	U(1)	U(1)					BS(1)				I(1)
Anhinga novaehollandiae	Australasian darter	C	-	4		U(1)		I(2)			BS(1)				
Anthus novaeseelandiae	Australasian Pipit	C	-	6	U(1)	U(1)		I(1)	I(1)		BS(1), I(2)				I(1)
Aprosmictus erythropterus	red-winged parrot	C	-	23	U(1)	U(1)		BS(2), I(2)	I(1)		BS(7), I(3)			BS(2)	B(4)
Apus pacificus	fork-tailed swift	SL	-	1	U(1)										
Aquila audax	wedge-tailed eagle	C	-	7	U(1)						BS(1), I(3)	I(2)			
Ardea alba	great egret	C	Ma	2	U(1)	U(1)									
Ardea alba modesta	eastern great egret	C	-	2							I(2)				
Ardea intermedia	intermediate egret	C	-	1							BS(1)				
Ardea pacifica	white-necked heron	C	-	1	U(1)										
Ardeotis australis	Australian bustard	C	-	10		U(1)		I(5)	I(2)			I(1)			I(1)
Artamus cinereus	black-faced woodswallow	C	-	4				I(1)			I(3)				
Artamus cyanopterus	dusky woodswallow	C	-	1							BS(1)				
Artamus leucorynchus	White-breasted Woodswallow	C	-	4				I(3)			BS(1)				
Artamus minor	little woodswallow	C	-	1										I(1)	
Artamus personatus	masked woodswallow	C	-	3	U(1)	U(1)								BS(1)	

Scientific Name	Common Name	NC Act Status	EPBC Act Status	Total	AECOM		ERM	Ausecology							
					Oct 2018	May 2019	March 2021	Nov 2021	Dec 2021	March 2022	April 2022	Nov 2022	Oct 2022	Sept 2022	March 2023
Aviceda subcristata	pacific baza	C	-	1				BS(1)							
Aythya australis	hardhead	C	-	2		U(1)					BS(1)				
Cacatua galerita	sulphur-crested cockatoo	C	-	21	U(1)			I(2)			BS(7), I(2)	I(1)		BS(7), S(1)	
Cacomantis pallidus	pallid cuckoo	C	-	10				BS(3)			BS(4)	I(1)		BS(1), S(1)	
Caligavis chrysops	yellow-faced honeyeater	C	-	1	U(1)										
Centropus phasianinus	pheasant coucal	C	-	13				BS(1), I(2)				I(3)	CT(1)	BS(5)	H(1)
Chalcites basalis	Horsfield's bronze-cuckoo	C	-	4				I(3)						BS(1)	
Chenonetta jubata	Australian wood duck	C	-	2	U(1)	U(1)									
Chlamydera maculata	spotted bowerbird	C	-	12	U(1)	U(1)		I(4)			BS(3), I(5)	I(1)			I(1), B(1)
Chroicocephalus novaehollandiae	silver gull	C	Ma	1				I(1)							
Cincloramphus mathewsi	rufous songlark	C	-	5		U(1)		I(3)						BS(1)	
Climacteris affinis	white-browed treecreeper	C	-	1	U(1)										
Cisticola exilis	Golden-headed Cisticola	C	-	2											I(2)
Colluricincla harmonica	grey shrike-thrush	C	-	12				BS(4), I(2)				I(1)		BS(4)	B(1)
Coracina novaehollandiae	black-faced cuckoo shrike	C	-	24	U(1)	U(1)		BS(2), I(4)			BS(6), I(3)	I(1)		BS(3)	I(3)
Coracina papuensis	white-bellied cuckoo-shrike	C	-	2				BS(1), I(1)							
Corvus coronoides	Australian raven	C	-	6				BS(3), I(3)							
Corvus orru	Torresian crow	C	-	101	U(1)	U(1)		BS(5), CT(2), I(2)	CT(1)	BS(1), CT(40)	BS(27), I(1)	I(2)	CT(1)	BS(9), I(1)	I(1), B(6)
Coturnix pectoralis	stubble quail	C	-	1										S(1)	
Cracticus nigrogularis	pied butcherbird	C	-	40	U(1)	U(1)		BS(3), I(3)			BS(19)			BS(6)	B(7)
Cracticus sp.	butcherbird sp.	C	-	1				CT(1)							
Cracticus torquatus	grey butcherbird	C	-	28	U(1)	U(1)		BS(2), I(2)			BS(5)	I(1)		BS(6)	I(1), B(9)
Cygnus atratus	black swan	C	-	4		U(1)		I(1)			BS(1), I(1)				
Dacelo leachii	blue-winged kookaburra	C	-	14	U(1)						BS(2), I(2), S(1)	I(2)		BS(1)	B(5)
Dacelo novaeguineae	laughing kookaburra	C	-	13	U(1)	U(1)		I(2)			I(1)	I(1)		BS(6)	B(1)
Dendrocygna eytoni	plumed whistling duck	C	-	1		U(1)									
Dicaeum hirundinaceum	mistletoebird	C	-	9	U(1)	U(1)		BS(4), I(2)			I(1)				
Dicrurus bracteatus	spangled drongo	C	-	4				I(2)						I(1)	BS(1)
Dromaius novaehollandiae	emu	C	-	9	U(1)			I(2)	I(1)		I(3)			BS(1)	I(1)
Egretta novaehollandiae	white-faced heron	C	-	3	U(1)							I(1)			B(1)
Elanus axillaris	black-shouldered kite	C	-	2				I(2)							
Elseyornis melanops	black-fronted dotterel	C	-	3				I(1)							I(2)
Entomyzon cyanotis	blue-faced honeyeater	C	-	9	U(1)	U(1)		I(2)						BS(5)	
Eolophus roseicapilla	galah	C	-	16	U(1)			BS(2), I(3)			BS(5), I(1)	I(2)		BS(2)	
Eopsaltria australis	eastern yellow robin	C	-	1										BS(1)	
Ephippiorhynchus asiaticus	black-necked stork	C	-	1	U(1)										
Eudynamys orientalis	eastern koel	C	-	1				I(1)							
Eurystomus orientalis	dollarbird	C	-	16	U(1)			BS(1), I(4)	I(2)			I(3)		BS(1)	I(4)
Falco berigora	brown falcon	C	-	7				I(2)	I(1)		I(2)				I(2)
Falco cenchroides	nankeen kestrel	C	-	13	U(1)			I(3)			BS(7), I(1)	I(1)			

Scientific Name	Common Name	NC Act Status	EPBC Act Status	Total	AECOM		ERM	Ausecology							
					Oct 2018	May 2019	March 2021	Nov 2021	Dec 2021	March 2022	April 2022	Nov 2022	Oct 2022	Sept 2022	March 2023
Gavicalis virescens	singing honeyeater	C	-	17		U(1)		BS(4), I(3)			BS(5), S(1), I(1)			BS(1)	I(1)
Gelochelidon nilotica	gull-billed tern	SL	Ma, Mi	1	U(1)										
Geopelia cuneata	diamond dove	C	-	1							I(1)				
Geopelia humeralis	bar-shouldered dove	C	-	4	U(1)			I(2)						BS(1)	
Geopelia placida	peaceful dove	C	-	8	U(1)	U(1)		I(2)			S(1), I(1)			BS(2)	
Geophaps scripta scripta	squatter pigeon (southern subspecies)	V	V	12			U(1)				I(9)	I(2)			
Gerygone olivacea	white-throated gerygone	C	-	12	U(1)	U(1)		I(2)			BS(2), I(1)	I(1)		BS(2)	B(2)
Grallina cyanoleuca	magpie lark	C	-	25	U(1)	U(1)		BS(1), I(2)		CT(1)	BS(5), I(3)	I(1)	CT(2)	BS(2)	B(6)
Grus rubicunda	brolga	C	-	16				I(2)			I(2)	I(1)			B(6), I(5)
Gymnorhina tibicen	Australian magpie	C	-	51	U(1)	U(1)		BS(2), CT(3), I(2)		CT(4)	BS(15)		CT(3)	BS(5)	B(14), I(1)
Haliaeetus leucogaster	white-bellied sea-eagle	C	Ma	1				I(1)							
Haliastur sphenurus	whistling kite	C	-	18	U(1)	U(1)		BS(2), I(3)			BS(3)	I(1)		BS(2)	I(1), B(4)
Himantopus himantopus	black-winged stilt	C	-	4	U(1)			I(2)			I(1)				
Hirundo neoxena	welcome swallow	C	Ma	6				BS(1), I(2)			BS(2)			BS(1)	
Hydroprogne caspia	Caspian tern	C	Ma, Mi	4	U(1)	U(1)		I(2)							
Lalage leucomela	varied triller	C	-	1	U(1)										
Lalage tricolor	white-winged triller	C	-	3				I(2)						BS(1)	
Lichmera indistincta	brown honeyeater	C	-	8		U(1)								BS(7)	
Malurus lamberti	variegated fairy-wren	C	-	9				BS(2), I(1)			BS(3), I(1)	I(1)			I(1)
Malurus melanocephalus	red-backed fairy-wren	C	-	20	U(1)	U(1)		BS(1), I(3)	I(1)		BS(5), I(1)	I(2)		BS(2)	I(1), B(2)
Malurus sp.	Fairy-wren sp.	C	-	2							BS(2)				
Manorina flavigula	yellow-throated miner	C	-	19		U(1)		BS(4), CT(1), I(2)		BS(1)	BS(10)				
Manorina melanocephala	noisy miner	C	-	23	U(1)	U(1)					BS(4)	I(1)		BS(5)	B(11))
Megalurus timoriensis	tawny grassbird	C	-	3				I(2)							I(1)
Melithreptus albogularis	white-throated honeyeater	C	-	14				BS(1)			I(1)			BS(8)	B(4)
Melithreptus lunatus	white-naped honeyeater	C	-	2	U(1)	U(1)									
Merops ornatus	rainbow bee-eater	C	Ma	20	U(1)	U(1)		BS(3), I(3)	I(1)		I(2)	I(1)		BS(4), I(1)	B(3)
Microcarbo melanoleucos	little pied cormorant	C	-	2	U(1)						BS(1)				
Microeca fascinans	jacky winter	C	-	1										BS(1)	
Milvus migrans	black kite	C	-	8		U(1)		BS(1), I(2)			BS(2)	I(1)		BS(1)	
Mirafra javanica	Horsfield's Bushlark	C	-	2							S(1)			S(1)	
Myiagra inquieta	restless flycatcher	C	-	1	U(1)										
Myiagra rubecula	leaden flycatcher	C	-	10		U(1)		I(1)				I(2)		BS(5), I(1)	
Ninox boobook	southern boobook	C	-	10				S(2)			I(1), S(2)			I(1), S(4)	
Nymphicus hollandicus	cockatiel	C	-	1				I(1)							
Ocyphaps lophotes	crested pigeon	C	-	19	U(1)	U(1)		CT(1), I(3)			BS(11)				B(2)
Oriolus sagittatus	olive-backed oriole	C	-	6				BS(2), I(2)	I(1)			I(1)			
Pachycephala rufiventris	rufous whistler	C	-	16	U(1)			BS(1), I(2)	I(1)		BS(2), I(1)	I(1)		BS(4)	B(3)

Scientific Name	Common Name	NC Act Status	EPBC Act Status	Total	AECOM		ERM	Ausecology							
					Oct 2018	May 2019	March 2021	Nov 2021	Dec 2021	March 2022	April 2022	Nov 2022	Oct 2022	Sept 2022	March 2023
Pardalotus striatus	striated pardalote	C	-	39	U(1)	U(1)				BS(1)	BS(5), I(4)	I(2)		BS(6)	B(19)
Pelecanus conspicillatus	Australian pelican	C	Ma	3	U(1)	U(1)		I(1)							
Petrochelidon ariel	fairy martin	C	-	6				BS(2), I(2)			I(1)			BS(1)	
Petrochelidon nigricans	tree martin	C	-	3				I(2)			I(1)				
Phalacrocorax sulcirostris	black cormorant	C	-	2	U(1)			I(1)							
Phalacrocorax varius	pied cormorant	C	-	2				I(2)							
Phaps chalcoptera	common bronze wing	C	-	6									CT(5)	BS(1)	
Philemon citreogularis	little friarbird	C	-	30	U(1)	U(1)		BS(7), I(3)	I(1)			I(1)		BS(7)	B(9)
Philemon corniculatus	noisy friarbird	C	-	59	U(1)	U(1)		BS(3), I(5)				I(1)		BS(9)	B(39)
Platalea regia	royal spoonbill	C	-	3	U(1)			I(2)							
Platycercus adscitus	pale-headed rosella	C	-	40	U(1)	U(1)		BS(4), CT(2), I(3)	CT(1), I(1)		BS(8), I(10)	I(2)		BS(1)	B(6)
Plectorhyncha lanceolata	striped honeyeater	C	-	17				BS(4), I(2)			BS(3)			BS(1)	B(7)
Podargus strigoides	tawny frogmouth	C	-	38	U(1)	U(1)		I(1), S(1)			I(1), S(23)	I(1)		BS(2), S(7)	
Podiceps cristatus	great crested grebe	C	-	4		U(1)		I(2)			BS(1)				
Pomatostomus halli	Hall's babbler	C	-	1								I(1)			
Pomatostomus temporalis	grey-crowned babbler	C	-	31				BS(3), I(2), CT(3)	I(1)		BS(8), I(4)	I(2)	CT(1)		B(6), I(1)
Rhipidura albiscapa	grey fantail	C	-	2		U(1)					I(1)				
Rhipidura leucophrys	willie wagtail	C	-	35	U(1)			BS(5), I(5)			BS(19), I(2)			BS(1), S(1)	B(1)
Rhipidura rufifrons	rufous fantail	SL	Ma, Mi	1	U(1)										
Scythrops novaehollandiae	channel-billed cuckoo	C	Ma	3				I(2)	I(1)						
Smicrornis brevirostris	weebill	C	-	33	U(1)	U(1)		BS(3), I(1)						BS(6)	B(21)
Strepera graculina	pied currawong	C	-	2										BS(1), I(1)	
Struthidea cinerea	apostlebird	C	-	16	U(1)	U(1)		BS(3), I(2)		CT(1)	I(1), I(1)	I(1)		BS(1), S(1)	B(3)
Synoicus ypsilophorus	brown quail	C	-	41	U(1)			I(3)			BS(4), H(2), S(1), I(7)	I(3)			H(1), B(9)
Tachybaptus novaehollandiae	Australasian grebe	C	-	2							BS(1)				I(1)
Taeniopygia bichenovii	double-barred finch	C	-	13	U(1)	U(1)		BS(1), I(1)			BS(3), I(3)	I(1)		BS(1)	I(1)
Taeniopygia guttata	zebra finch	C	-	6				BS(2), I(2)			BS(1)			BS(1)	
Todiramphus macleayii	forest kingfisher	C	-	2	U(1)	U(1)									
Todiramphus pyrrhopygius	red-backed kingfisher	C	-	1							I(1)				
Todiramphus sanctus	sacred kingfisher	C	-	1										BS(1)	
Trichoglossus moluccanus	rainbow lorikeet	C	-	34	U(1)			BS(1), I(1)			BS(1)			BS(7)	B(23)
Turnix varius	painted button-quail	C	-	2								I(1)		S(1)	
Turnix velox	little button-quail	C	-	1							I(1)				
Vanellus miles	masked lapwing	C	-	3				I(2)				I(1)			
Mammalia															
Aepyprymnus rufescens	rufous bettong	C	-	22	U(1)			I(1)		CT(4)			CT(11)	I(2), S(3)	
Austronomus australis	white-striped freetail bat	C	-	4			U(1)				A(2)			A(1)	

Scientific Name	Common Name	NC Act Status	EPBC Act Status	Total	AECOM		ERM	Ausecology							
					Oct 2018	May 2019	March 2021	Nov 2021	Dec 2021	March 2022	April 2022	Nov 2022	Oct 2022	Sept 2022	March 2023
Bos taurus	cattle	*	*	5	U(1)	U(1)			I(1)	CT(2)					
Canis sp.	dingo/domestic dog	*	*	12	U(2)	U(1)			CT(2), I(1)	CT(2)	I(1), BS(1)	I(1)		S(1)	
Chaerephon jobensis	northern freetail bat	C	-	2574	U(1)			A(246)			A(1026)			A(1301)	
Chalinolobus gouldii	Gould's wattled bat	C	-	241	U(1)		U(1)	A(50)			A(99)			A(90)	
Chalinolobus morio	chocolate wattled bat	C	-	66	U(1)						A(12)			A(53)	
Chalinolobus nigrogriseus	Hoary wattled bat	C	-	6			U(1)				A(3)			A(2)	
Chalinolobus picatus	little pied bat	C	-	37	U(1)						A(21)	A(1)		A(14)	
Felis catus	feral cat	*	*	4	U(1)				CT(3)						
Isoodon macrourus	northern brown bandicoot	C	-	1		U(1)									
Lagorchestes conspicillatus	spectacled hare-wallaby	C	-	2							S(1), S(1)				
Macropus giganteus	eastern grey kangaroo	C	-	144	U(1)	U(1)		CT(35)	CT(5), I(1)	CT(45)	I(5), S(5)	I(1)	CT(40)	I(1), S(3)	H(1)
Macropus rufogriseus	red-necked wallaby	C	-	1	U(1)										
Macropus sp.	macropod sp.	C	-	2				CT(2)							
Rattus rattus	black rat	*	*	4						CT(3)			CT(1)		
Miniopterus orianae	southern bent-wing bat	C	-	10							A(8)			A(2)	
Mormopterus beccarii	Beccari's free-tailed bat	C	-	1			U(1)								
Mormopterus eleryi	hairy-nosed free-tailed bat	C	-	1	U(1)										
Mormopterus lumsdenae	northern free-tailed bat	C	-	1	U(1)										
Mormopterus ridei	ride's free-tailed bat	C	-	2	U(1)		U(1)								
Mus musculus	house mouse	*	*	9						CT(3)	P(2)		P(4)		
Nyctophilus sp.	Nyctophilus sp.	^	^	6	U(1)			A(1)			A(2)			A(2)	
Oryctolagus cuniculus	European rabbit	*	*	9	U(1)	U(1)		I(1), CT(2)		CT(1)	H(1), BS(1)			I(1)	
Ozimops lumsdenae	-	C	-	244				A(94)			A(54)			A(96)	
Ozimops ridei	Ride's Free-tailed Bat	C	-	147				A(17)			A(85)			A(45)	
Petauroides volans	greater glider	E	E	29	U(1)			S(2)			S(1)			I(2), S(23)	
Petaurus breviceps	sugar glider	C	-	20		U(1)		S(3)			I(1), S(9)			S(6)	
Petaurus norfolcensis	squirrel glider	C	-	3				S(1)			S(1)			S(1)	
Phascolarctos cinereus	koala	E	E	7	S(1)				I(1)	CT(3)	I(1)			S(1)	
Pteropus scapulatus	little red flying-fox	C	-	8				S(8)							
Saccolaimus flaviventris	yellow-bellied sheath-tailed bat	C	-	152			U(1)	A(131)			A(11)			A(9)	
Scotorepens balstoni	western broad-nosed bat	C	-	5				A(1)			A(2)			A(2)	
Scotorepens greyii	little broad-nosed bat	C	-	17				A(6)			A(6)			A(5)	
Scotorepens sanborni	northern broad-nosed bat	C	-	54				A(6)			A(28)			A(20)	
Sminthopsis macroura	stripe-faced dunnart	C	-	2							P(2)				
Sus scrofa	feral pig	*	*	29	U(1)	U(1)		CT(6), I(1)	CT(2)		I(1)	I(16)	CT(1)		
Tachyglossus aculeatus	short-beaked echidna	SL	-	12		U(1)				CT(5)	S(1)		CT(2)	I(2)	CT(1)
Taphozous troughtoni	Troughton's sheath-tailed bat	C	-	1										A(1)	
Trichosurus vulpecula	common brushtail possum	C	-	44	U(1)					CT(18)	P(1), S(6)		CT(7)	S(10)	P(1)
Vespadelus pumilus	eastern forest bat	C	-	1			U(1)								
Vespadelus sp.	forest bat sp.	C	-	1							S(1)				
Vespadelus troughtoni	eastern cave bat	C	-	220	U(1)		U(1)	A(14)			A(136)			A(68)	

Scientific Name	Common Name	NC Act Status	EPBC Act Status	Total	AECOM		ERM	Ausecology							
					Oct 2018	May 2019	March 2021	Nov 2021	Dec 2021	March 2022	April 2022	Nov 2022	Oct 2022	Sept 2022	March 2023
Wallabia bicolor	swamp wallaby	C	-	32				CT(2), I(2)	I(2)	CT(14)	S(4)		CT(2)		I(4), CT(2)
Reptilia															
Amphibolurus burnsi	Burns's dragon	C	-	1				P(1)							
Anilios affinis	small-headed blind snake	C	-	1				P(1)							
Anilios unguirostris	claw-snouted blind snake	C	-	1				P(1)							
Carlia munda	shaded-litter rainbow-skink	C	-	12				H(2), P(1)			H(3), I(3)				P(3)
Carlia pectoralis	open-litter rainbow skink	C	-	1	U(1)										
Carlia rubigo	orange-flanked rainbow skink	C	-	29				H(10), P(8)			H(5), I(6)				
Carlia sp.	Carlia sp.	C	-	4							H(2), I(1)				H(1)
Carlia vivax	tussock rainbow-skink	C	-	6	U(1)	U(1)		I(2)							I(2)
Chlamydosaurus kingii	frill-necked lizard	C	-	2					I(1)						P(1)
Cryptoblepharus adamsi	Adams' snake-eyed skink	C	-	6				I(2)			H(2), I(2)				
Cryptoblepharus pulcher pulcher	elegant snake-eyed skink	C	-	1									P(1)		
Cryptoblepharus sp.	Cryptoblepharus sp.	C	-	3				I(2)				I(1)			
Cryptophis boschmai	Carpentaria whip snake	C	-	2							P(2)				
Ctenotus robustus	eastern striped skink	C	-	4				I(1)			H(1), I(1)	I(1)			
Ctenotus spaldingi	straight-browed ctenotus	C	-	1							I(1)				
Ctenotus strauchii	eastern barred wedgesnout ctenotus	C	-	3							H(2)				P(1)
Denisonia maculata	ornamental snake	V	V	7				S(3)				I(1)		S(1)	P(1), H(1)
Diplodactylus conspicillatus	fat-tailed gecko	C	-	1	U(1)										
Diplodactylus platyurus	eastern fat-tailed gecko	C	-	68							P(49), S(14)		P(5)		
Diplodactylus vittatus	eastern stone gecko	C	-	22				S(1)			S(20)			S(1)	
Diporiphora australis	tommy roundhead	C	-	6				I(1)			H(3), I(1)		P(1)		
Gehyra catenata	chain-backed dtella	C	-	71				H(25)			S(45)			S(1)	
Gehyra dubia	dubious dtella	C	-	163	U(1)	U(1)		H(17), S(50)			H(2), I(1), S(88)	I(1)			H(2)
Glaphyromorphus punctulatus	fine-spotted mulch-skink	C	-	1							H(1)				
Heteronotia binoei	Bynoe's gecko	C	-	179		U(1)		H(15), I(2), P(6)			H(64), I(16), P(7), S(49), BS(1)	I(3)	P(2)	S(1)	I(8), P(1), H(4)
Lerista fragilis	eastern mulch-slider	C	-	2							H(2)				
Lucasium steindachneri	box-patterned gecko	C	-	32	U(1)			I(1)			P(2), S(24)		P(4)		
Lygisaurus foliorum	tree-base litter-skink	C	-	8				H(3)			I(2), P(1)		P(2)		
Menetia greyii	common dwarf skink	C	-	10				H(1), I(1), P(2)			H(2), I(2), P(2)				
Morethia boulengeri	south-eastern morethia skink	C	-	4				H(1), P(1)					P(2)		
Morethia taeniopleura	fire-tailed skink	C	-	33				H(1), I(2), P(1)			H(12), I(5), S(1)				I(2), P(7), H(2)
Nephrurus levis	knob-tailed gecko	C	-	10	U(1)										
Oedura monilis	ocellated velvet gecko	C	-	38				H(12)			S(25)				I(1)

Scientific Name	Common Name	NC Act Status	EPBC Act Status	Total	AECOM		ERM	Ausecology							
					Oct 2018	May 2019	March 2021	Nov 2021	Dec 2021	March 2022	April 2022	Nov 2022	Oct 2022	Sept 2022	March 2023
Paradelma orientalis	Brigalow scaly-foot	C	-	1							I(1)				
Pogona barbata	eastern bearded dragon	C	-	2				I(1)					I(1)		
Pseudonaja textilis	eastern brown snake	C	-	1	U(1)										
Pygmaeascincus timlowi	dwarf litter-skink	C	-	4				I(1)			H(1), I(1)				P(1)
Strophurus williamsi	eastern spiny-tailed gecko	C	-	22				H(1)			S(21)				
Tiliqua scincoides	common blue-tongued skink	C	-	1							I(1)				
Varanus tristis	freckled monitor	C	-	3						CT(3)					

Survey type and count (X): Anabat (A), Bird Survey (BS), Camera Trapping (CT), Herpetofauna Search (H), Incidental (I), Pitfall & Elliot Trapping (P), Spotlight (S), Unknown (U).

NC Act: Extinct (EX), Extinct in the Wild (PE), Critically Endangered (CR), Endangered (E), Vulnerable (V), Near Threatened (NT), Special Least Concern (SL) and Least Concern (C).

EPBC Act: Extinct (EX), Extinct in the Wild (XW), Critically Endangered (CE), Endangered (E), Vulnerable (V), Conservation Dependent (CD), Marine (Ma) and Migratory (Mi)

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Appendix H – Desktop assessment search results

resources.QLD.GOV.AU



Vegetation management report

For Lot: 8 Plan: SP277384

03/07/2023

Queensland Government

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Recent changes

Updated mapping

Updated vegetation mapping was released on 8 September 2022 and includes the most recent Queensland Herbarium scientific updates to the Regulated Vegetation Management Map, regional ecosystems, wetland, high-value regrowth and essential habitat mapping.

The Department of Environment and Science have also updated their protected plant and koala protection mapping to align with the Queensland Herbarium scientific updates.

Overview

Based on the lot on plan details you have supplied, this report provides the following detailed information:

Property details - information about the specified Lot on Plan, lot size, local government area, bioregion(s), subregion(s) and catchment(s);

Vegetation management framework - an explanation of the application of the framework and contact details for the Department of Resources who administer the framework;

Vegetation management framework details for the specified Lot on Plan including:

- the vegetation management categories on the property;
- the vegetation management regional ecosystems on the property;
- vegetation management watercourses or drainage features on the property;
- vegetation management wetlands on the property;
- vegetation management essential habitat on the property;
- whether any area management plans are associated with the property;
- whether the property is coastal or non-coastal; and
- whether the property is mapped as Agricultural Land Class A or B;

Protected plant framework - an explanation of the application of the framework and contact details for the Department of Environment and Science who administer the framework, including:

- high risk areas on the protected plant flora survey trigger map for the property;

Koala protection framework - an explanation of the application of the framework and contact details for the Department of Environment and Science who administer the framework; and

Koala protection framework details for the specified Lot on Plan including:

- the koala district the property is located in;
- koala priority areas on the property;
- core and locally refined koala habitat areas on the property;
- whether the lot is located in an identified koala broad-hectare area; and
- koala habitat regional ecosystems on the property for core koala habitat areas.

This information will assist you to determine your options for managing vegetation under:

- the vegetation management framework, which may include:

- exempt clearing work;
- accepted development vegetation clearing code;
- an area management plan;
- a development approval;

- the protected plant framework, which may include:

- the need to undertake a flora survey;
- exempt clearing;
- a protected plant clearing permit;

- the koala protection framework, which may include:

- exempted development;
- a development approval;
- the need to undertake clearing sequentially and in the presence of a koala spotter.

Other laws

The clearing of native vegetation is regulated by both Queensland and Australian legislation, and some local governments also regulate native vegetation clearing. You may need to obtain an approval or permit under another Act, such as the Commonwealth Government's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Section 8 of this guide provides contact details of other agencies you should confirm requirements with, before commencing vegetation clearing.

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1. Property details

1.1 Tenure and title area

All of the lot, plan, tenure and title area information associated with property Lot: 8 Plan: SP277384, are listed in Table 1.

Table 1: Lot, plan, tenure and title area information for the property

Lot	Plan	Tenure	Property title area (sq metres)
8	SP277384	Freehold	176,994,944
A	CNS45	Easement	0.0
K	SP249130	Easement	0.0
PK	SP277384	Easement	57,810
G	CNS400	Easement	8,599
C	CNS151	Easement	0.0
H	SP206091	Easement	70,290
A	CNS44	Easement	14,860
F	CNS400	Easement	0.0
A	SP156917	Easement	0.0
B	GV60	Easement	0.0
A	GV60	Easement	68,898
D	CP906162	Easement	7,260
C	AP17446	Lands Lease	260
A	CNS399	Easement	4,500
J	SP206092	Easement	90,900
B	CNS151	Easement	60,980
N	SP316951	Easement	653,900
M	SP312986	Easement	77,490
D	CNS365	Easement	105,400
E	CNS406	Easement	1,161
EMT	GV62	Easement	72,060
AA	SP277384	Easement	58,060
E	SP208640	Easement	1,110
A	CNS151	Easement	83,210

The tenure of the land may affect whether clearing is considered exempt clearing work or may be carried out under an accepted development vegetation clearing code.

Does this property have a freehold tenure and is in the Wet Tropics of Queensland World Heritage Area?

No, this property is not located in the Wet Tropics of Queensland World Heritage Area.

1.2 Property location

Table 2 provides a summary of the locations for property Lot: 8 Plan: SP277384, in relation to natural and administrative boundaries.

Table 2: Property location details

Local Government(s)
Isaac Regional

Bioregion(s)	Subregion(s)
Brigalow Belt	Northern Bowen Basin
Brigalow Belt	Isaac - Comet Downs

Catchment(s)
Fitzroy

2. Vegetation management framework (administered by the Department of Resources)

The *Vegetation Management Act 1999* (VMA), the Vegetation Management Regulation 2012, the *Planning Act 2016* and the Planning Regulation 2017, in conjunction with associated policies and codes, form the Vegetation Management Framework.

The VMA does not apply to all land tenures or vegetation types. State forests, national parks, forest reserves and some tenures under the *Forestry Act 1959* and *Nature Conservation Act 1992* are not regulated by the VMA. Managing or clearing vegetation on these tenures may require approvals under these laws.

The following native vegetation is not regulated under the VMA but may require permit(s) under other laws:

- grass or non-woody herbage;
- a plant within a grassland regional ecosystem prescribed under Schedule 5 of the Vegetation Management Regulation 2012; and
- a mangrove.

2.1 Exempt clearing work

Exempt clearing work is an activity for which you do not need to notify the Department of Resources or obtain an approval under the vegetation management framework. Exempt clearing work was previously known as exemptions.

In areas that are mapped as Category X (white in colour) on the regulated vegetation management map (see section 4.1), and where the land tenure is freehold, indigenous land and leasehold land for agriculture and grazing purposes, the clearing of vegetation is considered exempt clearing work and does not require notification or development approval under the vegetation management framework. For all other land tenures, contact the Department of Resources before commencing clearing to ensure that the proposed activity is exempt clearing work.

A range of routine property management activities are considered exempt clearing work. A list of exempt clearing work is available at
https://www.qld.gov.au/environment/land/management/vegetation/clearing-approvals/exemptions.

Exempt clearing work may be affected if the proposed clearing area is subject to development approval conditions, a covenant, an environmental offset, an exchange area, a restoration notice, or an area mapped as Category A. Exempt clearing work may require approval under other Commonwealth, State or Local Government laws, or local government planning schemes. Contact the Department of Resources prior to clearing in any of these areas.

2.2 Accepted development vegetation clearing codes

Some clearing activities can be undertaken under an accepted development vegetation clearing code. The codes can be downloaded at
https://www.qld.gov.au/environment/land/management/vegetation/clearing-approvals/codes

If you intend to clear vegetation under an accepted development vegetation clearing code, you must notify the Department of Resources before commencing. The information in this report will assist you to complete the online notification form.

You can complete the online form at
https://apps.dnrm.qld.gov.au/vegetation/

2.3 Area management plans

Area Management Plans (AMP) provide an alternative approval system for vegetation clearing under the vegetation management framework. They list the purposes and clearing conditions that have been approved for the areas covered by the plan. It is not necessary to use an AMP, even when an AMP applies to your property.

On 8 March 2020, AMPs ended for fodder harvesting, managing thickened vegetation and managing encroachment. New notifications cannot be made for these AMPs. You will need to consider options for fodder harvesting, managing thickened vegetation or encroachment under a relevant accepted development vegetation clearing code or apply for a development approval.

New notifications can be made for all other AMPs. These will continue to apply until their nominated end date.

If an Area Management Plan applies to your property for which you can make a new notification, it will be listed in Section 3.6 of this report. Before clearing under one of these AMPs, you must first notify the Department of Resources and then follow the conditions and requirements listed in the AMP.
https://www.qld.gov.au/environment/land/management/vegetation/clearing-approvals/area-management-plans

2.4 Development approvals

If under the vegetation management framework your proposed clearing is not exempt clearing work, or is not permitted under an accepted development vegetation clearing code, or an AMP, you may be able to apply for a development approval. Information on how to apply for a development approval is available at
https://www.qld.gov.au/environment/land/management/vegetation/clearing-approvals/development

2.5. Contact information for the Department of Resources

For further information on the vegetation management framework:
Phone 135VEG (135 834)
Email vegetation@resources.qld.gov.au
Visit https://www.resources.qld.gov.au/?contact=vegetation to submit an online enquiry.

3. Vegetation management framework for Lot: 8 Plan: SP277384

3.1 Vegetation categories

The vegetation categories on your property are shown on the regulated vegetation management map in section 4.1 of this report. A summary of vegetation categories on the subject lot are listed in Table 3. Descriptions for these categories are shown in Table 4.

Table 3: Vegetation categories for subject property. Total area: 17748.31ha

Vegetation category	Area (ha)
Category B	9249.6
Category C	0.0
Category R	4.4
Category X	8494.3

Table 4: Description of vegetation categories

Category	Colour on Map	Description	Requirements / options under the vegetation management framework
A	red	Compliance areas, environmental offset areas and voluntary declaration areas	Special conditions apply to Category A areas. Before clearing, contact the Department of Resources to confirm any requirements in a Category A area.
B	dark blue	Remnant vegetation areas	Exempt clearing work, or notification and compliance with accepted development vegetation clearing codes, area management plans or development approval.
C	light blue	High-value regrowth areas	Exempt clearing work, or notification and compliance with managing Category C regrowth vegetation accepted development vegetation clearing code.
R	yellow	Regrowth within 50m of a watercourse or drainage feature in the Great Barrier Reef catchment areas	Exempt clearing work, or notification and compliance with managing Category R regrowth accepted development vegetation clearing code or area management plans.
X	white	Clearing on freehold land, indigenous land and leasehold land for agriculture and grazing purposes is considered exempt clearing work under the vegetation management framework. Contact the Department of Resources to clarify whether a development approval is required for other State land tenures.	No permit or notification required on freehold land, indigenous land and leasehold land for agriculture and grazing. A development approval may be required for some State land tenures.

Property Map of Assessable Vegetation (PMAV)

The following Property Map of Assessable Vegetation (PMAVs) may be present on this property:

Reference number

2013/003164

2015/003474

Reference number

2009/002508

3.2 Regional ecosystems

The endangered, of concern and least concern regional ecosystems on your property are shown on the vegetation management supporting map in section 4.2 and are listed in Table 5.

A description of regional ecosystems can be accessed online at https://www.qld.gov.au/environment/plants-animals/plants/ecosystems/descriptions/

Table 5: Regional ecosystems present on subject property

Regional Ecosystem	VMA Status	Category	Area (Ha)	Short Description	Structure Category
11.3.1	Endangered	B	16.88	Acacia harpophylla and/or Casuarina cristata open forest on alluvial plains	Mid-dense
11.3.1	Endangered	R	0.38	Acacia harpophylla and/or Casuarina cristata open forest on alluvial plains	Mid-dense
11.3.2	Of concern	B	515.44	Eucalyptus populnea woodland on alluvial plains	Sparse
11.3.2	Of concern	C	less than 0.01	Eucalyptus populnea woodland on alluvial plains	Sparse
11.3.2	Of concern	R	2.01	Eucalyptus populnea woodland on alluvial plains	Sparse
11.3.21	Of concern	B	39.33	Dichanthium sericeum and/or Astrebla spp. grassland on alluvial plains. Cracking clay soils	Grassland Sch 5
11.3.25	Least concern	B	450.91	Eucalyptus tereticornis or E. camaldulensis woodland fringing drainage lines	Sparse
11.3.25	Least concern	R	0.13	Eucalyptus tereticornis or E. camaldulensis woodland fringing drainage lines	Sparse
11.3.27	Least concern	B	19.84	Freshwater wetlands	Other
11.3.3	Of concern	B	35.79	Eucalyptus coolabah woodland on alluvial plains	Sparse
11.3.3	Of concern	R	0.31	Eucalyptus coolabah woodland on alluvial plains	Sparse
11.3.4	Of concern	B	18.35	Eucalyptus tereticornis and/or Eucalyptus spp. woodland on alluvial plains	Sparse
11.3.7	Least concern	B	170.11	Corymbia spp. open woodland on alluvial plains	Very sparse
11.3.7	Least concern	C	less than 0.01	Corymbia spp. open woodland on alluvial plains	Very sparse
11.3.7	Least concern	R	less than 0.01	Corymbia spp. open woodland on alluvial plains	Very sparse
11.4.13	Least concern	B	106.28	Eucalyptus orgadophila open woodland on Cainozoic clay plains	Very sparse
11.4.4	Least concern	B	20.07	Dichanthium spp., Astrebla spp. grassland on Cainozoic clay plains	Grassland Sch 5
11.4.4	Least concern	R	less than 0.01	Dichanthium spp., Astrebla spp. grassland on Cainozoic clay plains	Grassland Sch 5
11.4.8	Endangered	B	36.17	Eucalyptus cambageana woodland to open forest with Acacia harpophylla or A. argyrodendron on Cainozoic clay plains	Sparse
11.4.8	Endangered	R	0.09	Eucalyptus cambageana woodland to open forest with Acacia harpophylla or A. argyrodendron on Cainozoic clay plains	Sparse

Regional Ecosystem	VMA Status	Category	Area (Ha)	Short Description	Structure Category
11.4.9	Endangered	B	303.62	Acacia harpophylla shrubby woodland with Terminalia oblongata on Cainozoic clay plains	Sparse
11.4.9	Endangered	R	0.39	Acacia harpophylla shrubby woodland with Terminalia oblongata on Cainozoic clay plains	Sparse
11.5.12	Least concern	B	26.56	Corymbia clarksoniana woodland and other Corymbia spp. and Eucalyptus spp. on Cainozoic sand plains and/or remnant surfaces	Sparse
11.5.3	Least concern	B	3,687.11	Eucalyptus populnea +/- E. melanophloia +/- Corymbia clarksoniana woodland on Cainozoic sand plains and/or remnant surfaces	Sparse
11.5.3	Least concern	C	less than 0.01	Eucalyptus populnea +/- E. melanophloia +/- Corymbia clarksoniana woodland on Cainozoic sand plains and/or remnant surfaces	Sparse
11.5.3	Least concern	R	0.12	Eucalyptus populnea +/- E. melanophloia +/- Corymbia clarksoniana woodland on Cainozoic sand plains and/or remnant surfaces	Sparse
11.5.9	Least concern	B	56.03	Eucalyptus crebra and other Eucalyptus spp. and Corymbia spp. woodland on Cainozoic sand plains and/or remnant surfaces	Sparse
11.5.9	Least concern	C	less than 0.01	Eucalyptus crebra and other Eucalyptus spp. and Corymbia spp. woodland on Cainozoic sand plains and/or remnant surfaces	Sparse
11.8.11	Of concern	B	878.54	Dichanthium sericeum grassland on Cainozoic igneous rocks	Grassland Sch 4
11.8.11	Of concern	R	0.72	Dichanthium sericeum grassland on Cainozoic igneous rocks	Grassland Sch 4
11.8.13	Endangered	B	17.81	Semi-evergreen vine thicket and microphyll vine forest on Cainozoic igneous rocks	Dense
11.8.5	Least concern	B	1,348.14	Eucalyptus orgadophila open woodland on Cainozoic igneous rocks	Very sparse
11.8.5	Least concern	R	0.23	Eucalyptus orgadophila open woodland on Cainozoic igneous rocks	Very sparse
11.9.2	Least concern	B	1,314.83	Eucalyptus melanophloia +/- E. orgadophila woodland to open woodland on fine-grained sedimentary rocks	Sparse
11.9.2	Least concern	R	0.03	Eucalyptus melanophloia +/- E. orgadophila woodland to open woodland on fine-grained sedimentary rocks	Sparse
11.9.3	Least concern	B	108.07	Dichanthium spp., Astrebla spp. grassland on fine-grained sedimentary rocks	Grassland Sch 4
11.9.5	Endangered	B	79.71	Acacia harpophylla and/or Casuarina cristata open forest to woodland on fine-grained sedimentary rocks	Mid-dense
non-rem	None	X	8,494.31	None	None

Please note:

1. All area and area derived figures included in this table have been calculated via reprojecting relevant spatial features to Albers equal-area conic projection (central meridian = 146, datum Geocentric Datum of Australia 1994). As a result, area figures may differ slightly if calculated for the same features using a different co-ordinate system.

2. If Table 5 contains a Category 'plant', please be aware that this refers to 'plantations' such as forestry, and these areas are considered non-remnant under the VMA.

The VMA status of the regional ecosystem (whether it is endangered, of concern or least concern) also determines if any of the following are applicable:

- exempt clearing work;
- accepted development vegetation clearing codes;
- performance outcomes in State Code 16 of the State Development Assessment Provisions (SDAP).

3.3 Watercourses

Vegetation management watercourses and drainage features for this property are shown on the vegetation management supporting map in section 4.2.

3.4 Wetlands

Vegetation management wetlands are present on this property and are shown on the vegetation management supporting map in section 4.2 of this report.

3.5 Essential habitat

Under the VMA, essential habitat for protected wildlife is native wildlife prescribed under the *Nature Conservation Act 1992* (NCA) as critically endangered, endangered, vulnerable or near-threatened wildlife.

Essential habitat for protected wildlife includes suitable habitat on the lot, or where a species has been known to occur up to 1.1 kilometres from a lot on which there is assessable vegetation. These important habitat areas are protected under the VMA.

Any essential habitat on this property will be shown as blue hatching on the vegetation supporting map in section 4.2.

If essential habitat is identified on the lot, information about the protected wildlife species is provided in Table 6 below. The numeric labels on the vegetation management supporting map can be cross referenced with Table 6 to outline the essential habitat factors for that particular species. There may be essential habitat for more than one species on each lot, and areas of Category A, Category B and Category C can be mapped as Essential Habitat.

Essential habitat is compiled from a combination of species habitat models and buffered species records. Regional ecosystem is a mandatory essential habitat factor, unless otherwise stated. Essential habitat, for protected wildlife, means an area of vegetation shown on the Regulated Vegetation Management Map -

1) that has at least 3 essential habitat factors for the protected wildlife that must include any essential habitat factors that are stated as mandatory for the protected wildlife in the essential habitat database. Essential habitat factors are comprised of - regional ecosystem (mandatory for most species), vegetation community, altitude, soils, position in landscape; or

2) in which the protected wildlife, at any stage of its life cycle, is located.

If there is no essential habitat mapping shown on the vegetation management supporting map for this lot, and there is no table in the sections below, it confirms that there is no essential habitat on the lot.

Category A and/or Category B and/or Category C

Table 6: Essential habitat in Category A and/or Category B and/or Category C

Label	Scientific Name	Common Name	NCA Status	Vegetation Community	Altitude	Soils	Position in Landscape
483	Denisonia maculata	ornamental snake	V	Riparian woodland/open forest and shrub/woodland including Brigalow Acacia harpophylla; into drier habitats in summer.	100-450m.	Cracking clay with gilgai/soil crack microrelief and sandy loam substrates.	Near freshwater waterholes/creeks and low lying poorly drained areas that are frequently inundated by freshwater.

Label	Scientific Name	Common Name	NCA Status	Vegetation Community	Altitude	Soils	Position in Landscape
860	Phascolarctos cinereus	koala	E	Open forests and woodlands containing Eucalyptus, Corymbia, Lophostemon or Melaleuca trees having a trunk of a diameter of more than 10cm at 1.3m above the ground. Tree species used for food and habitat varies across the state and can include: Corymbia citriodora, Corymbia henryi, Corymbia intermedia, Eucalyptus acmenoides, Eucalyptus bancroftii, Eucalyptus biturbinata, Eucalyptus blakelyi, Eucalyptus brownii, Eucalyptus camaldulensis, Eucalyptus carnea, Eucalyptus chloroclada, Eucalyptus coolabah, Eucalyptus crebra, Eucalyptus dealbata, Eucalyptus drepanophylla, Eucalyptus dunnii, Eucalyptus eugenioides, Eucalyptus exserta, Eucalyptus fibrosa, Eucalyptus grandis, Eucalyptus helidonica, Eucalyptus latisinensis, Eucalyptus longirostrata, Eucalyptus major, Eucalyptus melanophloia, Eucalyptus melliodora, Eucalyptus microcarpa, Eucalyptus microcorys, Eucalyptus microtheca, Eucalyptus moluccana, Eucalyptus montivaga, Eucalyptus orgadophila, Eucalyptus papuana, Eucalyptus pilularis, Eucalyptus platyphylla, Eucalyptus populnea, Eucalyptus portuensis, Eucalyptus propinqua, Eucalyptus racemosa, Eucalyptus resinifera, Eucalyptus robusta, Eucalyptus saligna, Eucalyptus seeana, Eucalyptus siderophloia, Eucalyptus sideroxylon, Eucalyptus tereticornis, Eucalyptus thozetiana, Eucalyptus tindaliae, Eucalyptus umbra, Lophostemon confertus, Melaleuca leucadendra, Melaleuca quinquenervia.	Sea level to 1000m.	None	Riparian areas, plains and hill/escarpment slopes.
1785	Geophaps scripta scripta	squatter pigeon (southern subspecies)	V	Dry eucalypt woodland (including poplar box, spotted gum, yellow box, acacia and callitris), with sparse short grass, often on sandy areas near to permanent water; grassy eucalypt woodlands. Nest on ground near or under grass tussock, log or low bush.	None	None	Gravelly ridges, traprock and river flats.
1883	Rostratula australis	Australian painted-snipe	E	Shallow ephemeral and permanent swamps, water meadows and damp lake margins with rushes, long grass and herbage (e.g. lignum, chenopods) in good condition, as well as areas of muddy ground; also uses saltmarsh, samphire flats and waterlogged grasslands with trees present (e.g. Eucalyptus camaldulensis, E. brownii). Nest in shallow grass-lined hollow in damp ground under low shrub or grass tussock near shallow water.	None	None	Associated with wetlands.
2455	Petauroides armillatus	central greater glider	E	Tall mature open wet and dry eucalypt forest (Eucalyptus &/or Corymbia spp.) to low open eucalypt woodland; presence of hollow-bearing trees.	Sea level to 1300m.	Usually on soils of relatively high fertility.	None

Label	Regional Ecosystem (mandatory unless otherwise specified)
483	10.3.2, 10.3.3, 10.3.4, 10.3.7, 10.3.13, 10.3.14, 10.3.15, 10.3.16, 10.3.27, 10.3.30, 10.3.31, 10.4.1, 10.4.2, 10.4.3, 10.4.4, 10.4.5, 10.4.6, 10.4.7, 10.4.8, 10.5.5, 10.9.1. 10.9.6. 10.9.7, 11.3.1, 11.3.2, 11.3.3, 11.3.4, 11.3.6, 11.3.9, 11.3.10, 11.3.12, 11.3.15, 11.3.21, 11.3.23, 11.3.24, 11.3.25, 11.3.27, 11.3.28, 11.3.31, 11.3.34, 11.3.37, 11.3.38, 11.3.40, 11.4.2, 11.4.3, 11.4.4, 11.4.6, 11.4.7, 11.4.8, 11.4.9, 11.4.11, 11.5.2, 11.5.3, 11.5.16, 11.8.11, 11.9.1, 11.9.2, 11.9.3, 11.9.5, 11.9.7, 11.9.11, 11.9.12, 11.9.14, 11.11.15, 11.12.6

Label	Regional Ecosystem (mandatory unless otherwise specified)
860	4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5, 4.3.6, 4.3.8, 4.3.10, 4.3.11, 4.5.3, 4.5.5, 4.5.6, 4.5.8, 4.5.9, 4.7.1, 4.7.7, 4.7.8, 4.9.6, 4.9.10, 4.9.12, 4.9.17, 6.3.1, 6.3.2, 6.3.3, 6.3.4, 6.3.5, 6.3.7, 6.3.8, 6.3.9, 6.3.11, 6.3.12, 6.3.17, 6.3.18, 6.3.22, 6.3.24, 6.3.25, 6.4.1, 6.4.2, 6.4.3, 6.4.4, 6.5.1, 6.5.2, 6.5.3, 6.5.5, 6.5.6, 6.5.7, 6.5.8, 6.5.9, 6.5.10, 6.5.11, 6.5.13, 6.5.14, 6.5.15, 6.5.16, 6.5.17, 6.5.18, 6.5.19, 6.6.2, 6.7.1, 6.7.2, 6.7.5, 6.7.6, 6.7.7, 6.7.9, 6.7.11, 6.7.12, 6.7.13, 6.7.14, 6.7.17, 6.9.3, 7.2.3, 7.2.4, 7.2.7, 7.2.11, 7.3.7, 7.3.8, 7.3.9, 7.3.12, 7.3.13, 7.3.14, 7.3.16, 7.3.19, 7.3.20, 7.3.21, 7.3.25, 7.3.26, 7.3.39, 7.3.40, 7.3.42, 7.3.43, 7.3.44, 7.3.45, 7.3.47, 7.3.48, 7.3.50, 7.5.1, 7.5.2, 7.5.3, 7.5.4, 7.8.7, 7.8.8, 7.8.10, 7.8.15, 7.8.16, 7.8.17, 7.8.18, 7.8.19, 7.11.5, 7.11.6, 7.11.13, 7.11.14, 7.11.16, 7.11.18, 7.11.19, 7.11.20, 7.11.21, 7.11.31, 7.11.32, 7.11.33, 7.11.34, 7.11.35, 7.11.37, 7.11.41, 7.11.42, 7.11.43, 7.11.44, 7.11.45, 7.11.46, 7.11.47, 7.11.48, 7.11.49, 7.11.50, 7.11.51, 7.12.4, 7.12.5, 7.12.17, 7.12.21, 7.12.22, 7.12.23, 7.12.24, 7.12.25, 7.12.26, 7.12.27, 7.12.28, 7.12.29, 7.12.30, 7.12.33, 7.12.34, 7.12.35, 7.12.51, 7.12.52, 7.12.53, 7.12.54, 7.12.55, 7.12.56, 7.12.57, 7.12.58, 7.12.59, 7.12.60, 7.12.61, 7.12.62, 7.12.63, 7.12.65, 7.12.66, 7.12.69, 8.1.5, 8.2.3, 8.2.6, 8.2.7, 8.2.8, 8.2.11, 8.2.12, 8.2.13, 8.2.14, 8.3.1, 8.3.2, 8.3.3, 8.3.5, 8.3.6, 8.3.8, 8.3.10, 8.3.11, 8.3.13, 8.5.1, 8.5.2, 8.5.3, 8.5.5, 8.5.6, 8.5.7, 8.9.1, 8.10.1, 8.11.1, 8.11.3, 8.11.4, 8.11.5, 8.11.6, 8.11.8, 8.11.10, 8.11.12, 8.12.4, 8.12.5, 8.12.6, 8.12.7, 8.12.8, 8.12.9, 8.12.12, 8.12.14, 8.12.20, 8.12.22, 8.12.23, 8.12.25, 8.12.26, 8.12.27, 8.12.29, 8.12.31, 8.12.32, 9.3.1, 9.3.2, 9.3.3, 9.3.4, 9.3.5, 9.3.6, 9.3.7, 9.3.8, 9.3.10, 9.3.11, 9.3.13, 9.3.14, 9.3.15, 9.3.16, 9.3.17, 9.3.19, 9.3.20, 9.3.21, 9.3.22, 9.3.27, 9.4.1, 9.4.2, 9.5.1, 9.5.3, 9.5.4, 9.5.5, 9.5.6, 9.5.7, 9.5.8, 9.5.9, 9.5.10, 9.5.11, 9.5.12, 9.5.15, 9.5.16, 9.5.17, 9.7.1, 9.7.2, 9.7.3, 9.7.4, 9.7.5, 9.7.6, 9.8.1, 9.8.2, 9.8.3, 9.8.4, 9.8.5, 9.8.9, 9.8.10, 9.8.11, 9.8.13, 9.10.1, 9.10.3, 9.10.4, 9.10.5, 9.10.7, 9.10.8, 9.11.1, 9.11.2, 9.11.3, 9.11.4, 9.11.5, 9.11.7, 9.11.10, 9.11.12, 9.11.13, 9.11.14, 9.11.15, 9.11.16, 9.11.17, 9.11.18, 9.11.19, 9.11.21, 9.11.22, 9.11.23, 9.11.24, 9.11.25, 9.11.26, 9.11.28, 9.11.29, 9.11.30, 9.11.31, 9.11.32, 9.12.1, 9.12.2, 9.12.3, 9.12.4, 9.12.5, 9.12.6, 9.12.7, 9.12.10, 9.12.11, 9.12.12, 9.12.13, 9.12.14, 9.12.15, 9.12.16, 9.12.17, 9.12.18, 9.12.19, 9.12.20, 9.12.21, 9.12.22, 9.12.23, 9.12.24, 9.12.25, 9.12.26, 9.12.27, 9.12.28, 9.12.29, 9.12.30, 9.12.31, 9.12.32, 9.12.33, 9.12.35, 9.12.36, 9.12.37, 9.12.38, 9.12.39, 9.12.44, 10.3.2, 10.3.3, 10.3.5, 10.3.6, 10.3.9, 10.3.10, 10.3.11, 10.3.12, 10.3.13, 10.3.14, 10.3.15, 10.3.17, 10.3.20, 10.3.27, 10.3.28, 10.4.3, 10.4.9, 10.5.1, 10.5.2, 10.5.4, 10.5.5, 10.5.7, 10.5.8, 10.5.9, 10.5.10, 10.5.11, 10.5.12, 10.7.1, 10.7.2, 10.7.3, 10.7.4, 10.7.5, 10.7.9, 10.7.10, 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11.11.13, 11.11.14, 11.11.15, 11.11.16, 11.11.17, 11.11.19, 11.11.20, 11.12.1, 11.12.2, 11.12.3, 11.12.5, 11.12.6, 11.12.7, 11.12.8, 11.12.9, 11.12.10, 11.12.13, 11.12.14, 11.12.15, 11.12.16, 11.12.17, 11.12.19, 11.12.20, 12.2.5, 12.2.6, 12.2.7, 12.2.8, 12.2.10, 12.3.2, 12.3.3, 12.3.4, 12.3.5, 12.3.6, 12.3.7, 12.3.9, 12.3.10, 12.3.11, 12.3.14, 12.3.18, 12.3.19, 12.3.20, 12.5.1, 12.5.2, 12.5.3, 12.5.4, 12.5.6, 12.5.7, 12.5.10, 12.5.12, 12.8.1, 12.8.8, 12.8.9, 12.8.11, 12.8.12, 12.8.14, 12.8.16, 12.8.17, 12.8.20, 12.8.24, 12.8.25, 12.9-10.1, 12.9-10.2, 12.9-10.3, 12.9-10.4, 12.9-10.5, 12.9-10.7, 12.9-10.8, 12.9-10.11, 12.9-10.12, 12.9-10.14, 12.9-10.17, 12.9-10.18, 12.9-10.19, 12.9-10.21, 12.9-10.25, 12.9-10.26, 12.9-10.27, 12.9-10.28, 12.9-10.29, 12.11.2, 12.11.3, 12.11.5, 12.11.6, 12.11.7, 12.11.8, 12.11.9, 12.11.14, 12.11.15, 12.11.16, 12.11.17, 12.11.18, 12.11.22, 12.11.23, 12.11.24, 12.11.25, 12.11.26, 12.11.27, 12.11.28, 12.12.2, 12.12.3, 12.12.4, 12.12.5, 12.12.6, 12.12.7, 12.12.8, 12.12.9, 12.12.11, 12.12.12, 12.12.14, 12.12.15, 12.12.23, 12.12.24, 12.12.25, 12.12.28, 13.3.1, 13.3.2, 13.3.3, 13.3.4, 13.3.5, 13.3.7, 13.9.2, 13.11.1, 13.11.2, 13.11.3, 13.11.4, 13.11.5, 13.11.6, 13.11.8, 13.11.9, 13.12.1, 13.12.2, 13.12.3, 13.12.4, 13.12.5, 13.12.6, 13.12.8, 13.12.9, 13.12.10.
1785	8.2.1, 8.2.7, 8.2.8, 8.2.12, 8.3.2, 8.3.3, 8.3.5, 8.3.6, 8.3.13, 8.5.2, 8.5.3, 8.5.5, 8.5.6, 8.9.1, 8.11.1, 8.11.3, 8.11.4, 8.11.5, 8.11.6, 8.11.8, 8.12.6, 8.12.7, 8.12.9, 8.12.12, 8.12.14, 8.12.20, 8.12.22, 8.12.23, 8.12.25, 9.3.1, 9.3.2, 9.3.3, 9.3.4, 9.3.5, 9.3.6, 9.3.7, 9.3.8, 9.3.9, 9.3.11, 9.3.13, 9.3.14, 9.3.15, 9.3.16, 9.3.17, 9.3.18, 9.3.19, 9.3.20, 9.3.21, 9.3.22, 9.3.23, 9.4.1, 9.4.2, 9.4.3, 9.5.3, 9.5.4, 9.5.5, 9.5.6, 9.5.7, 9.5.8, 9.5.9, 9.5.10, 9.5.11, 9.5.12, 9.5.16, 9.7.1, 9.7.2, 9.7.3, 9.7.5, 9.7.6, 9.8.1, 9.8.2, 9.8.4, 9.8.5, 9.8.6, 9.8.9, 9.8.10, 9.8.11, 9.10.1, 9.10.3, 9.10.6, 9.10.7, 9.10.8, 9.11.1, 9.11.2, 9.11.3, 9.11.4, 9.11.5, 9.11.7, 9.11.10, 9.11.11, 9.11.12, 9.11.13, 9.11.15, 9.11.16, 9.11.17, 9.11.18, 9.11.19, 9.11.23, 9.11.26, 9.11.28, 9.11.29, 9.11.31, 9.11.32, 9.12.1, 9.12.3, 9.12.4, 9.12.5, 9.12.6, 9.12.7, 9.12.10, 9.12.11, 9.12.12, 9.12.13, 9.12.16, 9.12.17, 9.12.18, 9.12.19, 9.12.20, 9.12.21, 9.12.22, 9.12.23, 9.12.24, 9.12.26, 9.12.28, 9.12.30, 9.12.31, 9.12.33, 9.12.35, 9.12.37, 9.12.39, 10.3.1, 10.3.2, 10.3.3, 10.3.4, 10.3.5, 10.3.6, 10.3.9, 10.3.10, 10.3.11, 10.3.12, 10.3.13, 10.3.14, 10.3.15, 10.3.19, 10.3.20, 10.3.27, 10.3.28, 10.3.30, 10.3.31, 10.4.3, 10.5.1, 10.5.2, 10.5.4, 10.5.5, 10.5.7, 10.5.9, 10.5.10, 10.5.11, 10.5.12, 10.7.2, 10.7.3, 10.7.5, 10.7.11, 10.7.12, 10.9.1, 10.9.2, 10.9.3, 10.9.5, 10.10.1, 10.10.3, 10.10.4, 10.10.5, 10.10.7, 11.2.1, 11.2.5, 11.3.1, 11.3.2, 11.3.3, 11.3.4, 11.3.6, 11.3.7, 11.3.8, 11.3.9, 11.3.10, 11.3.12, 11.3.13, 11.3.14, 11.3.15, 11.3.16, 11.3.17, 11.3.18, 11.3.19, 11.3.23, 11.3.25, 11.3.27, 11.3.28, 11.3.29, 11.3.30, 11.3.35, 11.3.36, 11.3.37, 11.3.38, 11.3.39, 11.4.2, 11.4.3, 11.4.5, 11.4.8, 11.4.10, 11.4.12, 11.4.13, 11.5.1, 11.5.2, 11.5.3, 11.5.4, 11.5.5, 11.5.8, 11.5.9, 11.5.12, 11.5.13, 11.5.14, 11.5.17, 11.5.20, 11.5.21, 11.7.1, 11.7.2, 11.7.4, 11.7.6, 11.7.7, 11.8.1, 11.8.2, 11.8.4, 11.8.5, 11.8.8, 11.8.11, 11.8.12, 11.8.14, 11.8.15, 11.9.2, 11.9.3, 11.9.7, 11.9.9, 11.9.14, 11.10.1, 11.10.4, 11.10.6, 11.10.7, 11.10.11, 11.10.12, 11.10.13, 11.11.1, 11.11.3, 11.11.4, 11.11.6, 11.11.7, 11.11.8, 11.11.9, 11.11.10, 11.11.11, 11.11.15, 11.11.16, 11.11.19, 11.11.20, 11.12.1, 11.12.2, 11.12.3, 11.12.5, 11.12.6, 11.12.7, 11.12.8, 11.12.9, 11.12.10, 11.12.11, 11.12.12, 11.12.13, 11.12.14, 11.12.17, 11.12.20, 12.2.5, 12.2.6, 12.2.7, 12.2.10, 12.2.11, 12.3.3, 12.3.6, 12.3.10, 12.3.12, 12.3.14, 12.3.18, 12.3.19, 12.5.1, 12.5.2, 12.5.4, 12.5.5, 12.5.7, 12.5.8, 12.5.11, 12.5.12, 12.7.1, 12.7.2, 12.8.14, 12.8.16, 12.8.17, 12.8.19, 12.9-10.5, 12.9-10.7, 12.9-10.8, 12.9-10.12, 12.9-10.13, 12.9-10.25, 12.9-10.26, 12.9-10.28, 12.11.5, 12.11.7, 12.11.8, 12.11.14, 12.11.15, 12.11.20, 12.11.21, 12.11.22, 12.11.24, 12.11.25, 12.11.26, 12.11.27, 12.11.28, 12.12.7, 12.12.8, 12.12.9, 12.12.12, 12.12.14, 12.12.21, 12.12.22, 12.12.23, 12.12.24, 12.12.25, 12.12.27, 13.3.1, 13.3.4, 13.3.7, 13.11.1, 13.11.3, 13.11.4, 13.11.8, 13.12.2, 13.12.3, 13.12.5, 13.12.8, 13.12.9, 13.12.10
1883	All regional ecosystems within the stream/wetland buffer as determined by VMA code.
2455	2.10.2, 2.10.3, 2.5.24, 7.3.19, 7.3.26, 7.3.39, 7.3.40, 7.3.42, 7.3.43, 7.5.2, 7.5.4, 7.8.7, 7.8.8, 7.8.10, 7.8.15, 7.8.16, 7.8.17, 7.8.18, 7.8.19, 7.11.35, 7.12.21, 7.12.22, 7.12.24, 7.12.27, 7.12.29, 7.12.30, 7.12.34, 7.12.35, 7.12.51, 7.12.52, 7.12.53, 7.12.61, 7.12.63, 8.3.2, 8.3.5, 8.3.6, 8.3.8, 8.11.3, 8.11.8, 8.12.4, 8.12.5, 8.12.6, 8.12.7, 8.12.8, 8.12.9, 8.12.12, 8.12.20, 8.12.23, 8.12.31, 8.12.32, 9.3.1, 9.3.3, 9.3.8, 9.3.15, 9.3.16, 9.5.5, 9.7.3, 9.8.1, 9.8.4, 9.8.9, 9.11.2, 9.11.4, 9.11.10, 9.11.14, 9.11.16, 9.12.1, 9.12.2, 9.12.17, 9.12.18, 9.12.19, 9.12.20, 9.12.22, 9.12.23, 9.12.26, 10.3.13, 11.3.3, 11.3.4, 11.3.7, 11.3.9, 11.3.14, 11.3.23, 11.3.25, 11.3.26, 11.3.27, 11.3.29, 11.3.35, 11.3.36, 11.3.38, 11.3.39, 11.4.8, 11.4.13, 11.5.1, 11.5.2, 11.5.3, 11.5.8, 11.5.9, 11.5.12, 11.5.20, 11.5.21, 11.7.4, 11.7.6, 11.7.7, 11.8.1, 11.8.2, 11.8.4, 11.8.5, 11.8.8, 11.9.2, 11.9.9, 11.9.13, 11.10.1, 11.10.2, 11.10.4, 11.10.5, 11.10.7, 11.10.13, 11.11.1, 11.11.3, 11.11.4, 11.11.7, 11.11.10, 11.11.15, 11.12.1, 11.12.2, 11.12.3, 11.12.6, 11.12.13, 12.3.2, 12.3.3, 12.3.6, 12.3.7, 12.3.9, 12.3.11, 12.3.14 ,12.3.15 ,12.5.1 ,12.5.2, 12.5.3, 12.5.4, 12.5.6, 12.5.7, 12.5.11, 12.5.12, 12.8.1, 12.8.8, 12.8.10, 12.8.11, 12.8.14, 12.8.16, 12.8.20, 12.8.24, 12.8.25, 12.9-10.1, 12.9-10.2, 12.9-10.3, 12.9-10.4, 12.9-10.5, 12.9-10.7, 12.9-10.11, 12.9-10.12, 12.9-10.14, 12.9-10.17, 12.9-10.18, 12.9-10.19, 12.9-10.20, 12.9-10.21, 12.9-10.23, 12.9-10.24, 12.9-10.26, 12.9-10.27, 12.11.2, 12.11.3, 12.11.5, 12.11.6, 12.11.7, 12.11.9, 12.11.14, 12.11.15, 12.11.16, 12.11.17, 12.11.18, 12.11.19, 12.11.22, 12.11.23, 12.11.24, 12.11.25, 12.11.26, 12.11.27, 12.12.2, 12.12.3, 12.12.4, 12.12.5, 12.12.6, 12.12.7, 12.12.11, 12.12.12, 12.12.14, 12.12.15, 12.12.20, 12.12.22, 12.12.23, 12.12.24, 12.12.25, 12.12.27, 12.12.28, 13.11.3, 13.11.5, 13.11.6, 13.11.8, 13.12.1, 13.12.2

3.6 Area Management Plan(s)

Nil

3.7 Coastal or non-coastal

For the purposes of the accepted development vegetation clearing codes and State Code 16 of the State Development Assessment Provisions (SDAP), this property is regarded as*

Non Coastal

*See also Map 4.3

3.8 Agricultural Land Class A or B

The following can be used to identify Agricultural Land Class A or B areas under the "Managing regulated regrowth vegetation" accepted development vegetation clearing code:

Does this lot contain land that is mapped as Agricultural Land Class A or B in the State Planning Interactive Mapping System?

Class A (with urban areas masked as per SPP): 5000.1ha

No Class B

Note - This confirms Agricultural Land Classes as per the State Planning Interactive Mapping System only. This response does not include Agricultural Land Classes identified under local government planning schemes. For further information, check the Planning Scheme for your local government area.

See Map 4.4 to identify the location and extent of Class A and/or Class B Agricultural land on Lot: 8 Plan: SP277384.

4. Vegetation management framework maps

Vegetation management maps included in this report may also be requested individually at:
https://www.resources.qld.gov.au/qld/environment/land/vegetation/vegetation-map-request-form

Regulated vegetation management map

The regulated vegetation management map shows vegetation categories needed to determine clearing requirements. These maps are updated monthly to show new property maps of assessable vegetation (PMAV).

Vegetation management supporting map

The vegetation management supporting map provides information on regional ecosystems, wetlands, watercourses and essential habitat.

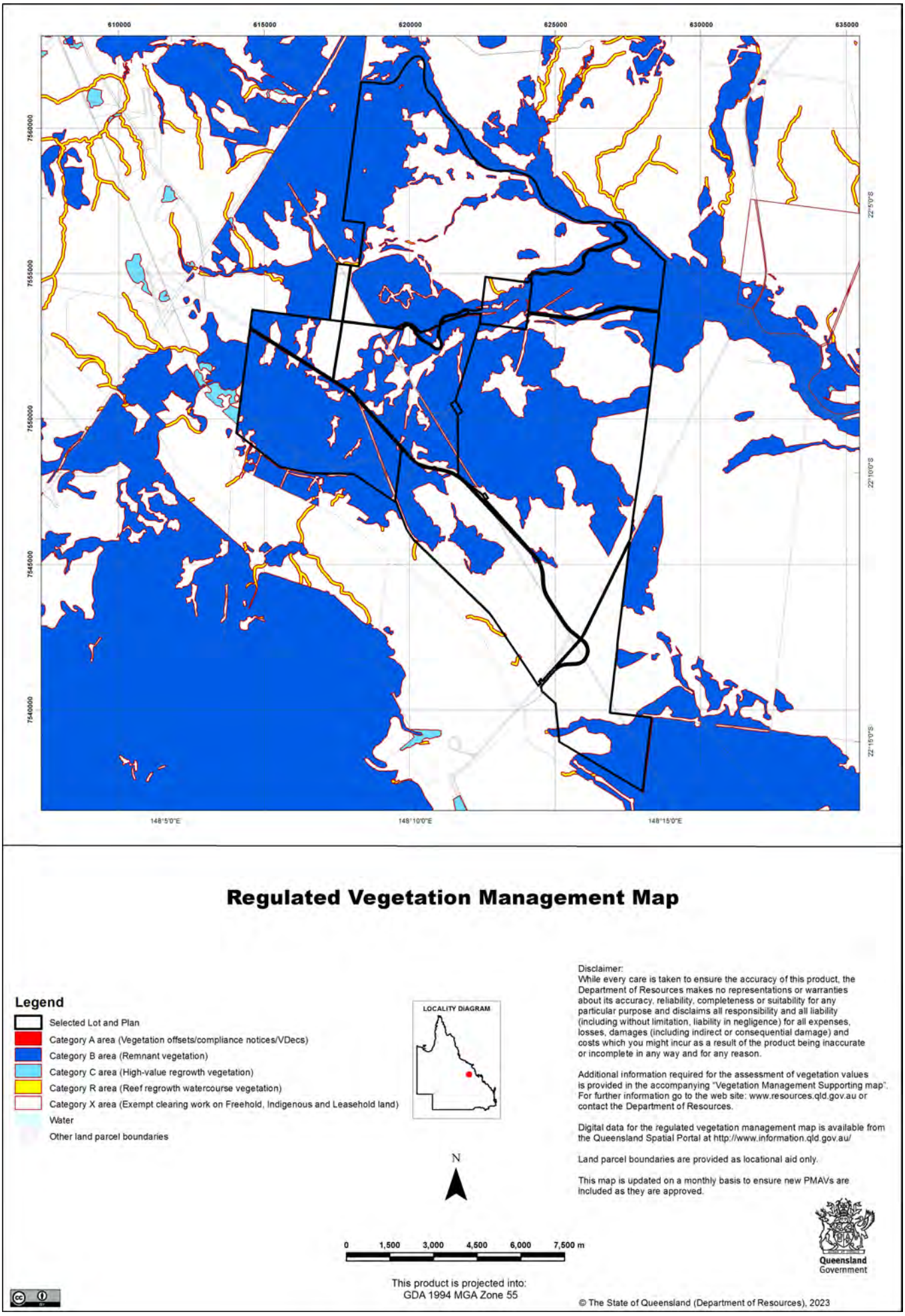
Coastal/non-coastal map

The coastal/non-coastal map confirms whether the lot, or which parts of the lot, are considered coastal or non-coastal for the purposes of the accepted development vegetation clearing codes and State Code 16 of the State Development Assessment Provisions (SDAP).

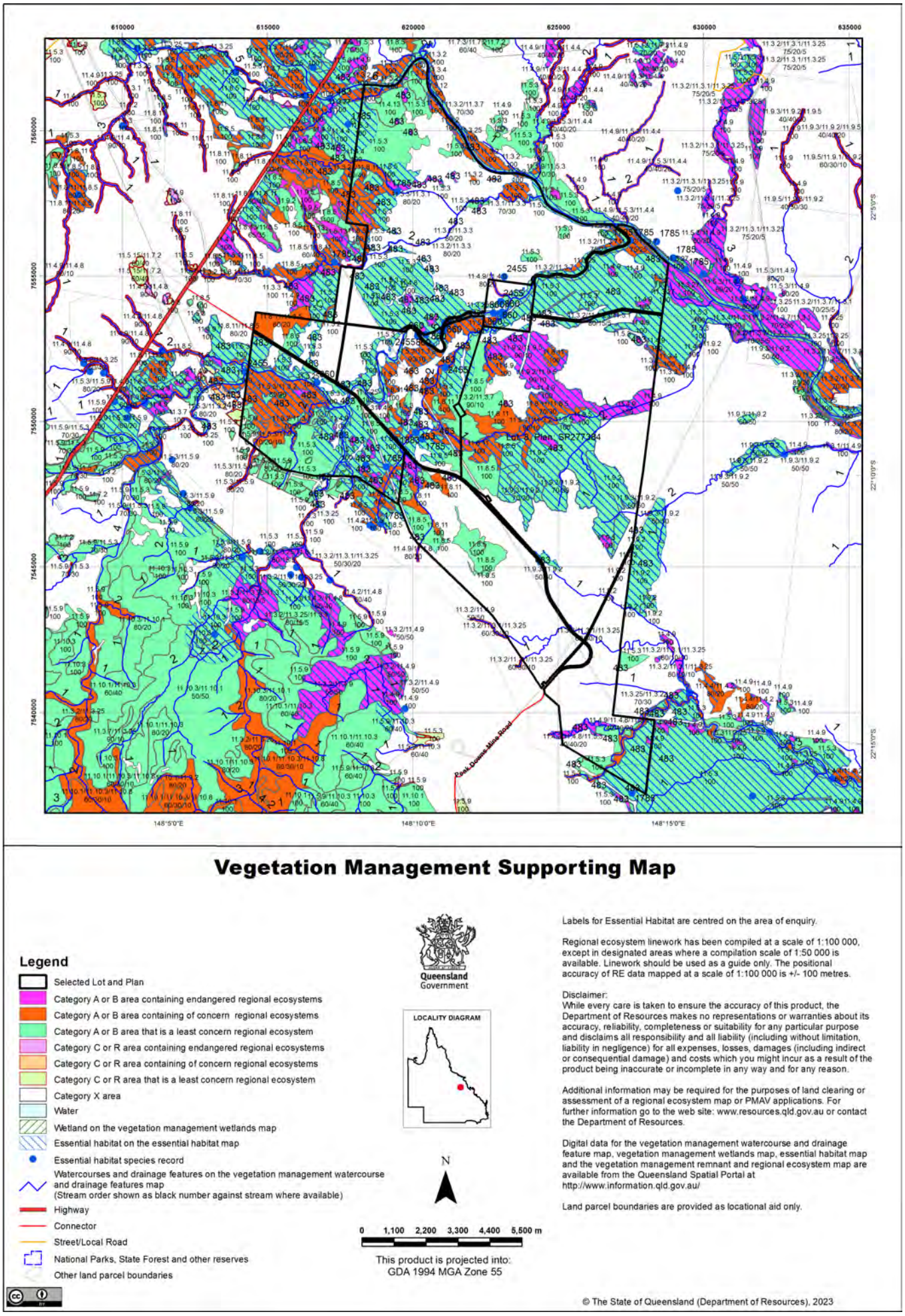
Agricultural Land Class A or B as per State Planning Policy: State Interest for Agriculture

The Agricultural Land Class map confirms the location and extent of land mapped as Agricultural Land Classes A or B as identified on the State Planning Interactive Mapping System. Please note that this map does not include areas identified as Agricultural Land Class A or B in local government planning schemes. This map can be used to identify Agricultural Land Class A or B areas under the "Managing regulated regrowth vegetation" accepted development vegetation clearing code.

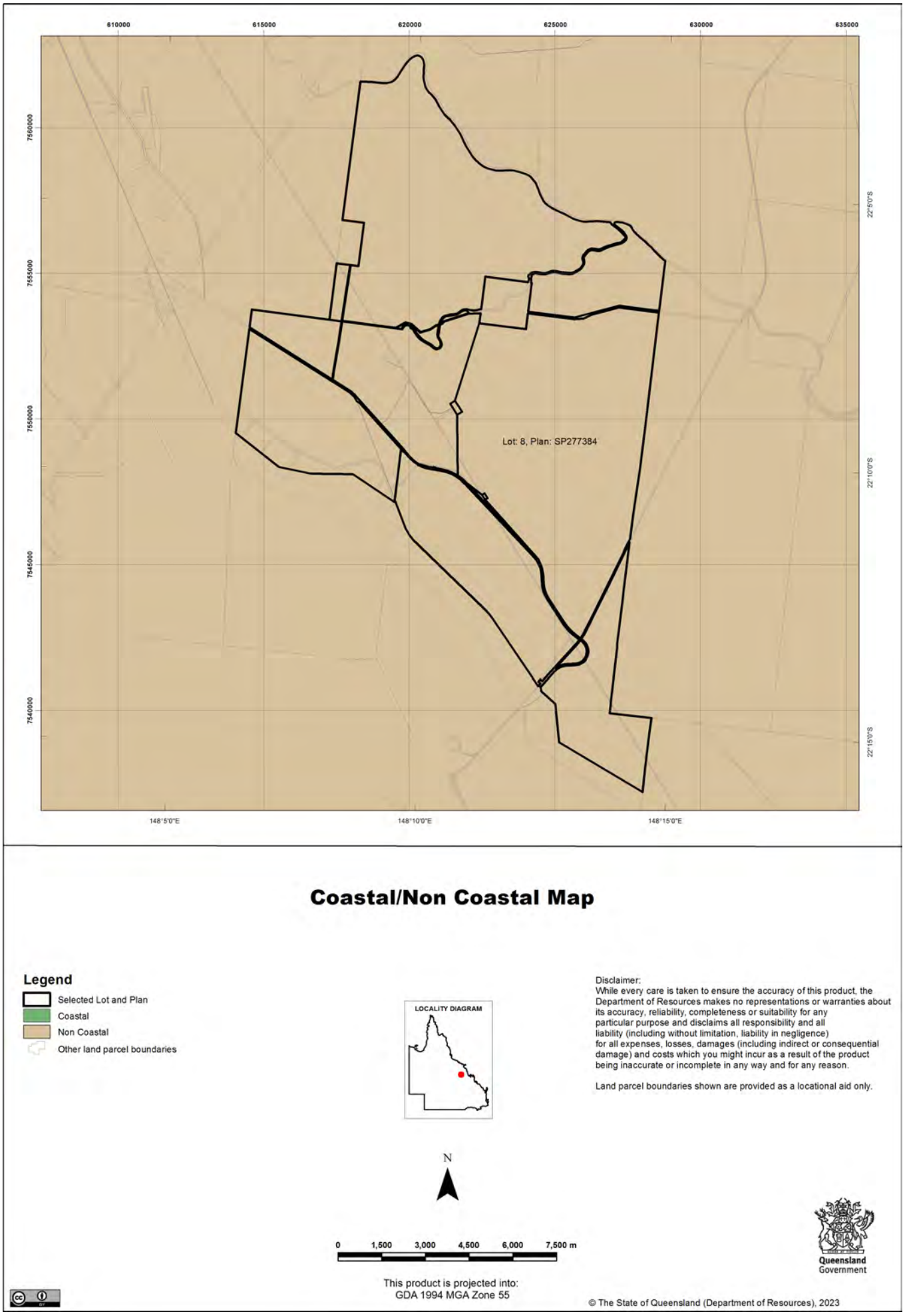
4.1 Regulated vegetation management map



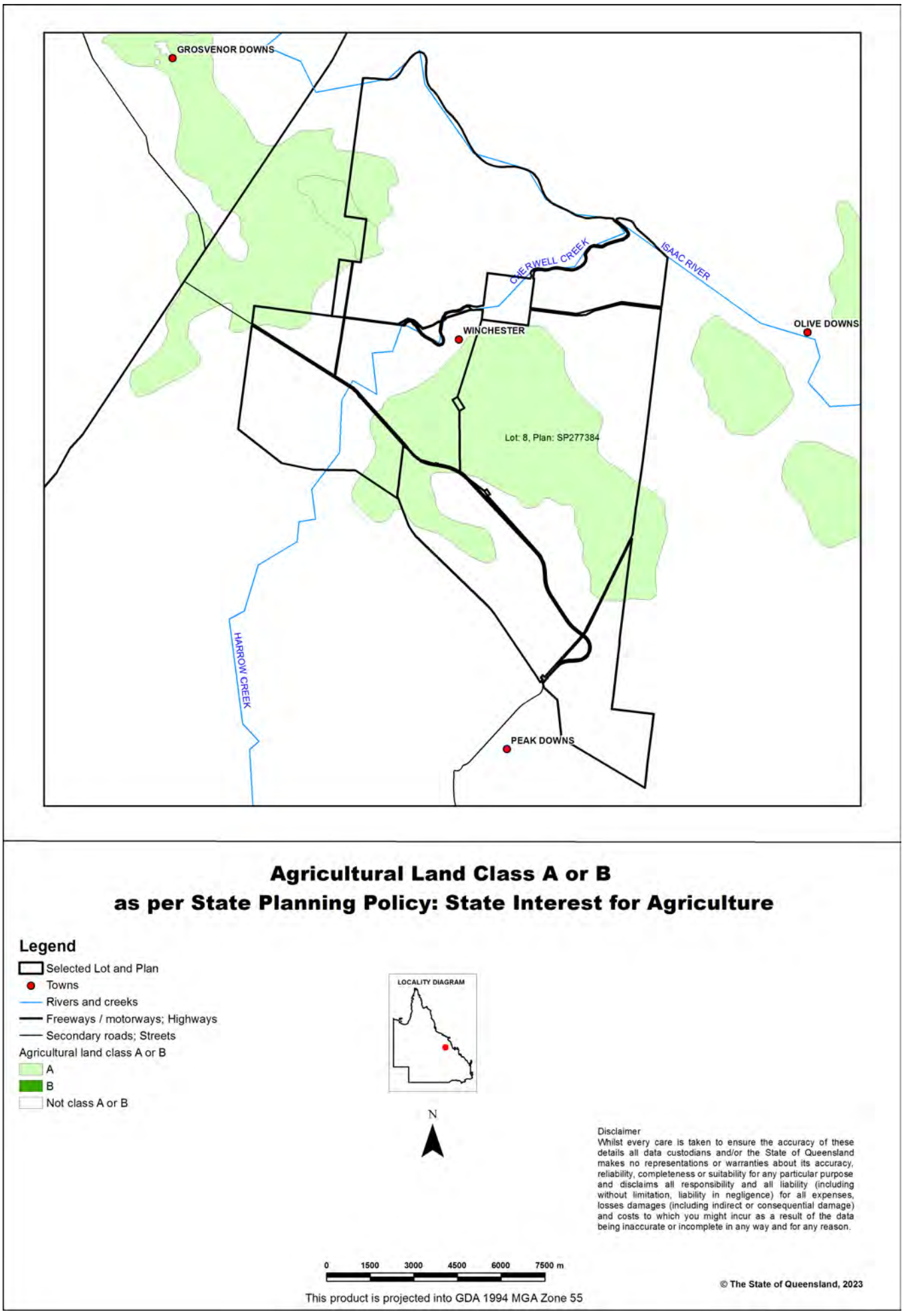
4.2 Vegetation management supporting map



4.3 Coastal/non-coastal map



4.4 Agricultural Land Class A or B as per State Planning Policy: State Interest for Agriculture



5. Protected plants framework (administered by the Department of Environment and Science (DES))

In Queensland, all plants that are native to Australia are protected plants under the *Nature Conservation Act 1992* (NCA). The NCA regulates the clearing of protected plants 'in the wild' (see Operational policy: When a protected plant in Queensland is considered to be 'in the wild') that are listed as critically endangered, endangered, vulnerable or near threatened under the Act.

Please note that the protected plant clearing framework applies irrespective of the classification of the vegetation under the *Vegetation Management Act 1999* and any approval or exemptions given under another Act, for example, the *Vegetation Management Act 1999* or *Planning Regulation 2017*.

5.1 Clearing in high risk areas on the flora survey trigger map

The flora survey trigger map identifies high-risk areas for threatened and near threatened plants. These are areas where threatened or near threatened plants are known to exist or are likely to exist based on the habitat present. The flora survey trigger map for this property is provided in section 5.5.

If you are proposing to clear an area shown as high risk on the flora survey trigger map, a flora survey of the clearing impact area must be undertaken by a suitably qualified person in accordance with the Flora survey guidelines. The main objective of a flora survey is to locate any threatened or near threatened plants that may be present in the clearing impact area.

If the flora survey identifies that threatened or near threatened plants are not present within the clearing impact area or clearing within 100m of a threatened or near threatened plant can be avoided, the clearing activity is exempt from a permit. An exempt clearing notification form must be submitted to the Department of Environment and Science, with a copy of the flora survey report, at least one week prior to clearing.

If the flora survey identifies that threatened or near threatened plants are present in, or within 100m of, the area to be cleared, a clearing permit is required before any clearing is undertaken. The flora survey report, as well as an impact management report, must be submitted with the clearing permit application form.

5.2 Clearing outside high risk areas on the flora survey trigger map

In an area other than a high risk area, a clearing permit is only required where a person is, or becomes aware that threatened or near threatened plants are present in, or within 100m of, the area to be cleared. You must keep a copy of the flora survey trigger map for the area subject to clearing for five years from the day the clearing starts. If you do not clear within the 12 month period that the flora survey trigger map was printed, you need to print and check a new flora survey trigger map.

5.3 Exemptions

Many activities are 'exempt' under the protected plant clearing framework, which means that clearing of native plants that are in the wild can be undertaken for these activities with no need for a flora survey or a protected plant clearing permit. The Information sheet - General exemptions for the take of protected plants provides some of these exemptions.

Some exemptions under the NCA are the same as exempt clearing work (formerly known as exemptions) under the *Vegetation Management Act 1999* (i.e. listed in Schedule 21 of the Planning Regulations 2017) while some are different.

5.4 Contact information for DES

For further information on the protected plants framework:
Phone 1300 130 372 (and select option four)
Email palm@des.qld.gov.au
Visit https://www.qld.gov.au/environment/plants-animals/plants/protected-plants

5.5 Protected plants flora survey trigger map

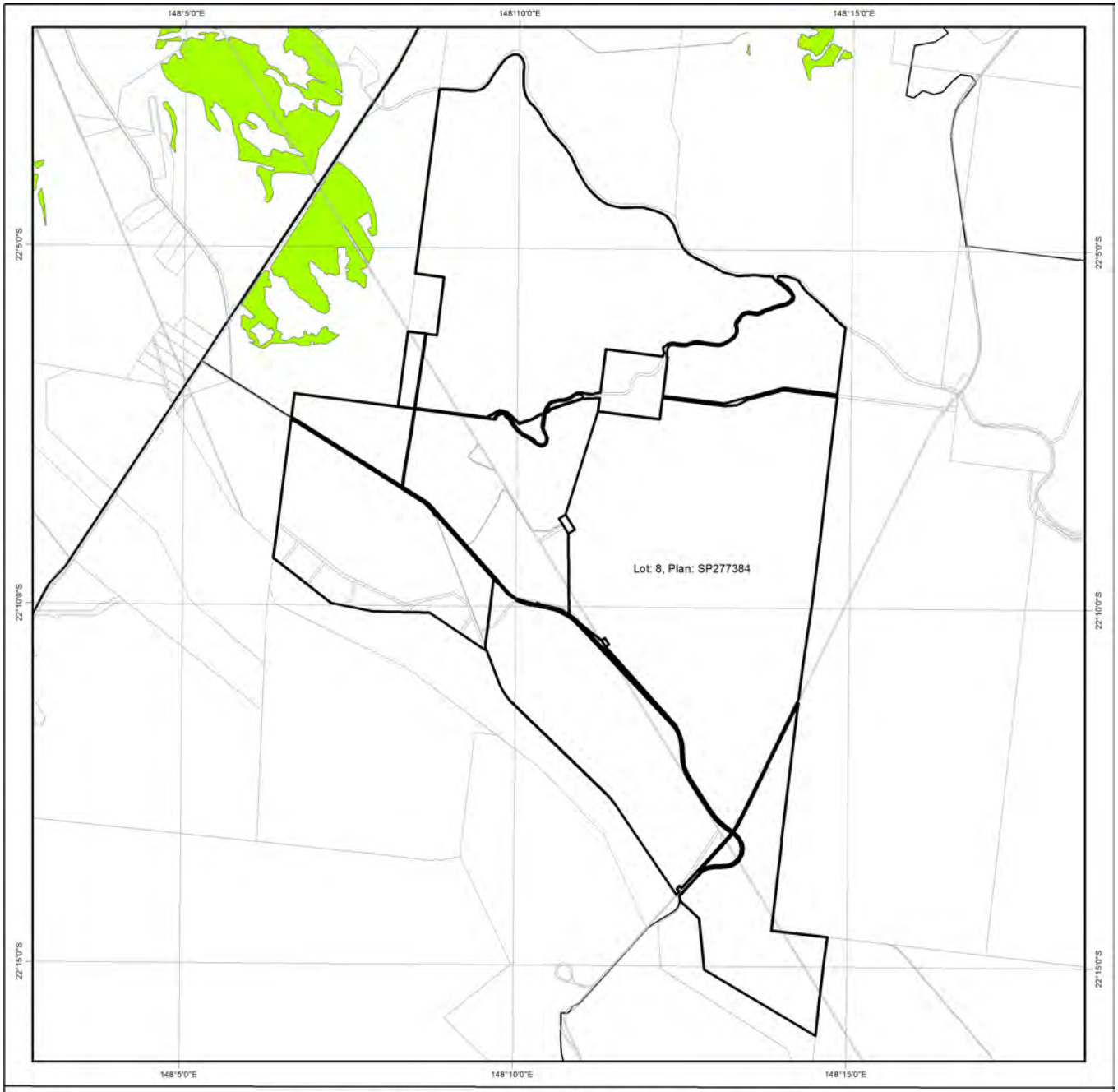
This map included may also be requested individually at: https://apps.des.qld.gov.au/map-request/flora-survey-trigger/.

Updates to the data informing the flora survey trigger map

The flora survey trigger map will be reviewed, and updated if necessary, at least every 12 months to ensure the map reflects the most up-to-date and accurate data available.

Species information

Please note that flora survey trigger maps do not identify species associated with 'high risk areas'. While some species information may be publicly available, for example via the Queensland Spatial Catalogue, the Department of Environment and Science does not provide species information on request. Regardless of whether species information is available for a particular high risk area, clearing plants in a high risk area may require a flora survey and/or clearing permit. Please see the Department of Environment and Science webpage on the clearing of protected plants for more information.



Protected Plants Flora Survey Trigger Map

Legend

- Selected Lot and Plan
- High risk area
- Other land parcel boundaries
- Freeways / motorways / highways
- Secondary roads / streets



N

0 1,000 2,000 3,000 4,000 5,000 m

This product is projected into:
GDA 1994 MGA Zone 55

This map shows areas where particular provisions of the Nature Conservation Act 1992 apply to the clearing of protected plants.

Land parcel boundaries are provided as locational aid only.

This map is produced at a scale relevant to the size of the area selected and should be printed as A4 size in portrait orientation.

For further information or assistance with interpretation of this product, please contact the Department of Environment and Science at palm@des.qld.gov.au

Disclaimer:
While every care is taken to ensure the accuracy of the data used to generate this product, the Queensland Government makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaim all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damages) and costs which might be incurred as a consequence of reliance on the data, or as a result of the data being inaccurate or incomplete in any way and for any reason.

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6. Koala protection framework (administered by the Department of Environment and Science (DES))

The koala (*Phascolarctos cinereus*) is listed in Queensland as endangered by the Queensland Government under *Nature Conservation Act 1992* and by the Australian Government under the *Environment Protection and Biodiversity Conservation Act 1999*.

The Queensland Government's koala protection framework is comprised of the *Nature Conservation Act 1992*, the Nature Conservation (Animals) Regulation 2020, the Nature Conservation (Koala) Conservation Plan 2017, the *Planning Act 2016* and the Planning Regulation 2017.

6.1 Koala mapping

6.1.1 Koala districts

The parts of Queensland where koalas are known to occur has been divided into three koala districts - koala district A, koala district B and koala district C. Each koala district is made up of areas with comparable koala populations (e.g. density, extent and significance of threatening processes affecting the population) which require similar management regimes.

Section 7.1 identifies which koala district your property is located in.

6.1.2 Koala habitat areas

Koala habitat areas are areas of vegetation that have been determined to contain koala habitat that is essential for the conservation of a viable koala population in the wild based on the combination of habitat suitability and biophysical variables with known relationships to koala habitat (e.g. landcover, soil, terrain, climate and ground water). In order to protect this important koala habitat, clearing controls have been introduced into the Planning Regulation 2017 for development in koala habitat areas.

Please note that koala habitat areas only exist in koala district A which is the South East Queensland "Shaping SEQ" Regional Plan area. These areas include the local government areas of Brisbane, Gold Coast, Logan, Lockyer Valley, Ipswich, Moreton Bay, Noosa, Redland, Scenic Rim, Somerset, Sunshine Coast and Toowoomba (urban extent).

There are two different categories of koala habitat area (core koala habitat area and locally refined koala habitat), which have been determined using two different methodologies. These methodologies are described in the document Spatial modelling in South East Queensland.

Section 7.2 shows any koala habitat area that exists on your property.

Under the Nature Conservation (Koala) Conservation Plan 2017, an owner of land (or a person acting on the owner's behalf with written consent) can request to make, amend or revoke a koala habitat area determination if they believe, on reasonable grounds, that the existing determination for all or part of their property is incorrect.

More information on requests to make, amend or revoke a koala habitat area determination can be found in the document Guideline - Requests to make, amend or revoke a koala habitat area determination.

The koala habitat area map will be updated at least annually to include any koala habitat areas that have been made, amended or revoked.

Changes to the koala habitat area map which occur between annual updates because of a request to make, amend or revoke a koala habitat area determination can be viewed on the register of approved requests to make, amend or revoke a koala habitat area available at: https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping/koalamaps. The register includes the lot on plan for the change, the date the decision was made and the map issued to the landholder that shows areas determined to be koala habitat areas.

6.1.3 Koala priority areas

Koala priority areas are large, connected areas that have been determined to have the highest likelihood of achieving conservation outcomes for koalas based on the combination of habitat suitability, biophysical variables with known relationships to koala habitat (e.g. landcover, soil, terrain, climate and ground water) and a koala conservation cost benefit analysis.

Conservation efforts will be prioritised in these areas to ensure the conservation of viable koala populations in the wild including a focus on management (e.g. habitat protection, habitat restoration and threat mitigation) and monitoring. This includes a prohibition on clearing in koala habitat areas that are in koala priority areas under the Planning Regulation 2017 (subject to some exemptions).

Please note that koala priority areas only exist in koala district A which is the South East Queensland "Shaping SEQ" Regional Plan area. These areas include the local government areas of Brisbane, Gold Coast, Logan, Lockyer Valley,

Ipswich, Moreton Bay, Noosa, Redland, Scenic Rim, Somerset, Sunshine Coast and Toowoomba (urban extent).

Section 7.2 identifies if your property is in a koala priority area.

6.1.4 Identified koala broad-hectare areas

There are seven identified koala broad-hectare areas in SEQ. These are areas of koala habitat that are located in areas committed to meet development targets in the SEQ Regional Plan to accommodate SEQ's growing population including bring-forward Greenfield sites under the Queensland Housing Affordability Strategy and declared master planned areas under the repealed *Sustainable Planning Act 2009* and the repealed *Integrated Planning Act 1997*.

Specific assessment benchmarks apply to development applications for development proposed in identified koala broad-hectare areas to ensure koala conservation measures are incorporated into the proposed development.

Section 7.2 identifies if your property is in an identified koala broad-hectare area.

6.2 Koala habitat planning controls

On 7 February 2020, the Queensland Government introduced new planning controls to the Planning Regulation 2017 to strengthen the protection of koala habitat in South East Queensland (i.e. koala district A).

More information on these planning controls can be found here:
https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping/legislation-policy.

As a high-level summary, the koala habitat planning controls make:

- development that involves interfering with koala habitat (defined below) in an area that is both a koala priority area and a koala habitat area, prohibited development (i.e. development for which a development application cannot be made);
- development that involves interfering with koala habitat (defined below) in an area that is a koala habitat area but is not a koala priority area, assessable development (i.e. development for which development approval is required); and
- development that is for extractive industries where the development involves interfering with koala habitat (defined below) in an area that is both a koala habitat area and a key resource area, assessable development (i.e. development for which development approval is required).

Interfering with koala habitat means:

1) Removing, cutting down, ringbarking, pushing over, poisoning or destroying in anyway, including by burning, flooding or draining native vegetation in a koala habitat area; but
2) Does not include destroying standing vegetation by stock or lopping a tree.

However, these planning controls do not apply if the development is exempted development as defined in Schedule 24 of the Planning Regulation 2017. More information on exempted development can be found here:
https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping/legislation-policy.

There are also assessment benchmarks that apply to development applications for:

- building works, operational works, material change of use or reconfiguration of a lot where:
  - the local government planning scheme makes the development assessable;
  - the premises includes an area that is both a koala priority area and a koala habitat area; and
  - the development does not involve interfering with koala habitat (defined above); and

- development in identified koala broad-hectare areas.

The Guideline - Assessment Benchmarks in relation to Koala Habitat in South East Queensland assessment benchmarks outlines these assessment benchmarks, the intent of these assessment benchmarks and advice on how proposed development may meet these assessment benchmarks.

6.3 Koala Conservation Plan clearing requirements

Section 10 and 11 of the Nature Conservation (Koala) Conservation Plan 2017 prescribes requirements that must be met when clearing koala habitat in koala district A and koala district B.

These clearing requirements are independent to the koala habitat planning controls introduced into the Planning Regulation 2017, which means they must be complied with irrespective of any approvals or exemptions offered under other legislation.

Unlike the clearing controls prescribed in the Planning Regulation 2017 that are to protect koala habitat, the clearing requirements prescribed in the Nature Conservation (Koala) Conservation Plan 2017 are in place to prevent the injury or death of koalas when koala habitat is being cleared.

6.4 Contact information for DES

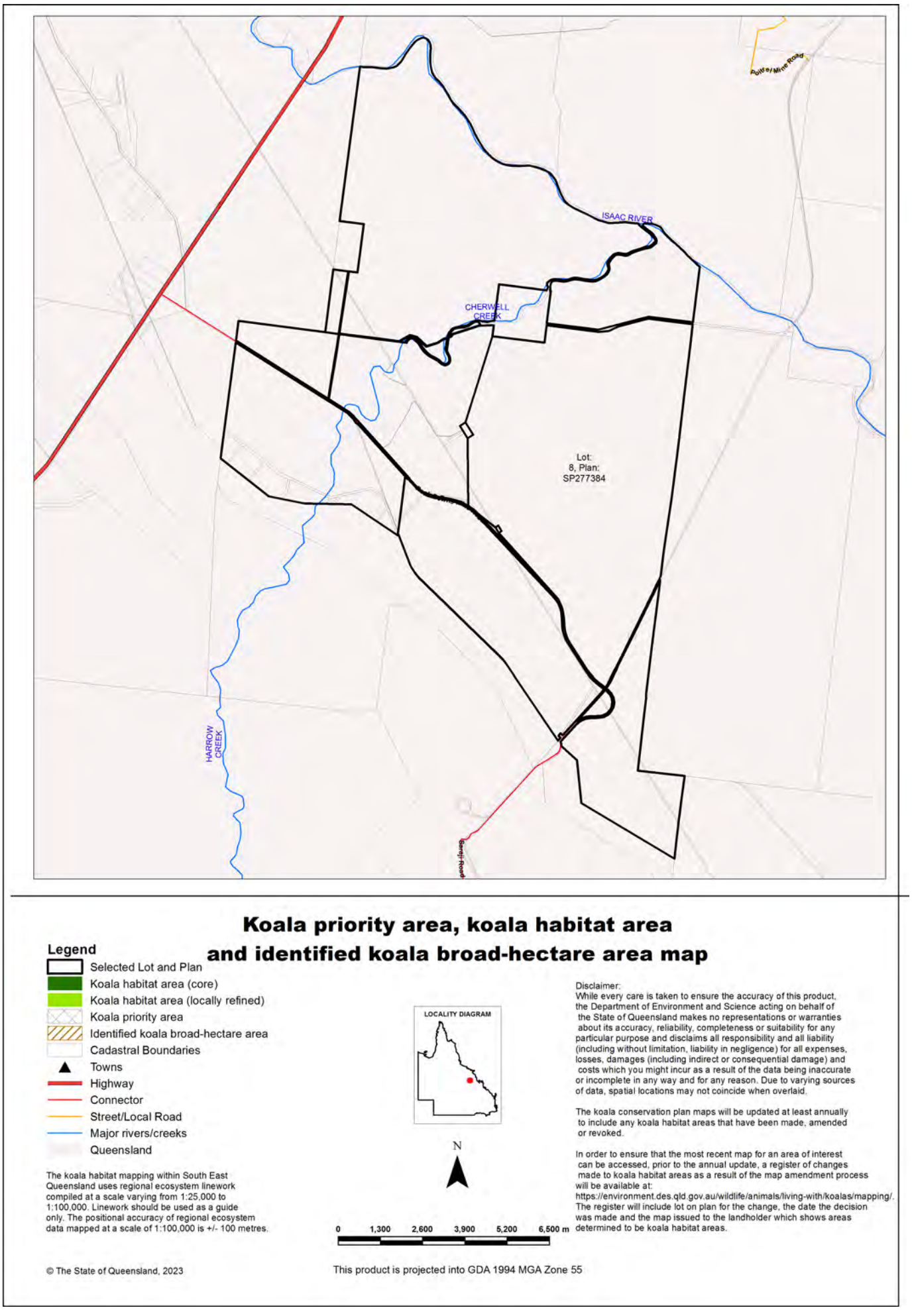
For further information on the koala protection framework:
Phone 13 QGOV (13 74 68)
Email koala.assessment@des.qld.gov.au
Visit https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping

7. Koala protection framework details for Lot: 8 Plan: SP277384

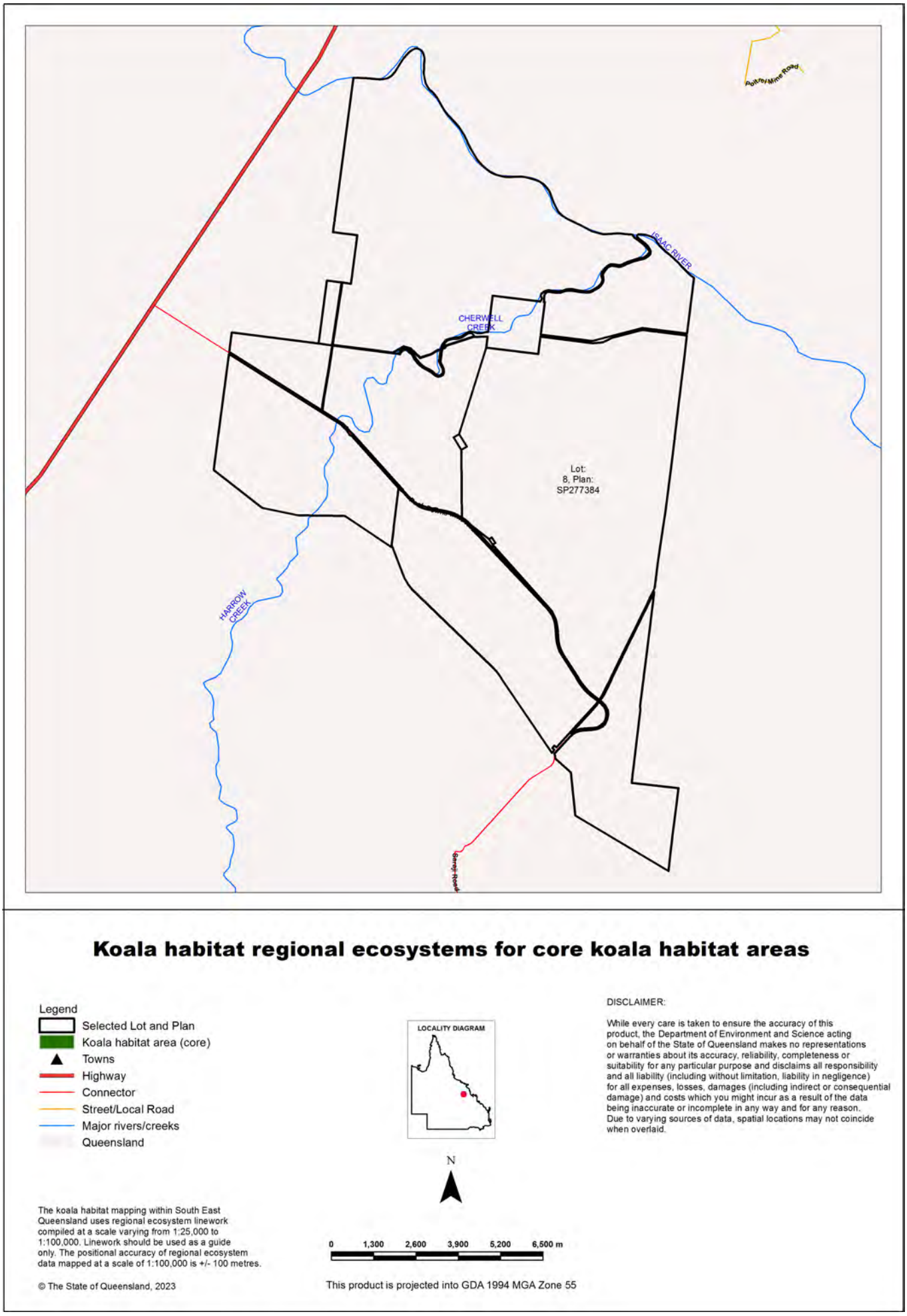
7.1 Koala districts

Koala District C

7.2 Koala priority area, koala habitat area and identified koala broad-hectare area map



7.3 Koala habitat regional ecosystems for core koala habitat areas



8. Other relevant legislation contacts list

Activity	Legislation	Agency	Contact details
• Interference with overland flow • Earthworks, significant disturbance	*Water Act 2000* *Soil Conservation Act 1986*	Department of Regional Development, Manufacturing and Water (Queensland Government) Department of Resources (Queensland Government)	Ph: 13 QGOV (13 74 68) www.rdmw.qld.gov.au www.resources.qld.gov.au
• Indigenous Cultural Heritage	*Aboriginal Cultural Heritage Act 2003* *Torres Strait Islander Cultural Heritage Act 2003*	Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnerships	Ph: 13 QGOV (13 74 68) www.datsip.qld.gov.au
• Mining and environmentally relevant activities • Infrastructure development (coastal) • Heritage issues	*Environmental Protection Act 1994* *Coastal Protection and Management Act 1995* *Queensland Heritage Act 1992*	Department of Environment and Science (Queensland Government)	Ph: 13 QGOV (13 74 68) www.des.qld.gov.au
• Protected plants and protected areas	*Nature Conservation Act 1992*	Department of Environment and Science (Queensland Government)	Ph: 1300 130 372 (option 4) palm@des.qld.gov.au www.des.qld.gov.au
• Koala mapping and regulations	*Nature Conservation Act 1992*	Department of Environment and Science (Queensland Government)	Ph: 13 QGOV (13 74 68) Koala.assessment@des.qld.gov.au
• Interference with fish passage in a watercourse, mangroves • Forestry activities on State land tenures	*Fisheries Act 1994* *Forestry Act 1959*	Department of Agriculture and Fisheries (Queensland Government)	Ph: 13 QGOV (13 74 68) www.daf.qld.gov.au
• Matters of National Environmental Significance including listed threatened species and ecological communities	*Environment Protection and Biodiversity Conservation Act 1999*	Department of Agriculture, Water and the Environment (Australian Government)	Ph: 1800 803 772 www.environment.gov.au
• Development and planning processes	*Planning Act 2016* *State Development and Public Works Organisation Act 1971*	Department of State Development, Infrastructure, Local Government and Planning (Queensland Government)	Ph: 13 QGOV (13 74 68) www.dsdmip.qld.gov.au
• Local government requirements	*Local Government Act 2009* *Planning Act 2016*	Department of State Development, Infrastructure, Local Government and Planning (Queensland Government)	Ph: 13 QGOV (13 74 68) Your relevant local government office
• Harvesting timber in the Wet Tropics of Qld World Heritage area	*Wet Tropics World Heritage Protection and Management Act 1993*	Wet Tropics Management Authority	Ph: (07) 4241 0500 www.wettropics.gov.au

Queensland Government

WildNet species list

Search Criteria: Species List for a Specified Point
Species: All
Type: Native
Queensland status: Rare and threatened species
Records: All
Date: Since 1980
Latitude: -22.1881
Longitude: 148.1875
Distance: 15
Email: [redacted]
Date submitted: Thursday 03 Aug 2023 12:19:56
Date extracted: Thursday 03 Aug 2023 12:20:04

The number of records retrieved = 6

Disclaimer
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The information provided should be appropriately acknowledged as being derived from WildNet database when it is used. As the WildNet Program is still in a process of collating and vetting data, it is possible the information given is not complete. Go to the WildNet database webpage (https://www.qld.gov.au/environment/plants-animals/species-information/wildnet) to find out more about WildNet and where to access other WildNet information products approved for publication. Feedback about WildNet species lists should be emailed to wildlife.online@des.qld.gov.au.

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Columbidae	*Geophaps scripta scripta*	squatter pigeon (southern subspecies)		V	V	5
animals	mammals	Phascolarctidae	*Phascolarctos cinereus*	koala		E	E	40
animals	mammals	Pseudocheiridae	*Petauroides armillatus*	central greater glider		E	E	35
animals	reptiles	Elapidae	*Denisonia maculata*	ornamental snake		V	V	17
plants	land plants	Poaceae	*Dichanthium queenslandicum*			V	E	3/3
plants	land plants	Solanaceae	*Solanum adenophorum*			E		1/1

CODES

I - Y indicates that the taxon is introduced to Queensland and has naturalised.

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992.*
The codes are Extinct (EX), Extinct in the Wild (PE), Critically Endangered (CR), Endangered (E), Vulnerable (V), Near Threatened (NT), Special Least Concern (SL) and Least Concern (C).

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999.*
The values of EPBC are Extinct (EX), Extinct in the Wild (XW), Critically Endangered (CE), Endangered (E), Vulnerable (V) and Conservation Dependent (CD).

Records - The first number indicates the total number of records of the taxon (wildlife records and species listings for selected areas).
This number is output as 99999 if it equals or exceeds this value. A second number located after a / indicates the number of specimen records for the taxon.
This number is output as 999 if it equals or exceeds this value.

Queensland Government

WildNet species list

Search Criteria: Species List for a Specified Point
Species: All
Type: Native
Queensland status: Rare and threatened species
Records: All
Date: Since 1980
Latitude: -22.1881
Longitude: 148.1875
Distance: 25
Email: [redacted]
Date submitted: Thursday 03 Aug 2023 12:20:58
Date extracted: Thursday 03 Aug 2023 12:30:09

The number of records retrieved = 10

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Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Columbidae	*Geophaps scripta scripta*	squatter pigeon (southern subspecies)		V	V	29
animals	mammals	Phascolarctidae	*Phascolarctos cinereus*	koala		E	E	87
animals	mammals	Pseudocheiridae	*Petauroides armillatus*	central greater glider		E	E	107
animals	reptiles	Elapidae	*Acanthophis antarcticus*	common death adder		V		1
animals	reptiles	Elapidae	*Denisonia maculata*	ornamental snake		V	V	42
plants	land plants	Amaranthaceae	*Ptilotus uncinellus*			E		2/2
plants	land plants	Euphorbiaceae	*Bertya pedicellata*			NT		11/3
plants	land plants	Poaceae	*Dichanthium queenslandicum*			V	E	3/3
plants	land plants	Solanaceae	*Solanum adenophorum*			E		1/1
plants	land plants	Solanaceae	*Solanum elachophyllum*			E		1/1

CODES

I - Y indicates that the taxon is introduced to Queensland and has naturalised.

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992.*
The codes are Extinct (EX), Extinct in the Wild (PE), Critically Endangered (CR), Endangered (E), Vulnerable (V), Near Threatened (NT), Special Least Concern (SL) and Least Concern (C).

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999.*
The values of EPBC are Extinct (EX), Extinct in the Wild (XW), Critically Endangered (CE), Endangered (E), Vulnerable (V) and Conservation Dependent (CD).

Records - The first number indicates the total number of records of the taxon (wildlife records and species listings for selected areas).
This number is output as 99999 if it equals or exceeds this value. A second number located after a / indicates the number of specimen records for the taxon.
This number is output as 999 if it equals or exceeds this value.

Queensland Government

WildNet species list

Search Criteria: Species List for a Specified Point
Species: All
Type: Native
Queensland status: Rare and threatened species
Records: All
Date: Since 1980
Latitude: -22.1881
Longitude: 148.1875
Distance: 55
Email: [redacted]
Date submitted: Thursday 03 Aug 2023 12:20:29
Date extracted: Thursday 03 Aug 2023 12:30:03

The number of records retrieved = 26

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Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Cacatuidae	*Calyptorhynchus lathami erebus*	glossy black-cockatoo (northern)		V		4
animals	birds	Columbidae	*Geophaps scripta scripta*	squatter pigeon (southern subspecies)		V	V	82
animals	birds	Phaethontidae	*Phaethon rubricauda*	red-tailed tropicbird		V		1
animals	mammals	Emballonuridae	*Taphozous australis*	coastal sheathtail bat		NT		4
animals	mammals	Phascolarctidae	*Phascolarctos cinereus*	koala		E	E	157
animals	mammals	Pseudocheiridae	*Petauroides armillatus*	central greater glider		E	E	154
animals	mammals	Pseudocheiridae	*Petauroides volans sensu lato*	greater glider		V	V	1
animals	mammals	Vespertilionidae	*Chalinolobus dwyeri*	large-eared pied bat		E	V	6
animals	reptiles	Elapidae	*Acanthophis antarcticus*	common death adder		V		1
animals	reptiles	Elapidae	*Denisonia maculata*	ornamental snake		V	V	86
plants	land plants	Amaranthaceae	*Ptilotus uncinellus*			E		5/5
plants	land plants	Apocynaceae	*Cerbera dumicola*			NT		9/6
plants	land plants	Asteraceae	*Trioncinia patens*			CR		1/1
plants	land plants	Asteraceae	*Trioncinia retroflexa*			E		1/1
plants	land plants	Capparaceae	*Capparis humistrata*			E		1/1
plants	land plants	Combretaceae	*Macropteranthes leiocaulis*			NT		2/2
plants	land plants	Euphorbiaceae	*Bertya pedicellata*			NT		26/18
plants	land plants	Leguminosae	*Acacia arbiana*			NT		3/3
plants	land plants	Leguminosae	*Acacia castorum*	Peak Range wattle		V		2/2
plants	land plants	Leguminosae	*Acacia spania*			NT		1/1
plants	land plants	Poaceae	*Aristida annua*			V	V	1/1
plants	land plants	Poaceae	*Dichanthium queenslandicum*			V	E	12/12
plants	land plants	Poaceae	*Digitaria porrecta*			NT		1/1
plants	land plants	Solanaceae	*Solanum adenophorum*			E		3/3
plants	land plants	Solanaceae	*Solanum elachophyllum*			E		1/1
plants	land plants	Solanaceae	*Solanum orgadophilum*	Capella potato bush		CR	CE	1/1

CODES

I - Y indicates that the taxon is introduced to Queensland and has naturalised.

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992.*
The codes are Extinct (EX), Extinct in the Wild (PE), Critically Endangered (CR), Endangered (E), Vulnerable (V), Near Threatened (NT), Special Least Concern (SL) and Least Concern (C).

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999.*
The values of EPBC are Extinct (EX), Extinct in the Wild (XW), Critically Endangered (CE), Endangered (E), Vulnerable (V) and Conservation Dependent (CD).

Records - The first number indicates the total number of records of the taxon (wildlife records and species listings for selected areas).
This number is output as 99999 if it equals or exceeds this value. A second number located after a / indicates the number of specimen records for the taxon.
This number is output as 999 if it equals or exceeds this value.

EPBC Act Protected Matters Report

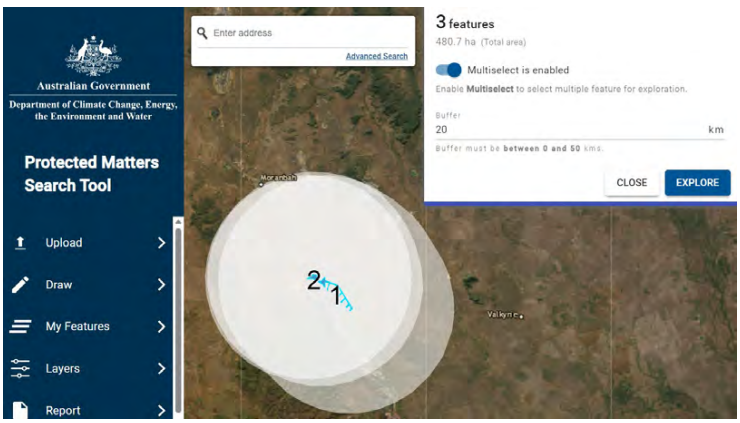
This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 04-Aug-2023

[Summary](#)
[Details](#)
- [Matters of NES](#)
- [Other Matters Protected by the EPBC Act](#)
- [Extra Information](#)

[Caveat](#)
[Acknowledgements](#)





Central coords: -22.1881, 148.1875
20km Polygon Buffer
Search location manually added by Ausecology, 2023

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	5
Listed Threatened Species:	26
Listed Migratory Species:	10

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	15
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	45
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Brigalow (Acacia harpophylla dominant and co-dominant)	Endangered	Community known to occur within area	In feature area
Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin	Endangered	Community likely to occur within area	In feature area
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	Community likely to occur within area	In feature area
Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions	Endangered	Community likely to occur within area	In buffer area only
Weeping Myall Woodlands	Endangered	Community likely to occur within area	In buffer area only

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Erythrotriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat may occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat known to occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area	In feature area
Neochmia ruficauda ruficauda Star Finch (eastern), Star Finch (southern) [26027]	Endangered	Species or species habitat likely to occur within area	In feature area
Poephila cincta cincta Southern Black-throated Finch [64447]	Endangered	Species or species habitat may occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat may occur within area	In feature area
MAMMAL			
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat likely to occur within area	In feature area
Macroderma gigas Ghost Bat [174]	Vulnerable	Species or species habitat may occur within area	In feature area
Nyctophilus corbeni Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat may occur within area	In feature area
Petauroides volans Greater Glider (southern and central) [254]	Endangered	Species or species habitat known to occur within area	In feature area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
PLANT			
Denhamia megacarpa Large-fruited Denhamia [91342]	Endangered	Species or species habitat may occur within area	In buffer area only
Dichanthium queenslandicum King Blue-grass [5481]	Endangered	Species or species habitat known to occur within area	In feature area
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Eucalyptus raveretiana Black Ironbox [16344]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Samadera bidwillii Quassia [29708]	Vulnerable	Species or species habitat likely to occur within area	In feature area
REPTILE			
Denisonia maculata Ornamental Snake [1193]	Vulnerable	Species or species habitat known to occur within area	In feature area
Egernia rugosa Yakka Skink [1420]	Vulnerable	Species or species habitat may occur within area	In feature area
Elseya albagula Southern Snapping Turtle, White-throated Snapping Turtle [81648]	Critically Endangered	Species or species habitat may occur within area	In feature area
Furina dunmalli Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area	In feature area
Hemiaspis damelii Grey Snake [1179]	Endangered	Species or species habitat may occur within area	In feature area
Lerista allanae Allan's Lerista, Retro Slider [1378]	Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Rheodytes leukops			
Fitzroy River Turtle, Fitzroy Tortoise, Fitzroy Turtle, White-eyed River Diver [1761]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Listed Migratory Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Cuculus optatus			
Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area	In feature area
Motacilla flava			
Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata			
Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area	In feature area
Calidris ferruginea			
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos			
Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii			
Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area	In feature area
Pandion haliaetus			
Osprey [952]		Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Tringa nebularia			
Common Greenshank, Greenshank [832]		Species or species habitat may occur within area	In buffer area only

Other Matters Protected by the EPBC Act

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Anseranas semipalmata			
Magpie Goose [978]		Species or species habitat may occur within area overfly marine area	In feature area
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis			
Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata			
Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area	In feature area
Calidris ferruginea			
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat may occur within area overfly marine area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area	In buffer area only
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat may occur within area overfly marine area	In buffer area only

Extra Information

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Carmichael Coal Mine and Rail Project	2010/5736		Post-Approval	In buffer area only
Caval Ridge Mine Horse Pit Extension, Bowen Basin	2021/9031		Assessment	In buffer area only
Isaac Downs coal mine project, near Moranbah, Qld	2019/8413		Post-Approval	In buffer area only
Isaac River Coal Mine Project	2021/8980		Post-Approval	In buffer area only
Lake Vermont Meadowbrook Coal Mine Project, Qld	2019/8485		Assessment	In buffer area only
Olive Downs Project Mine Site and Access Road	2017/7867		Post-Approval	In buffer area only
Peak Downs Mine Continuation Project	2022/09350		Referral Decision	In feature area
Saraji East Mining Lease Project, Qld	2016/7791		Assessment	In buffer area only
Vulcan Coal Mine ? Matilda Pit and Ancillary Infrastructure	2022/09361		Assessment	In buffer area only
Winchester South Project Mine Site and Access Road, near Moranbah, Qld	2019/8460		Assessment	In feature area
Controlled action				
7 North Dam Extension Project - Peak Downs Mine	2012/6260	Controlled Action	Completed	In buffer area only
Alpha Coal Project - Mine and Rail Development	2008/4648	Controlled Action	Post-Approval	In buffer area only
Arrow Bowen Pipeline (CSG), QLD	2012/6459	Controlled Action	Post-Approval	In buffer area only
Bowen Gas Project	2012/6377	Controlled Action	Post-Approval	In feature area
Caval Ridge Open Cut Coal Mine Project	2008/4417	Controlled Action	Post-Approval	In feature area
Develop an Open Cut Coal Mine at Daunia	2008/4418	Controlled Action	Post-Approval	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Eagle Downs Coal Mine Central Queensland	2008/3945	Controlled Action	Post-Approval	In feature area
Establishment of Galilee Coal Mine and Associated Infrastructure	2009/4737	Controlled Action	Post-Approval	In buffer area only
Extension to the exisiting Isaac Plains Mine, near Moranbah, Qld	2016/7827	Controlled Action	Post-Approval	In buffer area only
install & operate gas pipeline	2005/2059	Controlled Action	Post-Approval	In buffer area only
Millenium Open Cut Coal Mine Expansion Project, QLD	2009/4821	Controlled Action	Post-Approval	In buffer area only
Moranbah South Project Coal Mine, QLD	2012/6337	Controlled Action	Post-Approval	In feature area
New Saraji Coal Mine Project	2007/3845	Controlled Action	Completed	In buffer area only
Olive Downs Project Electricity Transmission Line	2017/7869	Controlled Action	Post-Approval	In buffer area only
Olive Downs Project Rail Spur	2017/7870	Controlled Action	Post-Approval	In buffer area only
Olive Downs Project Water Pipeline	2017/7868	Controlled Action	Post-Approval	In buffer area only
Open Cut Coal Mining	2004/1770	Controlled Action	Post-Approval	In feature area
Relocation of approximately 16km of Dysart Road and associated service infrastructure	2013/6868	Controlled Action	Post-Approval	In feature area
The Grosvenor Coal Mine Project	2007/3785	Controlled Action	Post-Approval	In buffer area only
Vulcan Complex Project	2020/8676	Controlled Action	Post-Approval	In buffer area only
Winchester South Project Electricity Transmission Line, near Moranbah, Qld	2019/8458	Controlled Action	Assessment Approach	In feature area
Winchester South Project Water Pipeline, near Moranbah, Qld	2019/8459	Controlled Action	Assessment Approach	In feature area
Not controlled action				
Broadlea North Coal Project open cut mine and associated infrastructure	2005/2179	Not Controlled Action	Completed	In buffer area only
Carborough Downs mine extension	2006/3085	Not Controlled Action	Completed	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
construction and operation of Carborough Downs Mine	2005/2064	Not Controlled Action	Completed	In buffer area only
Eagle-1 Exploration Drilling, North West Shelf, WA	2019/8578	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
Integrated Isaac Plains Project	2006/3043	Not Controlled Action	Completed	In buffer area only
Olive Downs Project	2005/2377	Not Controlled Action	Completed	In buffer area only
Open cut coal mine 7km NE of Moranbah (Isaac Plains)	2005/2070	Not Controlled Action	Completed	In buffer area only
Vulcan Bulk Sample Project	2019/8504	Not Controlled Action	Completed	In buffer area only
Water pipeline	2006/2595	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
Moranbah South Feasibility Seismic Survey	2010/5497	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Moranbah South Project 2013 Seismic Exploration Program, Qld	2013/6814	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Referral decision				
Expansion of open cut coal mine and diversion of creeks in existing mine operati	2006/2845	Referral Decision	Completed	In buffer area only

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

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-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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