

Friday, 30 August 2019

Department of Environment and Science
Coal and Central Queensland Compliance
99 Hospital Road,
Emerald Qld 4720

Attention: Dr Alison Sinclair – Team Leader (Assessment)

Dear Alison,

Re: Coppabella to Millennium Pipeline EA application

Please find attached the following documents in support of our Environmental Authority application for ML700052 - Coppabella to Millennium Pipeline.

- 20190829 Variation application for a new EA for a resource activity signed
 - Application form – Variation application for a new environmental authority for a resource activity
- Variation EA Application Coppabella Pipeline Supporting Information
 - Supporting information for the EA application
- Figure 1 Strategic Environmental Areas
- Figure 2 Environmentally Sensitive Areas Mining MDL495
- Figure 3 Environmentally Sensitive Areas Mining MDL494
- Appendix A - Ecological Assessment
- Appendix B - Coppabella Waste Management Plan
- Appendix C - Vehicle Machinery Washdown Certification
- Appendix D - Leak Detection and Incident Management Memo
- Construction corridor shape files
 - Zipped file containing the spatial data set for the construction easement
- COPPABELLA to MILLENNIUM MLA BOUNDARY
 - Zipped file containing the spatial data set for the ML alignment

If you have any questions, please contact me directly.

Regards,



Jason Martin
Manager Approvals and Compliance
0477337187

Application form

Environmental Protection Act 1994

Variation application for a new environmental authority for a resource activity

This is the approved form that is to be used to make a variation application for an environmental authority under sections 123 and 125 of the Environmental Protection Act 1994 (EP Act) for an environmentally relevant activity (ERA) which is a resource activity.

It is recommended that you read the information on what to provide with an application, prior to making an application. This information, along with eligibility criteria and standard conditions, is located on the Business Queensland website at www.business.qld.gov.au (use the search term "environmental licence"). This website also has a diagnostic tool called the "Forms and fees finder" which will take you through a series of questions and provide a customised result which will identify any forms, fees and supporting information you need to make an application.

Only use this application form if you are applying for a new environmental authority (EA) where:

- The ERA/s being applied for is/are a resource activity/activities, that involve: (a) a geothermal activity, (b) a greenhouse gas (GHG) storage activity, (c) a mining activity, or (d) a petroleum activity. Note a resource activity is taken to include ancillary activities (prescribed ERAs) and other activities carried out under the authority as a resource activity.
- All of the ERA/s being applied for have eligibility criteria and standard conditions available.
- You can meet all of the eligibility criteria for all of the ERA/s being applied for however you want to vary one or more of the standard conditions.
- An application for relevant resource tenure has been made or will be made at the same time as this application.
- The applicant/s for the resource tenure are exactly the same as the applicant/s for this EA application.
- The ERA/s being applied for will not form part of an ERA project under an existing EA.
- If more than one ERA is being applied for:
 - the ERAs being applied for will be carried out under the day to day management of a single responsible person (e.g. a site manager or operations manager); and
 - all of the ERAs are operationally interrelated, that is, the operation cannot function without all of the ERAs. Separate applications will need to be made for the ERAs that cannot be carried out as a single integrated operation; and
 - the ERA/s are, or will be, carried out at one or more places; and
 - the places where the ERAs will be carried out are close enough to make the integrated day to day management of the activities feasible.

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If you would like to have a pre-lodgement meeting, please complete and lodge the form Application for pre-lodgement services (ESR/2015/1664¹), prior to lodging this application for an EA.

The fields marked with an asterisk * are mandatory, if they are not completed then your application may be considered not properly made under section 128 of the *Environmental Protection Act 1994*.

1 Applicant details

Is there more than one applicant?*	<input type="checkbox"/> No, please provide the applicant's details here. <input checked="" type="checkbox"/> Yes, please provide the principal applicant's details here and other applicants' details at Attachment 1—Joint applicants and appointment of principal applicant
Name—individual or contact person if applicant is an organisation* c/- Tenement Manager, Kayleen O'Dowd	
Organisation name, including any trading name (*if an organisation) Peabody Coppabella Pty Ltd	ABN/ACN (*if an organisation) 33 095 976 042
Residential or registered business address (not a post office box)* 100 Melbourne Street, South Brisbane QLD 4101	Phone* (07) 3239 7661
Postal address (if same as above, write "AS ABOVE")* GPO Box 164, Brisbane QLD 4001	Facsimile Insert.
Email* kodowd@peabodyenergy.com	<input checked="" type="checkbox"/> Indicate if you want to receive correspondence via email

1.1 Nomination of an agent for this application

I/we nominate the below agent to act on my/our behalf and to receive correspondence relating to this application.

Do you want to nominate an agent for this application?*	
<input checked="" type="checkbox"/> No → Go to <i>Question 2</i> . <input type="checkbox"/> Yes → Complete the agent's details here.	
Name of agent—individual or contact person if agent is an organisation Insert.	
Organisation name, including trading name (if an organisation) Insert.	ABN/ACN (if an organisation) Insert.
Postal address Insert.	Phone Insert.
Email Insert.	<input type="checkbox"/> Indicate if you want to receive correspondence via email

¹ This form is available on the Queensland Government website at www.qld.gov.au, using the publication number 'ESR/2015/1664' as a search term.

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2 Registered suitable operator status

A suitable operator is a person or a corporation assessed under Part 4, Chapter 5A of the EP Act as being suitable to carry out an ERA and is listed on the suitable operator register².

Are all applicants registered as a suitable operator?*	
<input checked="" type="checkbox"/> Yes →	<p>Suitable operator reference number* 340990</p> <p>The suitable operator reference number provided must belong to the individual/organisation with the exact same name, DOB or ABN/ACN as the applicant. If there is more than one applicant, include all applicants' suitable operator reference numbers on Attachment 1.</p>
<input type="checkbox"/> No →	<p>You must apply to be a suitable registered operator either online through Connect at www.qld.gov.au/environmentconnect or by completing the form Application to be a registered suitable operator (ESR/2015/1771)³.</p> <p>Note: If there is more than one applicant, a separate form must be attached for each applicant.</p>

3 Details of the activity/activities being applied for

Complete the table below by advising which activities you are applying for and the location they will be conducted at. By selecting "yes" you are certifying that you have a complete and thorough understanding of, and can comply with the eligibility criteria and standard conditions for that activity. By selecting "no" you are advising that you cannot comply with one or more of the standard conditions.

Resource activity/activities, e.g. gemstone mining, geothermal activities, exploration—minerals, petroleum exploration activities, data acquisition authority*	I can comply with the eligibility criteria*	I can comply with the standard conditions ⁴ *	Tenure number(s)*
Mining Activity – Water pipeline	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Insert. ML 700052
Insert.	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes <input type="checkbox"/> No	Insert.
Insert.	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes <input type="checkbox"/> No	Insert.
Insert.	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes <input type="checkbox"/> No	Insert.

² The register is available on the Queensland Government website at www.qld.gov.au, using the search term "suitable operator register".

³ The hardcopy form is available upon request from Permits and Licensing by phone 1300 130 372 (option 4) or by email to palm@des.qld.gov.au.

⁴ ERAs with eligibility criteria and standard conditions are listed on the Business Queensland website at www.business.qld.gov.au, using the search term "eligibility criteria".

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4 Standard conditions to vary

For each activity listed in *Question 3* where you cannot comply with the standard conditions, please provide details of the variation being applied for below, or on an attachment.

For coordinated projects, if the conditions in the Coordinator-General's (CG's) evaluation report vary the standard conditions for the relevant activity/activities provide all variations in the table below and tick the box in the 'CG's condition' column. If the evaluation report states additional conditions (i.e. additional to the standard or varied conditions) provide the details in *Question 10.2* below.

Activity name*	Standard condition to be varied (e.g. PESCB 3)*	Requested variation*	CG's condition	Justification—provide information for the administering authority to assess the environmental risk of the requested variation ⁵ (*not required if a CG's condition)
Pipeline construction	A13	The holder of the environmental authority will restrict disturbance to the approved disturbance corridor.	<input type="checkbox"/>	State Environmentally Sensitive Area mapping indicates that in the Project area there are patches of Endangered Regional Ecosystems. As a result of the chosen alignment and proposed mitigation measures, the project will not have a significant impact on Matters of State Environmental Significance.
Insert.	Insert.	Insert.	<input type="checkbox"/>	Insert.
Insert.	Insert.	Insert.	<input type="checkbox"/>	Insert.

⁵ More information on the technical information requirements for an environmental authority application is available on the Business Queensland website at www.business.qld.gov.au, using the search term "technical information requirements".

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Variation application for a new environmental authority for a resource activity

Activity name*	Standard condition to be varied (e.g. PESC B 3)*	Requested variation*	CG's condition	Justification—provide information for the administering authority to assess the environmental risk of the requested variation ⁵ (*not required if a CG's condition)
Insert.	Insert.	Insert.	<input type="checkbox"/>	Insert.
Insert.	Insert.	Insert.	<input type="checkbox"/>	Insert.
Insert.	Insert.	Insert.	<input type="checkbox"/>	Insert.
Insert.	Insert.	Insert.	<input type="checkbox"/>	Insert.

I have attached the documentation to support the variations to the standard conditions listed above.

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5 Description of land where the activity/activities will be carried out

Project name (*if relevant): Coppabella to Millennium		GPS coordinates (*if known): Refer attached Map of MLA boundary	
Other land description or land marks to locate the activity (*if relevant): Insert.			
Tenure type(s) e.g. DAA, EPM, EPC*	Tenure number(s)*	Local Government Area (LGA)*	Date on application*
ML	TBA	Isaac	Insert.
Insert.	Insert.	Insert.	Insert.
Insert.	Insert.	Insert.	Insert.
Insert.	Insert.	Insert.	Insert.
Insert.	Insert.	Insert.	Insert.
Insert.	Insert.	Insert.	Insert.
Insert.	Insert.	Insert.	Insert.
Insert.	Insert.	Insert.	Insert.

6 Details of contaminated land

Is there a site management plan in effect for contaminated land that relates to the land that is the subject of this application?*		
<input checked="" type="checkbox"/> No →	Go to <i>Question 7</i> .	
<input type="checkbox"/> Yes →	Description of land*	
	Lot and plan number(s)	LGA
	Lot Insert. Plan Insert.	Insert.
	Lot Insert. Plan Insert.	
	Lot Insert. Plan Insert.	
Lot Insert. Plan Insert.		
If you are not able to provide all relevant details above, please attach them to this application and indicate you have done so below: <input type="checkbox"/> I have attached the description of the land for which a site management plan is in effect.		

7 Regional interests development approval

A regional interests development approval (RIDA) is required when a resource activity is proposed in an area of regional interest under the *Regional Planning Interests Act 2014*. Further information, including application forms, can be found on the Department of Infrastructure, Local Government and Planning (DILGP) website, www.dilgp.qld.gov.au.

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Is the resource activity located anywhere within an area of regional interest?*	
<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes →	Which area of regional interest, has or will require a RIDA? <input type="checkbox"/> Priority Agricultural Areas (PAAs) <input type="checkbox"/> Priority Living Areas (PLAs) <input type="checkbox"/> Strategic Environmental Areas (SEAs) <input type="checkbox"/> Strategic Cropping Area (SCA) <input type="checkbox"/> No RIDA required, I am an exempt activity.
	If you have applied for a RIDA, provide the application reference below: Insert.

8 Environmental offsets

An environmental offset, under the *Environmental Offsets Act 2014*, may be required for an ERA where, despite all reasonable measures to avoid and minimise impacts on certain environmental matters, there is still likely to be significant residual impact on one or more of those matters.

You must verify the presence, whether temporary or permanent, of those environmental matters.

For more information refer to the Queensland Environmental Offsets Policy and the Significant Residual Impact Guideline at the Queensland Government website at www.qld.gov.au, using the search term "environmental offsets".

Will the activity/activities being applied for result in a significant residual impact to a matter of State environmental significance (MSES)?*	
<input checked="" type="checkbox"/> No →	Go to <i>Question 8.3</i> .
<input type="checkbox"/> Yes →	You must attach supporting information that: <ol style="list-style-type: none"> 1. Details the magnitude and duration of the likely significant residual impact on each prescribed environmental matter (other than matters of local environmental significance) for the entire activity; and 2. Demonstrates that all reasonable measures to avoid and minimise impacts on each of those matters will be undertaken.

8.1 Notice of election

Has a notice of election been submitted to the administering authority, or is being submitted as part of this application?	
<input type="checkbox"/> No →	Go to <i>Question 8.2</i> .
<input type="checkbox"/> Yes →	<input type="checkbox"/> You can attach the notice of election, if it has not already been submitted. Go to <i>Question 8.3</i> .

8.2 Staged environmental offsets

Offset delivery can be staged, however for this to occur, the condition of any approved environmental authority needs to state that both the activity and the offset may be staged. As part of your notice of election for each stage under the *Environmental Offsets Act 2014*, you are required to provide a detailed assessment of the quantum of impact of that stage and the offset obligation requirement to be delivered for that stage.

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Will the proposed activity/activities and delivery of an environmental offset be undertaken in stages?*

- No
- Yes → You **must** attach supporting information that details of how the activity/activities are proposed to be staged.

8.3 Nature conservation environmental offset

Has another authority issued under the *Nature Conservation Act 1992* required an environmental offset for the same, or substantially the same, impact and the same, or substantially the same, MSES?

- No
- Yes → Provide permit number: Insert.

8.4 Marine parks environmental offset

Has marine park permit issued under the *Marine Parks Act 2004* required an environmental offset for the same, or substantially the same, impact and the same, or substantially the same, MSES?

- No
- Yes → You **must** attach a copy of the marine park permit to this application.

9 Matters of national environmental significance

There are currently nine matters of national environmental significance (MNES) which have been defined in the *Environment Protection and Biodiversity Conservation Act 1999 (Cth)* (EPBC Act). These are:

- 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

To determine whether the proposed activity/activities will have a significant impact on MNES and for referral requirements, please refer to the guidance provided by the Federal Government's Department of Environment and Energy on www.environment.gov.au.

Would the carrying out of the proposed activity/activities be likely to have a significant impact on a MNES?*

- | | |
|--|--|
| <input checked="" type="checkbox"/> No → | Go to <i>Question 10</i> . |
| <input type="checkbox"/> Yes → | Has the proposal been referred to the Federal Department of Environment and Energy for formal assessment and approval?
<input type="checkbox"/> No → Go to <i>Question 10</i> .
<input type="checkbox"/> Yes → Go to <i>Question 9.1</i> . |

9.1 EPBC Act approval for environmental offsets

Has an approval been issued under the EPBC Act required an environmental offset for the same, or substantially the same, impact and the same, or substantially the same, MSES?

- No → Go to *Question 10*.
- Yes → I have attached a copy of the approval under the EPBC Act.

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	<p>Are there any MNES which were assessed under the EPBC Act which are the same, or substantially the same as an MSES, but that were not conditioned in the approval?</p> <p><input type="checkbox"/> No → Go to Question 10.</p> <p><input type="checkbox"/> Yes → List these MNES: Insert.</p>
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10 Environmental impact statement under the State Development and Public Works Organisation Act 1971

Certain stages of the EA application process may not apply if the proposed activities were assessed as part of a coordinated project declared under the *State Development and Public Works Organisation Act 1971* (SDPWO Act). You are only required to answer Questions 10 to 10.2 if the CG's evaluation report for the project is current.

Has an environmental impact statement (EIS) process under the SDPWO Act been completed?*					
<input checked="" type="checkbox"/> No → Go to Question 11.					
<input type="checkbox"/> Yes →	What is the title and project name of the completed EIS? Insert.				
	Was the EIS completed for all activities that are the subject of this application?				
	<table border="1"> <tr> <td style="width: 15%;"><input type="checkbox"/> No →</td> <td>Please list the activities that were not included in the EIS or attach documentation with this information to this application: Insert.</td> </tr> <tr> <td colspan="2"><input type="checkbox"/> I have attached the required supporting information.</td> </tr> </table>	<input type="checkbox"/> No →	Please list the activities that were not included in the EIS or attach documentation with this information to this application: Insert.	<input type="checkbox"/> I have attached the required supporting information.	
	<input type="checkbox"/> No →	Please list the activities that were not included in the EIS or attach documentation with this information to this application: Insert.			
<input type="checkbox"/> I have attached the required supporting information.					
<input type="checkbox"/> Yes					

10.1 Environmental risks

<p>Have the environmental risks or the way the activity/activities are proposed to be carried out changed since the EIS was completed?*</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes</p>
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10.2 Coordinator-General's conditions

Are there CG's conditions that relate to the activities being applied for?*									
<input type="checkbox"/> No →	Go to <i>Question 11</i> .								
<input type="checkbox"/> Yes →	<p>Name of the CG's evaluation report: Insert.</p> <p>Also list any standard conditions that are not the same as the conditions stated in the CG's evaluation report in <i>Question 4</i> above, and provide any conditions stated in the CG's evaluation report that are additional to the standard conditions below or attach them to this application:</p> <table border="1"> <tr><td>Insert.</td></tr> <tr><td>Insert.</td></tr> <tr><td>Insert.</td></tr> <tr><td>Insert.</td></tr> <tr><td>Insert.</td></tr> <tr><td>Insert.</td></tr> <tr><td>Insert.</td></tr> <tr><td>Insert.</td></tr> </table> <p><input type="checkbox"/> I have attached any additional conditions from the CG's evaluation report to this application.</p>	Insert.	Insert.	Insert.	Insert.	Insert.	Insert.	Insert.	Insert.
Insert.									
Insert.									
Insert.									
Insert.									
Insert.									
Insert.									
Insert.									
Insert.									

11 EIS under the *Environmental Protection Act 1994*

Has an EIS process under Chapter 3 of the EP Act been completed?*		
<input checked="" type="checkbox"/> No →	Go to <i>Question 12</i> .	
<input type="checkbox"/> Yes →	What is the title and project name of the completed EIS? Insert.	Date EIS assessment report issued: Insert.
	Was the EIS completed for all activities that are the subject of this application? <input type="checkbox"/> No <input type="checkbox"/> Yes	

11.1 Environmental risks

Have the environmental risks of the proposed activities changed since the EIS was completed?*
<input type="checkbox"/> No
<input type="checkbox"/> Yes

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12 EIS triggers

The information provided here will assist in determining whether an EIS is required. If your response to any question is yes, you must attach details of how the criterion is triggered including details of the impact.

For further information refer to the guideline Triggers for environmental impact statements under the *Environmental Protection Act 1994* for mining, petroleum and gas activities (ESR/2016/2167)⁶.

#	Criteria—EIS triggers (*if applicable) <i>This question is not applicable if an EIS process under either the SDPOW Act or Chapter 3 of the EP Act has been completed for all the activities that are the subject of this application, and the environmental risks of the activities and the way they are proposed to be carried out <u>has not changed</u> since the EIS was completed.</i>	Response
	*Questions 12.1-12.3 are mandatory for mining activities only . If your proposed ERA/s is not a mining activity, tick N/A and proceed to <i>Question 12.4</i> .	<input type="checkbox"/> N/A
12.1*	Is the ERA project for a mining activity which involves the removal of two million tonnes/year or more of run-of-mine (ROM) ⁷ ore or coal?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
12.2*	Is the ERA project for a mining activity that involves the removal of 1 million tonnes per year or more of run-of-mine (ROM) ore or coal on or under a floodplain or a coastal hazard area?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
12.3*	Is the ERA project for a mining activity which involves the introduction of a novel or unproven resource extraction process, technology or activity ⁸ ?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
	*Questions 12.4-12.6 are mandatory for petroleum and gas activities only . If your proposed ERA/s is not a petroleum and gas activity, tick N/A and go to <i>Question 13</i> .	<input checked="" type="checkbox"/> N/A
12.4*	Is the ERA project for a petroleum and gas activity that is likely to have a total disturbance area of greater than 2000 hectares at any 1 time during the life of the proposed project? This includes areas occupied by well pads (single or multi-directional), access tracks and roads, water storages, and process plants?	<input type="checkbox"/> YES <input type="checkbox"/> NO
12.5*	Is the ERA project for a petroleum and gas activity that is likely to involve the construction of a high pressure pipeline over a distance of 300 kilometres or greater?	<input type="checkbox"/> YES <input type="checkbox"/> NO
12.6*	Is the ERA project for a petroleum and gas activity that is likely to involve the construction of a liquefied natural gas plant?	<input type="checkbox"/> YES <input type="checkbox"/> NO

I have attached the documentation to support all 'Yes' responses provided above.

13 Assessment of the environmental impact

This question is **not applicable** if an EIS process under either the SDPWO Act or Chapter 3 of the EP Act has been completed for all the activities that are the subject of this application **and** the environmental risks of the activities and the way they are proposed to be carried out has not changed since the EIS was completed.

You must attach to this application an assessment of the likely impact of each ERA on environmental values, to the extent that it is relevant to the proposed variation to the standard condition/s (*if applicable), including:

- a description of the environmental values likely to be affected by each relevant activity

⁶ This guideline is available on the Queensland Government website at www.qld.gov.au, using the search term "triggers for EIS".

⁷ ROM ore or coal means the material excavated but prior to washing or chemical concentration. It does not include overburden.

⁸ For example: underground coal gasification; in-seam coal slurring; a new method of ore concentration. This will be decided on a case-by-case basis and this trigger is not intended to discourage innovation.

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- details of any emissions or releases likely to be generated by each relevant activity
- a description of the risk and likely magnitude of impacts on the environmental values
- details of the management practices proposed to be implemented to prevent or minimise adverse impacts
- details of how the land the subject of the application will be rehabilitated after each relevant activity ceases.

I have attached an assessment of the environmental impact and specific supporting information.

14 Details of waste management

Describe the proposed measures for minimising and managing waste generated by the proposed activity/activities below or attach supporting information to this application*

Waste management will be undertaken in accordance with the Coppabella Waste Management Plan (see Variation EA Application Coppabella Pipeline Supporting Information, Appendix B). All waste will be removed from the Project area.

I have attached the proposed measures.

15 Payment of fees

You are required to pay an application fee at the time of application. If your application is approved you will be required to pay a fee annually. Each ERA has a regulated fee and the annual fee will be the highest annual fee of any ERA associated with the project. The first annual fee will be invoiced when one or more of the tenures are granted. Information on fees is available on the Business Queensland website at www.business.qld.gov.au.

The application fee is*: \$1331.04

Please enclose a cheque or money order for the application fee payable to the Department of Environment and Science. Alternatively, to pay by credit card you must complete this application online through Connect at www.qld.gov.au/environment/pollution/licences-permits/connect or visit Level 3, 400 George Street, Brisbane.

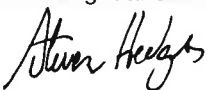
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16 Applicant declaration

I declare that the information I have provided is true and correct. I understand that it is an offence under the *Environmental Protection Act 1994* to give information that I know is false, misleading or incomplete.

I will comply with all conditions on my environmental authority as well as any relevant provisions in the *Environmental Protection Act 1994*.

I understand that I am responsible for managing the environmental impacts of these activities, and that approval of this application is not an endorsement by the administering authority of the effectiveness of the management practices proposed or implemented.

Applicant's full name* Steven Hedges	Applicant's position (*if an organisation) Director
Applicant's signature* 	Date* Insert. 23/8/19

Important note: Estimated rehabilitation cost (ERC)

It is a condition of all environmental authorities for resource activities, under section 297 of the EP Act, that the holder must not carry out, or allow the carrying out of, a resource activity under the authority unless an ERC decision is in effect, and the holder has paid scheme assurance and complied with the requirements under the *Mineral and Energy Resources (Financial Provisioning) Act 2018* for paying this assurance. If your application for an environmental authority is approved, you must lodge a separate application for an ERC decision either using Connect⁹ or by submitting the approved form *Application for a Decision on the Estimated Rehabilitation Cost*¹⁰ (publication number ESR/2018/4426). For further information regarding the estimated rehabilitation cost, refer to *Guideline Estimated rehabilitation cost under the Environmental Protection Act 1994*¹¹ (publication number ESR/2018/4425).

Once you have submitted your resource application and received your tenure number, please submit this completed application via one of the following methods:

Post:

Permits and Licensing
Department of Environment and Science
GPO Box 2454
BRISBANE QLD 4001

Courier or hand delivery:

Permits and Licensing
Department of Environment and Science
Level 3, 400 George Street
BRISBANE QLD 4000
Hours: 8.30am–4.30pm business days

Further information:

www.business.qld.gov.au
Email: palm@des.qld.gov.au
Phone: 13 QGOV (13 74 68)

⁹ Certain applications to DES can be made using DES's digital platform for online services and transactions—Connect. A user fee applies for each submitted application or annual fee paid in Connect. The fee is 7% of the regulatory fee capped at \$70. Other self-service options undertaken through Connect such as updating details or lodging annual returns will not attract a user fee. For more information and to register to use Connect go to www.des.qld.gov.au/Connect.

¹⁰ This form is available on the Queensland Government website at www.qld.gov.au, using the publication number ESR/2018/4426 as a search term.

¹¹ This form is available on the Queensland Government website at www.qld.gov.au, using the publication number ESR/2018/4425 as a search term.

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Privacy statement

The Department of Environment and Science and the Department of Natural Resources, Mines and Energy are collecting the information on this form to process your application for an environmental authority. This collection is authorised under Chapter 5 of the *Environmental Protection Act 1994*. Please note that the administering authority is required to keep this application on a register of documents open for inspection by members of the public under section 540 of the EP Act, and must permit a person to take extracts from the register pursuant to section 542 of the EP Act. Your personal information will not be otherwise disclosed to any other parties unless authorised or required by law. For queries about privacy matters please email privacy@des.qld.gov.au or telephone: 13 QGOV (13 74 68).

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Attachment 1—Joint applicants and appointment of principal applicant

We are joint applicants for this environmental authority and hereby appoint: Insert.
as the principal applicant to receive statutory documents relating to this application.

Name—individual or contact person if applicant is an organisation Insert.	Suitable operator reference number Insert.
Organisation name, including any trading name (if an organisation) Insert.	ABN/ACN (if an organisation) Insert.
Residential or registered business address (not a post office box) Insert.	Phone Insert.
Postal address (if different from above) Insert.	Facsimile Insert.
Email Insert.	<input type="checkbox"/> Indicate if you want to receive correspondence via email
Signature	Date Insert.

Name—individual or contact person if applicant is an organisation Insert.	Suitable operator reference number Insert.
Organisation name, including any trading name (if an organisation) Insert.	ABN/ACN (if an organisation) Insert.
Residential or registered business address (not a post office box) Insert.	Phone Insert.
Postal address (if different from above) Insert.	Facsimile Insert.
Email Insert.	<input type="checkbox"/> Indicate if you want to receive correspondence via email
Signature	Date Insert.

Name—individual or contact person if applicant is an organisation Insert.	Suitable operator reference number Insert.
Organisation name, including any trading name (if an organisation) Insert.	ABN/ACN (if an organisation) Insert.
Residential or registered business address (not a post office box) Insert.	Phone Insert.
Postal address (if different from above) Insert.	Facsimile Insert.
Email Insert.	<input type="checkbox"/> Indicate if you want to receive correspondence via email
Signature	Date Insert.


Joint applicants and appointment of principal applicant

We are joint applicants for this environmental authority and hereby appoint **Peabody Coppabella Pty Ltd** as the principal applicant to receive statutory documents relating to this application.

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Signature	Date
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August 2019

Variation EA Application for ML700052

Supporting Information –
Coppabella to Millennium Pipeline



Martin, Jason
PEABODY ENERGY AUSTRALIA



Peabody

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1) INTRODUCTION

This is the supporting information for a Variation application for a new Environmental Authority (EA) for a resource activity (ML700052). This project is a mining activity as it will be an authorized activity for a mining tenement but does not otherwise involve any separate Environmentally Relevant Activity (ERA). Accordingly, this application is made for disturbance mining activity which meets the eligibility criteria set out in *'Eligibility criteria and standard conditions for mining lease activities—Version 2'*.

This document provides supporting information for the EA application for the Coppabella Pipeline Project (the Project). The Project is located in the Bowen Basin near Coppabella, Queensland. The pipeline is necessary for the movement of water between Coppabella, Moorvale and Millennium Mines. Water may also be reticulated to other mines in the local area when in demand and in compliance with all relevant approvals.

An Infrastructure Mining Lease (ML) (ML700052) has been applied for that overlaps MDL494, MDL495 and ML70290. Construction of the pipeline on the Coppabella Mine ML70161, Moorvale ML70290 and Millennium ML70457 was included in the last Plan of Operations submitted, and financial assurance is in place for all three sites. It is likely that construction of the pipeline will commence within the areas of existing mining leases Coppabella Mine ML70161, Moorvale ML70290 and Millennium ML70457 where construction will already be an authorized activity prior to the grant of this Infrastructure ML associated with this EA application, in order to expedite construction.

The proposed pipeline corridor will extend from Coppabella Coal Mine to Millennium Coal Mine, via Moorvale Coal Mine (see

References

- Department of Environment and Heritage Protection (Qld). (2014, February 10). *Guideline: Triggers for environmental impact statements under the Environmental Protection Act 1994 for mining and petroleum activities*. Retrieved July 17, 2019, from Department of Environment and Science: <https://environment.des.qld.gov.au/management/impact-assessment/pdf/eis-guideline-trigger-criteria.pdf>
- Department of Environment and Heritage Protection. (2016, March 31). *Eligability Criteria and Standard Conditions for Mining Lease Activities*. Retrieved July 24, 2019, from Mining Resource Activities: <https://environment.des.qld.gov.au/licences-permits/compliance-codes/mining.html>
- Department of Natural Resources and Mines. (2019, September). *Land Access Code*. Retrieved July 24, 2019, from Accessing Private Land for Resource Activities: <https://www.business.qld.gov.au/industries/mining-energy-water/resources/landholders/accessing-private-land/land-access-code>
- EPIC Environmental. (2019). *Coppabella Pipeline Project - Ecological Assessment Report*. Brisbane: Unpublished.
- Qld. (n.d.). Environmental Protection Act 1994. Qld: Queensland Government. Retrieved July 17, 2019, from <https://www.legislation.qld.gov.au/view/pdf/inforce/current/act-1994-062>

FIGURES

Figure 1). In total, the pipeline will be approximately 31.5 km in length. While the corridor for the ML application (ML700052) is up to 100 m wide, the construction corridor has been minimised to typically less than 20 m wide which is the disturbance proposed to be authorized under this application, where falling outside of the existing MLs.

2) PROJECT DESCRIPTION

The Project consists of the construction and operation of a 31.5 km pipeline system for the transfer of water between the Coppabella Coal Mine site, to the Moorvale Design Storage Allowance (DSA) dam at Moorvale Mine, and from the Moorvale DSA dam to an existing void at Millennium Mine. Existing EAs for Coppabella Coal Mine (EMPL00579213), Moorvale Mine (EMPL00802813) and Millennium Mine (EMPL00819213) permit the transfer of mine affected water to third parties.

The pipeline will require the following infrastructure and activities:

- 20.5 km in length pipeline from Coppabella Mine to Moorvale Mine;
- 10 km in length pipeline from Moorvale Mine to Millennium Mine;
- a one (1) km interconnector pipeline located entirely within the existing Moorvale Mine Lease;
- installation of one (1) surge tank and one (1) diesel bank mount pump;
- pegging or pipeline route and demarcation of no-go areas;
- installation of erosion and sediment control;
- clearing and grubbing activities along the pipeline alignment;
- trenching activities to a depth of 1,200 millimeters (mm);
- installation of HDPE (high-density polyethylene) piping (450 mm in diameter);
- decommissioning and rehabilitation of disturbed areas as necessary, post-production; and
- operation and ongoing maintenance of pipeline alignment.

Sections of this new pipeline will be located within two (2) existing Mining Leases (Coppabella ML 70161; Moorvale ML 70290 and Millennium ML70454), with the remaining sections of pipeline located within two (2) existing Mineral Development License (MDL) lease boundaries (MDL 494 and MDL 495). All MLs and MDLs are held by Peabody. The New ML will not overlap the Coppabella or Millennium Mining Leases.

3) ENVIRONMENTAL RISKS

A broad-brush risk assessment of the Project has been undertaken to identify potential impacts. Risks have been broken into the construction, operation and relinquishment phases.

Table 1 - Broad-brush risk assessment

Activity	Receptor	Impact	Control
Construction			
Clearing	Flora and fauna	Significant residual impacts on terrestrial ecological values (flora and fauna) along the proposed pipeline alignment	Corridor alignment to utilize existing disturbed areas and avoid areas of ecological significance. (refer section d) Biodiversity) Mitigation measures (refer Table 2 - Proposed Mitigation Measures).

Activity	Receptor	Impact	Control
Earthworks	Receiving waters	Erosion of land resulting in sediment run off into receiving waters.	Area specific erosion and sediment control plans to be prepared, implemented and maintained by construction contractor. No activities to be undertaken in drainage lines when rainfall events are likely in the next 48 hours. Revegetation of disturbed land as part of the rehabilitation process.
Clearing and Vehicle movement	Private dwellings	Dust nuisance	Limited construction fleet. Water trucks to water tracks if and as required in areas adjacent to private dwellings. 24hr phone number for community to use.
Clearing and Vehicle movement	Private dwellings	Noise nuisance	Limited construction fleet. Construction times will be limited to day time operations except where night operations will minimise traffic disruption. 24hr phone number for community to use.
Vehicle movement (general)	General environment	Spread of declared pests	Vehicle wash down process in line with the Land Access Code.
Refueling	Land and water courses	Oil / Diesel spills cause land or water contamination	No bulk storage of hydrocarbons. Spills will be cleaned up during construction activities and contaminated material will be managed in accordance with Coppabella waste management plan.
Waste Generation	General environment	Pollution of environment	All waste will be removed from site and disposed of in accordance with the Coppabella Waste Management Plan (refer to Appendix B).
Operation			
Vehicle movement	Private dwellings	Dust nuisance	Track access will be limited to workers undertaking inspections or maintenance work. 24hr phone number for community to use.
Waste Generation	General environment	Pollution of environment	All waste will be removed from site and disposed of in accordance with the Coppabella Waste Management Plan (refer to Appendix B).

Activity	Receptor	Impact	Control
Pipe leaks during pumping activities	Land and water courses	Release of contaminants to receiving environment (land and watercourses)	Pipe design includes leak detection and automated pump shut down. Incident management plan detailing actions to be taken in the case of a spill (refer to Appendix D). 24hr phone number for community to use.
Relinquishment			
Decommissioning of pipeline	General community	Infrastructure left in an unsafe condition	Rehabilitation plan includes relinquishment. ERC calculation submitted to State prior to commencing activities.

A) RISK MANAGEMENT

Of the above risks, only impacts on biodiversity and pipeline spills were assessed as being potentially significant. Risk management strategies for these two items are detailed below.

I) BIODIVERSITY

An ecological assessment was undertaken to assess and document terrestrial ecological values (flora and fauna) along the proposed pipeline alignment and provide avoidance, mitigation and management measures to adequately address impacts associated with the Project (EPIC Environmental, 2019) (Appendix A). Section 7.1.1 in the Ecological Assessment Report (EPIC Environmental, 2019) (Appendix A), considers the impacts on Matters of National Environmental Significance (MNES) in depth and Section 7.2.1 considers impacts on Matters of State Environmental Significance (MSES).

Following the ecological field assessment, a workshop was held with project engineers to refine the proposed pipeline construction corridor to avoid and minimize impacts to verified terrestrial remnant regional ecosystems (REs) and areas of habitat for various species. A reduction in impacts to Endangered and Of Concerns REs resulted and the Project is not expected to have a significant residual impact.

II) PIPELINE SPILLS

Apart from disturbance associated with the initial construction of the Project, spills from pipeline leaks is considered the main risk associated with the project. Leaks can occur as a result of several factors, including:

- Vandalism;
- Bush fire;
- Vehicle interaction;
- Inadequate design;
- Unknown manufacturing faults; and/or
- Poor construction methods.

Measures taken to prevent many of these factors include:

- The pipeline has been designed by a competent engineering company with experience in water reticulation.
- The design has redundancy built into its design capacity in terms of pipe specifications.
- The pipeline is being built using new pipe, not repurposed materials.

- The construction tender will be awarded to a company with experience in pipeline construction.
- Quality Analysis/Quality Control (QA/QC) will be applied and recorded for pipe welds.
- Wherever possible, the pipeline will be located underground to minimise interaction, solar degradation and risk of fire damage.

While a pipeline leak is not expected given the above controls, mitigation measures have been included in the pipeline design. These include a leak detection system and the implementation of an Incident Management Plan.

The leak detection system proposed consists of paired solar powered mag-flo flow meters at the end of each hydraulic leg. The leak detection system proposes to provide real time monitoring and alarming via a wireless communication network integrated to the existing mine site system. The basic philosophy of the leak detection system is to monitor flows between two points, with a sustained differential in reading triggering a controlled shutdown of the pipeline and the engagement of an action plan. The system will also monitor water level at the stage tank to indicate an overflow at this facility and trigger automated shut down.

The leak detection system is in addition to business as usual activities, such as routine pipeline inspections, line inspection pre and post initial operations and general maintenance and auditing requirements. The leak detection system shall provide automated shutdown of the pumping when triggered, and the communications and control system will enable remote shutdown of the pumps in the event this is required.

An interim Incident Management Plan has been developed to outline the critical actions and responses to a positive indication/alarm from the leak detection system installed as part of the Coppabella to Millennium pipeline (Appendix D). Key contacts, role and responsibilities for the operation and maintenance of the pipeline are detailed and will be key in implementation of incident response.

4) ENVIRONMENTAL VALUES

Environmental values are the qualities (e.g. aesthetic, social and cultural values) or physical characteristics of the environment that are conducive to ecological health, public amenity or safety. A review of environmental values and any potential impacts from the project follows:

Environmental value	Statement of likely impact	Relevant section or attachments
Land use	The Project area and land in the immediate vicinity is mapped as land uses comprising predominately of Grazing Native Vegetation and Mining. The project is not expected to impact on land use.	Section 4 b) of this report
Surface water	There are several unnamed waterways and tributaries located within the Project area and its vicinity. Excavation across waterways will occur at right angles and will be back filled as quickly as possible. Impacts on these water courses are expected to be limited and of a short duration during the installation of the pipeline. Area specific erosion and sediment control plans will be developed by suitably qualified persons in advance of creek crossings and controls will be installed accordingly. The applicant will also obtain any other approvals required to carry out works in waterways.	Section 4 c) i) of this report
Ground water	The limited depth of trenching activities (1200 mm depth) are not considered deep enough to impact on ground water resources. As such, the project is not expected to have an impact on ground water.	Section 4 c) ii) of this report
Air Quality and Noise	Construction will consist of three distinct phases. i. Clearing and topsoil stripping of the construction corridor ii. Trenching, pipelaying and backfilling of the trench	Section 4 d) of this report

Environmental value	Statement of likely impact	Relevant section or attachments
	<p>iii. Rehabilitation of the construction corridor</p> <p>During construction there will be a limited number of pieces of mobile plant and light vehicles in use along the construction corridor. Dust and noise impacts will be of a minor nature and occur for a short duration. Activities will be scheduled to cause the least amount of disturbance possible. This will consist of day time only operations in most areas, with the exception being road crossings where, night operations will minimise impact to road users.</p> <p>The limited nature and duration of construction activities are not expected result in an impact on air quality or noise levels. Ongoing operation will be limited to occasional service activities and regular inspections using light vehicles.</p>	
Biodiversity	<p>An ecological assessment was undertaken to assess and document terrestrial ecological values (flora and fauna) along the proposed pipeline alignment and provide avoidance, mitigation and management measures to adequately address impacts associated with the Project (EPIC Environmental, 2019).</p> <p>Following the ecological field assessment, a workshop was held with project engineers to refine the proposed pipeline footprint and avoid impacts to verified terrestrial remnant regional ecosystems (REs) and areas of habitat for various species. As a result, a reduction in impacts to Endangered and Of Concerns REs resulted. The project is not expected to have a significant residual impact.</p>	<p>Section 4 e) of this report</p> <p>Appendix A – Ecological Assessment – Coppabella Pipeline (EPIC Environmental, 2019)</p> <p>- Section 7.1 – Matters of National Environmental Significance (MNES) Impact Assessment</p> <p>- Section 7.2 - Matters of State Environmental Significance (MSES)</p>
Rehabilitation	<p>Project activities will consist primarily with the excavation of a 1200 mm trench and installation of a 450 mm diameter HDPE pipe.</p>	<p>Section 4 e) iv) of this report</p>
Community	<p>The Project will enable water that would not otherwise be used for human and stock consumption to be reticulated to other mine sites for beneficial use. This has the effect of making more scheme water available to community users for agriculture and domestic use.</p> <p>Disturbance to sensitive receptors during construction will be of a minor short-term nature. The proponent is negotiating Compensation Agreement with each relevant land holder.</p>	<p>Section F of this report</p>
Cultural Heritage	<p>The extent of the ML has been surveyed for items of cultural heritage, in accordance with the Coppabella Cultural Heritage Management Plan.</p> <p>No items of cultural heritage value will be impacted by the Project.</p>	<p>Section G of this report</p>

B) LAND

The Project is located within a rural area predominately used for low intensity cattle grazing. Rural residences are sparse, with the township of Coppabella, formed to service the junction of the Goonyella Branch and Norwich Park Branch railway lines proximal to the Project.

The area surrounding the project is a gently undulating plain with no dominant topographic relief. Elevation ranges from approximately 200 m AHD along watercourses to 240 m AHD at localised high points to the north. To the west of the Project, the Carborough Range rises to elevations of over 500 m AHD.

C) WATER

I) SURFACE WATER

The project pipeline will be buried where it crosses surface water drainage features and as such will not interrupt flow. During construction, erosion controls will be implemented to minimise the generation of sediment along these features. The project is not expected to have a significant impact on surface waters.

There are several unnamed waterways and tributaries located within the Project area and its vicinity. Excavation across waterways will occur at right angles and will be back filled as quickly as possible. Impacts on these water courses are expected to be limited and of a short duration during the installation of the pipeline. Area specific erosion and sediment control plans will be developed by suitably qualified persons in advance of creek crossings and controls will be installed accordingly. The applicant will also obtain any other approvals required to carry out works in waterways.

II) GROUND WATER

The shallow nature of the excavation associated with this project (1200mm) will not result in an impact on ground water resources.

Three separate groundwater systems are located within the vicinity of the project:

- i. shallow alluvium located along watercourses;
- ii. localised regolith zones at the base of Tertiary sediments, associated with more permeable sediments; and
- iii. Permian coal seams.

Exploration drilling and groundwater investigations conducted at the Coppabella Mine have found that the alluvium in the vicinity of the mine is confined to relatively narrow bands along Thirty Mile Creek, Humbug Gully and Harrybrandt Creek. The alluvium is relatively thin, with exploration bore logs showing an average thickness of 1.3 m. As such, the alluvial aquifer in the vicinity of the Coppabella Mine is considered to be of limited extent and typically dry, only holding water following rainfall.

The Tertiary sediments represent a covering of unconsolidated silty sand sediments with an average thickness of 25 m. A sandy layer of varying depth and extent, present at the base of the Tertiary sediments, hosts a limited groundwater source. This sandy layer is considered to be confined beneath the overlying sediments. Monitoring of water quality within this Tertiary groundwater source at Coppabella has found the water to be saline and unsuitable for cattle consumption.

The deeper Permian units and coal seams support low yielding, saline aquifers that do not provide water of suitable quality for cattle consumption. These deeper saline aquifers are not considered to be hydraulically connected with the localised shallow aquifers due to low hydraulic conductivity and limited lateral and vertical interconnection.

Given the limited extent and depth of alluvium, and the poor quality of the Tertiary and Permian aquifers, groundwater use in the vicinity of the project is limited.

D) AIR QUALITY AND NOISE

The short duration and limited equipment used for construction will result in low level, short term noise and dust disturbance in the vicinity of sensitive receptors. Once constructed, disturbance will consist of occasional light vehicle traffic undertaking inspections along the pipeline corridor.

The Project area experiences a sub-humid to semi-arid climate, with annual average rainfall (recorded at the Nebo Bureau of Meteorology [BOM] station) in the order of 700 mm, of which the majority falls during summer. Average daily evaporation (recorded at the Collinsville Post Office BoM station) ranges from approximately 3

mm in winter to approximately 7 mm in summer. Average evaporation over the year is 5 mm per day, which exceeds average daily rainfall.

A meteorological monitoring station at the Coppabella Mine indicates that the annual wind direction pattern is characterised by a strong easterly to south-easterly component.

As described in the Environmental Protection Policy 2008 (Qld) (Air), environmental values for air have been developed to protect the health and biodiversity of ecosystems, human health and wellbeing, aesthetics and agricultural use. The following environmental values for air have been identified:

- The qualities of the air environment which are conducive to protecting the health and biodiversity of ecosystems.
- The qualities of the air environment which are conducive to human health and wellbeing.
- The qualities of the air environment which are conducive to protecting the aesthetics of the environment, including the appearance of buildings, structures and other property.
- The qualities of the air environment which are conducive to protecting agricultural use of the environment.

The Environmental Protection (Noise) Policy 2008 (Qld) (EPP (Noise)) lists the environmental values and the acoustic quality objectives to enhance or protect the environmental values. As described in the EPP (Noise), environmental values of the acoustic environment have been developed to protect the health and biodiversity of ecosystems, human health and wellbeing and community amenity. The following environmental values for the acoustic environment have been identified:

- The qualities of the acoustic environment that are conducive to human health and wellbeing, including by ensuring a suitable acoustic environment for individuals to sleep, study, learn, or be involved in recreation, including relaxation and conversation.
- The qualities of the acoustic environment that are conducive to protecting the amenity of the community.
- The qualities of the acoustic environment that are conducive to protecting the health and biodiversity of ecosystems.

E) BIODIVERSITY

As a result of route selection and the implementation of constraints in the construction process it has been determined that the Project will not have a significant residual impact on Matters of State Environmental Significance (MSES) or Matters of National Environmental Significance (MNES).

An ecological assessment was undertaken to assess and document terrestrial ecological values (flora and fauna) along the proposed pipeline alignment and provide avoidance, mitigation and management measures to adequately address impacts associated with the Project (EPIC Environmental, 2019) (See Appendix A). The ecological assessment determined no significant impacts to Matters of National Environmental Significance (MNES) under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) or Matters of State Environmental Significance (MSES) under Schedule 2, Section 1-12 of the Environmental Offsets Regulation 2014 (Offset Regulation) were not likely to occur as a result of the Project.

I) MATTERS OF STATE ENVIRONMENTAL SIGNIFICANCE

As a result of the chosen alignment and proposed mitigation measures, the project will not have a significant impact on MSES.

The Project alignment initially focused on utilizing, where possible, previously cleared areas and disturbed locations. The design was further refined, based on field verified terrestrial remnant REs and areas of habitat for various species. As a result, a significant minimisation of impacts to Endangered and Of Concern REs was achieved. In addition, mitigation measures (Table 2) during the pipeline construction will ensure areas of mature vegetation and hollow bearing trees are also avoided.

Four (4) MSES have the potential to be impacted by the Project, being Greater Glider, Koala, Yakka Skink (Projected wildlife), Squatter Pigeon (Projected wildlife and essential habitat) and ornamental snake (essential habitat).

II) MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

As a result of the chosen alignment and proposed mitigation measures, the project will not have a significant impact on Matters of National Environmental Significance.

The Project alignment initially focused on utilizing, where possible, previously cleared areas and disturbed locations. The design was further refined, based on field verified terrestrial remnant regional ecosystems and areas of habitat for various species. As a result, a significant reduction to impacts to Endangered and Of Concern REs was achieved. In addition, mitigation measures (Table 2) during the pipeline construction will ensure areas of mature vegetation and hollow bearing trees are also avoided.

Two threatened Ecological Communities (TECs) (Acacia harpopylla co-dominant, RE 11.3.1, 11.9.1 and 11.9.5 and Poplar Box Grassy Woodland on Alluvial Plains (11.3.2)) were recorded during a field survey (EPIC Environmental, 2019). Impacts to brigalow or Poplar Box TEC were not considered significant. As a result of the project design, there will be minimal disturbance to the patch of brigalow TEC adjacent to North Creek within MDL 495 (RE 11.3.1). In addition, regarding Poplar Box TEC, it is anticipated that approximately 0.64 ha of 11.3.2 may be removed within MDL 495. It is important to note, however, due to existing mining activities within ML 70290, the area has previously been disturbed and consists of relatively poor connectivity for fauna species.

Five (5) conservation significant species were considered known or possible to occur within the Project area. A summary of the five (5) conservation significant species considered known or possibly occurring within the Project area (based on nearby records and suitable habitat being present) and a summary of the outcomes of the impact assessment are provided in Appendix A Table 10 (EPIC Environmental, 2019).

III) MITIGATION MEASURES

Following the field component of the ecological assessment and in consultation with the design engineers, a set of mitigation strategies were developed to ensure the Project has the lowest level of impact on EVs practical (EPIC Environmental, 2019). These measures are listed in Table 2 - Proposed Mitigation Measures. The assessment of residual impacts for Greater Glider, Koala, Squatter Pigeon and ornamental snake are summarised in Appendix A, **Tables 11, 12, 13 and 14**, respectively (EPIC Environmental, 2019).

Table 2 - Proposed Mitigation Measures

Management Measure		Timing
General		
1	Pipeline must be capped on the completion of each work day.	During construction
2	Construction works should be limited regarding the length of time any trench is open throughout the construction period. This is to avoid long term fragmentation and potential injury to fauna. Construction methodology (trenching following by HDPE pipe installation, backfill and reinstatement) should be sequenced in order to achieve this.	During construction
Clearing of Vegetation		
1	Project employees and contractors will be made aware of environmental obligations and compliance requirements through the induction program.	Project induction

Management Measure		Timing
2	No-Go areas, such as portions of vegetation along the alignment consisting of mature and/or hollow bearing trees that may be used for habitat/fodder, will be clearly demarcated with flagging or bunting. A detailed alignment plan will ensure impacts are minimised to planned areas.	Prior to clearing
3	Fauna spotter-catchers (licensed) and suitably qualified botanists should inspect sites prior to the commencement of vegetation clearing and grubbing activities. Habitat features will be clearly marked following confirmation by a Fauna spotter-catchers that fauna have vacated the habitat.	Prior to clearing
4	Suitable erosion prevention and sediment control measures to be implemented during clearing activities and maintained.	Prior and throughout clearing
5	Where necessary to be cleared, any habitat vegetation should be removed in stages, which will allow movement of fauna away from disturbed areas.	During clearing
6	Topsoil should be stockpiled in wind rows and used for rehabilitation.	Following clearing
7	Backfill and reinstatement of open trenches should occur as soon as practical in alignment with the construction methodology and works required. Rehabilitation methodology, execution and sequencing should operate in concurrence with the pipeline construction to target areas that are completed in order to reduce disturbance duration.	Following disturbance
Habitat Fragmentation		
1	Habitat fragmentation should be avoided by retaining vegetation corridors where possible, minimising construction corridor widths and constructing pipeline in already cleared and / or degraded areas.	Prior to clearing
2	Pre-clearance surveys should be undertaken by an ecologist (flora) identifying and flagging TEC communities. These areas are to be incorporated within the detailed alignment plan to ensure impacts are minimised.	Prior to clearing
Direct Mortality		
1	Injured fauna should be taken to the nearest wildlife carer or veterinarian.	Ongoing
2	All native fauna injuries and mortality must be communicated to DES within 24 hours.	Ongoing
Species of National / State Significance		
1	Project inductions will outline species of significance that may occur on the project area. Fauna spotter / catchers will be present on-site during clearing works.	Project induction
2	Project employees will be required to notify fauna spotter / catchers when a species of significance is observed in the Project area.	Ongoing
Dust		
1	Dust should be suppressed using water trucks / wetting to keep dust related impacts to a minimum.	As required
Weeds and Pest Animals		
1	Spread of declared pests will be managed in accordance with the Department of Natural Resources and Mines (DNRM) Land Access Code (V2 September 2016) Part 2 Section 15 – Obligations to present spread of declared pests.	Ongoing
2	Disposal and storage of putrescible wastes must be undertaken appropriately to ensure feral animals aren't attracted to the Project area.	Ongoing

IV) REHABILITATION

Areas disturbed by the Project will be progressively rehabilitated as they become available. Key activities associated with the installation of the pipeline consist of the following steps:

1. The disturbance corridor will have the top 300 mm of soil stripped and stockpiled.
2. After the pipe is placed into the trench, the spoil will be placed back into the trench and mounded slightly to allow for soil compaction over time.
3. The stripped soil will be spread back over the disturbed area, lightly scarified and seeded with appropriate species.

When the pipeline is decommissioned, the following steps will be followed:

1. Surface infrastructure will be removed.
2. In locations where the buried pipeline daylights, the pipe will be excavated to allow it to be capped and the excavation will be back filled.
3. The inspection track and any other areas disturbed by decommissioning will be scarified and seeded with appropriate species.

V) WASTE MANAGEMENT

Waste management will be undertaken in accordance with the Coppabella Waste Management Plan (see Appendix B). All waste will be removed from the Project area.

VI) WEED MANAGEMENT

All reasonable steps will be undertaken to ensure that the spread of reproductive material of a declared pest does not occur. As detailed in the Land Access Code (Department of Natural Resources and Mines, 2019), all vehicles entering land not owned by the proponent will be washed down before entering a landholder’s land in the area of the resource authority, if the risk of spreading a declared pest is likely to be reduced by the washing down. A record of all wash-downs carried out during the period in which the holder is allowed access to the landholder’s land will be retained (see Appendix C- Vehicle Machinery Washdown Certification).

Where declared pest plants are identified in the project area, steps will be taken to control their presence in consultation with the relevant land owner.

F) COMMUNITY

Compensation Agreements are being negotiated with all land holders other than the proponent. Pipeline alignment and ML width have been adjusted to minimise impacts on land holders other than the proponent.

G) CULTURAL HERITAGE

A signed Cultural Heritage Management Plan (CHMP) is in place at the Coppabella Coal Mine. Native Title Claimants who are signatory to this CHMP are also the relevant parties for the Project. As such, the existing CHMP will apply to and be implemented for the Project.

The extent of the ML has been surveyed for items of cultural heritage, in accordance with the Coppabella CHMP. No items of cultural heritage value will be impacted by the Project.

5) ENVIRONMENTALLY SENSITIVE AREAS

Department of Environment and Science (DES) Environmentally Sensitive Areas (ESAs) mapping shows that the Project area contains the following ESAs, which are outlined in Figure 5 and Figure 6:

- Endangered Regional Ecosystems (Biodiversity Status).

Table 3 outlines the assessment for ESAs present in the Project area.

Table 3 - Environmentally Sensitive Area Assessment

Category A Environmentally Sensitive Areas	Assessment
a) any of the following under the Nature Conservation Act 1992— <ol style="list-style-type: none"> i. a national park; ii. a national park (Aboriginal land); 	Not present in the project area.

Category A Environmentally Sensitive Areas	Assessment
<ul style="list-style-type: none"> iii. a national park (Torres Strait Islander land); iv. a national park (Cape York Peninsula Aboriginal land); v. a regional park (general); vi. a forest reserve; 	
b) the wet tropics area under the Wet Tropics World Heritage Protection and Management Act 1993	Not present in the project area.
c) the Great Barrier Reef Region under the Great Barrier Reef Marine Park Act 1975 (Cwth);	Not present in the project area.
d) a marine park under the Marine Parks Act 2004, other than a part of the park that is a general use zone under that Act.	Not present in the project area.
Category B Environmentally Sensitive Areas	
<ul style="list-style-type: none"> a) any of the following areas under the Nature Conservation Act 1992— <ul style="list-style-type: none"> i. a coordinated conservation area; ii. an area of critical habitat or major interest identified under a conservation plan; iii. an area subject to an interim conservation order; 	Not present in the project area.
<ul style="list-style-type: none"> b) an area subject to the following conventions to which Australia is a signatory— <ul style="list-style-type: none"> i. the ‘Convention on the Conservation of Migratory Species of Wild Animals’ (Bonn, 23 June 1979); ii. the ‘Convention on Wetlands of International Importance, especially as Waterfowl Habitat’ (Ramsar, Iran, 2 February 1971); iii. the ‘Convention Concerning the Protection of the World Cultural and Natural Heritage’ (Paris, 23 November 1972); 	Not present in the project area.
c) a zone of a marine park under the Marine Parks Act 2004;	Not present in the project area.
d) an area to the seaward side of the highest astronomical tide;	Not present in the project area.
<ul style="list-style-type: none"> e) the following under the Queensland Heritage Act 1992— <ul style="list-style-type: none"> i. a place of cultural heritage significance; ii. a Queensland heritage place, unless there is an exemption certificate issued under that Act; 	Not present in the project area.
f) an area recorded in the Aboriginal Cultural Heritage Register established under the Aboriginal Cultural Heritage Act 2003, section 46, other than the area known as the ‘Stanbroke Pastoral Development Holding’, leased under the Land Act 1994 by lease number PH 13/5398;	Not present in the project area.
g) a feature protection area, State forest park or scientific area under the Forestry Act 1959	Not present in the project area.
h) a declared fish habitat area under the Fisheries Act 1994	Not present in the project area.
i) a place in which a marine plant under the Fisheries Act 1994 is situated;	Not present in the project area.
j) an endangered regional ecosystem identified in the database known as the ‘Regional ecosystem description database’ kept by the department.	<p>Addressed in Section 3) a) i) of this report.</p> <p>State Environmentally Sensitive Area mapping indicates that in the Project area there are patches of Endangered Regional Ecosystems.</p> <p>As a result of the chosen alignment and proposed mitigation measures, the project will not have a significant impact on Matters of State Environmental Significance.</p>

6) ELIGIBILITY CRITERIA

It is Peabody’s position that the Project is able to comply with the eligibility criteria (Table 4).

Table 4 - Eligibility Criteria

Eligibility criteria	Project status
<p>a) the mining activity does not, or will not, at any one time, cause more than 10ha of land to be significantly disturbed;</p>	<p>Not more than 10ha of land will be significantly disturbed at any one time. Completed areas will be rehabilitated as the installation of the pipeline occurs.</p>
<p>b) the mining activity is not, or will not be, carried out in a category A environmentally sensitive area or a category B environmentally sensitive area;</p>	<p>Addressed in Section 3) a) i) of this report.</p> <p>State Environmentally Sensitive Area mapping indicates that in the Project area there are patches of Endangered Regional Ecosystems.</p> <p>As a result of the chosen alignment and proposed mitigation measures, the project will not have a significant impact on Matters of State Environmental Significance.</p>
<p>c) the mining activity is not, or will not be, carried out under an environmental authority under which either of the following is, or is to be, authorised—</p> <ul style="list-style-type: none"> i. an environmentally relevant activity to which a section of schedule 2 of the Environmental Protection Regulation 2008 applies and for which there is an aggregate environmental score; ii. a resource activity, other than a mining activity, that is an ineligible ERA; 	<p>Activities will be restricted to installation of a buried water pipeline and adjacent light vehicle track for maintenance and inspection. This is no ERA to which a section of schedule 2 of the Environmental Protection Regulation 2008 applies.</p>
<p>d) the mining activity is not, or will not be, carried out in a strategic environmental area, unless—</p> <ul style="list-style-type: none"> i. the mining activity is authorised under an environmental authority for a mining activity relating to a mining claim, an environmental authority for a mining activity relating to an exploration permit or an environmental authority for a mining activity relating to a mineral development licence; or ii. the mining activity involves alluvial mining and is, or will be, carried out at a place that is not in a designated precinct in a strategic environmental area; or iii. the mining activity involves clay pit mining, dimension stone mining, hard rock mining, opal mining or shallow pit mining and is, or will be, carried out at a place that is not in a designated precinct in a strategic environmental area. 	<p>The activity will not be undertaken in a strategic environmental area. State mapped areas have been reviewed with respect to the pipeline alignment and there is no interaction.</p>
<p>e) the mining activity does not, or will not, at any one time, cause more than 5ha of either of the following to be significantly disturbed—</p> <ul style="list-style-type: none"> i. a riverine area; ii. mine workings; 	<p>Less than 5ha of creek will be disturbed as part of the installation activities.</p> <p>No mine workings will be significantly disturbed.</p>
<p>f) the mining activity is not, or will not, be carried out by more than 20 persons at any one time;</p>	<p>Less than 20 people will be working on installation at any one time.</p>
<p>g) only the following types of mining are, or will be, authorised under the relevant mining lease—</p> <ul style="list-style-type: none"> i. alluvial mining; ii. clay pit mining; iii. dimension stone mining; iv. hard rock mining; v. opal mining; vi. shallow pit mining. 	<p>Activities will be restricted to installation of a buried water pipeline and adjacent light vehicle track for maintenance and inspection.</p>

7) EIS TRIGGERS

A resource project may be required to be assessed through an Environmental Impact Study (EIS) process under Chapter 3, Part 1 of the Environmental Protection Act 1994 (Qld). Appendix A of the guideline “Triggers for environmental impact statements under the Environmental Protection Act 1994 for mining and petroleum activities” identifies the relevant triggers for major amendment applications. An EIS is required for a proposed major amendment of mining activities as a result of one or more of the triggers specified in Table 5.

Table 5 - EIS Triggers

Trigger	Triggered?	Justification
For existing mines extracting between 2–10 million tonnes/year (t/y) ROM ore or coal, an increase in annual extraction of more than of 100% or 5 megatonnes/y (Mt/y) (whichever is the lesser)	No	Not an existing mine and no resource extraction associated with this project.
For existing mines extracting over 10 million t/y ROM ore or coal, an increase in annual extraction of more than 50% or 10 Mt/year (whichever is the lesser).	No	Not an existing mine and no resource extraction associated with this project.
For existing mines extracting more than 20 million t/y ROM ore or coal extraction, an increase in annual extraction greater than 25%	No	Not an existing mine and no resource extraction associated with this project.
Proposed activities in a Category A or B environmentally sensitive area, unless previously authorised under Queensland legislation	No	<p>Addressed in Section 3) a) i) of this report.</p> <p>State Environmentally Sensitive Area mapping indicates that in the Project area there are patches of Endangered Regional Ecosystems.</p> <p>As a result of the chosen alignment and proposed mitigation measures, the project will not have a significant impact on Matters of State Environmental Significance.</p> <p>State Environmentally Sensitive Area mapping indicates that the only Category A or B areas present in the Project area consist of patches of Endangered Regional Ecosystems (</p> <p>References</p> <p>Department of Environment and Heritage Protection (Qld). (2014, February 10). <i>Guideline: Triggers for environmental impact statements under the Environmental Protection Act 1994 for mining and petroleum activities</i>. Retrieved July 17, 2019, from Department of Environment and Science: https://environment.des.qld.gov.au/management/impact-assessment/pdf/eis-guideline-trigger-criteria.pdf</p>

Trigger	Triggered?	Justification
		<p>Department of Environment and Heritage Protection. (2016, March 31). <i>Eligability Criteria and Standard Conditions for Mining Lease Activities</i>. Retrieved July 24, 2019, from Mining Resource Activities: https://environment.des.qld.gov.au/licences-permits/compliance-codes/mining.html</p> <p>Department of Natural Resources and Mines. (2019, September). <i>Land Access Code</i>. Retrieved July 24, 2019, from Accessing Private Land for Resource Activities: https://www.business.qld.gov.au/industries/mining-energy-water/resources/landholders/accessing-private-land/land-access-code</p> <p>EPIC Environmental. (2019). <i>Coppabella Pipeline Project - Ecological Assessment Report</i>. Brisbane: Unpublished.</p> <p>Qld. (n.d.). Environmental Protection Act 1994. Qld: Queensland Government. Retrieved July 17, 2019, from https://www.legislation.qld.gov.au/view/pdf/inforce/current/act-1994-062</p>
FIGURES		
Figure 1, Figure 2 and Figure 3).		
<p>A substantial change in mining operations, e.g. from underground to open cut, or (for underground mining), or a change from minor subsidence to potentially substantial subsidence</p>	No	Not an existing mine.
<p>The introduction of a novel or unproven resource extraction process, technology or activity.</p>	No	No resource extraction associated with this project.
<p>A petroleum and gas activity that is likely to have a total disturbance area of greater than 2000 hectares at any one time during the life of the proposed project (including areas occupied by well pads, access tracks and roads, water storages and process plants).</p>	No	The Project is not a petroleum or gas activity.

Trigger	Triggered?	Justification
A petroleum and gas activity that is likely to involve the construction of a high pressure pipeline over a distance of 300 kilometres or greater.	No	The Project is not a petroleum or gas activity.
A petroleum and gas activity that is likely to involve the construction of a liquefied natural gas plant.	No	The Project is not a petroleum or gas activity.

8) STANDARD CRITERIA

The National Strategy for Ecologically Sustainable Development was published by the Commonwealth Government in 1992. The principles contained in the National Strategy have been incorporated into the Queensland Environmental Protection Act 1994 (Qld) as the Standard Criteria, which are defined in Schedule 4 of the EP Act 1994 (Qld). Projects with potential for impact on the environment must be shown to be compatible with the Standard Criteria.

When deciding whether to grant or refuse an application for an environmental authority or deciding on the conditions of the authority, the Administering Authority must consider the Standard Criteria. Standard Criteria as defined in Schedule 4 of the EP Act 1994 (Qld) has been addressed in Table 6.

Table 6 - Standard Criteria

Standard Criteria	Assessment
<p>(a) the following principles of environmental policy as set out in the Intergovernmental Agreement on the Environment—</p> <ul style="list-style-type: none"> i. the precautionary principle; ii. intergenerational equity; iii. conservation of biological diversity and ecological 	<ul style="list-style-type: none"> i. The Project has assessed the risk of unacceptable environmental harm consistent with the Precautionary Principle and used the findings to determine appropriate environmental control strategies. These strategies are mainly in the form of constraints to be applied to the construction methodology to avoid, minimise and mitigate impacts on flora and fauna. ii. The project will not significantly reduce, or fail to maintain, the health, diversity and productivity of the Queensland environment or affect future generations. iii. Surveys of the flora and fauna in the vicinity of the project have been undertaken. The project does not pose a significant threat to terrestrial biological diversity or ecological integrity.
<p>(b) any Commonwealth or State government plans, standards, agreements or requirements about environmental protection or ecologically sustainable development; and</p>	<p>The significance of impacts to MNES are determined by reference to the Significant Impact Guidelines 1.1 – Matters of National Environmental Significance. With recommended engineering solutions, as well as the proposed management measures, impacts to identified MNES species should be reduced to acceptable levels. As a result, it is unlikely that the Project will result in significant impacts to MNES and therefore, referral to the Commonwealth is not considered necessary.</p> <p>The following State EPPs have relevance to the project:</p> <ul style="list-style-type: none"> • Environmental Protection (Water) Policy 1997; • Environmental Protection (Air) Policy 1997;

Standard Criteria	Assessment
	<ul style="list-style-type: none"> • Environmental Protection (Noise) Policy 1997; and • Environmental Protection (Waste Management) Policy 2000. <p>However, due to the minor nature of disturbance associated with the Project, it is not considered to have a significant impact on surface water, ground water, air quality, noise or biodiversity values.</p> <p>During construction, waste will be generated, and will be managed in accordance with the Coppabella Waste Management Plan (Appendix B).</p>
(d) Any applicable environmental impact study, assessment or report.	This supporting document and attachments.
(e) The character, resilience and values of the receiving environment.	<p>The Project area and land in the immediate vicinity is mapped as land uses comprising predominately of Grazing Native Vegetation and Mining.</p> <p>The generally degraded nature of the area and the Projects lack of significant residual impact on environmental values predicts that the receiving environment will not be impacted.</p>
(f) All submissions made by the applicant and interested parties.	This supporting document and attachments.
(g) the best practice environmental management for activities under any relevant instrument, or proposed instrument, as follows— iv. an environmental authority; v. a transitional environmental program; vi. an environmental protection order; vii. a disposal permit; viii. a development approval; and	It is proposed to adopt relevant standard conditions for the Project as outlined in Eligibility criteria and standard conditions for mining lease activities—Version 2 (ESR/2016/2241).
(h) the financial implications of the requirements under an instrument, or proposed instrument, mentioned in paragraph (g) as they would relate to the type of activity or industry carried out, or proposed to be carried out, under the instrument; and	Financial assurity will be calculated using the relevant state calculator and the approved amount lodged with the State Government.
(i) The public interest.	The Project will enable water that would not otherwise be used for human and stock consumption to be reticulated to other mine sites for beneficial use. This has the effect of making more scheme water available to community users for agriculture and domestic use. As a result of this, it is considered that it is in the Public's interest to undertake the Project.
(j) any relevant site management plan; and	<p>Location specific erosion and sediment control plans will be developed and implemented by the company constructing the pipeline on Peabody's behalf.</p> <p>Waste will be managed under the Coppabella Waste Management Plan (Appendix B).</p>
(k) any relevant integrated environmental management system or proposed integrated environmental management system; and	Nil
(l) Any other matter prescribed by regulation	Nil

9) REQUESTED EA CONDITIONS

The proposed conditions were taken from The Eligibility criteria and standard conditions for mining lease activities - Version 2 (Department of Environment and Heritage Protection, 2016) and have been listed in Table 7 and Table 8. Note that Condition A13 is a variation to standard conditions A13 and A14.

Table 7 - Schedule A General Conditions

Schedule A – General conditions
Financial Assurance
A1: The holder of a new environmental authority must submit the required amount of financial assurance (i.e. a security deposit) to the administering authority prior to carrying out any activities on the mining lease. If the holder of the environmental authority submits an application to amend the plan of operations or submits a new plan of operations, they must also submit an application to amend their financial assurance to the administering authority. If an application is lodged to transfer the environmental authority to another person or company, the proposed transferee must submit the required financial assurance prior to the transfer taking effect.
A2: The holder of the environmental authority must ensure that the area and duration of disturbance to land and vegetation are minimised.
Air Quality
A3: The holder of the environmental authority must not cause an unreasonable release of dust.
Noise emissions
A4: The holder of the environmental authority must not cause unreasonable noise at a noise sensitive place.
Erosion and Sediment Control
A5: The holder of the environmental authority must design, install and maintain adequate banks and/or diversion drains to minimise the potential for storm water runoff to enter areas disturbed by mining activities.
A6: The holder of the environmental authority must design, install and maintain adequate erosion and sediment control structures wherever necessary to prevent or minimise erosion of disturbed areas and the sedimentation of any watercourse, waterway, wetland or lake.
Topsoils and overburden management
A7: The holder of the environmental authority must ensure that topsoil is removed and stockpiled prior to carrying out any mining activity. Prevent or minimise the mixing and erosion of topsoil and overburden stockpiles.
Hazardous contaminants
A8: The holder of the environmental authority must plan and conduct activities on site to prevent any potential or actual release of a hazardous contaminant.
A9: The holder of the environmental authority must ensure that spills of hazardous contaminants are cleaned up as quickly as practical. Do not clean up such spillage by hosing, sweeping or otherwise releasing such contaminants to any watercourse, waterway, groundwater, wetland or lake.
Nature conservation
A12: The holder of the environmental authority must prevent the spread of declared plants by ensuring that all vehicles and machinery are adequately cleaned before taking the vehicles and machinery out of a declared plant area.
Varied condition
A13: The holder of the environmental authority will restrict disturbance to the approved disturbance corridor.

Table 8 - Schedule B Activity Based Conditions

Schedule B – Activity based conditions
--

Roads and tracks

B1: The holder of the environmental authority must consult with the landowner prior to establishing any new roads and tracks.

B2: When constructing new roads and tracks, the holder of the environmental authority must ensure that the area and duration of disturbance to land, vegetation and watercourses is minimised.

Waste management

B5: The holder of the environmental authority must not directly or indirectly release waste from the project area to any watercourse, waterway, groundwater, wetland or lake.

B9: The holder of the environmental authority must prevent the release fuels, oils, lubricants or other contaminants to any watercourse, waterway, groundwater, wetland or lake.

B10: The holder of the environmental authority must ensure that all chemical, fuel and oil storage facilities less than 10 000L on a mining lease, must be designed and operated in accordance with Australian Standard 1940 – ‘The storage and handling of flammable and combustible liquids’, Section 2, Minor Storage.

Monitoring, reporting and emergency response procedures

B12: The holder of the environmental authority must record and notify the administering authority of any emergency or incident that demonstrates non-compliance to the standard environmental conditions.

Rehabilitation

B13: In riverine areas, the holder of the environmental authority must complete the rehabilitation processes on areas disturbed by mining activities, apart from those areas currently being utilised for mining activities, as soon as practical and prior to the onset of the following wet season.

B14: For all other areas, the holder of the environmental authority must complete the rehabilitation processes on areas disturbed by mining activities, apart from those areas currently being utilised for mining activities, as soon as practical and within six months of the completion of works in those areas.

B18: The holder of the environmental authority must rehabilitate areas disturbed by mining activities to a stable landform, similar to that of the surrounding undisturbed areas.

B19: The holder of the environmental authority must spread seeds or plant species that will promote vegetation of a similar species and density of cover to that of the surrounding undisturbed areas or vegetation that is appropriate for providing erosion control and stabilisation of the disturbed areas.

B20: For any mine infrastructure to remain after all mining activities have ceased, the holder of the environmental authority must obtain the written agreement of the land owner stating they will take over responsibility for that infrastructure.

B22: The holder of the environmental authority must complete the rehabilitation of areas disturbed by mining activities to the satisfaction of the administering authority.

10) REFERENCES

- Department of Environment and Heritage Protection (Qld). (2014, February 10). *Guideline: Triggers for environmental impact statements under the Environmental Protection Act 1994 for mining and petroleum activities*. Retrieved July 17, 2019, from Department of Environment and Science: <https://environment.des.qld.gov.au/management/impact-assessment/pdf/eis-guideline-trigger-criteria.pdf>
- Department of Environment and Heritage Protection. (2016, March 31). *Eligability Criteria and Standard Conditions for Mining Lease Activities*. Retrieved July 24, 2019, from Mining Resource Activities: <https://environment.des.qld.gov.au/licences-permits/compliance-codes/mining.html>
- Department of Natural Resources and Mines. (2019, September). *Land Access Code*. Retrieved July 24, 2019, from Accessing Private Land for Resource Activities: <https://www.business.qld.gov.au/industries/mining-energy-water/resources/landholders/accessing-private-land/land-access-code>
- EPIC Environmental. (2019). *Coppabella Pipeline Project - Ecological Assessment Report*. Brisbane: Unpublished.
- Qld. (n.d.). Environmental Protection Act 1994. Qld: Queensland Government. Retrieved July 17, 2019, from <https://www.legislation.qld.gov.au/view/pdf/inforce/current/act-1994-062>

FIGURES

Figure 1 - Strategic environmental areas

Figure 2 - Environmentally Sensitive Areas Mining MDL495

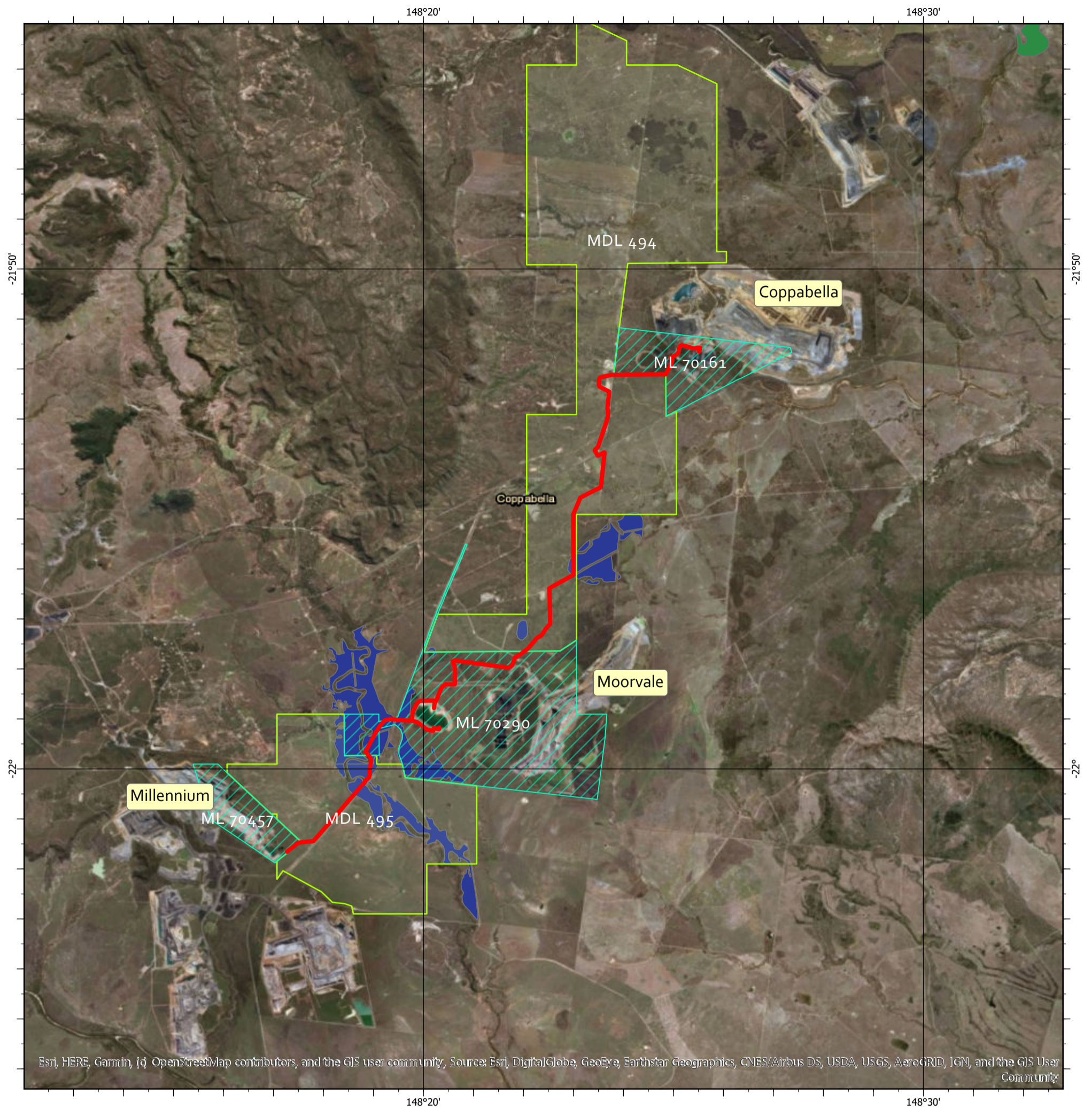
Figure 3 - Environmentally Sensitive Areas Mining MDL494

APPENDIX A - COPPABELLA PIPELINE PROJECT– ECOLOGICAL ASSESSMENT REPORT

APPENDIX B - COPPABELLA WASTE MANAGEMENT PLAN

APPENDIX C - VEHICLE MACHINERY WASHDOWN CERTIFICATION

APPENDIX D – LEAK DETECTION AND INCIDENT MANAGEMENT MEMO



Scale: 1:150,000



Legend

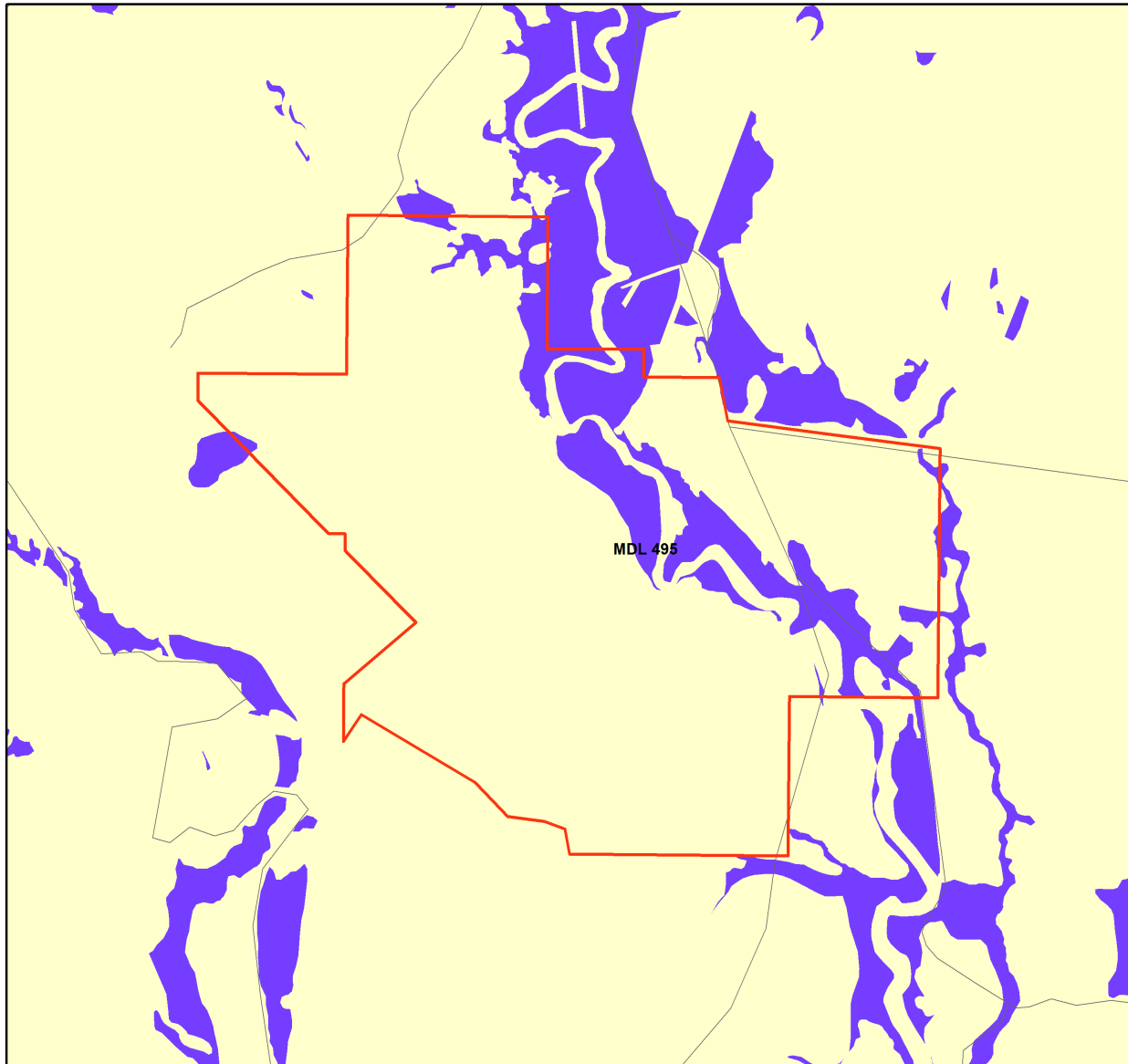
- Priority Agricultural Areas
- Strategic Environmental Areas
- Strategic Cropping Lands
- Priority Living Areas
- Mineral Development Licences
- Mining Leases
- Biodiversity Status Endangered RE
- Pipeline Alignment

Strategic Environmental Areas

Date Created: 26-Jul-19

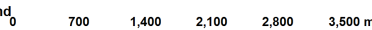
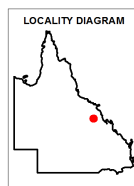
Spatial Reference
 Name: GCS GDA 1994
 GCS: GCS GDA 1994
 Datum: GDA 1994
 Page units Degree





ENVIRONMENTALLY SENSITIVE AREAS - Mining Activities

- Selected Mineral Development Licence (MDL)
- CATEGORY A**
- National Parks
- Conservation Parks
- Forest Reserves
- Wet Tropics World Heritage Area
- Great Barrier Reef Marine Park Area
- Marine Parks other than General Use Zones
- CATEGORY B**
- World Heritage Areas
- Queensland Heritage Register Places
- Ramsar Sites
- Cultural Heritage Registered Areas and DLA's other than Stanbroke
- Special Forestry Areas
- Fish Habitat Areas
- Koala Plan
- Coordinated Conservation Areas
- Endangered Regional Ecosystems (Biodiversity Status)
- General Use Zones of Marine Parks
- Marine Plants
- CATEGORY C**
- Nature Refuges
- Resources Reserve
- State Forests
- Timber Reserves
- Declared Catchment Areas
- Declared Irrigation Areas
- Drainage Areas
- River Improvement Areas
- Stanbroke DLA
- Coastal Management District
- Dams and Weirs
- OTHERS**
- Towns
- Roads
- Repealed Wild River Nominated Waterways
- Repealed Wild River Preservation Areas
- Repealed Wild River High Preservation Areas
- Mahogany Glider Habitat
- Directory of Important Wetlands
- Queensland



This product is projected into GDA 1994 MGA Zone 55

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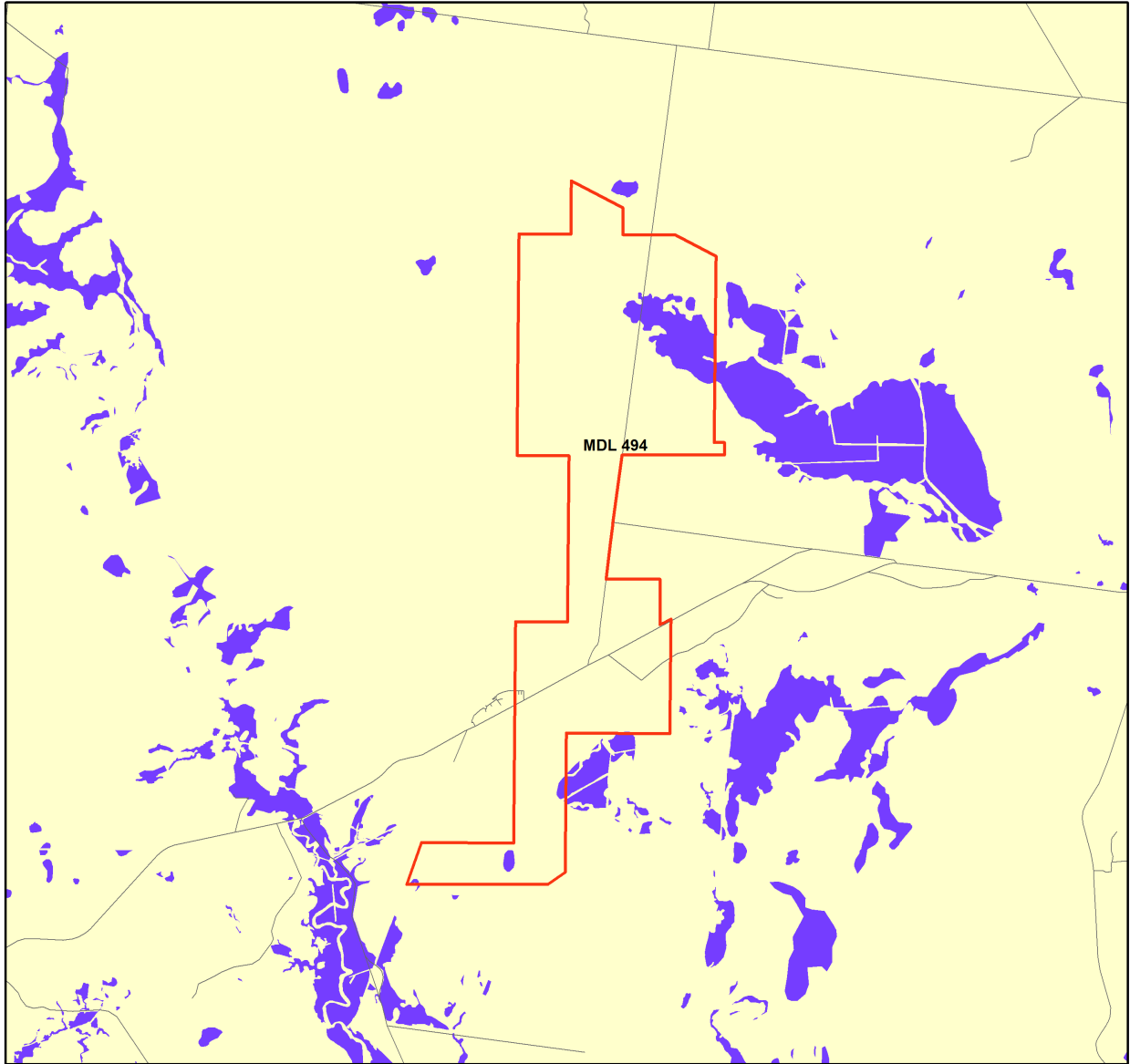
External contributors (non-government parties) of the data for this product are: Great Barrier Reef Marine Park Authority

Regional ecosystem mapping (remnant biodiversity status) may incorporate amendments, resulting from property level assessments, to the release version of the mapping available on QSpatial.

NOTE TO USER: Themes presented in this map are indicative only. Field survey may be required to verify the 'true' spatial extent and value. Not all environmentally sensitive areas are presented in this map. A user should refer to the particular circumstances relevant to their situation to assess the 'completeness' of themes provided.

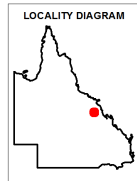
The user should note that some boundaries and indicated values are ambient and may change over time (e.g. regional ecosystem boundaries and conservation status, watercourse mapping etc).

The user should be aware that due to multiple overlapping themes/layers present, some themes/layers may be obscured by others. Ordering in the Legend does not accurately reflect the order by which themes/layers are displayed.



ENVIRONMENTALLY SENSITIVE AREAS - Mining Activities

- Selected Mineral Development Licence (MDL)
- CATEGORY A**
- National Parks
- Conservation Parks
- Forest Reserves
- Wet Tropics World Heritage Area
- Great Barrier Reef Marine Park Area
- Marine Parks other than General Use Zones
- CATEGORY B**
- World Heritage Areas
- Queensland Heritage Register Places
- Ramsar Sites
- Cultural Heritage Registered Areas and DLA's other than Stanbroke
- Special Forestry Areas
- Fish Habitat Areas
- Koala Plan
- Coordinated Conservation Areas
- Endangered Regional Ecosystems (Biodiversity Status)
- General Use Zones of Marine Parks
- Marine Plants
- CATEGORY C**
- Nature Refuges
- Resources Reserve
- State Forests
- Timber Reserves
- Declared Catchment Areas
- Declared Irrigation Areas
- Drainage Areas
- River Improvement Areas
- Stanbroke DLA
- Coastal Management District
- Dams and Weirs
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Regional ecosystem mapping (remnant biodiversity status) may incorporate amendments, resulting from property level assessments, to the release version of the mapping available on QSpatial.

NOTE TO USER: Themes presented in this map are indicative only. Field survey may be required to verify the 'true' spatial extent and value. Not all environmentally sensitive areas are presented in this map. A user should refer to the particular circumstances relevant to their situation to assess the 'completeness' of themes provided.

The user should note that some boundaries and indicated values are ambient and may change over time (e.g. regional ecosystem boundaries and conservation status, watercourse mapping etc).

The user should be aware that due to multiple overlapping themes/layers present, some themes/layers may be obscured by others. Ordering in the Legend does not accurately reflect the order by which themes/layers are displayed.



**PEABODY ENERGY AUSTRALIA
PCI PTY LTD
COPPABELLA PIPELINE
PROJECT– ECOLOGICAL
ASSESSMENT REPORT**





**PEABODY ENERGY AUSTRALIA PCI
PTY LTD**
**COPPABELLA PIPELINE PROJECT–
ECOLOGICAL ASSESSMENT
REPORT**

18 JULY 2019

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EXECUTIVE SUMMARY

This Terrestrial Ecological Assessment Report (EAR) is a supporting document of the Environmental Authority (EA) Application for the Coppabella Pipeline Project (the Project) prepared by Peabody Energy Australia PCI Pty Ltd (Peabody). The Project is located in the Bowen Basin near Coppabella, Queensland (**Figure 1**). The pipeline is necessary to assist in the movement of mine affected water from Creek Pit at Coppabella Coal Mine between the other mines in the local area when in demand.

The proposed pipeline corridor will extend from Coppabella Coal Mine, Moorvale Coal Mine and Millennium Coal Mine. In total, the pipeline will be approximately 31.5 km in length. A maximum width of 20 m is likely to be required for clearing and grubbing to enable the construction, operation and ongoing maintenance of the pipeline. However, for the purposes of this assessment a 100 m wide corridor was used to assess the potential impacts of the Project.

The description of baseline ecological values has been documented to support an EA Application under Section 125 of the Environmental Protection Act 1994 (EP Act) and assess if there are significant impacts to Matters of National Environmental Significance (MNES) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and Matters of State Environmental Significance (MSES) under Schedule 2, Section 1-12 of the *Environmental Offsets Regulation 2014* (Offset Regulation). The field survey was conducted between 27 May and 1 June 2019.

Findings from the field assessment confirmed one (1) fauna species listed as Endangered, Vulnerable or Near Threatened under the EPBC Act and/or Nature Conservation Act 1992 (NC Act) was recorded during the field survey, Greater Glider *Petauroides volans*. Recent scats of Koala *Phascolarctos cinereus* were also observed indicating the species is expected to occur within the Project area. Two (2) mapped Threatened Ecological Communities (TECs) were also verified as occurring within the Project area, *Acacia harpophylla* and co-dominant (shown as Regional Ecosystem (RE) 11.3.1, 11.9.1 and 11.9.5) and Poplar Box Grass Woodland on Alluvial Plains (shown as RE 11.3.2 - *Eucalyptus populnea* woodland on alluvial plains). In total, five (5) fauna species of conservation significance are known or considered to possibly occur in proximity to the Project area based on nearby database records for the species and the presence of suitable habitat within the Project area. These species and their status are listed in **Table ES1**.

Table ES1: Field Verified Conservation Significant Species known to Occur or Possibly Occurring in the Project Area

Common Name	Species Name	EPBC Act	NC Act
Koala	<i>Phascolarctos cinereus</i>	V	V
Greater Glider	<i>Petauroides volans</i>	V	V
Squatter Pigeon (southern subspecies)	<i>Geophaps scripta scripta</i>	V	V
Yakka Skink	<i>Egernia rugosa</i>	V	V
Ornamental Snake	<i>Denisonia maculata</i>	V	V

V: Vulnerable

Three (3) REs listed as Endangered under the Vegetation Management Act 1999 (VM Act) and EPBC Act, RE 11.3.1, 11.9.1 and 11.9.5, was recorded within the Project area. Two (2) REs are listed as Of Concern under the VM Act and EPBC Act, RE 11.3.2 and RE 11.3.4.

A workshop was held with Engeny Water Management Pty Ltd (Engeny) on 21 June 2019 to review the findings of the survey and provide a recommended pathway to minimise any potential impacts to flora and fauna within the area. On-ground management during the pipeline construction is recommended to ensure the alignment is placed within previously cleared areas and along previously disturbed locations. Furthermore, mature vegetation as well as hollow bearing trees will be avoided to further reduce potential impact to fauna habitat.

A Significant Impact Assessment under the *Queensland Environmental Offsets Policy: Significant Residual Impact Guideline* (DES, 2014) was undertaken for five (5) species. In addition, the significance of impacts to MNES was determined against the *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance* (DoEE, 2013). Impacts to the following EPBC Act list species were assessed:

- Koala *Phascolarctos cinereus* (EPBC Act: V)
- Greater Glider *Petauroides volans* (EPBC Act: V)
- Squatter Pigeon (southern subspecies) *Geophaps scripta scripta* (EPBC Act: V)
- Yakka Skink *Energia rugosa* (EPBC Act: V) and
- Ornamental Snake *Denisonia maculate* (EPBC Act: V).

It was determined, through the implementation of engineering solutions and appropriate mitigation measures, it is not anticipated that the Project will result in significant residual impact to species verified or likely to occur.

1 INTRODUCTION

1.1 OVERVIEW

This Terrestrial Ecological Assessment Report is a supporting document to an Environmental Authority (EA) Application for the Coppabella Pipeline Project (the Project) prepared by Peabody Energy Australia PCI Pty Ltd (Peabody). The Report has been prepared in accordance with applicable Commonwealth and State legislation and policies.

1.2 PROJECT LOCATION

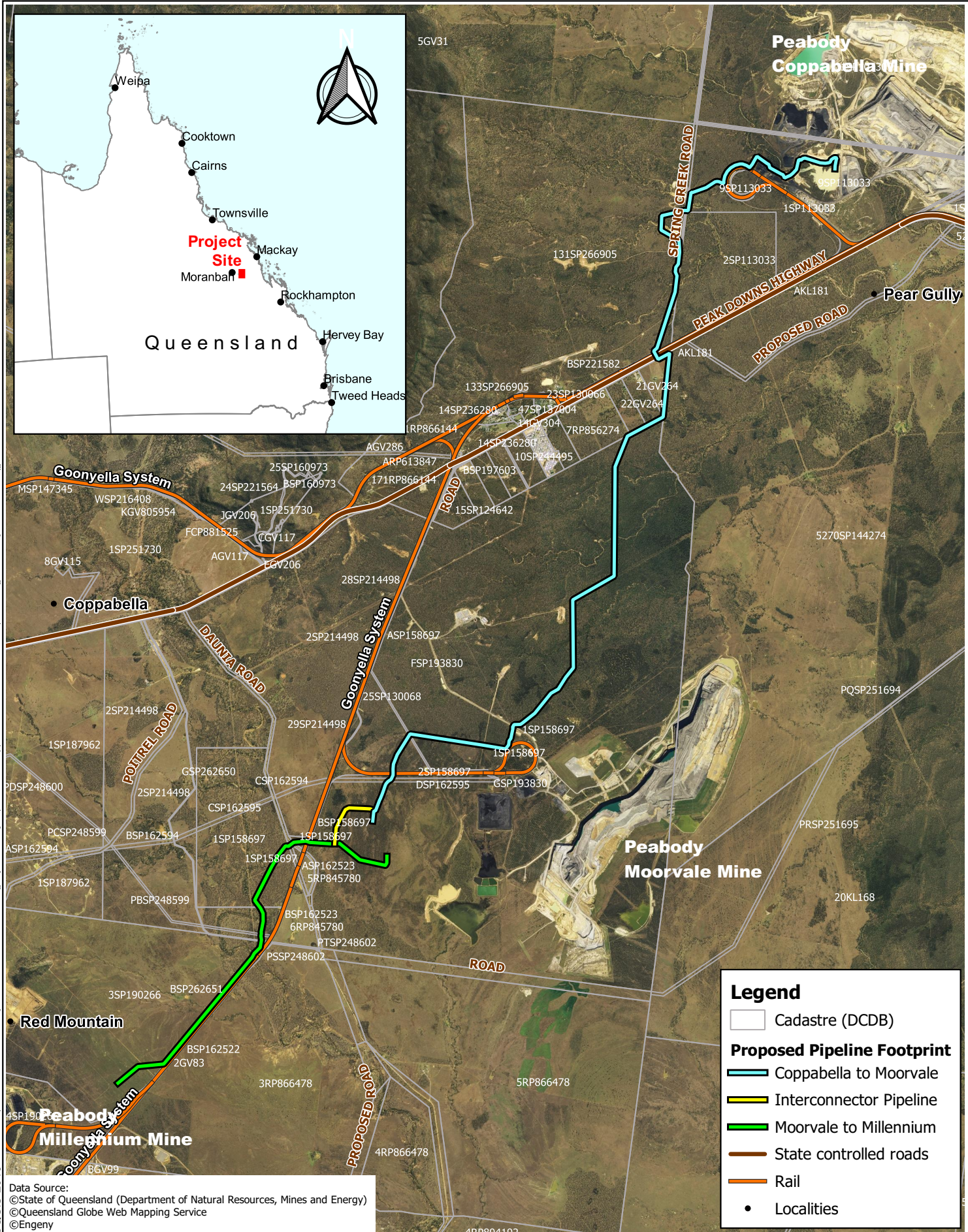
The Project is located in the Bowen Basin and extends from Coppabella Coal Mine, through Moorvale Mine, to Millennium Mine in Coppabella, Queensland (**Figure 1**).

Coppabella Coal Mine is located approximately 11 kilometres (km) northeast of Coppabella township, with Moorvale Mine located approximately 10 km southwest of Coppabella township and approximately 50 km southeast of Moranbah. Millennium Mine is located further south-west of Moorvale Mine, approximately 22 km east of Moranbah and 16 km southwest of Coppabella.

1.3 PURPOSE OF ASSESSMENT

The purpose of the ecological assessment is to assess and document terrestrial ecological values (flora and fauna) along the proposed pipeline alignment and provide avoidance, mitigation and management measures to adequately address impacts associated with the Project.

The description of baseline ecological values has been documented to support an Environmental Authority (EA) Application under Section 125 of the *Environmental Protection Act 1994* (EP Act) and assess if significant impacts to Matters of National Environmental Significance (MNES) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) or Matters of State Environmental Significance (MSES) under Schedule 2, Section 1-12 of the *Environmental Offsets Regulation 2014* (Offset Regulation) will occur as a result of the Project.



©GCS 2016 G:\GIS\Epic Environmental\Projects\BE\190028.01 Engeny Peabody Pipeline EA\Coppabella to Millennium\Workspaces\Figure 1 Project Location.qgs

Data Source:
 ©State of Queensland (Department of Natural Resources, Mines and Energy)
 ©Queensland Globe Web Mapping Service
 ©Engeny



0 1 2 3 4 5 km
 Scale 1:100,000 @ A4
 Datum: GDA94 Projection: MGA55

Legend

- Cadastre (DCDB)
- Proposed Pipeline Footprint**
- Coppabella to Moorvale
- Interconnector Pipeline
- Moorvale to Millennium
- State controlled roads
- Rail
- Localities

**Engeny
Coppabella Pipeline Project**

Figure 1
Project Location

2 PROJECT DESCRIPTION AND ACTIVITIES

To enable mining progression, Peabody are proposing to construct a 31.5 km pipeline system to assist in the transfer of water between the Coppabella Coal Mine site, to the Moorvale Design Storage Allowance (DSA) dam at Moorvale Mine, and from the Moorvale DSA dam to an existing void at Millennium Mine. Existing EAs for Coppabella Coal Mine (EMPL00579213), Moorvale Mine (EMPL00802813) and Millennium Mine (EMPL00819213) authorise the transfer of water to third parties.

The pipeline will require the following infrastructure and activities:

- 20.5 km in length pipeline from Coppabella Mine to Moorvale Mine;
- 10 km in length pipeline from Moorvale Mine to Millennium Mine;
- a one (1) km interconnector pipeline located entirely within the existing Moorvale Mine Lease;
- installation of one (1) surge tank and one (1) diesel bank mount pump;
- pegging or pipeline route and demarcation of no-go areas;
- installation of erosion and sediment control;
- clearing and grubbing activities along the pipeline alignment;
- trenching activities to a depth of 1,200 millimetres (mm);
- installation of HDPE piping (450 mm in diameter);
- decommissioning and rehabilitation of disturbed areas as necessary, post-production; and
- operation and ongoing maintenance of pipeline alignment.

Sections of this new pipeline will be located within two (2) existing Mining Leases (ML 70161 and ML 70290), with the remaining sections of pipeline located within two (2) existing Mineral Development Licence (MDL) lease boundaries (MDL 494 and MDL 495). All MLs and MDLs are held by Peabody.

3 LEGISLATIVE REQUIREMENTS

This section summarises the Commonwealth and State legislation relevant to the ecological values for the Project.

3.1 COMMONWEALTH LEGISLATION

3.1.1 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the key piece of Commonwealth legislation governing environmental protection in Australia. Administered by the Commonwealth Government Department of the Environment and Energy (DoEE), the EPBC Act defines and protects nine Matters of National Environmental Significance (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); and
- 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.

3.1.2 EPBC Act 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 DoEE considers the suitability of a proposed offset. The EPBC Act Offset Policy aims to improve environmental outcomes through the consistent application of best practice offset principles, provide more certainty and transparency, and encourage the advanced planning of offsets.

The *EPBC Act EOP* requires residual adverse impacts from an action to be offset following the implementation of avoidance and mitigation measures, if the residual impact is 'significant', as defined by the *Matters of National Environmental Significance – Significant Impact Guidelines Version 1.1* (DEWHA, 2013).

3.2 STATE LEGISLATION

3.2.1 Environmental Protection Act 1994

The objective of the *Environmental Protection Act 1994* (EP Act) is to protect Queensland's environment and to promote ecologically sustainable development. The EP Act defines a General Environmental Duty under which all persons in Queensland have a responsibility to not carry out an activity that causes or is likely to cause environmental harm, and to take all reasonable and practicable measures to prevent or minimise the harm.

Under the EP Act, EA applications consider (amongst other matters) impacts on the project on biodiversity values. Environmentally sensitive areas (ESAs) are biodiversity values listed under the subordinate *Environmental Protection Regulation 2008*. Three categories of ESA are listed under the regulation including A, B and C. EA Application requirements provide for protection zones around these ESAs, including:

- Primary protection zone – an area within 200 m from the boundary of a Cat A, B or C ESA; or
- Secondary protection zone – an area of 100 m from the boundary of a Cat A, B or C ESA.

3.2.2 Nature Conservation Act 1992

The *Nature Conservation Act 1992* (NC Act) and the *Nature Conservation Regulation 2006* (NC Regulation) regulate the environmental impacts of the mining industry through the requirement for vegetation clearing permits, species management programs and other permits.

A clearing permit is required to clear protected plants unless an exemption applies. In general, clearing of Endangered, Vulnerable or Near Threatened plants will require a clearing permit. Clearing permit applications are assessed on a case-by-case basis and approvals will be subject to conditions.

Where construction and operation activities involve tampering with animal breeding places, the tampering may be authorised by application to DES through an approved species management program.

3.2.3 Vegetation Management Act 1999

The *Vegetation Management Act 1999* (VM Act) regulates the clearing of remnant vegetation in Queensland. The VM Act aims to conserve Queensland's biodiversity through vegetation management. The VM Act does not apply on mining leases; however, the assessment of the application for the mining lease will assess the remnant vegetation status and clearing activities required as part of pipeline activities within the Project area.

3.2.4 Biosecurity Act 2014

The *Biosecurity Act 2014* ensures a consistent, modern, risk-based and less prescriptive approach to biosecurity in Queensland. The *Biosecurity Act 2014* provides comprehensive biosecurity measures to safeguard the economy, agricultural and tourism industries, environment and way of life from pests, diseases and contaminants. Decisions made under the *Biosecurity Act 2014* will depend on the likelihood and consequences of risk, allowing for more appropriate management of risks.

3.2.5 Environmental Offsets Act 2014

The primary purpose of the *Environmental Offsets Act 2014* is to ensure significant residual impacts that occur from particular activities on prescribed environmental matters are counterbalanced through the use of environmental offsets.

4 ASSESSMENT METHOD

4.1 APPLICABLE GUIDELINES

The following guidelines were used to form the methodology for this assessment:

- *Methodology for surveying and mapping regional ecosystems and vegetation communities in Queensland*, Version 5.0 (Nelder et al., 2019);
- *Flora Survey Guidelines – Protected Plants* (DES, 2019); and
- *Terrestrial Vertebrate Fauna Survey Guidelines for Queensland*, Version 3.0 (Eyre et al., 2018).

4.2 DESKTOP ASSESSMENT

Prior to commencing the field survey, desktop assessments were carried out to identify species and ecological communities of conservation significance that potentially occur within the Project area. Flora and fauna of conservation significance in this report include:

- Flora and fauna species listed as Critically Endangered, Endangered or Vulnerable under the EPBC Act;
- Flora and fauna species listed as Endangered, Vulnerable or Near Threatened (EVNT) under the NC Act;
- Flora species listed as Endangered, Vulnerable or Near Threatened under the VM Act; and
- Fauna species listed as Migratory under the EPBC Act due to their inclusion under one or more of the following:
 - *Convention on the Conservation of Migratory Species of Wild Animals* (Bonn Convention);
 - *China-Australia Migratory Bird Agreement* (CAMBA);
 - *Japan-Australia Migratory Bird Agreement* (JAMBA); and
 - *Republic of Korea-Australia Migratory Bird Agreement* (ROKAMBA).

In addition, flora and fauna records listed in publicly available databases and resources were investigated to provide insight into species that are likely to inhabit the Project area. These included:

- Queensland Government *Wildlife Online* database (records taken from the center of the pipeline and within a 25 km radius from the point latitude -21.98401 longitude 148.32707);
- *Atlas of Living Australia*, a web-based search tool that is a partnership between CSIRO, Australian museums and other biological collections, and the Australian Government; and
- Department of Environment and Science certified RE maps.

DoEE's EPBC Act Protected Matters Search Tool (records within a 25 km radius of the point -21.98401, 148.32707) was also searched. The Protected Matters Search Tool, while based on some species

records, relies on predictive modelling of suitable habitats and does not necessarily reflect an actual record of the species in question for a particular location.

4.3 SURVEY TIMING AND CONDITIONS

Flora is best surveyed in the late wet season (March-May), when most herbs and grasses are actively flowering and / or seeding. The flora and fauna surveys were conducted between 28 May – 1 June 2019. During the survey, minimum temperatures ranged from 11.1 – 18.1°C with maximum temperatures from 25.4 – 28.4°C. For May 2019, Moranbah Airport (BoM Station: 034025) recorded maximum temperatures ranging from 23.7 – 29.9 °C. The Project area recorded 4.0 mm of rain in May and 4.2 mm in June. No rain fell during the field surveys. The last rainfall of more than 10 mm was 10.9 mm and was recorded on 29 March 2019 (BoM, 2019).

4.4 SUITABLY QUALIFIED PERSONNEL

4.4.1 Flora Survey: Andrew Daniel

Andrew has over 20 years of experience in ecological research and management with environmental consultancies and State and local government agencies. After completing his doctoral studies into nutrient cycling within paperbark swamps, Andrew trained as a botanist at the Queensland Herbarium, Wildlife Ecology Section.

Since 2004, Andrew has primarily undertaken specialist consultancy work for local and state governments and private organisations associated with ecological investigations, ecological management planning and offsetting of impacts. This work encompasses all aspects of natural environment management from constraints analysis, through impact assessment and approvals stages to construction, implementation and monitoring. Andrew has extensive experience throughout Queensland.

4.4.2 Fauna Survey: Adrian Caneris

Adrian has extensive experience and expertise in ecological consultancy and specifically vertebrate fauna assessment, assessment of terrestrial habitats, ecological monitoring, wildlife management, biodiversity planning, feral species management and community liaison and facilitation. He has been involved in research, management, consulting, tertiary teaching and community-based studies of terrestrial ecology, particularly vertebrate fauna for over 30 years.

4.5 TERRESTRIAL FLORA SURVEY

A review of the current (reference mapping) high resolution vegetation mapping was carried out prior to the field assessment. Regional Ecosystem line work was downloaded from the QSpatial Database and uploaded onto ArcPad on a Motion F5 field laptop. Vegetation polygon delineation accuracy and vegetation community attribution was informally reviewed while traversing the site.

4.5.1 Vegetation Community Survey

Remnant vegetation in Queensland is mapped by the Department of Environment and Science (DES) using the Regional Ecosystem (RE) framework. The conservation status (Vegetation management class) of REs under the VM Act is derived through estimating the proportion remaining since clearing commenced following European settlement. The Biodiversity Status is assigned using expert driven models that assess permeating factors impacting community condition.

General descriptions of community structure, floristic composition, soil type and geology and ecological condition were made within the proposed pipeline alignment in order to provide sufficient information to refine the Herbarium's 1:100,000 regional ecosystem mapping.

The field assessment was conducted in accordance with the Queensland Herbarium's *Methodology for Survey and Mapping of REs and Vegetation Communities in Queensland*, Version 5.0 (Neldner et al., 2019). Where discrepancies were identified in the field between existing RE mapping and field observations, areas were traversed by foot to confirm the extent of the change. The field survey used standard floristic survey methods to describe vegetation type, structure and composition, as outlined below. Areas of focus were chosen based on an inspection of aerial imagery prior to the site visit. Further sites were selected during the survey based on changes in vegetation composition in order to ensure accurate characterisation of the vegetation communities present.

Survey sites were marked by waypoints on a hand-held GPS and accompanied by photographic evidence and site proformas/observations. Quaternary sites were used to confirm vegetation community types, vegetation community boundaries, land zones, and occurrence of creek lines.

Tertiary Code Sites

Tertiary Code Sites are used to aid in classification and detailed descriptions of REs and vegetation communities. Data collected included location, and environmental information such as land zone. Structural information such as height and covers are estimated for all structural layers. Generally, only the dominant or conspicuous species that characterise each layer is recorded. Site dimensions are restricted to a commonly occurring vegetation type and condition.

Quaternary Assessments

Quaternary site assessments were used to rapidly assess REs and vegetation communities, using linear transects. Data was collected at regular intervals along each transect and where REs and vegetation communities change in structure and composition. Twenty-three quaternary sites were carried out across the Project area.

Opportunistic Observations

In addition to the detailed survey plots, opportunistic flora data was collected while traversing roads and tracks as well as travelling between the more detailed survey sites. This data was used to assist in confirmation of RE mapping and to check relationships between classificatory units (such as vegetation associations, REs, photo-patterns) and landscape features.

All flora species recorded were identified as far as practicable to species and subspecies recorded while traversing the site and during targeted flora species surveys and vegetation community surveys. When a plant was unable to be identified accurately in the field, a voucher sample was collected, together with notes on habitat, form and height. The samples collected were later identified using a stereo-zoom microscope and botanical texts.

4.5.2 Protected Plant Flora Survey

A flora survey was conducted to meet the requirements set out in the *Flora Survey Guidelines – Protected Plants* (DES 2019) across the Project area. In the event protected plants were recorded on site, the location, extent and estimated numbers of protected plants would be marked by hand-held GPS to assist in the provision of exclusion zones within the reporting. Where applicable, notes would also be taken on population density, plant health and reproductive status to provide necessary data for future translocation plans (should they be required).

One 'High Risk' protected plant buffer overlapped the assessment area in the central portion of the Project area within MDL 494. Survey methods as *per Flora Survey Guidelines - Protected Plants* (DES 2012) were used in these areas. The structural and compositional characteristics of vegetation communities were also compared with descriptions of TECs to determine whether any vegetation communities met the thresholds necessary to constitute a TEC.

4.6 TERRESTRIAL FAUNA SURVEY

A suite of metrics that influence the quality of fauna habitats were visually assessed within a patch 50 m in diameter in field. Habitat photographs were taken facing north, south, east and west to provide a visual reference of the vegetation community within which the assessment was made.

Landscape context metrics that affect ecosystem functioning and therefore the likely presence of fauna species included; landform, slope, soil texture, habitat connectivity and presence of waterbodies. Within this landscape context, vegetation community age and structure was assessed for the availability of shelter and nesting site for several threatened species using the following habitat variables: number of hollow-bearing trees (all hollows big enough for micro-bats), (hollow >10 cm diameter), number of large stags (40+ cm) and diameter of largest trees (mm), rocks and coarse woody debris. The presence of food

sources for specific threatened species were also noted, including the presence and abundance of mistletoe and Belah *Casuarina cristata*.

Land use factors that influence the quality of habitats for breeding, feeding and shelter included: disturbance type, severity, the presence of Infrastructure fence such as, roads and tracks and observable fire history.

Finally, an expert assessment of the Endangered, Vulnerable and Near Threatened (EVNT) species considered to potentially occur was made based on the integration of all these metrics in the field.

4.7 NOMENCLATURE AND TAXONOMY

Taxonomy of flora presented in this report follows Bostock and Holland (2018). The taxonomy of fauna follows the *Australian Faunal Directory* (DoEE, 2019).

The common names of many flora and fauna species frequently vary between regions, and many species lack them altogether. For common and scientific names of flora, refer to **Appendix A** and for fauna species, refer to **Appendix B**.

The conservation status of Queensland wildlife is prescribed within the *Nature Conservation (Wildlife) Regulation 2006*, following provisions of the NC Act. The conservation status of species at a national level is defined under the EPBC Act.

5 EXISTING ENVIRONMENT

5.1 EXISTING LAND USE

The Project area and land in the immediate vicinity is mapped as land uses comprising predominately of Grazing Native Vegetation and Mining on Queensland Globe (QG, 2019a). Coppabella township is located within approximately 11 km of the proposed pipeline route.

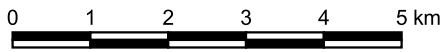
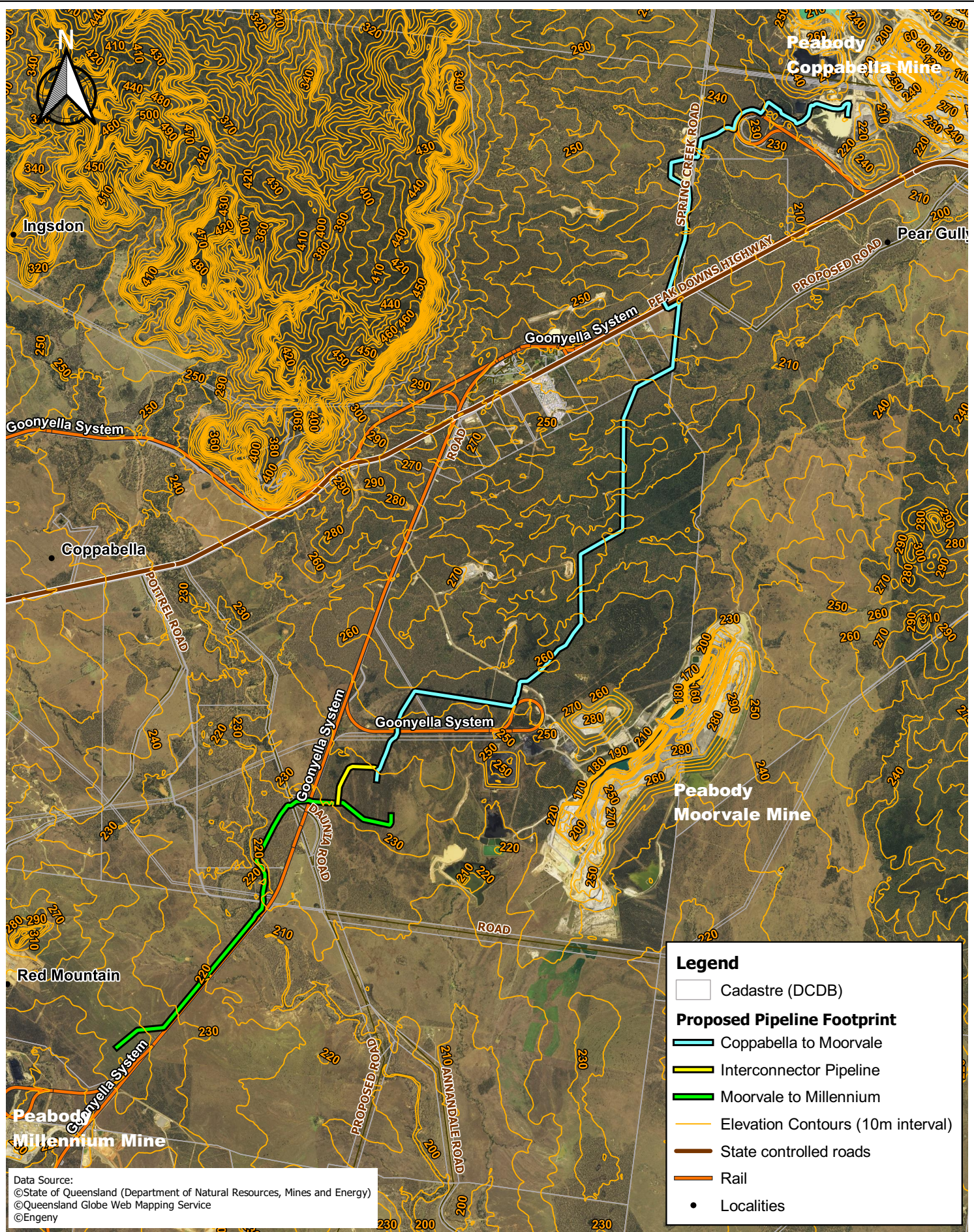
Aerial imagery identified the surrounding land use of the mines as heavily disturbed grazing land. Other land use in the vicinity of the Project area comprises:

- reservoir/dam;
- residential;
- cropping; and
- other minimal use.

The Project area mapped on existing Mining Leases (MLs) contains mining infrastructure including roads, tracks, a rail corridor and dams. Agricultural infrastructure such as, fences, roads and tracks are present onsite. Sheets of tin and wood were also noted during the field survey, particularly through the Mineral Development License (MDL) tenures. An open pipeline runs east to west through the Coppabella to Moorvale portion of the proposed pipeline, within the southern portion of MDL 494.

5.2 TOPOGRAPHY

The northern portion of the Project area (Coppabella Mine) is characterised by undulating or gently undulating lands (**Figure 2**). The Moorvale Mine Lease area is characterised by moderate to gently undulating lowlands and plains, which leads to alluvial plains adjacent to major streams. The southwestern portion of the Project area (Millennium Mine) is characterised by undulating lands with some high flat-topped or steep stony ridges (QG, 2019a).



Scale 1:100,000 @ A4

Datum: GDA94 Projection: MGA55

**Engeny
Coppabella Pipeline Project**

Figure 2
Topography

5.3 GEOLOGY AND SOILS

Information relating to geology was obtained from Queensland Globe (QG, 2019a), viewed on 29 May 2019. With reference to the Regional Bowen Basin Solid Geology at a scale of 1:500,000, the geology mapping identified in the Project area is underlain by the Rewan Group (Rr), comprising lithic sandstone, pebbly lithic sandstone, green to reddish brown mudstone and minor volcanilithic pebble conglomerate (at base) from the Early Triassic-Middle Triassic Period.

With reference to *Atlas of Australian Soils* (QG, 2019a), the predominant soil type across approximately three quarters of the northern Project area is described on Queensland Globe as hard pedal mottled-yellow duplex soils (Va52) on undulating or gently undulating lands, followed by:

- hard pedal brown duplex soils (Ro9) on undulating lands with some high flat-topped or steep stony ridges in the vicinity of the Millennium Mine;
- brown and red self-mulching cracking clays (MM7) on moderate to gently undulating lowlands and plains surrounding the Moorvale Mine; and
- hard pedal brown duplex soils (Rf8) on alluvial plains adjacent to major streams between Moorvale and Millennium Mine.

Mapping in Queensland Globe did not identify acid sulphate soils to be present in the Project area.

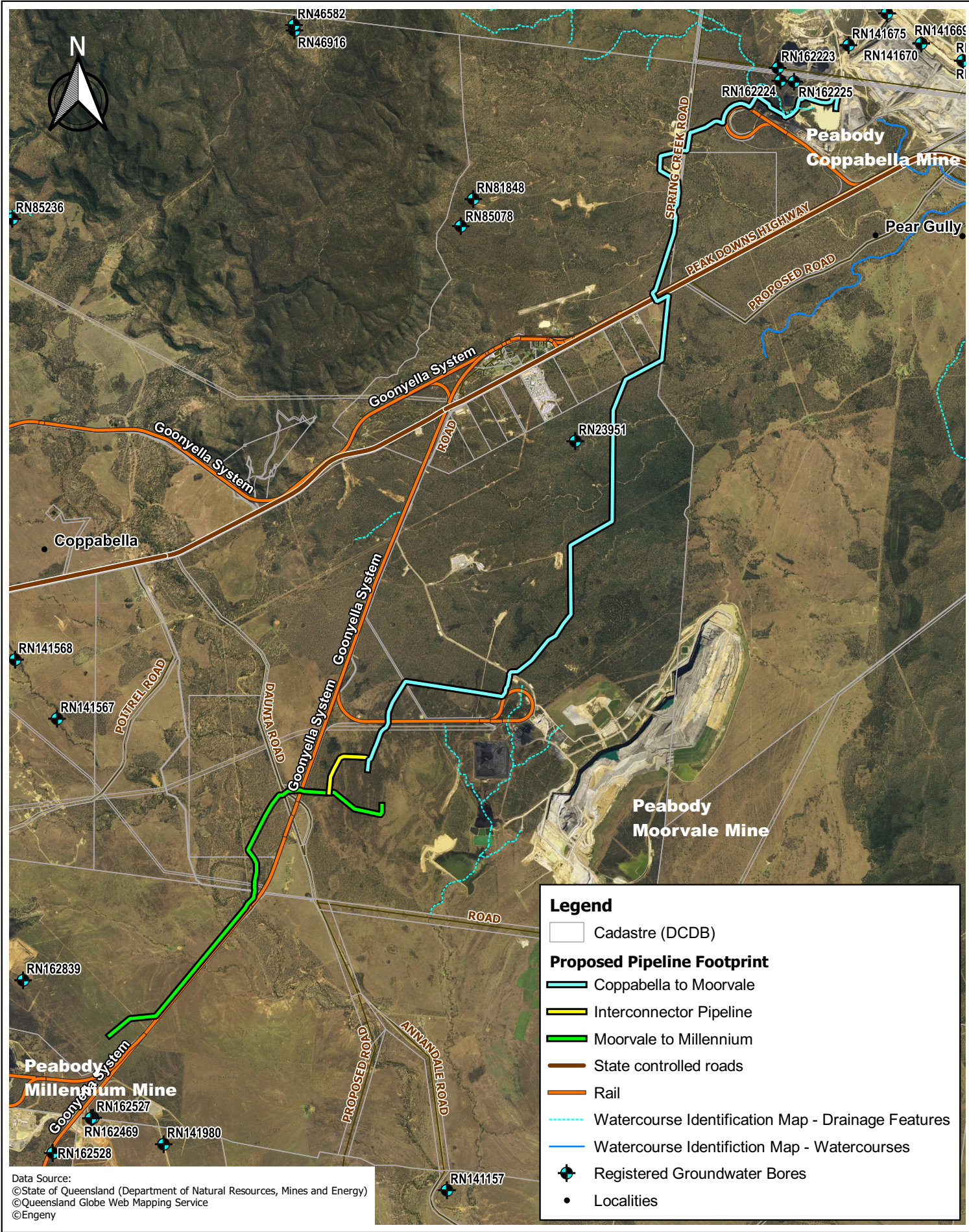
5.4 WATERCOURSE AND WATERWAYS

The Project area is located within the Fitzroy Basin. Queensland Globe (QG, 2019a) identifies three minor watercourses defined under the *Water Act 2000* within the Project area, including:

- Thirty Mile Creek – runs northwest to southeast through the Coppabella to Moorvale portion of the pipeline corridor (north of Peak Downs Highway);
- Harrybrandt Creek – runs east to west through the Coppabella to Moorvale portion of the pipeline corridor (south of Peak Downs Highway); and
- North Creek – West of Moorvale Mine, runs north to south through the Moorvale to Millennium portion of the pipeline corridor (dissecting the rail line at the Coppabella to Gregory Junction of the Goonyella System).

There are several unnamed waterways and tributaries located within the Project area and its vicinity (**Figure 3**). During the field survey, all creeks observed were dry, with the exception of pools of water observed in North Creek.

©QGIS 2016 G:\GIS\Epic Environmental\Projects\BE190028.01 Engeny Peabody Pipeline EA Coppabella to Millennium\Works\paces\Figure 3 Watercourses and Waterways within the Project Area.qgs



Data Source:
 ©State of Queensland (Department of Natural Resources, Mines and Energy)
 ©Queenland Globe Web Mapping Service
 ©Engeny

Legend

- Cadastre (DCDB)
- Proposed Pipeline Footprint**
- Coppabella to Moorvale
- Interconnector Pipeline
- Moorvale to Millennium
- State controlled roads
- Rail
- Watercourse Identification Map - Drainage Features
- Watercourse Identification Map - Watercourses
- ◆ Registered Groundwater Bores
- Localities



0 1 2 3 4 5 km

Scale 1:100,000 @ A4

Datum: GDA94 Projection: MGA55

**Engeny
Coppabella Pipeline Project**

Figure 3
Watercourses and Waterways within the Project Area

5.5 GROUNDWATER BORES

A search was completed on Queensland Globe (QG, 2019a), which provides a map of Department of Natural Resources, Mining and Energy (DNRME) registered groundwater bores in proximity to the Project area (**Figure 3**). A search of this register was conducted on 31 May 2019. Details on the bores identified within a 2 km radius of the Project site can be found in **Table 1**.

Table 1: Registered Groundwater Bores

Registered Bore ID	Date Installed	Depth of Well (mbgl)	Proximity to Site (km)	Water Depth (mbgl)	Status	Role	Facility Type
RN 162223	21/06/2013	23.00	0.693 N	-	Existing	Mine Monitoring	Sub-Artesian Facility
RN 162224	22/06/2013	27.00	0.508 N	-	Existing	Mine Monitoring	Sub-Artesian Facility
RN 162225	23/06/2013	24.00	0.670 N	-	Existing	Mine Monitoring	Sub-Artesian Facility
RN 141675	06/11/2009	89.00	1068 NE	47.65	Existing	Mine Monitoring	Sub-Artesian Facility
RN 141667	04/11/2009	21.00	1.916 NE	-	Existing	Mine Monitoring	Sub-Artesian Facility
RN 23951	02/02/1990	628.00	0.747 W	-	Existing	Petroleum or Gas Exploration	Artesian
RN 182264	14/04/2019	10.50	1.635 SW	3.65	Existing	Mine Monitoring	Sub-Artesian Facility
RN 162527	13/03/2016	48.20	1.715 S	33.50	Existing	Mine Monitoring	Sub-Artesian Facility
RN 162469	18/03/2009	72.00	1.727 S	29.55	Abandoned and Destroyed	Mine Monitoring	Sub-Artesian Facility

Source: QG, 2019a

5.6 ADJACENT TENURES

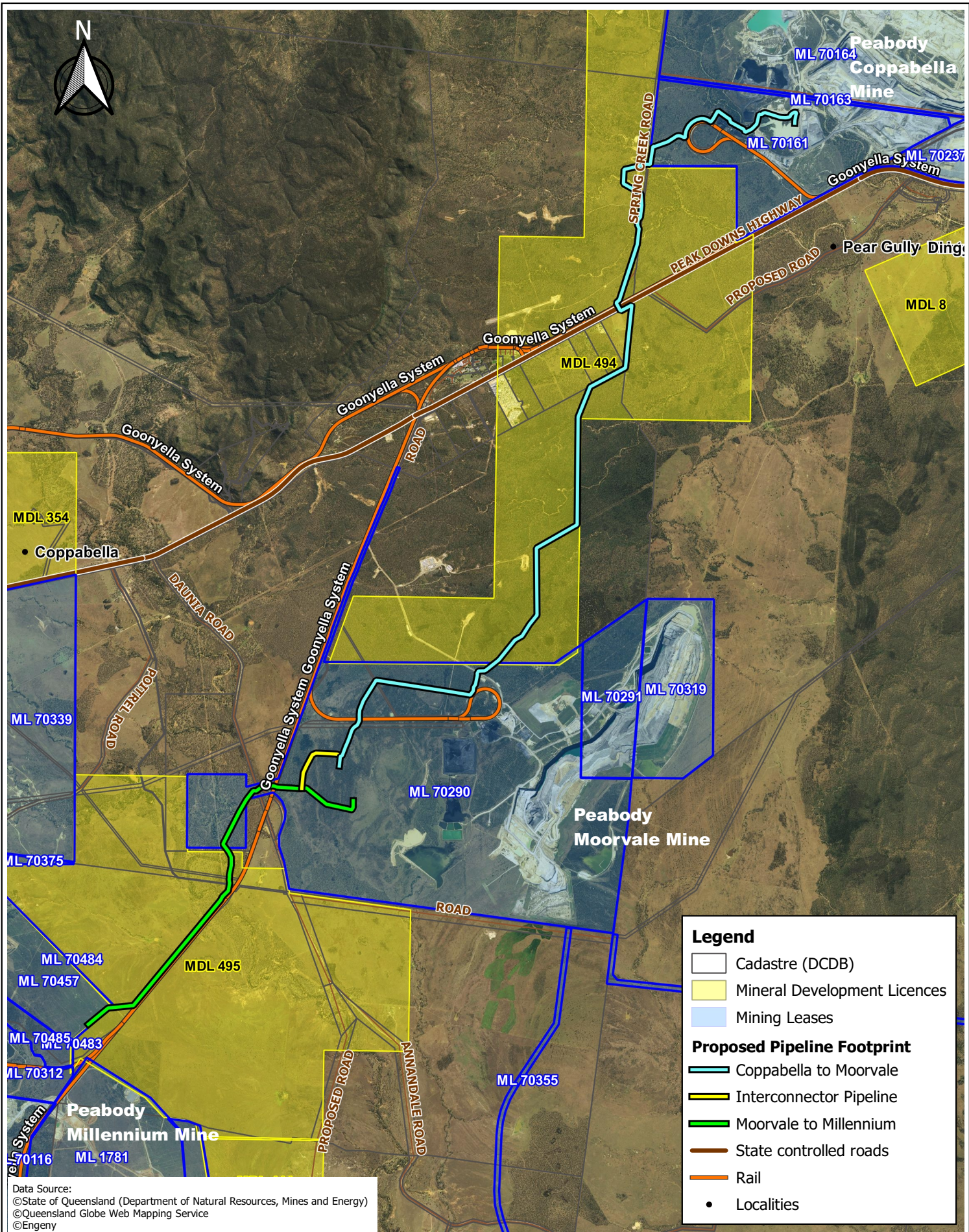
The Project area is surrounded by several MLs and MDLs listed in **Table 2**. The proposed pipeline will be constructed within several of these existing MLs and MDLs (**Figure 4**). The pipeline corridor is located within ML 70161, MDL 494, ML 70290, MDL 495 and ML 70457.

Table 2: Mining Leases and Mineral Development Licences adjacent to the Project

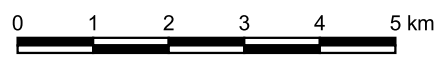
Tenure	Project Location	Holder	Grant Date	Expiry Date
Mining Leases				
ML 70164	Adjacent to ML	Peabody Coppabella Pty Ltd	13 August 1998	31 August 2019
ML 70236	Adjacent to ML	Peabody Coppabella Pty Ltd	18 April 2002	30 April 2023
ML 70237	Adjacent to ML	Peabody Coppabella Pty Ltd	31 January 2002	31 January 2023
ML 70161	Within ML	Peabody Coppabella Pty Ltd	14 May 1998	31 May 2040
ML 70319	Adjacent to ML	Peabody Coppabella Pty Ltd	1 November 2007	30 November 2028
ML 70290	Within ML (Coppabella to Moorvale; Moorvale DSA Bypass; and Moorvale to Millennium Mine)	Peabody Coppabella Pty Ltd	5 December 2002	31 December 2023
ML 70291	Adjacent to ML	Peabody Coppabella Pty Ltd	5 December 2002	31 December 2023
ML 70319	Adjacent to ML	Peabody Coppabella Pty Ltd	1 November 2007	30 November 2028
ML 70457	Within ML (Moorvale to Millennium Mine)	Millennium Coal Pty Ltd	9 December 2011	31 December 2034
ML 70375	Adjacent to ML	Fitzroy (CQ) Pty Ltd	1 October 2009	21 October 2039
ML 70401	Adjacent to ML	Millennium Coal Pty Ltd	16 September 2011	31 December 2034
ML 70485	Adjacent to ML	Millennium Coal Pty Ltd	15 July 2013	31 December 2034
Mineral Development Licenses				
MDL 494	Within MDL (Coppabella to Moorvale)	Peabody Coppabella Pty Ltd	16 July 2015	31 July 2020
MDL495	Within MDL (Moorvale to Millennium Mine)	Peabody Moorvale West Pty Ltd	22 January 2014	31 January 2024

Source: QG, 2019a

G:\GIS\Epic Environmental\Projects\BE190028.01 - Engeny Peabody Pipeline EA\Coppabella to Millernium\Workspaces\Figure 4 Surrounding Mining Leases and Mineral Development Licences.qgs



Data Source:
 ©State of Queensland (Department of Natural Resources, Mines and Energy)
 ©Queensland Globe Web Mapping Service
 ©Engeny



Scale 1:100,000 @ A4
 Datum: GDA94 Projection: MGA55

Engeny
Coppabella Pipeline Project

Figure 4
 Surrounding Mining Leases and Mineral Development Licences

6 RESULTS

6.1 DESKTOP ASSESSMENT

6.1.1 Previous and Similar Studies

The Project area and surroundings has previously been subject to detailed terrestrial ecology assessments for various projects related to resource extraction activities (**Table 3**). Based on desktop review, two (2) projects in the vicinity of the Project were identified as being relevant and / or able to inform the Project’s terrestrial ecology desktop research, namely:

- Caval Ridge Coal Mine Project Ecological Assessment (BAAM, 2009); and
- Olive Downs Coking Coal Project Terrestrial Flora Assessment (DPM, 2018).

Table 3: Previous Studies Relevant to the Project

Project	Distance to Project	Relevant Study
Caval Ridge Coal Mine	Approx. 33 km southwest of Millennium Mine	Caval Ridge Coal Mine Project Ecological Assessment (BAAM, 2009), Report prepared for URS Australia.
Millennium Expansion Project	Approx. 12 km southwest of Moorvale Mine	EIS not available online.
Moorvale Coal Project	Within Project area	EIS not available online.
Bowen Basin Coal Growth Project: Daunia Mine	Approx. 13 km southwest of Moorvale Mine	EIS not available online.
Olive Downs Coking Coal Project	Approx. 10 km southeast of Millennium Mine	Olive Downs Coking Coal Project Terrestrial Flora Assessment (DPM, 2018), Report prepared for Pembroke Olive Downs Pty Ltd.

The relevant ecological sections from previous studies were considered during preparation of this ecological assessment report.

6.1.2 Threatened Ecological Communities

Listed Threatened Ecological Communities (TECs), where distributions are well known, are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where TEC distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

The DoEE EPBC Act Protected Matters Report (PMR) predicted four (4) TECs to occur within 25 km of the Project area, including:

- Brigalow (*Acacia harpophylla* dominant and co-dominant);
- Poplar Box Grassy Woodland on Alluvial Plains;
- Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin; and
- Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions.

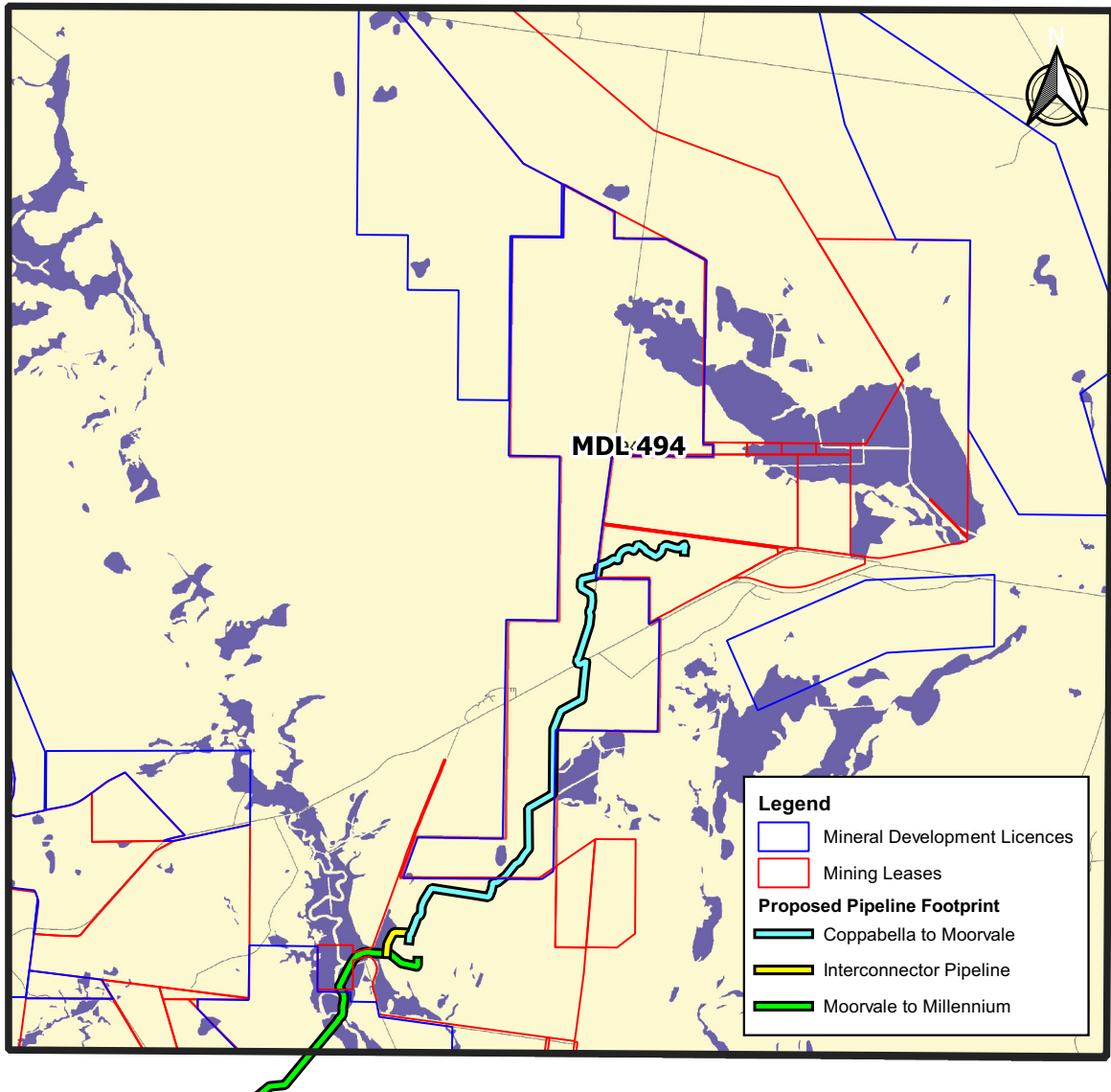
6.1.3 Environmentally Sensitive Areas

Activities within Environmentally Sensitive Areas (ESAs) are subject to approval by DES. ESAs fall under three categories; Category A and B areas are defined in the EP Regulation 2008, while Category C areas are defined within the *Code of Environmental Compliance for Exploration and Mineral Development Projects 2001*. These include:

- Category A ESAs: National Parks, Conservation Parks and Forest Reserves under the NC Act.
- Category B ESAs: Coordinated Conservation Areas, Wilderness Areas, World Heritage management areas, areas of Critical Habitat for threatened species, Wetlands of International Importance, State Forest Parks or Scientific Areas under the *Forestry Act 1959*, marine plants or Endangered REs.
- Category C Environmentally Sensitive Areas may include any of the following environments: Nature Refuges and Resource Reserves, declared Catchment Areas, declared Irrigation Areas, Water Reservoirs and Drainage Areas, River Improvement Areas, State Forest or Timber Reserves, DPI Research Sites, Critical Areas and Public Purpose Reserves, areas subject to a State Planning Policy that designates an area for environmental protection, Coastal Management Districts and land occupied by the Bureau of Sugar Experiment Stations.

DES ESA mapping shows that the Project area contains the following ESAs (**Figure 5** and **Figure 6**):

- Endangered Regional Ecosystems (Biodiversity Status).



Legend

- Mineral Development Licences
- Mining Leases

Proposed Pipeline Footprint

- Coppabella to Moorvale
- Interconnector Pipeline
- Moorvale to Millennium

ENVIRONMENTALLY SENSITIVE AREAS - Mining Activities

<ul style="list-style-type: none"> Selected Mineral Development Licence (MDL) CATEGORY A National Parks Conservation Parks Forest Reserves Wet Tropics World Heritage Area Great Barrier Reef Marine Park Area Marine Parks other than General Use Zones CATEGORY B World Heritage Areas Queensland Heritage Register Places Ramsar Sites Cultural Heritage Registered Areas and DLA's other than Stanbroke Special Forestry Areas Fish Habitat Areas Koala Plan Coordinated Conservation Areas Endangered Regional Ecosystems (Biodiversity Status) General Use Zones of Marine Parks Marine Plants 	<ul style="list-style-type: none"> CATEGORY C Nature Refuges Resources Reserve State Forests Timber Reserves Declared Catchment Areas Declared Irrigation Areas Drainage Areas River Improvement Areas Stanbroke DLA Coastal Management District Dams and Weirs OTHERS ● Towns — Roads — Repealed Wild River Nominated Waterways Repealed Wild River Preservation Areas Repealed Wild River High Preservation Areas Mahogany Glider Habitat Directory of Important Wetlands Queensland
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Regional ecosystem mapping (remnant biodiversity status) may incorporate amendments, resulting from property level assessments, to the release version of the mapping available on QSpatial.

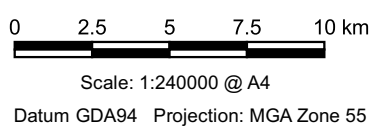
NOTE TO USER: Themes presented in this map are indicative only. Field survey may be required to verify the 'true' spatial extent and value. Not all environmentally sensitive areas are presented in this map. A user should refer to the particular circumstances relevant to their situation to assess the 'completeness' of themes provided.

The user should note that some boundaries and indicated values are ambient and may change over time (e.g. regional ecosystem boundaries and conservation status, watercourse mapping etc).

The user should be aware that due to multiple overlapping themes/layers present, some themes/layers may be obscured by others. Ordering in the Legend does not accurately reflect the order by which themes/layers are displayed.

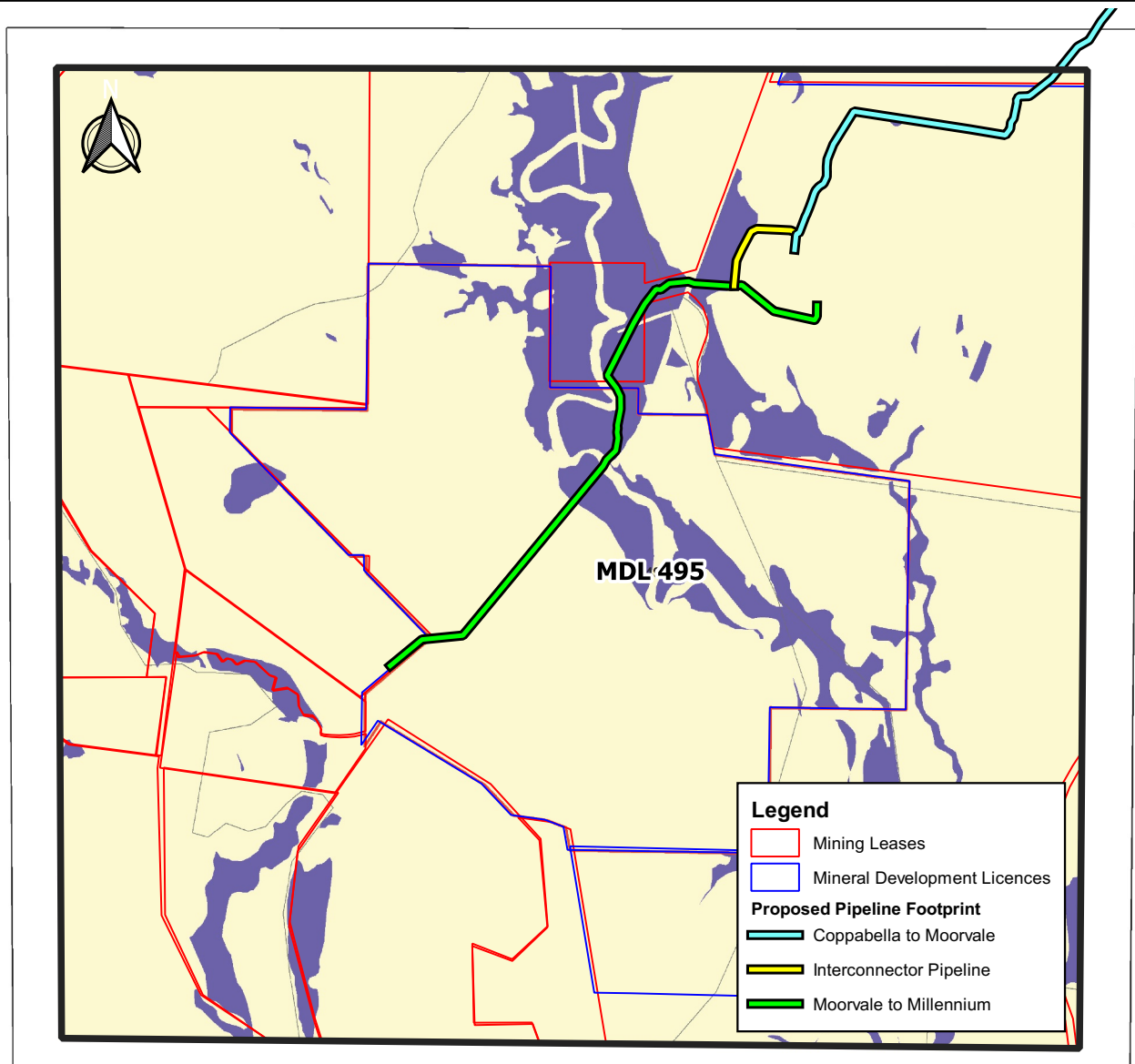
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Coppabella Pipeline Project**

**Figure 5
Environmentally Sensitive Area - MDL494**



Legend

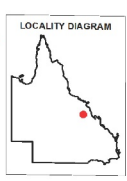
- Mining Leases
- Mineral Development Licences

Proposed Pipeline Footprint

- Coppabella to Moorvale
- Interconnector Pipeline
- Moorvale to Millennium

ENVIRONMENTALLY SENSITIVE AREAS - Mining Activities

- | | |
|---|---|
| Selected Mineral Development Licence (MDL) | CATEGORY C |
| CATEGORY A | Nature Refuges |
| National Parks | Resources Reserve |
| Conservation Parks | State Forests |
| Forest Reserves | Timber Reserves |
| Wet Tropics World Heritage Area | Declared Catchment Areas |
| Great Barrier Reef Marine Park Area | Declared Irrigation Areas |
| Marine Parks other than General Use Zones | Drainage Areas |
| CATEGORY B | River Improvement Areas |
| World Heritage Areas | Stanbroke DLA |
| Queensland Heritage Register Places | Coastal Management District |
| Ramsar Sites | Dams and Weirs |
| Cultural Heritage Registered Areas and DLA's other than Stanbroke | OTHERS |
| Special Forestry Areas | Towns |
| Fish Habitat Areas | Roads |
| Koala Plan | Repealed Wild River Nominated Waterways |
| Coordinated Conservation Areas | Repealed Wild River Preservation Areas |
| Endangered Regional Ecosystems (Biodiversity Status) | Repealed Wild River High Preservation Areas |
| General Use Zones of Marine Parks | Mahogany Glider Habitat |
| Marine Plants | Directory of Important Wetlands |
| | Queensland |



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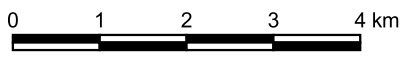
NOTE TO USER: Themes presented in this map are indicative only. Field survey may be required to verify the 'true' spatial extent and value. Not all environmentally sensitive areas are presented in this map. A user should refer to the particular circumstances relevant to their situation to assess the 'completeness' of themes provided.

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Scale: 1:87000 @ A4
 Datum GDA94 Projection: MGA Zone 55

**Engeny
 Coppabella Pipeline Project**

**Figure 6
 Environmentally Sensitive Area - MDL495**

6.1.4 Listed Species of Matters of National / State Environmental Significance

Conservation significant terrestrial vertebrate and flora species identified by desktop study as potentially occurring within or in proximity to the Project are provided in **Table 4**.

Table 4: Conservation Significant Terrestrial Vertebrate / Flora Species Identified by Desktop Study^{1,2}

Species	EPBC Act ^{3,4}	NC Act ^{3,4}	Source ^{5,6}
Critically Endangered, Endangered & Vulnerable Species (EPBC Act and/or NC Act)			
Birds			
Squatter Pigeon (southern subspecies) <i>Geophaps scripta scripta</i>	V	V	WO, ALA, PMR
Australian Painted Snipe <i>Rostratula australis</i>	E	V	PMR
Curlew Sandpiper <i>Calidris ferruginea</i>	CE	E	PMR
Red Goshawk <i>Erythrotriorchis radiatus</i>	V	E	PMR
Star Finch (eastern/southern) <i>Neochmia ruficauda ruficauda</i>	E	E	PMR
Black-throated Finch (southern) <i>Poephila cincta cincta</i>	E	E	PMR
Mammals			
Northern Quoll <i>Dasyurus hallucatus</i>	E	LC	PMR
Koala <i>Phascolarctos cinereus</i>	V	V	WO, ALA, PMR
Greater Glider <i>Petauroides volans</i>	V	V	WO, ALA, PMR
Ghost Bat <i>Macroderma gigas</i>	V	E	PMR
Corben's Long-eared Bat <i>Nyctophilus corbeni</i>	V	V	PMR
Coastal Sheathail Bat <i>Taphozous australis</i>	-	NT	WO
Reptiles			
Southern Snapping Turtle <i>Elseya albagula</i>	CE	E	PMR
Fitzroy River Turtle <i>Rheodytes leukops</i>	V	V	PMR
Yakka Skink <i>Egernia rugosa</i>	V	V	PMR, ALA
Allan's Lerista <i>Lerista allanae</i>	E	E	PMR
Ornamental Snake <i>Denisonia maculata</i>	V	V	WO, PMR, ALA
Dunmall's Snake <i>Furina dunmalli</i>	V	V	PMR, ALA
Migratory Species (EPBC Act)			
Fork-tailed Swift <i>Apus pacificus</i>	M	SLC	PMR, ALA
Osprey <i>Pandion haliaetus</i>	M	SLC	PMR, ALA
Latham's Snipe <i>Gallinago hardwickii</i>	M	SLC	PMR, ALA
Common Sandpiper <i>Actitis hypoleucos</i>	M	SLC	PMR, ALA
Common Greenshank <i>Tringa nebularia</i>	M	SLC	PMR, ALA
Sharp-tailed Sandpiper <i>Calidris acuminata</i>	M	SLC	PMR, ALA
Pectoral Sandpiper <i>Calidris melanotos</i>	M	SLC	PMR, ALA
Oriental Cuckoo <i>Cuculus optatus</i>	M	SLC	PMR, ALA
Black-faced Monarch <i>Monarcha melanopsis</i>	M	SLC	PMR, ALA
Satin Flycatcher <i>Myiagra cyanoleuca</i>	M	SLC	PMR, ALA
Yellow Wagtail <i>Motacilla flava</i>	M	SLC	PMR, ALA
Flora Species			
<i>Cycas ophiolitica</i>	E	E	PMR
King Blue-grass <i>Dichanthium queenslandicum</i>	E	V	PMR
Bluegrass <i>Dichanthium setosum</i>	V	-	PMR
Black Ironbox <i>Eucalyptus raveretiana</i>	V	V	PMR
Quassia <i>Samadera bidwillii</i>	V	V	PMR
<i>Bertya pedicellata</i>	-	NT	WO

- The species included in this table are taken from a Project area with 10 km buffer search of the *Atlas of Living Australia* (ALA 2019), a 25 km radius (-21.9840, 148.3270) and relevant state forest Wildlife Online database searches (QG 2019b) and an EPBC Act Protected Matters Report with a 25 km buffer (-21.9840, 148.3270).
- Conservation Significant fauna species are those listed as Critically Endangered, Endangered or Vulnerable under the EPBC Act, Endangered, Vulnerable or Near Threatened under the NC Act and/or Migratory under the EPBC Act.
- EPBC Act = *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth), NC Act = *Nature Conservation Act 1992* (Queensland)
- CE = Critically Endangered, E = Endangered, LC = Least Concern (Common), M = Migratory, NT = Near Threatened, SLC = Special Least Concern, V = Vulnerable.

5. WO = Wildlife Online, ALA = *Atlas of Living Australia*, PMR = EPBC Act Protected Matters Report. WO records have been searched beyond the 25 km search radius through the species profile search tool (QG 2019b), which generates kml and csv files for some species. Species identified through the initial search were also searched for more widely through the interactive mapping available from ALA (ALA 2019).

6.2 FLORA SURVEY RESULTS

6.2.1 Species Diversity and Vegetation Communities

The flora survey recorded 132 species of vascular plants (A). Vegetation assessment survey data, supporting the assignment of REs to the vegetation communities present, are provided in **Appendix C**.

6.2.2 Verified Regional Ecosystems

Verified REs recorded within the Project area are described in **Table 5** and **Figure 7** to **Figure 9**. Three (3) Endangered REs listed under the VM Act and EP Act were recorded during the field survey. Two (2) REs are listed as Of Concern under the VM Act and EP Act and one (1) is listed as Of Concern under the EP Act only.

Table 5: Verified Regional Ecosystems Recorded within the Project Boundary

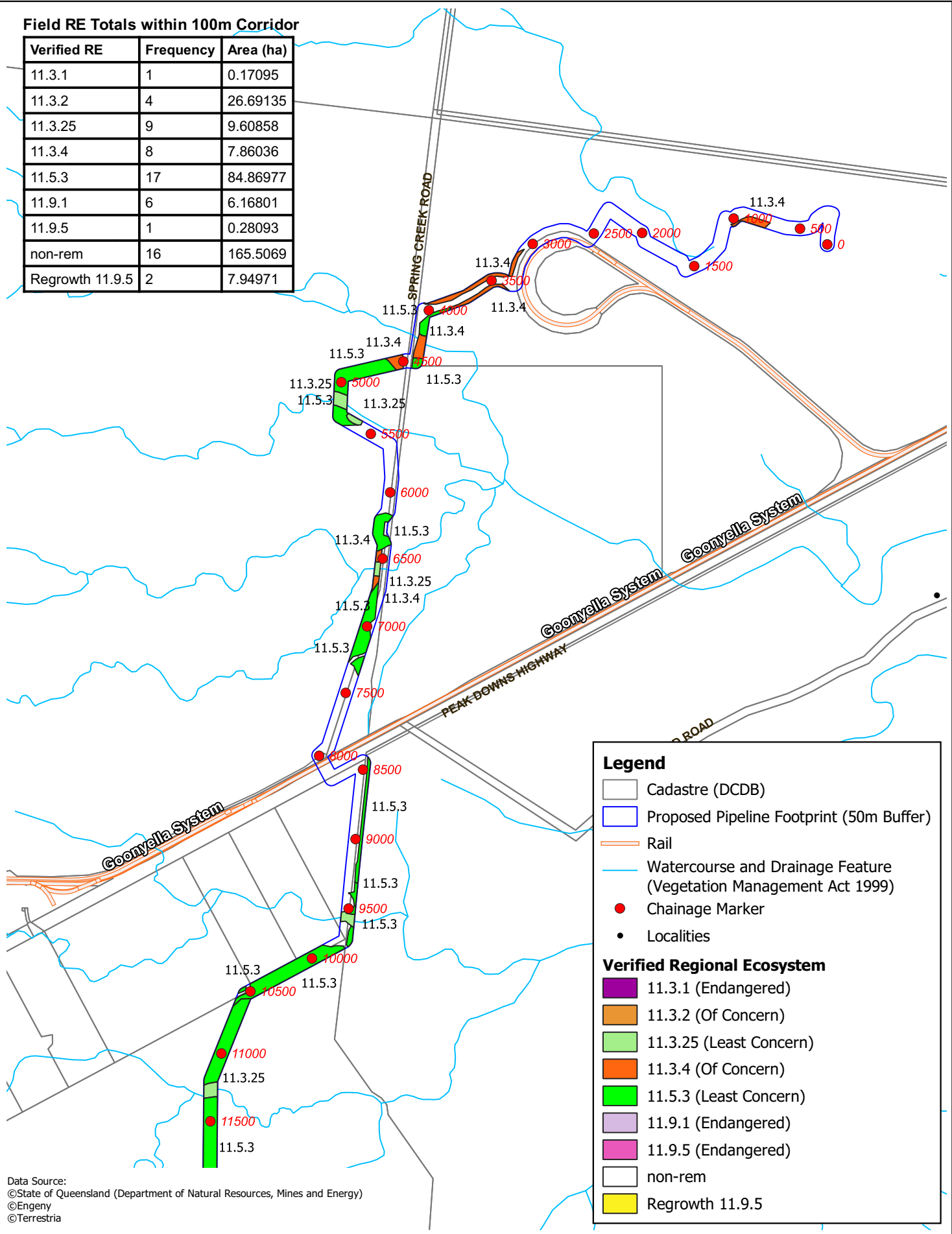
Regional Ecosystem	Brief Description	VM Act ¹ Status	EP Act Biodiversity Status ¹	Total Area (ha) ²
11.3.1	<i>Acacia harpophylla</i> and/or <i>Casuarina cristata</i> open forest on alluvial plains.	E	E	0.17
11.3.2	<i>Eucalyptus populnea</i> woodland on alluvial plains.	OC	OC	26.7
11.3.4	<i>Eucalyptus tereticornis</i> and/or <i>Eucalyptus</i> spp. woodland on alluvial plains.	OC	OC	7.86
11.3.25	<i>Eucalyptus tereticornis</i> or <i>E. camaldulensis</i> woodland fringing drainage lines.	LC	OC	9.61
11.5.3	<i>Eucalyptus populnea</i> +/- <i>E. melanophloia</i> +/- <i>Corymbia clarksoniana</i> woodland on Cainozoic sand plains and/or remnant surfaces.	LC	NC	84.87
11.9.1	<i>Acacia harpophylla</i> - <i>Eucalyptus cambageana</i> woodland to open forest on fine-grained sedimentary rocks.	E	E	6.17
11.9.5	<i>Acacia harpophylla</i> and/or <i>Casuarina cristata</i> open forest on fine-grained sedimentary rocks.	E	E	8.23

¹LC = Least Concern, NC = No Concern, OC = Of Concern, E = Endangered. ²Total area (ha) within proposed pipeline route (100 m width).

Field RE Totals within 100m Corridor

Verified RE	Frequency	Area (ha)
11.3.1	1	0.17095
11.3.2	4	26.69135
11.3.25	9	9.60858
11.3.4	8	7.86036
11.5.3	17	84.86977
11.9.1	6	6.16801
11.9.5	1	0.28093
non-rem	16	165.5069
Regrowth 11.9.5	2	7.94971

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Data Source:
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 ©Terrestria

Legend

- Cadastre (DCDB)
- Proposed Pipeline Footprint (50m Buffer)
- Rail
- Watercourse and Drainage Feature (Vegetation Management Act 1999)
- Chainage Marker
- Localities

Verified Regional Ecosystem

- 11.3.1 (Endangered)
- 11.3.2 (Of Concern)
- 11.3.25 (Least Concern)
- 11.3.4 (Of Concern)
- 11.5.3 (Least Concern)
- 11.9.1 (Endangered)
- 11.9.5 (Endangered)
- non-rem
- Regrowth 11.9.5



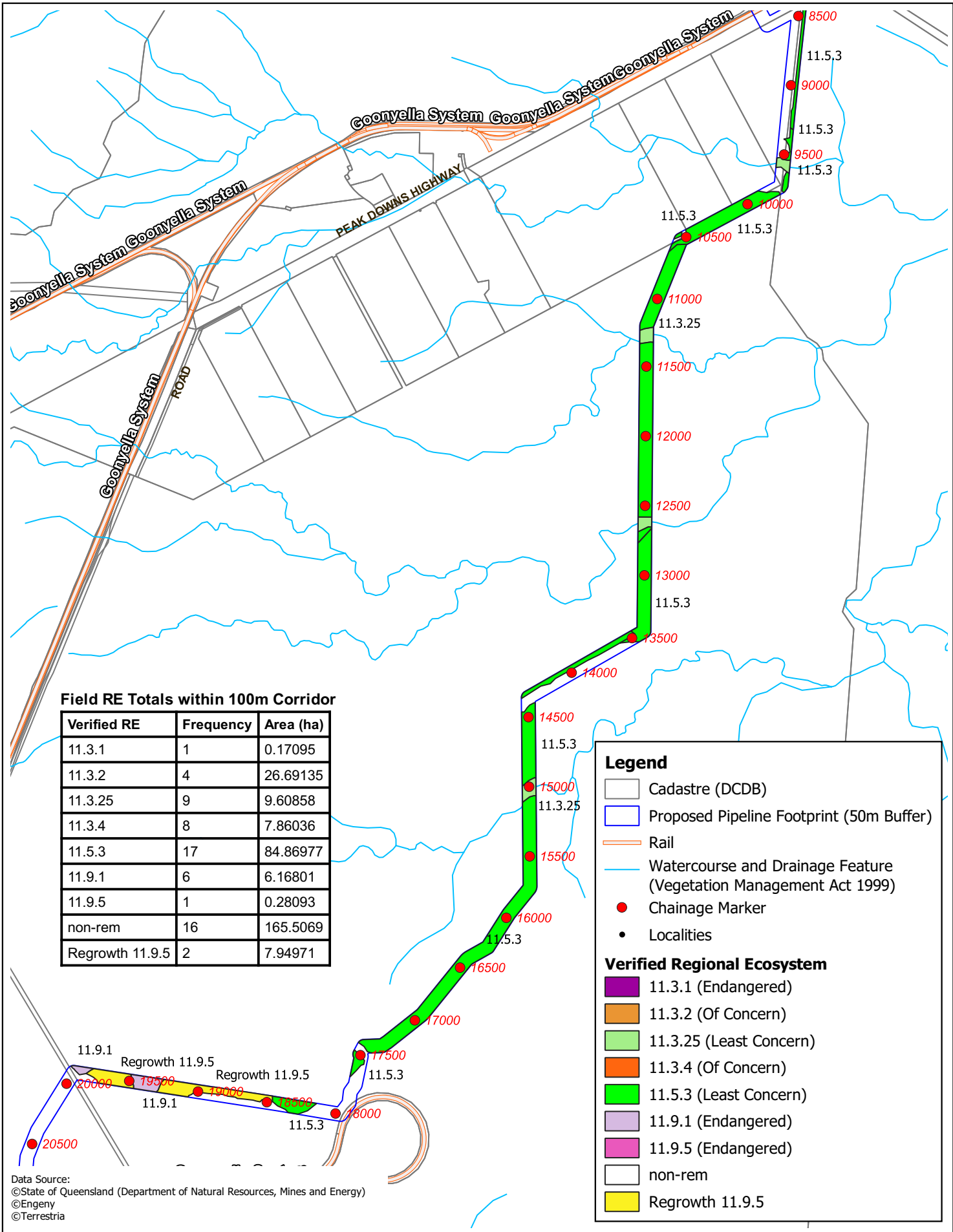
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Scale 1:35,000 @ A4

Datum: GDA94 Projection: MGA55

**Engeny
Coppabella Pipeline Project**

Figure 7
Verified Regional Ecosystem 1 of 3



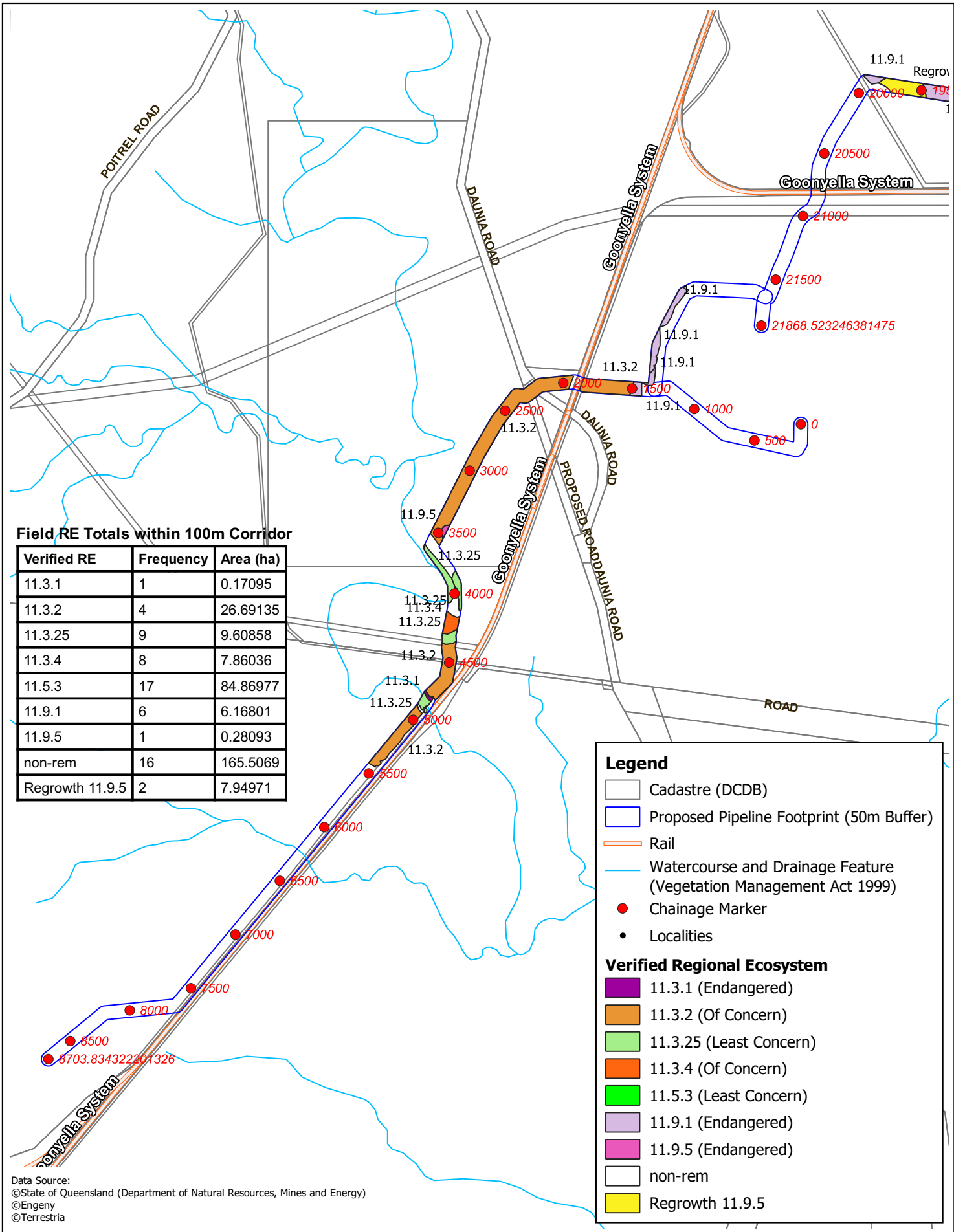
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Datum: GDA94 Projection: MGA55

**Engeny
Coppabella Pipeline Project**

Figure 8
Verified Regional Ecosystem 2 of 3



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Scale 1:35,000 @ A4

Datum: GDA94 Projection: MGA55

**Engeny
Coppabella Pipeline Project**

Figure 9
Verified Regional Ecosystem 3 of 3

6.2.3 Threatened Ecological Communities

The survey identified two (2) TECs located within the Project area, including:

- Brigalow (*Acacia harpophylla* dominant and co-dominant) reflected in RE 11.3.1 *Acacia harpophylla* and/or *Casuarina cristata* open forest on alluvial plains, RE 11.9.1 (*Acacia harpophylla-Eucalyptus cambageana* open forest to woodland on fine-grained sedimentary rocks), and RE 11.9.5 (*Acacia harpophylla* and / or *Casuarina cristata* open forest on fine-grained sedimentary rocks), as outlined in the Department of Environments Approved Conservation Advice for the Brigalow ecological community (DE 2013); and
- Poplar Box Grassy Woodland on Alluvial Plains reflected in RE 11.3.2 *Eucalyptus populnea* woodland on alluvial plains (SPRAT 2019).

TECs within the Project area were recorded in several small patches within the pipeline corridor, which included:

- Several small patches of fragmented Brigalow regrowth RE 11.9.1 and Brigalow remnant RE 11.9.5 within an already heavily disturbed area of ML 70290;
- A small patch of Brigalow RE 11.3.1 within MDL 495 adjacent to North Creek;
- A fragmented portion of Poplar Box RE 11.3.2 within ML 70290 to the north of North Creek; and
- A small patch of Poplar Box RE 11.3.2 within MDL 495 to the north of North Creek.

No Brigalow or Poplar Box communities were recorded within MDL 494. Refer to **Figure 8** and **Figure 9** for further detail.

6.2.4 Likelihood of Occurrence of Conservation Significant Flora Species

Due to the nature of ecological surveys, scarce or cryptic species may go undetected, due to seasonality and flowering. The presence of such species was inferred if there are nearby records of the species in database, and suitable habitat was present in the Project area. The purpose of the likelihood of occurrence assessment (**Table 6**) was to identify those species that required further consideration.

Table 6: Likelihood of Occurrence of Conservation Significant Flora Species

Species	Status	Source ¹	Nearby Records and Habitat Requirements
Critically Endangered, Endangered & Vulnerable Species (EPBC Act and/or NC Act)			
<i>Cycas ophiolitica</i>	EPBC Act: E NC Act: N/A	PMR ALA	Unlikely. Occurs on black clay soils. Habitat for this species occurs within the southern extremity of the alignment in association with regrowth Brigalow communities. These areas are highly disturbed, and the possible presence of this species is considered unlikely. There is no local record for this species in ALA.

Species	Status	Source ¹	Nearby Records and Habitat Requirements
King Blue-grass <i>Dichanthium queenslandicum</i>	EPBC Act: E NC Act: N/A	ALA	Unlikely. <i>Dichanthium queenslandicum</i> occurs on black cracking clay in tussock grasslands mainly in association with other species of blue grasses. The only suitable soil types present along the alignment occur within the southern-most section of the pipeline, south of North Creek, south-west of millennium mine where non-remnant brigalow open forest RE 11.9.5 occurs over dark self-mulching clays. This community has been highly disturbed due to clearing and grazing and the likely presence of <i>D. queenslandicum</i> within this community is low.
Bluegrass <i>Dichanthium setosum</i>	EPBC Act: V NC Act: N/A	PMR	Unlikely. Associated with heavy basaltic black soils and stony red-brown hard-setting loam with clay subsoil and is found in moderately disturbed areas such as cleared woodland, grassy roadside remnants, grazed land and highly disturbed pasture. There is marginal habitat for this species within the proposed alignment. The nearest ALA record is north of Red Hill Mine to the north of the alignment.
Black Ironbox <i>Eucalyptus raveretiana</i>	EPBC Act: V NC Act: N/A	PMR ALA	Unlikely. Occurs on the banks of rivers, creeks and other watercourses, on clayey or loamy soil. Marginal habitat for this species occurs within mapped areas of RE 11.3.25. As a large tree it is unlikely that this species remains undetected within the alignment. There is one record for this species east of the Coppabella Mine on Bee Creek. Bee Creek is a major creek line that provides good habitat for this species.
Quassia <i>Samadera bidwillii</i>	EPBC Act: V NC Act: N/A	PMR	Unlikely. Occurs in lowland rainforest often with <i>Araucaria cunninghamii</i> or on rainforest margins, but it can also be found in other forest types, such as open forest and woodland, it is commonly found in areas adjacent to both temporary and permanent watercourses up to 510 m altitude. Commonly associated trees in the open forest and woodlands include spotted gum <i>Corymbia citriodora</i> , grey gum <i>Eucalyptus propinqua</i> , white mahogany <i>E. acmenoides</i> , forest red gum <i>E. tereticornis</i> , pink bloodwood <i>C. intermedia</i> , ironbark <i>E. siderophloia</i> , gum topped box <i>E. moluccana</i> , Gympie messmate <i>E. cloeziana</i> and broad-leaved ironbark <i>E. fibrosa</i> . Marginal habitat for this species occurs within the proposed alignment. Although a shrub of less than 6 m, the foliage of this species makes it conspicuous. There is no ALA record for this species.
<i>Bertya pedicellate</i>	EPBC Act: N/A NC Act: NT	ALA	Possible. The species has been recorded as growing on rocky hillsides in eucalypt forest or woodland, acacia woodland or shrubland and open heathland or vine thicket communities. Soils are recorded mostly as skeletal to shallow sandy, sandy clay or clay loams overlaying rhyolite, trachyte or sandstone substrates. Associated species include <i>C. trachyphloia</i> , <i>Dodonaea filifolia</i> , <i>Acacia catenulata</i> , <i>A. curvinervia</i> , <i>A. shirleyi</i> , <i>A. rhodoxylon</i> , <i>A. sparsiflora</i> , <i>E. crebra</i> , <i>A. harpophylla</i> and <i>E. decorticans</i> . The species has been recorded within the vicinity of the alignment, however was not recorded to occur within the Project area during the flora survey. Habitat for this species is marginal within the proposed pipeline alignment.
<i>Cycas ophiolitica</i>	EPBC Act: E NC Act: E	PMR	Unlikely. Occurs in woodland or open woodland dominated by eucalypts, often on serpentinite substrates. Habitat for this species does not occur within the proposed alignment.

¹ AVH = Australian Virtual Herbarium

6.3 FAUNA SURVEY RESULTS

6.3.1 Faunal Habitat Quality

Portions of the Project area is located within intact bushland areas, creek lines and brigalow habitats, all of which provide a high habitat quality to various fauna species. While these areas support habitat including food, shelter, refuge and breeding sites for various arboreal and ground dwelling species, it is important to note a considerable extent of the Project area is located within already existing easements and active mining lease areas that have previously been disturbed and cleared. These areas lack remnant vegetation and under-storey and mid-storey layers and predominantly consist of juvenile flora species with poor connectivity for fauna.

6.3.2 Species of National and / or State Significance.

During the fauna survey one (1) species listed as Vulnerable under the EPBC Act and NC Act, Greater Glider, was recorded within MDL 494 during the field survey.

Five (5) species of conservation significance are known to occur or may occur in the Project area based on nearby database records for the species and the presence of suitable habitat within the Project area (**Table 8**).

Table 7: Conservation Significant Species Known or Possibly Occurring in or near the Project area

Common Name	Species Name	EPBC Act	NC Act
Koala	<i>Phascolarctos cinereus</i>	V	V
Greater Glider	<i>Petauroides Volans</i>	V	V
Squatter Pigeon (southern subspecies)	<i>Geophaps scripta scripta</i>	V	V
Yakka Skink	<i>Egernia rugosa</i>	V	V
Ornamental Snake	<i>Denisonia maculata</i>	V	V

Further detail on these conservation significant species, and others flagged via database searches are listed in **Table 9**.

6.3.3 Likelihood of Occurrence of Conservation Significant Terrestrial Fauna Species

Due to the nature of ecological surveys, scarce or cryptic species may go undetected, even when surveys employ the full range of trapping techniques. The presence of such species was inferred if there are nearby records of the species in database, and suitable habitat was present in the Project area. The purpose of the likelihood of occurrence assessment (**Table 8**) was to identify those species that required further consideration. In some instances, species such as the Yakka Skinks, secretive behaviour and use of a wide range of habitats make it very difficult to preclude occurrence.

Species of national and/or state level conservation significance were flagged via database searches Queensland Government's Wildlife Online (QG 2019d) and the *Atlas of Living Australia* (ALA 2019)) as potential inhabitants of the Project area. Of these, only some species were considered relevant to the

Project, based on nearby records and the presence of suitable habitat. All species listed solely as ‘marine’ and/or ‘migratory marine’ identified by the PMR were excluded.

Table 8: Likelihood of Occurrence of Conservation Significant Terrestrial Fauna Species

Species	Status	Source	Nearby Records and Habitat Requirements
Critically Endangered, Endangered & Vulnerable Species (EPBC Act and/or NC Act)			
Northern Quoll <i>Dasyurus hallucatus</i>	EPBC Act: E NC Act: LC	PMR	Unlikely. The closest known record is approx. 50 km northeast of Coppabella (ALA 2019). There is no suitable rocky habitat within the Project area, though potential foraging habitat is present.
Koala <i>Phascolarctos cinereus</i>	EPBC Act: V NC Act: V	PMR, WO, ALA	Known to occur. There are 97 WO records within a 25 km radius of the Project area. There is suitable habitat within the Project area, predominantly along creek lines, comprising eucalypt vegetation. Koala scats were identified during the field survey.
Greater Glider <i>Petauroides volans</i>	EPBC Act: V NC Act: V	PMR, WO, ALA	Known to occur. There are 52 WO records within a 25 km radius of the Project area. Greater glider habitat was identified during field survey within the Coppabella to Moorvale portion of the proposed pipeline footprint (-21.88014, 148.39499). A single individual was identified during spotlighting. Good hollows and food trees are present in the local landscape.
Ghost Bat <i>Macroderma gigas</i>	EPBC Act: V NC Act: E	PMR	Unlikely. The closest known record is approx. 42 km north of Coppabella, from 1978. The closest recent record, 2004, is from Crediton Forest Reserve, approx. 77 km to the north (ALA 2019). Permanent roost and maternity sites are in deep cave systems or large disused mines, though individuals may disperse well away from maternity sites (Worthington Wilmer 2012). There is no suitable roost or maternity site within the Project area, though potential foraging habitat is present.
Corben's Long-eared Bat <i>Nyctophilus corbeni</i>	EPBC Act: V NC Act: V	PMR	Not expected. The closest known record is from Expedition National Park, approx. 370 km to the south of Coppabella (ALA 2019). The species is largely restricted to the Murray-Darling Basin (Churchill 2008; Turbill et al. 2008) and in Queensland the species is mainly recorded in the Brigalow Belt South Bioregion. Parnaby (2009), in a taxonomic review of long-eared bats previously known as <i>N. timoriensis</i> , states that the most northerly record of the species is from 80 km west of Taroom, more than 400 km from the Project area.
Coastal Sheathtail Bat <i>Taphozous australis</i>	EPBC Act: - NC Act: NT	WO	Unlikely: Coastal Sheathtail Bat is seldom found more than a few kilometres from the ocean, where it roosts in sea caves, rock fissures, boulder piles and, occasionally, in buildings (Churchill 2008; Richards 2008).
Squatter Pigeon (southern subsp.) <i>Geophaps scripta scripta</i>	EPBC Act: V NC Act: V	WO, ALA, PMR	Likely. There are 34 WO records within a 25 km radius of the Project area. While not sighted during the field survey, potential habitat for Squatter Pigeon was identified at 68 sites during the fauna survey.

Species	Status	Source	Nearby Records and Habitat Requirements
Australian Painted Snipe <i>Rostratula australis</i>	EPBC Act: E NC Act: V	PMR	Unlikely. There 3 records within 18 km but all are historical Bird Atlas records, pre-1977 and with a spatial error of 54 km, making their relevancy difficult to determine. The closest recent record is from 2017, approx. 50 km south of Coppabella (ALA 2019). The species occurs in terrestrial shallow vegetated wetlands, usually freshwater but occasionally brackish, including temporarily inundated woodlands and grasslands, swamps, saltmarsh and artificial wetlands such as dams, rice crops, sewage farms and bore drains (Marchant & Higgins 1993; Garnett & Crowley 2000). In north and central coastal Queensland, the species occurs mostly in sparse open habitats with some grass or sedge cover, in or near shallow muddy pools (Black et al. 2010). The species is extremely nomadic, and its occurrence is often erratic (Marchant & Higgins 1993) but there is indication of a regular seasonal migration to central and north coastal Queensland in autumn and winter (Black et al. 2010). Breeding occurs mainly in the Murray-Darling region (Rogers et al. 2005). Any possible occurrence is likely to be sporadic and temporary.
Curlew Sandpiper <i>Calidris ferruginea</i>	EPBC Act: CE NC Act: E	PMR	Not expected. Curlew Sandpiper occurs mostly on intertidal mudflats in sheltered coastal areas but also on non-tidal swamps, lakes and lagoons near the coast. It also uses saltworks and sewage ponds. It is recorded on inland waterbodies though less often (Higgins and Davies 1996). There is no ALA record near the Project area, the closest records are all coastal (ALA 2019).
Red Goshawk <i>Erythrotriorchis radiatus</i>	EPBC Act: V NC Act: E	PMR	Unlikely. The closest ALA record is within 18 km of the Project area, from 1992. It has an 18 km spatial error. The species occurs in woodlands and forests, particularly tall forests in areas of high rainfall (Woinarski 2007) and, ideally, with intact forest or woodland in a mosaic of vegetation types, particularly riverine forests (Marchant & Higgins 1993). Permanent freshwater is usually present close to tall emergent trees (Czechura 2012). Nests are restricted to trees taller than 20 m and within one km of a watercourse or wetland (Garnett & Crowley 2000). The species has home ranges of 120 km ² and 200 km ² for females and males, respectively (Debus & Czechura 1988; Marchant & Higgins 1993). There is no evidence of a nest in the Project area but if a pair is present in the general area there is potential foraging habitat.
Star Finch (eastern/southern) <i>Neochmia ruficauda ruficauda</i>	EPBC Act: E NC Act: E	PMR	Not expected. The closest known records are from approx. 77 km east of Coppabella. There are two records from 1956 and one from 1985 (ALA 2019). There is no definite record of the nominate race since 1995 and although the population is estimated at less than 50 individuals it may be extinct (Payne 2010; Garnet <i>et al.</i> 2011).
Black-throated Finch (southern) <i>Poephila cincta cincta</i>	EPBC Act: E NC Act: E	PMR	Unlikely. The closest known record is a historical Bird Atlas (pre-1977) record from 48 km to the north of Coppabella. The next closest record is on the coast, more than 110 km to the east in 1985.
Southern Snapping Turtle <i>Elseya albagula</i>	EPBC Act: CE NC Act: E	PMR	Not expected. The closest known record is from the Isaac River, approx. 74 km southeast of Coppabella (ALA 2019). The species occurs in flowing streams (Hamann et al. 2007). There is no suitable habitat.
<i>Rheodytes leukops</i> Fitzroy River Turtle	EPBC Act: V NC Act: V	PMR	Not expected. The closest known record is from the Isaac River, approx. 72 km southeast of Coppabella (ALA 2019). The species occurs in fast-flowing clear rivers (Ehmann 2991). Core areas of activity are focused on riffle zones. If the riffle zone is seasonally ephemeral or dried completely, females retreat to deeper sections of pools (Tucker et al. 2001). The species has also been found in impoundments (Gordos 2012). There is no suitable habitat.

Species	Status	Source	Nearby Records and Habitat Requirements
Allan's Lerista <i>Lerista allanae</i>	EPBC Act: E NC Act: E	PMR	Not expected. The closest known record is a South Australian museum specimen from 1948, 72 km southwest of Coppabella. The species was thought to be extinct (Covacevich et al. 1996a) but is now known to still occur in the Clermont/Capella area (Brigalow Belt Reptiles Workshop 2010). Early specimens were found under the surface of black-red soil, under tussocks of grass on farmland (Covacevich et al. 1996b; Brigalow Belt Reptiles Workshop 2010). Recent records are from REs 11.8.5 and 11.8.11/11.8.5 or from sites from which these REs had been cleared (Brigalow Belt Reptiles Workshop 2010).
Yakka Skink <i>Egernia rugosa</i>	EPBC Act: V NC Act: V	WO, PMR, ALA	Likely. While no known records of this species have been recorded within the Project area, potential habitat for the Yakka Skink was identified during the fauna survey at 45 sites. Preferred habitat includes RE 11.3.2 (<i>Acacia harpophylla</i> dominant and co-dominant) ecological communities (Brigalow Belt Reptiles Workshop 2010). While there is suitable habitat for the species in the Project area and it is likely the Project may create an adverse impact on these areas, with simple construction management plans to retain larger trees and create timber piles, there is a potential to increase overall habitat values for the species.
Ornamental Snake <i>Denisonia maculata</i>	EPBC Act: V NC Act: V	PMR, WO	Unlikely. There are 11 WO records within a 25 km radius of the Project area. Potential habitat for Ornamental Snake was identified at two (2) sites during the field assessment, however soil and vegetation types along the majority of the pipeline route are not considered favourable for this species.
Dunmall's Snake <i>Furina Dunmali</i>	EPBC Act: V NC Act: N/A	PMR	Unlikely. The closest known record is from near Clermont, approx. 122 km to the southwest (ALA 2019). Preferred habitat appears to be brigalow growing on cracking black clay and clay loams (Cogger et al. 1993), with the majority of records from between 200 to 500 m above sea level (Hobson 2012). Much of its core habitat now only exists as linear fragments along roads and in stock routes (Richardson 2006; Hobson 2012).
Migratory Species (EPBC Act: M, NC Act: SLC)			
Fork-tailed Swift <i>Apus pacificus</i>	EPBC Act: M NC Act: SLC	WO, ALA	Not expected. The closest known record is approximately 45 km north-west of the Project area in 2012 (ALA 2019). The species predominantly prefer inland plains and within dry or open habitats including riparian woodland and tea-tree swamps, low scrub or saltmarsh.
Osprey <i>Pandion haliaetus</i>	EPBC Act: M NC Act: SLC	WO, ALA	Not expected. The closest known record is approximately 80 km to the north of Coppabella in 2018. While Osprey are known to have a wide distribution, their preferred habit is in close proximity to shallow waters with an abundance of fish. Due to the ephemeral nature of watercourses and waterways within the Project area it is not expected for the Project area to provide a suitable habitat for the species.
Latham's Snipe <i>Gallinago hardwickii</i>	EPBC Act: M NC Act: SLC	WO, ALA	Not expected. The closest known record is approximately 30 km north-west of Coppabella in 2014, at Lake Elphinstone. The species tends to occur in permanent and ephemeral wetlands and due to a lack of preferred habitat is not expected to occur within the Project area.
Common Sandpiper <i>Actitis hypoleucos</i>	EPBC Act: M NC Act: SLC	WO, ALA	Not expected. The closest known records are from near Mackay, approx. 100 km to the north-east of the Project area. One record is dated 1990 and the other, 1999.
Common Greenshank <i>Tringa nebularia</i>	EPBC Act: M NC Act: SLC	WO, ALA	Not expected. The closest known record is 35 km southwest of Coppabella in 1978.

Species	Status	Source	Nearby Records and Habitat Requirements
Sharp-tailed Sandpiper <i>Calidris acuminata</i>	EPBC Act: M NC Act: SLC	WO, ALA	Not expected. The closest known records are approximately 40 km to the southwest and northwest of the Project area. There are 2 records, one from 2001 and the other 2018 (ALA 2019). Lake Elphinstone is the nearest location likely to provide habitat suitable for general occurrence.
Pectoral Sandpiper <i>Calidris melanotos</i>	EPBC Act: M NC Act: SLC	WO, ALA	Not expected. The closest known record is from Mirani in 1987, approx. 95 km to the northeast of the Project area. It is unlikely the Project area is likely to provide habitat suitable for occurrence of the species.
Oriental Cuckoo <i>Cuculus optatus</i>	EPBC Act: M NC Act: SLC	WO, ALA	Not expected. The closest known record is approximately 35 km to the northeast. The record is from between 1991 and has a spatial uncertainty of approximately 1 km. The next closest record is in 2000, approx. 55 km to the northeast (ALA 2019).
Black-faced Monarch <i>Monarcha melanopsis</i>	EPBC Act: M NC Act: SLC	WO, ALA	Not expected. There are two known records within a 15km radius from the Project area from the year 2000 or earlier. Both records have a spatial uncertainty of approximately 500 m (ALA 2019). The species predominantly occur in rainforest ecosystems, however, can be present in scrub dominated by Brigalow (<i>acacia harporphylla</i>). Due to limited preferred habitat within the Project area it is not expected to encounter this species.
Satin Flycatcher <i>Myiagra cyanoleuca</i>	EPBC Act: M NC Act: SLC	WO, ALA	Not expected. The closest known record is approximately 60km north east of Coppabella in 1976 (ALA, 2019).
Yellow Wagtail <i>Motacilla flava</i>	EPBC Act: M NC Act: SLC	WO, ALA	Not expected. The closest known record is from Bribie Island, approx. 317 km from the Project area.

- The species included in this table are taken from three 10 km radius searches the *Atlas of Living Australia* (ALA 2019), a 25 km radius Wildlife Online database search (QG 2019) and an EPBC Act Protected Matters Report with a 25 km buffer.
- Conservation Significant fauna species are those listed as Critically Endangered, Endangered or Vulnerable under the EPBC Act, Endangered, Vulnerable or Near Threatened under the NC Act and/or Migratory under the EPBC Act.
- EPBC Act = *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth), NC Act = *Nature Conservation Act 1992* (Queensland)
- CE = Critically Endangered, E = Endangered, M = Migratory, SLC = Special Least Concern, V = Vulnerable.
- WO = Wildlife Online database, ALA = *Atlas of Living Australia*, PMR = EPBC Act Protected Matters Report. WO records have been searched beyond the 50 km search radius through the species profile search tool (QG 2019c), which generates kml and csv files for some species. Species identified through the initial search were also searched for more widely through the interactive mapping available from ALA (ALA 2019).

7 IMPACT OF PROPOSED ACTIVITY

Impacts of the proposed activity have been assessed for MNES and MSES using relevant State and Commonwealth significant impact guidelines. The proposed pipeline alignment and REs across the Project area are shown in **Figure 7** to **Figure 9**. For conservation significant species known or likely to occur, impacts were assessed for the construction of the pipeline resulting in a loss of habitat and fauna mortality.

Following this initial assessment, a workshop was held on 21 June 2019 between Epic and Engeny (design engineers). The purpose of this workshop was to discuss initial findings and determine an appropriate pipeline footprint that would minimise impacts to specific flora and fauna identified during the field survey. The revised pipeline footprint is shown in **Figure 10** to **Figure 14**.

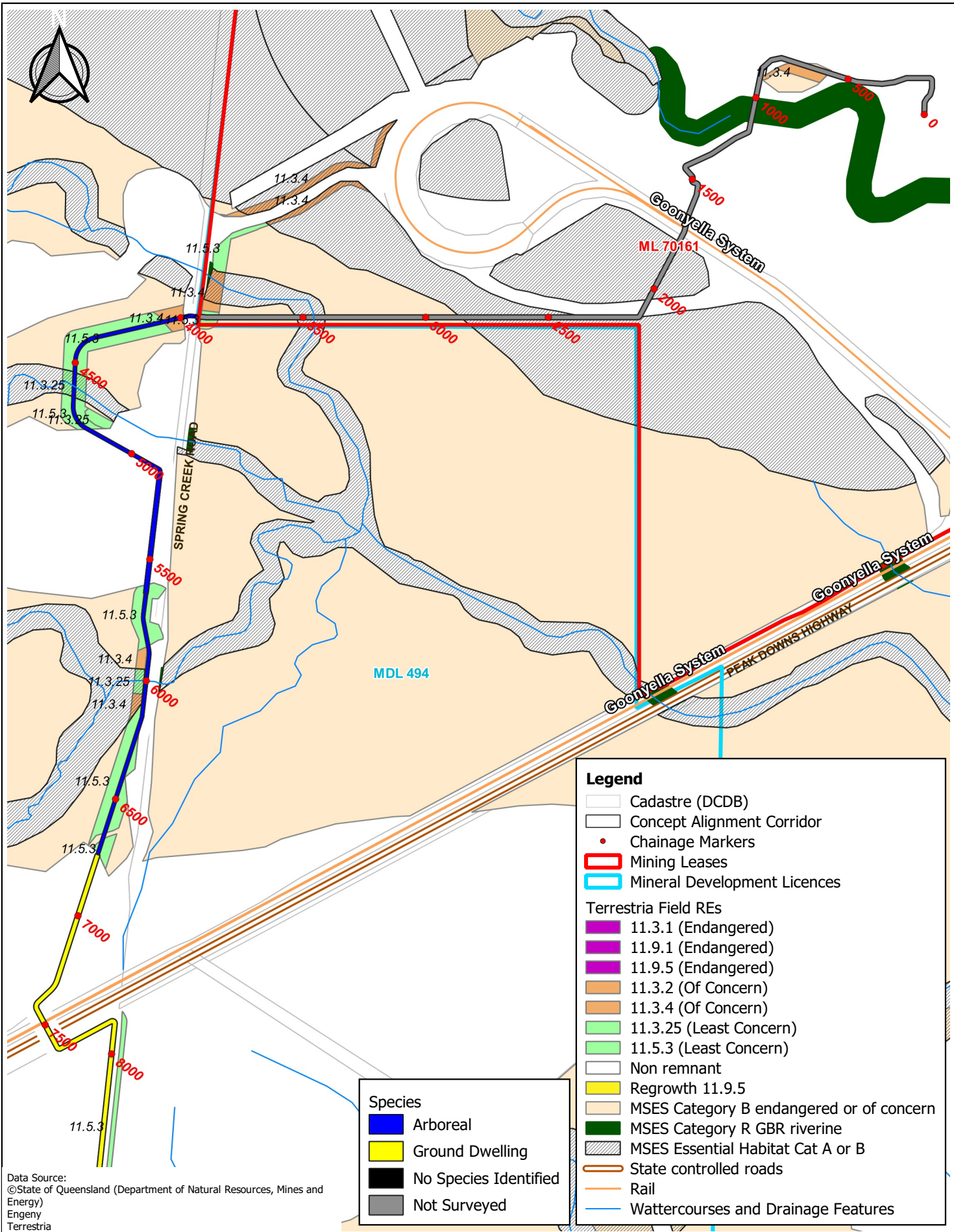
7.1 MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE (MNES) IMPACT ASSESSMENT

The EPBC Act defines and protects nine matters considered to be of MNES. Under Part 3 of the EPBC Act, a person must not undertake an action that will have, or is likely to have, a significant impact on a protected matter, without approval from the Minister. **Table 9** summarises known or likely to occur MNES within the Project area.

Table 9: Summary of MNES within the Project area

MNES	Relevance	Reference	Impact
World Heritage properties	Not relevant to the Project.	PMR	None anticipated.
National heritage places	Not relevant to the Project.	PMR	None anticipated.
Wetlands of international importance (listed under the Ramsar Convention)	Not relevant to the Project.	PMR	None anticipated.
Listed threatened species and ecological communities	Five (5) threatened species and two (2) threatened communities known or likely to occur within Project area.	Field surveys and existing records.	Clearing of suitable habitat for Project footprint (see Table 11).
Migratory species protected under international agreements	Not relevant to the Project.	PMR	No impact – species are not considered likely to use the proposed pipeline area.
Commonwealth marine areas	Not relevant to the Project.	PMR	None anticipated.
The Great Barrier Reef Marine Park	Not relevant to the Project.	-	None anticipated.
Nuclear actions	Not relevant to the Project.	Nature of the Project.	None anticipated.
A water resource in relation to coal seam gas development and large coal mining development.	Not relevant to the Project.	Nature of the Project.	None anticipated.

©QGIS 2016 G:\Epic Environmental\Projects\BE190028.01 Engeny Peabody Pipeline EA Coppabella to Millennium\Workspaces\ Figure X Ground Truthed REs 100m Buffer Map 1.qgs



Data Source:
 ©State of Queensland (Department of Natural Resources, Mines and Energy)
 Engeny
 Terrestria

Legend

- ▭ Cadastre (DCDB)
- ▭ Concept Alignment Corridor
- Chainage Markers
- ▭ Mining Leases
- ▭ Mineral Development Licences

Terrestria Field REs

- ▭ 11.3.1 (Endangered)
- ▭ 11.9.1 (Endangered)
- ▭ 11.9.5 (Endangered)
- ▭ 11.3.2 (Of Concern)
- ▭ 11.3.4 (Of Concern)
- ▭ 11.3.25 (Least Concern)
- ▭ 11.5.3 (Least Concern)
- ▭ Non remnant
- ▭ Regrowth 11.9.5
- ▭ MSES Category B endangered or of concern
- ▭ MSES Category R GBR riverine
- ▭ MSES Essential Habitat Cat A or B
- ▭ State controlled roads
- ▭ Rail
- ▭ Wattercourses and Drainage Features

Species

- ▭ Arboreal
- ▭ Ground Dwelling
- ▭ No Species Identified
- ▭ Not Surveyed

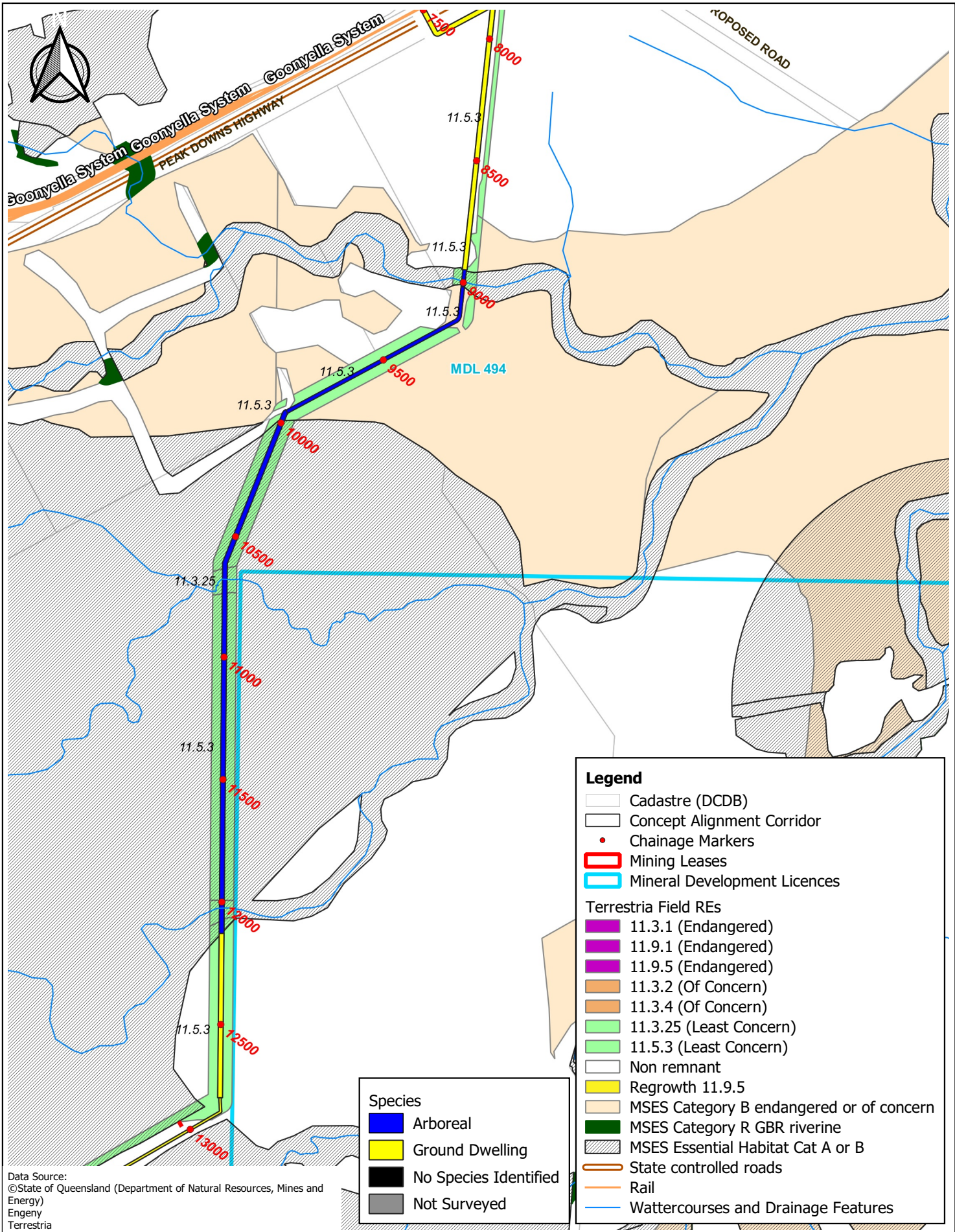


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 Datum: GDA94 Projection: MGA55

**Engeny
 Coppabella Pipeline Project**

Figure 10
 Revised Pipeline Footprint, REs and Species

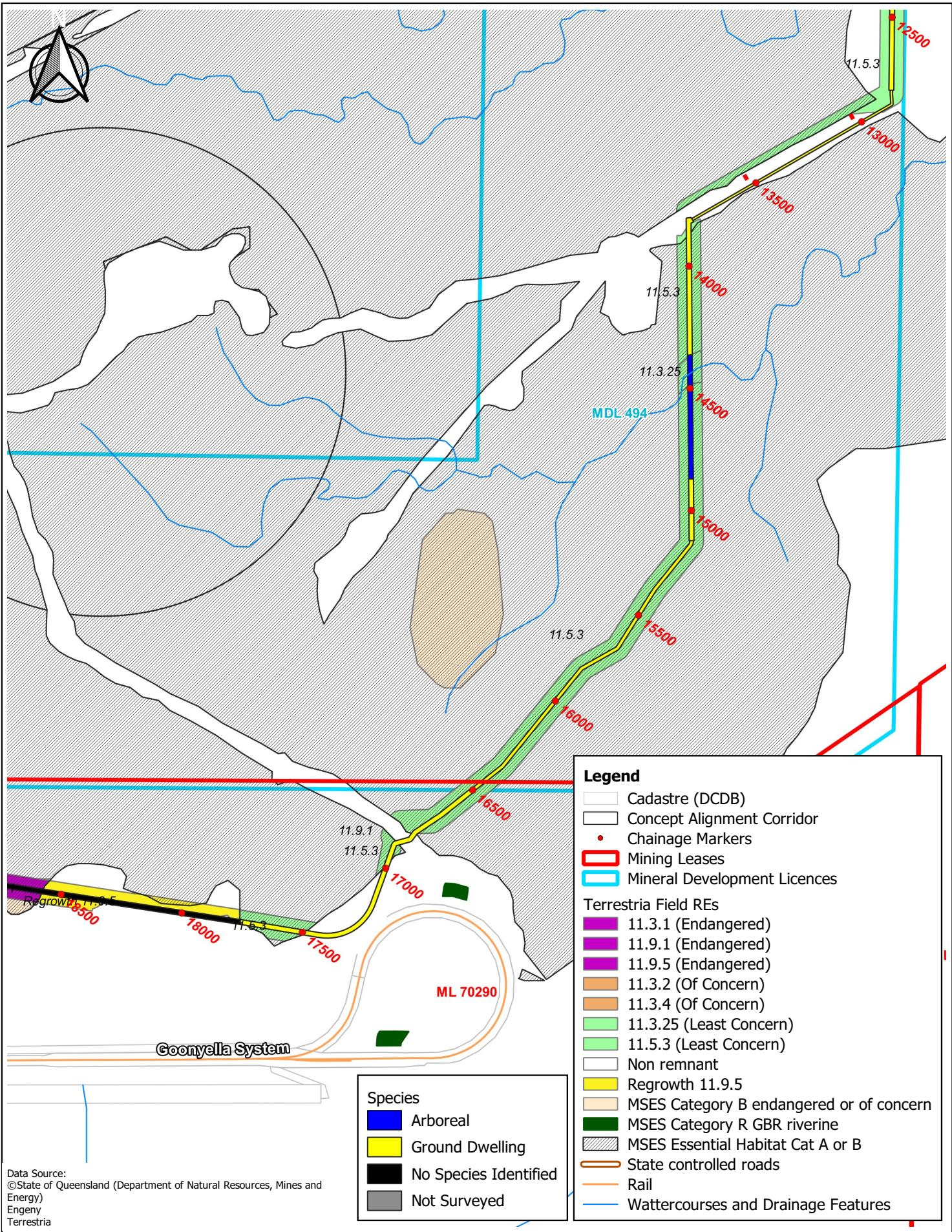
©QGIS 2016 G:\Epic Environmental\Projects\BE190028.01 Engeny Peabody Pipeline EA Coppabella to Millenium\Workspaces\ Figure X Ground Truthed REs 100m Buffer Map 1.qgs

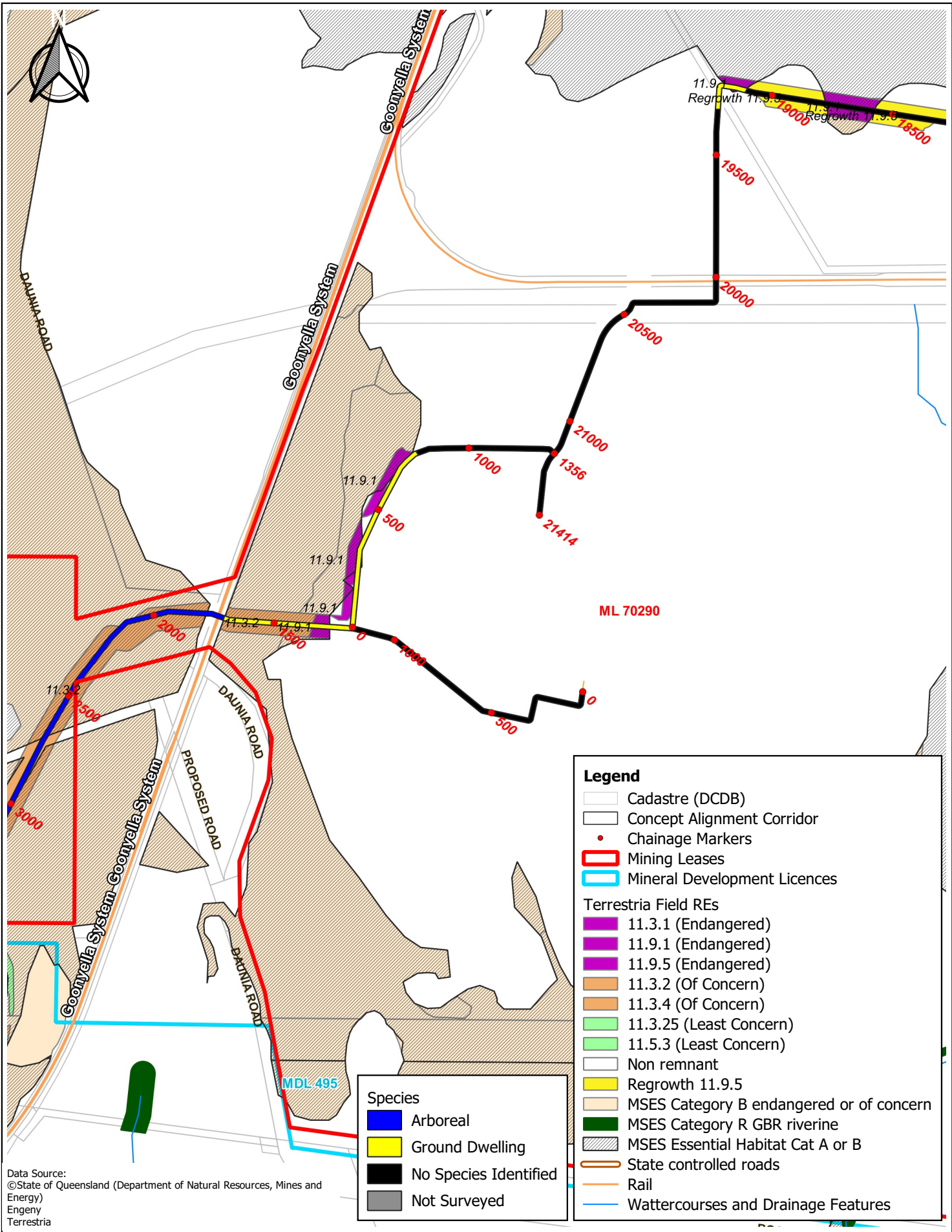


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**Engeny
 Coppabella Pipeline Project**

**Figure 11
 Revised Pipeline Footprint, REs and Species**





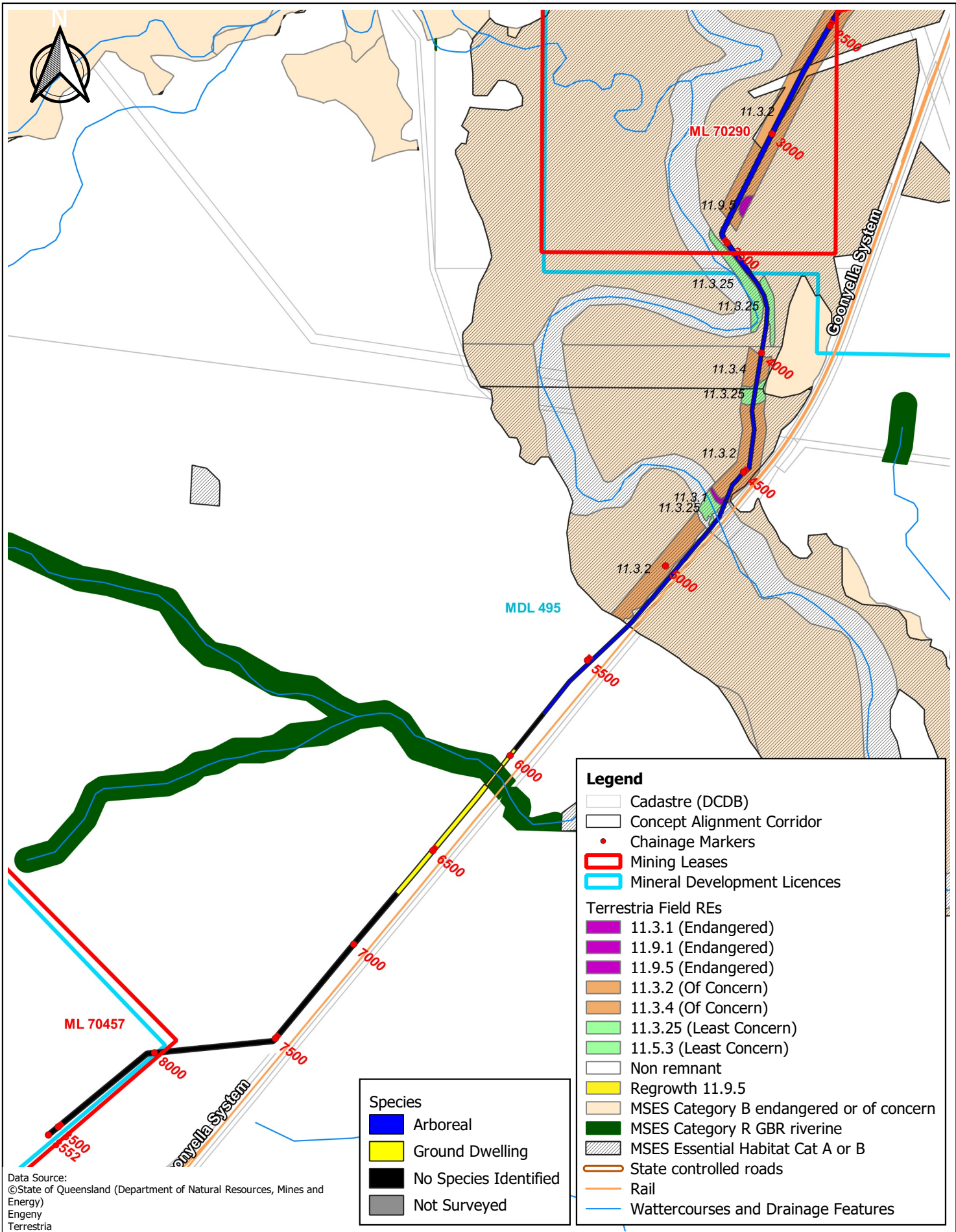
Data Source:
 ©State of Queensland (Department of Natural Resources, Mines and Energy)
 Engeny
 Terrestria



0 500 1000 m
 Scale 1:20,000 @ A4
 Datum: GDA94 Projection: MGA55

**Engeny
 Coppabella Pipeline Project**

**Figure 13
 Revised Pipeline Footprint, REs and Species**



Data Source:
 ©State of Queensland (Department of Natural Resources, Mines and Energy)
 Engeny
 Terrestria

Legend

- Cadastre (DCDB)
 - Concept Alignment Corridor
 - Chainage Markers
 - Mining Leases
 - Mineral Development Licences
- Terrestria Field REs**
- 11.3.1 (Endangered)
 - 11.9.1 (Endangered)
 - 11.9.5 (Endangered)
 - 11.3.2 (Of Concern)
 - 11.3.4 (Of Concern)
 - 11.3.25 (Least Concern)
 - 11.5.3 (Least Concern)
 - Non remnant
 - Regrowth 11.9.5
 - MSES Category B endangered or of concern
 - MSES Category R GBR riverine
 - MSES Essential Habitat Cat A or B
 - State controlled roads
 - Rail
 - Wattercourses and Drainage Features

Species

- Arboreal
- Ground Dwelling
- No Species Identified
- Not Surveyed



0 500 1000 m
 Scale 1:20,000 @ A4
 Datum: GDA94 Projection: MGA55

**Engeny
 Coppabella Pipeline Project**

Figure 14
 Revised Pipeline Footprint, REs and Species

7.1.1 MNES Significant Impact Assessment

The significance of impacts to MNES are determined against the *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance* (DoEE 2013). One MNES was identified as part of the ecological assessment, being listed threatened species and ecological communities.

Two TECs (*Acacia harpophylla* co-dominant, RE 11.3.1, 11.9.1 and 11.9.5 and Poplar Box Grassy Woodland on Alluvial Plains (11.3.2)) were recorded during the field survey. Impacts to brigalow or Poplar Box TEC are not considered significant. As a result of the project design, there will be minimal disturbance to the patch of brigalow TEC adjacent to North Creek within MDL 495 (RE 11.3.1), with approximately 2.6 ha of RE 11.9.5 and Regrowth RE 11.9.1 located within ML 70290 having the potential to be disturbed. In addition, regarding Poplar Box TEC, it is anticipated that approximately 0.64 ha of 11.3.2 may be removed within MDL 495, with approximately 3.85 ha of 11.3.2 anticipated to be disturbed within ML 70290. It is important to note, however, due to existing mining activities within ML 70290, the area has previously been disturbed and consists of relatively poor connectivity for fauna species.

Five (5) conservation significant species were considered known or possible to occur within the Project area. A summary of the five (5) conservation significant species considered known or possibly occurring within the Project area (based on nearby records and suitable habitat being present), with a summary of the outcomes of the impact assessment provided in **Table 10**. A detailed species profile for each MNES species is provided in **Appendix E**.

Table 10: MNES Significant Impact Assessment Summary

Matter	Habitat	Total length (m) ¹	Comments
Listed threatened species			
Koala <i>Phascolarctos cinereus</i> EPBC Act: V	RE 11.3.25 RE 11.3.2 RE 11.3.4 RE 11.5.3 RE 11.9.5	9,000 m	In the Project area the common food trees are <i>Eucalyptus camaldulensis</i> and <i>E. tereticornis</i> but <i>E. crebra</i> , <i>E. populnea</i> and <i>Corymbia citriodora</i> , among others, are also eaten (Lee & Martin 1988). The most important habitats for Koala in the Project area are RE 11.3.25 and RE 11.3.4. Approximately 0.31 ha of RE 11.3.4 will be lost and 1.17 ha of RE 11.3.25 will be cleared. There are 69 records of Koala within 25 km of the Project site, the most recent is from 2015 (ALA 2019). Should Koala occur on site, it is likely to be at very low densities and perhaps with a very patchy distribution, most likely in riparian areas, such as RE 11.3.25 within MDL 494 and MDL495. Habitat loss is the major threat to Koala (Martin et al. 2008). Other threats relevant to Project activities are potential vehicle strike due to increased local traffic during construction, inappropriate fire regimes and weed invasion. These threats will be mitigated by implementation of appropriate procedures. There will also be fragmentation of habitat, though this will be comparatively minor.

Matter	Habitat	Total length (m) ¹	Comments
Greater Glider <i>Petauroides Volans</i> EPBC Act: V	RE 11.3.25 RE 11.3.4 RE 11.5.3	4,400 m	<p>The species lives in a variety of eucalypt-dominated forest and woodland. By day it shelters in tree hollows (McKay 2008). Occurrence is patchy, with apparently suitable forest often supporting no animals (Henry 1984). There are 41 records within a 25 km radius of the Project site, with confirmation of several sightings made during the survey within the Project site. The population size is unknown, however distribution of the species is believed to typically occur within MDL 494. The greatest threat to Greater Glider is habitat loss and fragmentation (Kavanagh & Stanton 1998; Woinarski et al. 2014). Given the gliding ability of the species, the effects of habitat fragmentation should be comparatively minor. However, 14.52 ha of potentially suitable habitat may be lost. The severity of this habitat loss is difficult to assess without knowledge of local population within the Project site, however with recommended management measures applied to the project this significance is anticipated to be low.</p>
Squatter Pigeon (southern subspecies) <i>Geophaps scripta scripta</i> EPBC Act: V	RE 11.3.1 RE 11.3.2 RE 11.3.25 RE 11.3.4 RE 11.5.3 RE 11.9.1 RE 11.9.5	22,400 m	<p>The southern subspecies of the Squatter Pigeon occurs mainly in dry grassy eucalypt woodlands and open forests (Frith 1982; Leach 1988; Crome & Shields 1992), also inhabiting <i>Callitris</i> and <i>Acacia</i> woodlands (Frith 1982). It mostly occurs on sandy sites near permanent water (Blakers et al. 1984). Breeding habitat occurs on stony rises occurring on sandy or gravelly soils, within 1km of a suitable, permanent waterbody (Squatter Pigeon Workshop 2011). The species is probably locally nomadic, or perhaps sedentary (Frith 1982; Blakers et al. 1984). There is a 2016 record from less than 6km to the northeast of the Project site. There is no permanent natural waterbody on site. However, it is expected that Squatter Pigeon occurs in the Project site, at least sporadically. There is suitable habitat along the majority of the Project site, however due to the scale of the Project, the likely impact on Squatter Pigeon is low.</p>
Yakka Skink <i>Egernia rugosa</i> EPBC Act: V	RE 11.3.2 RE 11.3.25 RE 11.3.4 RE 11.5.3 RE 11.9.1	8,500 m	<p>Yakka Skink is patchily distributed in dry open forest, woodland and rocky areas, in a wide variety of habitat types, particularly woodland and open forest dominated by <i>Acacia</i>, including <i>A. harpophylla</i> and <i>A. shirleyi</i>, <i>Casuarina cristata</i>, <i>E. populnea</i>, <i>Callitris glaucophylla</i> and ironbark species <i>Eucalyptus</i> spp. Yakka Skinks usually occur on well-drained, coarse, gritty soils in the vicinity of low ranges, foothills and undulating terrain (Ehmann 1992; Richardson 2006; Brigalow Belt Reptiles Workshop 2010) but are also found on loam and clay soils (Eddie 2012). Although no evidence, such as defecation sites, was found this species is easily overlooked. It may occur on site. The main threats to Yakka Skink relevant to the Project are habitat loss, inappropriate fire regimes, removal of fallen timber and rocks and mortality by being struck by vehicles (Drury 2001; Richardson 2006; Eddie 2012). Searches for Yakka Skink colonies in areas selected for clearing and subsequent re-alignment of infrastructure and adequate buffering should one be present, in conjunction with procedures relating to fire and vehicle traffic, can reduce impacts to minor or negligible.</p>

Matter	Habitat	Total length (m) ¹	Comments
Ornamental Snake <i>Denisonia maculata</i> EPBC Act: V	Non-remnant	500 m	Ornamental Snake is largely restricted to low-lying areas with deep-cracking clay soils, which are subject to seasonal flooding, and adjacent areas of clay and sandy loams. Habitat includes woodland and shrubland, such as Brigalow <i>Acacia harpophylla</i> , and riverine habitats, where the species lives in soil cracks and under fallen timber (Ehmann 1992; Wilson & Swan 2010). The species may be found in areas of simple habitat structure, such as paddocks, grasslands and regrowth if frogs are present (Melzer 2012). There are 11 local records of ornamental snake since 1968. While this species is well known from the region it has quite specific habitat utilisation. Due to a lack of brigalow woodlands and nearby open forests associated with moist areas, deep-cracking alluvial soils where high clay contents occur, as well as damp areas with some cracking clay depressions, the likely presence and impact on Ornamental Snake as a result of the Project is low.
Listed Threatened Ecological Community (TEC)			
<i>Acacia harpophylla</i> and co-dominant	RE 11.3.1 (<i>Acacia harpophylla</i> and/or <i>Casuarina cristata</i> open forest on alluvial plains).	50 m	The area of Brigalow TEC including RE 11.9.1 and RE 11.9.5 likely to be impacted by the Project is located solely within existing ML 70290. A small patch of RE 11.3.1 is located within MDL 495 in close proximity to North Creek. While these communities are located within the Project area, the construction of the pipeline is anticipated to result in a minor impact only. This is on the basis that engineering solutions and on-ground management measures are implemented during the construction of the pipeline and will prioritise and ensure the alignment is placed within existing cleared areas and along previously disturbed locations. These measures will greatly reduce impacts to TEC - <i>Acacia harpophylla</i> and co-dominant.
	RE 11.9.1 (<i>Acacia harpophylla</i> - <i>Eucalyptus cambageana</i> open forest to woodland on fine-grained sedimentary rocks).	300 m	
	RE 11.9.5 (<i>Acacia harpophylla</i> and/or <i>Casuarina cristata</i> open forest on fine-grained sedimentary rocks).	1,500 m	
Poplar Box Grassy Woodland on Alluvial Plains	RE 11.3.2 <i>Eucalyptus populnea</i> woodland on alluvial plains.	2,750 m	The area of Poplar Box TEC likely to be impacted by the Project is located on both ML 70290 and MDL 495. A small patch is located within MDL 495, with a much larger segment located within ML 70290. It is important to note the portion of TEC located within the ML is fragmented and already heavily disturbed due to previous and current mining activities at the mine. In addition, while these communities are located within the Project area, the construction of the pipeline is anticipated to result in minor impact only. This is on the basis that engineering solutions and on-ground management measures are implemented during the construction of the pipeline and will prioritise and ensure the alignment is placed within existing cleared areas and along previously disturbed locations. These measures will greatly reduce impacts to TEC – Poplar Box Grassy Woodland on Alluvial Plains.

¹Total length (m) of pipeline identified as suitable habitat for species (10-20 m width).

7.2 MATTERS OF STATE ENVIRONMENTAL SIGNIFICANCE (MSES)

MSES are listed in Schedule 2, Section 1-12 of the *Environmental Offsets Regulation 2014* (Offset Regulation) and are a component of the biodiversity state interest defined under the State Planning Policy (SPP). As a result of the desktop assessment and field investigation, three (3) MSES have been identified within the Project area, including:

1. Essential Habitat;
2. Endangered regional ecosystems under the VM Act; and
3. Of Concern regional ecosystems under the VM Act.

Table 11: Summary of field verified MSES within the Project Area and Indicative Project Footprint

Matter (Schedule 2, Offset Regulation)	Relevant Matter within the Project Area ¹	Area (ha) Likely to be Impacted ²
Essential Habitat	Essential habitat for Ornamental snake and Squatter Pigeon as per section 20AC(2) VM Act. (107.7 ha)	2.0 (ML 70161) 9.1 (MDL 494) 5.9 (ML 70290) 2.5 (MDL 495)
Endangered RE	RE 11.9.5, 11.3.1 and 11.9.1 (15.57 ha)	2.6 (ML 70290) 0.01 (MDL 495)
Of Concern RE	RE 11.3.2 and 11.3.4 (34.55 ha)	0.95 (ML 70290) 0.32 (MDL 495)

¹Total area (ha) of suitable habitat within proposed pipeline route (100 m width).

² Revised area (ha) of suitable habitat within proposed pipeline route following 21 June 2019 workshop

*The Project footprint was indicative at the time this report was written. Any areas of impact that are <1 ha will likely be avoided. It is anticipated that Endangered and Of Concern RE can be avoided once Project infrastructure placement is finalised, therefore, negligible impacts to Endangered and Of Concern RE are anticipated at this stage.

7.2.1 MSES Residual Impact Assessment

Under the *Queensland Environmental Offsets Policy: Significant Residual Impact Guideline* (DEHP 2014), a significant residual impact is described as an adverse impact, whether direct or indirect, of a prescribed activity on all or part of a prescribed environmental matter.

Under Queensland offsets legislation introduced in 2014, an offset condition may be imposed for significant residual impacts to prescribed environmental matters. Prescribed environmental matters include:

- MSES;
- Accredited MNES, should Queensland's offset framework receive accreditation for the purpose of the EPBC Act; and
- Matters of Local Environmental Significance:
 - A matter for which an offset is required under a local planning instrument.

The area of Endangered and Of Concerns REs likely to be impacted by the Project was initially calculated using a worst-case scenario (100 m buffer from pipeline placement). Following the field assessment, a workshop held with project engineers on 21 June 2019 refined the proposed pipeline footprint and

impacts to verified terrestrial remnant regional ecosystems and areas of habitat for various species. As a result, a significant reduction to impacts to Endangered and Of Concerns REs is anticipated. This is also in part due to the placement of the alignment focusing on previously cleared areas and disturbed locations. In addition, on-ground management during the pipeline construction will ensure areas of mature vegetation and hollow bearing trees are also avoided. The revised construction footprint is presented in **Figure 10, Figure 11, Figure 12, Figure 13** and **Figure 14**.

While none were recorded within the immediate vicinity of the Project area at the time of the field survey, pre-clearance flora surveys should be undertaken during construction activities to avoid impacts to protected plant species in areas where these species are considered likely to occur.

Four (4) MSES have the potential to be impacted by the Project, being Greater Glider, Koala, Yakka Skink (Projected wildlife), Squatter Pigeon (Projected wildlife and essential habitat) and ornamental snake (essential habitat). The assessment of residual impacts for Greater Glider, Koala, Squatter Pigeon and ornamental snake are summarised in **Table 11, 12, 13** and **14**, respectively.

Table 12: Residual Impacts Against State Significant Impact Guidelines for Greater Glider

Significant Impact	Triggers Impact	Response for Greater Glider
Protected Wildlife (Endangered and Vulnerable Species) Habitat		
Lead to a long term decrease in the size of a local population	N	Greater glider was recorded during the field survey. It is likely the Project will lead to the loss of suitable habitat; however, this is anticipated to be minor due to its linear nature. The population size and distribution of the species within the Project area is unknown, however, it is not anticipated the Project will lead to a long-term decrease in the size of a local population. The use of fauna-spotter catchers and the avoidance of hollow bearing trees will reduce impacts to the species.
Reduce the extent of occurrence of a species	N	The extent of occurrence for the species across Australia is 100,331,500 ha (Woinarski et al. 2014). The Project will not reduce the extent of occurrence.
Fragment an existing population	N	The clearing associated with the Project is largely linear and is not expected to fragment any existing population.
Result in genetically distinct population forming as a result of habitat isolation	N	The clearing associated with the Project is largely linear and is not expected to result in genetically distinct population forming as a result of habitat isolation.
Result in the establishment of an invasive species that is harmful to the threatened species	N	Greater Gliders are known to be killed by Dingoes <i>Canis lupus dingo</i> and Red Foxes <i>Vulpes vulpes</i> when on the ground (McKay 2008), both of which occur in the Project area. Weed and pest control measures will be incorporated into Project management plans to control the introduction and spread of invasive species across the Project site. The Project is not expected to result in the establishment of any invasive species harmful to Greater Glider.
Introduce disease that may cause a population to decline	N	The Project weed management plan will incorporate the management of invasive species which will assist in the prevention of pest plant introduction and associated diseases resulting from Project activities. The Project is not expected to result in the introduction of any disease harmful to Greater Glider.
Interfere with the recovery of a species	N	There is no adopted or made Recovery Plan for this species. The Project is not expected to interfere with the recovery of Greater Glider.

Significant Impact	Triggers Impact	Response for Greater Glider
Cause disruption to ecologically significant locations	N	The Project will impact an area mapped as Essential Habitat for the species based on a single record. At this stage there is no evidence of an ecologically significant location in the Project area.

Table 13: Residual Impacts Against State Significant Impact Guidelines for Koala

Significant Impact	Triggers Impact	Response for Koala
Essential Habitat		
Lead to a long term decrease in the size of a local population	N	Although the species was not reported during the field survey, Koala scats were recorded as being recent, indicating Koala are active within the area. While it is likely the Project will lead to the loss of suitable habitat as part of the proposed activities, it is anticipated this will be minor due to its linear nature. Although the population size and distribution of the species within the Project area is unknown it is not anticipated the Project will lead to a long-term decrease in the size of a local population. The use of fauna-spotter catchers and the avoidance of mature trees such as river red gum <i>eucalyptus camaldulensis</i> will reduce impacts to the species.
Reduce the extent of occurrence of a species	N	The Project is unlikely to reduce the extent of occurrence of the species as it is widespread across the region.
Fragment an existing population	N	The Project is largely linear and not considered likely to fragment any existing population.
Result in genetically distinct population forming as a result of habitat isolation	N	The clearing associated with the Project is largely linear and will not result in genetically distinct population forming.
Result in the establishment of an invasive species that is harmful to the threatened species	N	Weed and pest control measures will be incorporated into Project management plans to control the introduction and spread of invasive species across the Project site. The Project is not expected to result in the establishment of any invasive species harmful to Koala.
Introduce disease that may cause a population to decline	N	The Project weed management plan will incorporate the management of invasive species which will assist in the prevention of pest plant introduction and associated diseases resulting from Project activities. The Project is not expected to result in the introduction of any disease harmful to Koala.
Interfere with the recovery of a species	N	There is no adopted or made Recovery Plan for this species. The Project is not expected to interfere with the recovery of Koala.
Cause disruption to ecologically significant locations	N	At this stage there is no evidence of an ecologically significant location in the Project area.

Table 14: Residual Impacts Against State Significant Impact Guidelines for Yakka Skink

Significant Impact	Triggers Impact	Response for Yakka Skink
Essential Habitat		
Lead to a long term decrease in the size of a local population	N	There are no WO records within a 25 km radius of the Project area. Therefore, no records show the species within the Project area boundary, however there is suitable habitat for the species in the Project area.
Reduce the extent of occurrence of a species	N	The Project is unlikely to reduce the extent of occurrence of the species as it is widespread across the region.
Fragment an existing population	N	There are no records for the species within the Project area however in the event they are located within the area, the clearing associated with the Project is largely linear and not considered likely to fragment any existing population.
Result in genetically distinct population forming as a result of habitat isolation	N	The clearing associated with the Project is largely linear and will not fragment or isolate any existing population.

Significant Impact	Triggers Impact	Response for Yakka Skink
Result in the establishment of an invasive species that is harmful to the threatened species	N	Weed and pest control measures will be incorporated into Project management plans to control the introduction and spread of invasive species across the Project site. The Project is not expected to result in the establishment of any invasive species harmful to Yakka Skink.
Introduce disease that may cause a population to decline	N	The Project weed management plan will incorporate the management of invasive species which will assist in the prevention of pest plant introduction and associated diseases resulting from Project activities. The Project is not expected to result in the introduction of any disease harmful to Yakka Skink.
Interfere with the recovery of a species	N	There is no adopted or made Recovery Plan for this species. The Project is not expected to interfere with the recovery of the Yakka Skink.
Cause disruption to ecologically significant locations	N	At this stage there is no evidence of an ecologically significant location in the Project area.

Table 15: Residual Impacts Against State Significant Impact Guidelines for Squatter Pigeon

Significant Impact	Triggers Impact	Response for Squatter Pigeon
Essential Habitat		
Lead to a long term decrease in the size of a local population	N	Although the species was not reported during the field survey, Squatter Pigeon are likely to occur within and surrounding the Project area. The closest permanent water source is the Moorvale DSA Dam, subsequently indicating areas around the Project site may be suitable for breeding habitat. The use of fauna-spotter catchers and effective management measures during the construction of the pipeline will reduce impacts to the species.
Reduce the extent of occurrence of a species	N	The Project is unlikely to reduce the extent of occurrence of the species as it is widespread across the region.
Fragment an existing population	N	The clearing associated with the Project is largely linear and is not expected to fragment any existing population.
Result in genetically distinct population forming as a result of habitat isolation	N	The clearing associated with the Project is largely linear and will not fragment or isolate any existing population.
Result in the establishment of an invasive species that is harmful to the threatened species	N	A number of invasive species directly or indirectly harmful to the subspecies are most likely present within and around the Project area. Feral Cat, Goat <i>Capra hircus</i> , feral Pig <i>Sus scrofa</i> and Rabbit <i>Oryctolagus cuniculus</i> are other species that may occur within the area. Buffel Grass is present in non-remnant areas of the site. A pest and weed management plan will be implemented, as is required under State legislation to control and prevent the establishment of invasive species as a result of the Project.
Introduce disease that may cause a population to decline	N	The Project weed management plan will incorporate the management of invasive species which will assist in the prevention of pest plant introduction and associated diseases resulting from Project activities. The Project is not expected to result in the introduction of any disease harmful to Squatter Pigeon
Interfere with the recovery of a species	N	Population scale movement will be unaffected and significant disruptions to breeding cycles and interference to species recovery are not expected. There is no adopted or made Recovery Plan for this species. The Project is not expected to interfere with the recovery of the Squatter Pigeon.
Cause disruption to ecologically significant locations	N	At this stage there is no evidence of an ecologically significant location in the Project area.

Table 16: Residual Impacts Against State Significant Impact Guidelines for Ornamental Snake

Significant Impact	Triggers Impact	Response for Ornamental Snake
Essential Habitat		
Lead to a long term decrease in the size of a local population	N	There are 11 WO records within a 25km radius of ornamental snake. Essential Habitat mapping places no records of the species within the actual Project area. While areas across within Project area have been mapped as essential habitat for Ornamental Snake, survey findings indicate a lack of cracking clay soils limits suitable habit for the species within the Project area.
Reduce the extent of occurrence of a species	N	Due to the small scale of the Project and unlikely occurrence of the species within the Project area, the Project is unlikely to reduce the extent of occurrence of the species across the region.
Fragment an existing population	N	There are no records of the species occurring within the Project area.
Result in genetically distinct population forming as a result of habitat isolation	N	The clearing associated with the Project is largely linear and will not fragment or isolate any existing population.
Result in the establishment of an invasive species that is harmful to the threatened species	N	Weed and pest control measures will be incorporated into Project management plans to control the introduction and spread of invasive species across the Project site. The Project is not expected to result in the establishment of any invasive species harmful to Ornamental Snake.
Introduce disease that may cause a population to decline	N	The Project weed management plan will incorporate the management of invasive species which will assist in the prevention of pest plant introduction and associated diseases resulting from Project activities. The Project is not expected to result in the introduction of any disease harmful to Ornamental Snake.
Interfere with the recovery of a species	N	There is no adopted or made Recovery Plan for this species. The Project is not expected to interfere with the recovery of Ornamental Snake.
Cause disruption to ecologically significant locations	N	The Project will impact an area designated Essential Habitat for the species based on 11 records. At this stage there is no evidence of an ecologically significant location in the Project area.

Under the *Queensland Environmental Offsets Policy: Significant Residual Impact Guideline* (DEHP 2014), a significant residual impact is not expected to occur for Greater Glider, Koala (protected wildlife), squatter pigeon (protected wildlife and essential habitat) and ornamental snake (essential habitat).

7.3 GENERAL IMPACTS

7.3.1 Clearing of Vegetation

The clearing of vegetation is the most significant and direct impact that the Project will have on ecological values within the Project area. Land clearance is listed as a key threatening process under the EPBC Act. The removal of habitat reduces the size of local populations of flora and fauna dependent on that habitat. These impacts are immediate and significant in the short-term with impacts potentially continuing in the long-term if habitat created during rehabilitation does not closely resemble pre-disturbance ecosystems. In addition, if sufficient habitat refuges are not maintained locally prior to the maturation of rehabilitated land, local extinction of certain species may occur.

7.3.2 Habitat Fragmentation

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.

The linear nature of the Project reduces the likelihood of fragmentating connected blocks of habitat. As a considerable portion of the alignment follows areas previously cleared as well as being located within active mining lease areas. As a result, the proposed action is unlikely to form a ‘material and substantial’ residual impact on significant species or their habitat values within the local landscape.

7.3.3 Direct 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 heavy machinery primarily during the construction of the Project. The small scale and staged expansion of Project operations are likely to reduce the risk of these impacts.

In addition, clearing will only occur within designated areas and only during designated time periods. The presence of qualified Wildlife Spotter-Catcher/s to assist with initial clearing will decrease incidences of fauna mortality. Educating employees and contractors with regard to fauna and flora will further reduce direct mortality as part of the Project.

7.3.4 Airborne Dust

Earthworks and vehicular traffic associated with Project construction and operation can generate substantial amounts of dust during dry weather. The pronounced wet and dry seasons in northwest Queensland may make vegetation in these areas less susceptible to the impacts of dust. This is because most or all annual growth occurs during a period of the year when rainfall is highest. This coincides with the time of year when dust is least problematic, as rain inhibits the dispersal of dust in the air, and washes dust from leaves.

7.3.5 Weed and Pest Animals

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

- Increased vehicular traffic may introduce and spread weed seeds;
- Land clearance supports the establishment of weeds due to increased light and soil disturbance;
- and

- Inappropriate disposal and storage of putrescible wastes may attract feral animals.

The pests and weeds currently occurring within the Project area are not expected to significantly spread in response to the Project activities. The major threat is the introduction of new weeds via contaminated vehicles or soils.

8 IMPACT MITIGATION RECOMMENDATIONS

In the first instance, areas of high ecological value that present habitat for MNES/MSES should be avoided for the development of infrastructure. Where avoidance is not possible, recommended mitigation strategies to reduce impacts to ecological values are presented in **Table 17**.

Table 17: Mitigation Measures Proposed for General Impacts of the Project

Management Measure		Timing
General		
1	Pipeline must be capped on the completion of each work day.	During construction
2	Construction works should be limited regarding the length of time any trench is open throughout the construction period. This is to avoid long term fragmentation and potential injury to fauna. Construction methodology (trenching following by HDPE pipe installation, backfill and reinstatement) should be sequenced in order to achieve this).	During construction
Clearing of Vegetation		
1	Project employees and contractors should be made aware of environmental obligations and compliance requirements through the induction program.	Project induction
2	No-Go areas such as portions of vegetation along the alignment consisting of mature and/or hollow bearing trees that may be used for habitat/fodder will be clearly demarcated with flagging or bunting. A detailed alignment plan will ensure impacts are minimised to planned areas.	Prior to clearing
3	Fauna spotter-catchers (licensed) and suitably qualified botanists should inspect sites prior to the commencement of vegetation clearing and grubbing activities. Habitat features will be clearly marked following confirmation by a Fauna spotter-catchers that fauna have vacated the habitat.	Prior to clearing
4	Suitable erosion prevention and sediment control measures to be implemented during clearing activities and maintained.	Prior and throughout clearing
5	Where necessary to be cleared, any habitat vegetation should be removed in stages, which will allow movement of fauna away from disturbed areas.	During clearing
6	Topsoil should be stockpiled in wind rows and used for rehabilitation.	Following clearing
7	Backfill and reinstatement of open trenches should occur as soon as practical in alignment with the construction methodology and works required. Rehabilitation methodology, execution and sequencing should operate in concurrence with the pipeline construction to target areas that are completed in order to reduce disturbance duration.	Following disturbance
Habitat Fragmentation		
1	Habitat fragmentation should be avoided by retaining vegetation corridors where possible, minimising construction corridor widths and constructing pipeline in already cleared and / or degraded areas.	Prior to clearing
2	Pre-clearance surveys should be undertaken by an ecologist (flora) identifying and flagging TEC communities. These areas are to be incorporated within the detailed alignment plan to ensure impacts are minimised.	Prior to clearing
Direct Mortality		
1	Injured fauna should be taken to the nearest wildlife carer or veterinarian.	Ongoing
2	All native fauna injuries and mortality must be communicated to DES within 24 hours.	Ongoing
Species of National / State Significance		
1	Project inductions will outline species of significance that may occur on the project area. Fauna spotter / catchers will be present on-site during clearing works.	Project induction
2	Project employees will be required to notify fauna spotter / catchers when a species of significance is observed in the Project area.	Ongoing
Dust		
1	Dust should be suppressed using water trucks / wetting to keep dust related impacts to a minimum.	As required
Weeds and Pest Animals		
1	Spread of declared pests will be managed in accordance with the DNRME Land Access Code (V2 September 2016) Part 2 Section 15 – Obligations to prevent spread of declared pests.	Ongoing

Management Measure		Timing
General		
1	Pipeline must be capped on the completion of each work day.	During construction
2	Construction works should be limited regarding the length of time any trench is open throughout the construction period. This is to avoid long term fragmentation and potential injury to fauna. Construction methodology (trenching following by HDPE pipe installation, backfill and reinstatement) should be sequenced in order to achieve this).	During construction
2	Disposal and storage of putrescible wastes must be undertaken appropriately to ensure feral animals aren't attracted to the Project area.	Ongoing

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APPENDIX A – FLORA SPECIES LIST

Family	Scientific Name	Common Name
Apocynaceae	<i>Carissa ovata</i>	currantbush
Apocynaceae	<i>Marsdenia viridiflora</i> subsp. <i>viridiflora</i>	
Asteraceae	<i>Chrysocephalum apiculatum</i>	yellow buttons
Boraginaceae	<i>Ehretia membranifolia</i>	weeping koda
Cactaceae	<i>Harrisia martinii</i>	
Cactaceae	<i>Opuntia tomentosa</i>	velvety tree pear
Caesalpiniaceae	<i>Cassia brewsteri</i>	
Caesalpiniaceae	<i>Senna barclayana</i>	
Caesalpiniaceae	<i>Senna occidentalis</i>	coffee senna
Capparaceae	<i>Capparis canescens</i>	
Capparaceae	<i>Capparis lasiantha</i>	nipan
Capparaceae	<i>Capparis loranthifolia</i>	
Casuarinaceae	<i>Casuarina cristata</i>	belah
Chenopodiaceae	<i>Maireana microphylla</i>	
Combretaceae	<i>Terminalia oblongata</i>	
Ebenaceae	<i>Diospyros humilis</i>	small-leaved ebony
Erythroxylaceae	<i>Erythroxylum australe</i>	cocaine tree
Euphorbiaceae	<i>Acalypha eremorum</i>	soft acalypha
Fabaceae	<i>Crotalaria juncea</i>	sunhemp
Fabaceae	<i>Crotalaria medicaginea</i>	trefoil rattlepod
Fabaceae	<i>Glycine tabacina</i>	glycine pea
Fabaceae	<i>Sesbania cannabina</i>	
Fabaceae	<i>Stylosanthes scabra</i>	
Hemerocallidaceae	<i>Dianella longifolia</i>	
Lauraceae	<i>Cassytha filiformis</i>	dodder laurel
Laxmanniaceae	<i>Lomandra longifolia</i>	
Laxmanniaceae	<i>Lomandra multiflora</i>	
Malvaceae	<i>Malvastrum americanum</i> var. <i>stellatum</i>	
Malvaceae	<i>Sida cordifolia</i>	
Malvaceae	<i>Sida corrugata</i>	
Malvaceae	<i>Sida hackettiana</i>	
Malvaceae	<i>Sida rhombifolia</i>	
Malvaceae	<i>Sida trichopoda</i>	
Meliaceae	<i>Owenia acidula</i>	emu apple
Mimosaceae	<i>Acacia excelsa</i>	
Mimosaceae	<i>Acacia flavescens</i>	toothed wattle
Mimosaceae	<i>Acacia harpophylla</i>	brigalow
Mimosaceae	<i>Acacia holosericea</i>	
Mimosaceae	<i>Acacia julifera</i> subsp. <i>curvinervia</i>	
Mimosaceae	<i>Acacia salicina</i>	doolan
Mimosaceae	<i>Archidendropsis basaltica</i>	red lancewood
Myrtaceae	<i>Corymbia clarksoniana</i>	
Myrtaceae	<i>Corymbia dallachiana</i>	
Myrtaceae	<i>Corymbia erythrophloia</i>	variable-barked bloodwood
Myrtaceae	<i>Corymbia intermedia</i>	pink bloodwood
Myrtaceae	<i>Corymbia tessellaris</i>	Moreton Bay ash

Myrtaceae	<i>Eucalyptus camaldulensis</i>	
Myrtaceae	<i>Eucalyptus cambageana</i>	Dawson gum
Myrtaceae	<i>Eucalyptus crebra</i>	narrow-leaved red ironbark
Myrtaceae	<i>Eucalyptus platyphylla</i>	poplar gum
Myrtaceae	<i>Eucalyptus populnea</i>	poplar box
Myrtaceae	<i>Eucalyptus tereticornis</i> subsp. <i>tereticornis</i>	
Myrtaceae	<i>Melaleuca fluviatilis</i>	
Myrtaceae	<i>Melaleuca nervosa</i>	
Myrtaceae	<i>Melaleuca viridiflora</i>	
Orchidaceae	<i>Cymbidium canaliculatum</i>	
Passifloraceae	<i>Passiflora foetida</i>	
Phyllanthaceae	<i>Breynia oblongifolia</i>	
Picrodendraceae	<i>Petalostigma pubescens</i>	quinine tree
Pittosporaceae	<i>Bursaria incana</i>	
Pittosporaceae	<i>Pittosporum angustifolium</i>	
Poaceae	<i>Alloteropsis semialata</i>	cockatoo grass
Poaceae	<i>Ancistrachne uncinulata</i>	hooky grass
Poaceae	<i>Aristida calycina</i> var. <i>calycina</i>	
Poaceae	<i>Aristida holathera</i>	
Poaceae	<i>Aristida latifolia</i>	feathertop wiregrass
Poaceae	<i>Aristida leptopoda</i>	white speargrass
Poaceae	<i>Aristida personata</i>	
Poaceae	<i>Aristida ramosa</i>	purple wiregrass
Poaceae	<i>Bothriochloa pertusa</i>	
Poaceae	<i>Brachyachne convergens</i>	common native couch
Poaceae	<i>Cenchrus ciliaris</i>	
Poaceae	<i>Chloris divaricata</i> var. <i>divaricata</i>	slender chloris
Poaceae	<i>Chloris inflata</i>	purpletop chloris
Poaceae	<i>Chloris ventricosa</i>	tall chloris
Poaceae	<i>Chloris virgata</i>	feathertop rhodes grass
Poaceae	<i>Chrysopogon fallax</i>	
Poaceae	<i>Cymbopogon refractus</i>	barbed-wire grass
Poaceae	<i>Cynodon dactylon</i>	
Poaceae	<i>Dichanthium queenslandicum</i>	
Poaceae	<i>Dichanthium sericeum</i>	
Poaceae	<i>Dichanthium sericeum</i> subsp. <i>sericeum</i>	
Poaceae	<i>Digitaria ammophila</i>	silky umbrella grass
Poaceae	<i>Digitaria divaricatissima</i>	spreading umbrella grass
Poaceae	<i>Enneapogon pallidus</i>	conetop nineawn
Poaceae	<i>Enneapogon truncatus</i>	
Poaceae	<i>Enteropogon unispiceus</i>	
Poaceae	<i>Eragrostis elongata</i>	
Poaceae	<i>Eragrostis lacunaria</i>	purple lovegrass
Poaceae	<i>Eragrostis tenellula</i>	delicate lovegrass
Poaceae	<i>Eriochloa crebra</i>	spring grass
Poaceae	<i>Heteropogon contortus</i>	black speargrass
Poaceae	<i>Imperata cylindrica</i>	blady grass

Poaceae	<i>Iseilema vaginiflorum</i>	red flinders grass
Poaceae	<i>Megathyrsus maximus</i> var. <i>maximus</i>	
Poaceae	<i>Melinis repens</i>	red natal grass
Poaceae	<i>Panicum decompositum</i> var. <i>decompositum</i>	
Poaceae	<i>Panicum effusum</i>	
Poaceae	<i>Sporobolus caroli</i>	fairy grass
Poaceae	<i>Sporobolus creber</i>	
Poaceae	<i>Themeda triandra</i>	kangaroo grass
Poaceae	<i>Urochloa mosambicensis</i>	sabi grass
Proteaceae	<i>Grevillea parallela</i>	
Proteaceae	<i>Grevillea pteridifolia</i>	golden parrot tree
Proteaceae	<i>Grevillea striata</i>	beefwood
Proteaceae	<i>Hakea chordophylla</i>	
Proteaceae	<i>Hakea lorea</i>	
Rhamnaceae	<i>Alphitonia excelsa</i>	soap tree
Rhamnaceae	<i>Ventilago viminalis</i>	supplejack
Rubiaceae	<i>Psydrax odorata</i> forma <i>buxifolia</i>	
Rutaceae	<i>Citrus glauca</i>	
Rutaceae	<i>Flindersia australis</i>	crow's ash
Rutaceae	<i>Flindersia dissosperma</i>	
Rutaceae	<i>Geijera salicifolia</i>	brush wilga
Santalaceae	<i>Santalum lanceolatum</i>	
Sapindaceae	<i>Alectryon diversifolius</i>	scrub boonaree
Sapindaceae	<i>Alectryon oleifolius</i> subsp. <i>elongatus</i>	
Sapindaceae	<i>Alectryon pubescens</i>	
Sapindaceae	<i>Atalaya hemiglauca</i>	
Scrophulariaceae	<i>Eremophila mitchellii</i>	
Scrophulariaceae	<i>Myoporum acuminatum</i>	coastal boobialla
Sparrmanniaceae	<i>Grewia latifolia</i>	dysentery plant
Sparrmanniaceae	<i>Grewia retusifolia</i>	
Poaceae	<i>Hyparrhenia rufa</i>	
Celstraceae	<i>Maytenus cunninghamii</i>	
Poaceae	<i>Dichanthium sericeum</i>	
Asteraceae	<i>Chrysocephalum apiculatum</i>	yellow buttons
verbenaceae	<i>Stachytarpheta jamaicensis</i>	
Rubiaceae	<i>Psydrax odorata</i> forma <i>buxifolia</i>	
Santalaceae	<i>Exocarpos latifolius</i>	
Oleaceae	<i>Notelaea microcarpa</i>	
Sapindaceae	<i>Dodonaea viscosa</i>	

APPENDIX B – FAUNA SITE ASSESSMENT DATA

1

Created	2019-05-28 07:26:28 AEST by Adrian Caneris
Updated	2019-06-11 11:45:00 AEST by Adrian Caneris
Location	-21.8652305, 148.397586333
Date	2019-05-28
Site number	1

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
No. hollow bearing trees (hollow >10cm diameter)	1
No. of hollows (all hollows big enough for micro-bats)	2
No. of hollows (hollows>10cm)	0
No. of large stags (40+cm)	1
Diameter of largest trees (mm)	220
Disturbance type	Roadway adjoins
Fire history	years
Fire severity	scorches trunks
Infrastructure	road/track

Mistletoe	none
Belah present?	No
Coarse Woody Debris	Typical
Rock (general description)	Occasional small stones
Comments on connectivity/habitat	Good connections in landscape away from mine site
EVNT species considered potential to occur	Koala, Yakka Skink, Squatter Pigeon

2

Created	2019-05-28 07:43:49 AEST by Adrian Caneris
Updated	2019-06-01 07:22:58 AEST by Adrian Caneris
Location	-21.8642206666667, 148.400497333333
Date	2019-05-28
Site number	2

Photos



Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	1
No. hollow bearing trees (hollow >10cm diameter)	0
No. of hollows (all hollows big enough for micro-bats)	1
No. of hollows (hollows>10cm)	0
No. of large stags (40+cm)	1
Diameter of largest trees (mm)	255
Waterbody present?	No
Fire history	years
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Sparse
Rock abundance	none
Connectivity incl. regrowth	Moderate
EVNT species considered potential to occur	Koala, Squatter Pigeon

3

Created	2019-05-28 07:58:55 AEST by Adrian Caneris
Updated	2019-05-28 08:07:52 AEST by Adrian Caneris
Location	-21.8599061666667, 148.407591833333
Date	2019-05-28
Site number	3

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	6
No. hollow bearing trees (hollow >10cm diameter)	2
No. of hollows (all hollows big enough for micro-bats)	12
No. of hollows (hollows >10cm)	2
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	220
Waterbody present?	No
Disturbance severity (inc. weeds)	moderate

Fire history	years
Fire severity	cool burn
Infrastructure	fence
Mistletoe	sparse
Belah present?	Yes
additional information (Belah)	Patch
Coarse Woody Debris	Sparse
Rock abundance	none
Connectivity incl. regrowth	Moderate
EVNT species considered potential to occur	Koala, Squatter Pigeon, Yakka Skink

4

Created	2019-05-28 09:56:10 AEST by Adrian Caneris
Updated	2019-06-01 07:24:09 AEST by Adrian Caneris
Location	-21.8672856695099, 148.397422470152
Date	2019-05-28
Site number	4

Photos





Landform	Channel Bed
Slope	Creek
Number of hollow-bearing trees (all hollows big enough for micro-bats)	13
No. hollow bearing trees (hollow >10cm diameter)	5
No. of hollows (all hollows big enough for micro-bats)	21
No. of hollows (hollows>10cm)	8
No. of large stags (40+cm)	1
Diameter of largest trees (mm)	390
Waterbody present?	No
Disturbance severity (inc. weeds)	low
Fire history	decades
Fire severity	cool burn
Infrastructure	fence
Mistletoe	sparse
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Well connected
EVNT species considered potential to occur	Squatter Pigeon, Koala, Greater glider

5

Created	2019-05-28 10:10:16 AEST by Adrian Caneris
Updated	2019-06-01 07:39:33 AEST by Adrian Caneris
Location	-21.8678561666667, 148.396745833333
Date	2019-05-27
Site number	5

Photos





Landform	Downs
Slope	Creek
Soil texture	Sand
Number of hollow-bearing trees (all hollows big enough for micro-bats)	9
No. hollow bearing trees (hollow >10cm diameter)	3
No. of hollows (all hollows big enough for micro-bats)	14
No. of hollows (hollows >10cm)	4
No. of large stags (40+cm)	2
Diameter of largest trees (mm)	500
Waterbody present?	No
Disturbance type	Livestock, Fire

Disturbance severity (inc. weeds)	low
Fire history	years
Fire severity	cool burn
Infrastructure	road/track
Mistletoe	sparse
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Good connections
EVNT species considered potential to occur	Squatter Pigeon, Yakka Skink, Koala, Greater glider has some potential

6

Created	2019-05-28 10:52:25 AEST by Adrian Caneris
Updated	2019-06-11 12:12:44 AEST by Adrian Caneris
Location	-21.8709188333, 148.391645667
Date	2019-05-28
Site number	6

Photos







Landform	Channel Bed
Slope	Creek
Soil texture	Sand
Number of hollow-bearing trees (all hollows big enough for micro-bats)	23
No. hollow bearing trees (hollow >10cm diameter)	5
No. of hollows (all hollows big enough for micro-bats)	40
No. of hollows (hollows>10cm)	6
No. of large stags (40+cm)	3
Diameter of largest trees (mm)	350
Waterbody present?	No
Disturbance type	Livestock
Disturbance severity (inc. weeds)	moderate
Fire history	decades
Fire severity	cool burn
Mistletoe	sparse
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Connected landscape though regrowth in area
EVNT species considered potential to occur	Koala, Squatter Pigeon, Greater glider

7

Created	2019-05-28 11:15:48 AEST by Adrian Caneris
Updated	2019-06-01 17:30:48 AEST by Adrian Caneris
Location	-21.8801478333333, 148.394996666667
Date	2019-05-28
Site number	7

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sand
Number of hollow-bearing trees (all hollows big enough for micro-bats)	8
No. hollow bearing trees (hollow >10cm diameter)	3
No. of hollows (all hollows big enough for micro-bats)	17
No. of hollows (hollows >10cm)	4
No. of large stags (40+cm)	2
Diameter of largest trees (mm)	270
Waterbody present?	No
Disturbance type	Livestock

Fire history	decades
Fire severity	cool burn
Infrastructure	road/track, fence
Human debris	sheets of tin, wood
Mistletoe	common
Belah present?	No
Coarse Woody Debris	Dense
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Good connections
EVNT species considered potential to occur	Yakka Skink, Koala, Greater glider habitat present. Good hollows and food trees in local landscape

8

Created	2019-05-28 11:25:01 AEST by Adrian Caneris
Updated	2019-06-01 10:13:40 AEST by Adrian Caneris
Location	-21.881932, 148.394826833333
Date	2019-05-28
Site number	8

Photos





Landform	Creek
Soil texture	Sand
Number of hollow-bearing trees (all hollows big enough for micro-bats)	2
No. hollow bearing trees (hollow >10cm diameter)	0
No. of hollows (all hollows big enough for micro-bats)	3
No. of hollows (hollows >10cm)	0
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	220
Waterbody present?	No
Disturbance type	Livestock
Disturbance severity (inc. weeds)	low

Fire history	decades
Infrastructure	road/track
Mistletoe	sparse
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Good
EVNT species considered potential to occur	Greater Glider has potential in this habitat

9

Created	2019-05-28 11:41:31 AEST by Adrian Caneris
Updated	2019-06-11 09:31:32 AEST by Adrian Caneris
Location	-21.8860130328, 148.393656649
Date	2019-05-28
Site number	9

Photos



Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	5
No. hollow bearing trees (hollow >10cm diameter)	1
No. of hollows (all hollows big enough for micro-bats)	7

No. of hollows (hollows>10cm)	1
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	220
Waterbody present?	No
Disturbance type	Livestock
Disturbance severity (inc. weeds)	low
Fire history	decades
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Good connection
EVNT species considered potential to occur	Squatter Pigeon, Koala, Yakka Skink, Potential for greater glider in habitats around here

10

Created	2019-05-28 11:44:43 AEST by Adrian Caneris
Updated	2019-05-28 11:48:40 AEST by Adrian Caneris
Location	-21.8884480845352, 148.393285162747
Date	2019-05-28
Site number	10

Photos





Landform	Downs
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	6
No. hollow bearing trees (hollow >10cm diameter)	1
No. of hollows (all hollows big enough for micro-bats)	11
No. of hollows (hollows >10cm)	1
No. of large stags (40+cm)	1
Diameter of largest trees (mm)	410
Waterbody present?	No
Disturbance type	Livestock
Fire history	decades
Infrastructure	fence
Human debris	wood
Mistletoe	sparse
Belah present?	No
Coarse Woody Debris	Dense
Rock abundance	none
Connectivity incl. regrowth	Moderate
Comments on connectivity/habitat	Good connections in area
EVNT species considered potential to occur	Squatter Pigeon

11

Created	2019-05-28 11:55:18 AEST by Adrian Caneris
Updated	2019-06-01 17:33:06 AEST by Adrian Caneris
Location	-21.892251000324, 148.39118398726
Date	2019-05-28
Site number	11

Photos



Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	0
No. hollow bearing trees (hollow >10cm diameter)	0

No. of hollows (all hollows big enough for micro-bats)	0
No. of hollows (hollows>10cm)	0
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	120
Waterbody present?	No
Disturbance type	Logging, Livestock
Fire history	decades
Infrastructure	fence
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Sparse
Rock abundance	none
Connectivity incl. regrowth	Poor
Comments on connectivity/habitat	Edge of areanear rail and road
EVNT species considered potential to occur	Squatter Pigeon, Generally lower value area

12

Created	2019-05-28 12:18:12 AEST by Adrian Caneris
Updated	2019-06-11 12:19:52 AEST by Adrian Caneris
Location	-21.8960332827, 148.393308967
Date	2019-05-28
Site number	12

Photos



Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	0
No. hollow bearing trees (hollow >10cm diameter)	0

No. of hollows (all hollows big enough for micro-bats)	0
No. of hollows (hollows>10cm)	0
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	80
Waterbody present?	No
Disturbance type	Logging, Livestock
Disturbance severity (inc. weeds)	severe
Fire history	years
Infrastructure	fence, road/track
Mistletoe	none
Belah present?	No
Coarse Woody Debris	None
Rock abundance	none
Connectivity incl. regrowth	Isolated
Comments on connectivity/habitat	None habitat
EVNT species considered potential to occur	None

13

Created	2019-05-28 12:29:43 AEST by Adrian Caneris
Updated	2019-05-28 12:36:02 AEST by Adrian Caneris
Location	-21.9043618520577, 148.392526768148
Date	2019-05-28
Site number	13

Photos





Landform	Creek
Slope	Creek
Soil texture	Sand
Number of hollow-bearing trees (all hollows big enough for micro-bats)	7
No. hollow bearing trees (hollow >10cm diameter)	2
No. of hollows (all hollows big enough for micro-bats)	11
No. of hollows (hollows >10cm)	3
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	680
Waterbody present?	No
Disturbance severity (inc. weeds)	high

Fire history	decades
Fire severity	cool burn
Infrastructure	road/track
Mistletoe	sparse
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Creek line connections across lands
EVNT species considered potential to occur	Squatter Pigeon, Koala

14

Created	2019-05-28 13:16:29 AEST by Adrian Caneris
Updated	2019-06-01 10:16:43 AEST by Adrian Caneris
Location	-21.9064730809, 148.392132819
Date	2019-05-28
Site number	14

Photos



Landform	Downs
Slope	Simple Slope
Soil texture	Sand
Number of hollow-bearing trees (all hollows big enough for micro-bats)	2
No. hollow bearing trees (hollow >10cm diameter)	0

No. of hollows (all hollows big enough for micro-bats)	3
No. of hollows (hollows>10cm)	1
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	135
Waterbody present?	No
Disturbance type	Livestock, Logging
Disturbance severity (inc. weeds)	moderate
Fire history	years
Fire severity	cool burn
Infrastructure	road/track, fence
Human debris	sheets of tin
Mistletoe	sparse
Belah present?	Yes
additional information (Belah)	Low numbers
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Part of large landscape
EVNT species considered potential to occur	Greater Glider and Koala particularly along waterway

15

Created	2019-05-29 09:21:16 AEST by Adrian Caneris
Updated	2019-05-29 09:26:09 AEST by Adrian Caneris
Location	-21.9082636666667, 148.388322333333
Date	2019-05-29
Site number	15

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	5
No. hollow bearing trees (hollow >10cm diameter)	1
No. of hollows (all hollows big enough for micro-bats)	7
No. of hollows (hollows >10cm)	2
No. of large stags (40+cm)	1
Diameter of largest trees (mm)	420
Waterbody present?	No
Disturbance type	Weeds occasional

Disturbance severity (inc. weeds)	low
Fire history	years
Fire severity	cool burn
Infrastructure	fence, road/track
Mistletoe	sparse
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Well connected area
EVNT species considered potential to occur	Koala, Yakka Skink, Squatter Pigeon

16

Created	2019-05-29 09:35:33 AEST by Adrian Caneris
Updated	2019-06-01 10:08:26 AEST by Adrian Caneris
Location	-21.9097136667, 148.385632333
Date	2019-05-29
Site number	16

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	11
No. hollow bearing trees (hollow >10cm diameter)	2
No. of hollows (all hollows big enough for micro-bats)	17
No. of hollows (hollows >10cm)	1
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	360
Waterbody present?	No
Disturbance type	Buffel

Disturbance severity (inc. weeds)	moderate
Fire history	decades
Fire severity	cool burn
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Connected area
EVNT species considered potential to occur	Koala, Squatter Pigeon, Yakka Skink

17

Created	2019-05-29 09:44:57 AEST by Adrian Caneris
Updated	2019-06-01 17:34:35 AEST by Adrian Caneris
Location	-21.9115735, 148.384833333
Date	2019-05-29
Site number	17

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	6
No. hollow bearing trees (hollow >10cm diameter)	8
No. of hollows (all hollows big enough for micro-bats)	13
No. of hollows (hollows >10cm)	4
No. of large stags (40+cm)	2
Diameter of largest trees (mm)	380
Waterbody present?	No
Disturbance severity (inc. weeds)	very low

Fire history	decades
Fire severity	cool burn
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Good habitats with old growth trees
EVNT species considered potential to occur	Koala, Yakka Skink, Squatter Pigeon, Greater glider

18

Created	2019-05-29 09:53:09 AEST by Adrian Caneris
Updated	2019-06-01 10:07:59 AEST by Adrian Caneris
Location	-21.9146621667, 148.383653333
Date	2019-05-29
Site number	18

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	15
No. hollow bearing trees (hollow >10cm diameter)	3
No. of hollows (all hollows big enough for micro-bats)	24
No. of hollows (hollows >10cm)	4
No. of large stags (40+cm)	2
Diameter of largest trees (mm)	375
Waterbody present?	No
Fire history	years

Mistletoe	none
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Good
EVNT species considered potential to occur	Yakka Skink, Squatter Pigeon

19

Created	2019-05-29 10:01:00 AEST by Adrian Caneris
Updated	2019-05-29 10:04:17 AEST by Adrian Caneris
Location	-21.9157046666667, 148.383458666667
Date	2019-05-29
Site number	19

Photos





Landform	Creek
Slope	Creek
Soil texture	Sand
Number of hollow-bearing trees (all hollows big enough for micro-bats)	11
No. hollow bearing trees (hollow >10cm diameter)	1
No. of hollows (all hollows big enough for micro-bats)	14
No. of hollows (hollows >10cm)	2
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	390
Waterbody present?	No
Disturbance type	Weeds

Disturbance severity (inc. weeds)	moderate
Fire history	decades
Fire severity	cool burn
Mistletoe	sparse
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Good
EVNT species considered potential to occur	Koala, Squatter Pigeon

20

Created	2019-05-29 10:17:31 AEST by Adrian Caneris
Updated	2019-05-29 10:20:53 AEST by Adrian Caneris
Location	-21.9195276666667, 148.383291333333
Date	2019-05-29
Site number	20

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	27
No. hollow bearing trees (hollow >10cm diameter)	3
No. of hollows (all hollows big enough for micro-bats)	46
No. of hollows (hollows>10cm)	5
No. of large stags (40+cm)	1
Diameter of largest trees (mm)	480
Waterbody present?	No
Fire history	years
Mistletoe	sparse
Belah present?	No
Coarse Woody Debris	Dense
Rock abundance	none
Connectivity incl. regrowth	Good
EVNT species considered potential to occur	Yakka Skink, Squatter Pigeon, Koala

21

Created	2019-05-29 10:54:32 AEST by Adrian Caneris
Updated	2019-06-01 17:35:07 AEST by Adrian Caneris
Location	-21.9215903333333, 148.383346333333
Date	2019-05-29
Site number	21

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	8
No. hollow bearing trees (hollow >10cm diameter)	2
No. of hollows (all hollows big enough for micro-bats)	13
No. of hollows (hollows >10cm)	3
No. of large stags (40+cm)	1
Diameter of largest trees (mm)	510
Waterbody present?	No
Disturbance severity (inc. weeds)	low

Fire history	years
Mistletoe	sparse
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Good connections and habitats present
EVNT species considered potential to occur	Koala, Yakka Skink, Squatter Pigeon, Some potential for greater glider due to large hollow bearing trees in area

22

Created	2019-05-29 11:09:34 AEST by Adrian Caneris
Updated	2019-06-11 09:33:19 AEST by Adrian Caneris
Location	-21.9277748333, 148.383417333
Date	2019-05-29
Site number	22

Photos





Landform	Creek
Slope	Simple Slope
Soil texture	Sand
Number of hollow-bearing trees (all hollows big enough for micro-bats)	14
No. hollow bearing trees (hollow >10cm diameter)	1
No. of hollows (all hollows big enough for micro-bats)	18
No. of hollows (hollows>10cm)	3
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	530
Waterbody present?	No
Disturbance severity (inc. weeds)	very low

Fire history	decades
Mistletoe	sparse
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Good connections and Large high value trees along the creek.
EVNT species considered potential to occur	Koala, Yakka Skink, Squatter Pigeon, Greater glider.

23

Created	2019-05-29 11:19:55 AEST by Adrian Caneris
Updated	2019-05-29 11:23:01 AEST by Adrian Caneris
Location	-21.9297716666667, 148.383066
Date	2019-05-29
Site number	23

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	1
No. hollow bearing trees (hollow >10cm diameter)	0
No. of hollows (all hollows big enough for micro-bats)	4
No. of hollows (hollows >10cm)	0
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	310
Waterbody present?	No
Disturbance type	Livestock

Disturbance severity (inc. weeds)	very low
Fire history	years
Fire severity	scorches trunks
Mistletoe	sparse
Belah present?	No
Coarse Woody Debris	Sparse
Connectivity incl. regrowth	Good
EVNT species considered potential to occur	Koala, Squatter Pigeon

24

Created 2019-05-29 11:29:45 AEST by Adrian Caneris

Updated 2019-06-01 17:35:44 AEST by Adrian Caneris

Location -21.9313623333333, 148.383447833333

Date 2019-05-29

Site number 24

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	4
No. hollow bearing trees (hollow >10cm diameter)	0
No. of hollows (all hollows big enough for micro-bats)	7
No. of hollows (hollows >10cm)	0
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	245
Waterbody present?	No
Disturbance type	Livestock

Disturbance severity (inc. weeds)	very low
Fire history	years
Fire severity	scorches trunks
Mistletoe	sparse
Belah present?	No
Coarse Woody Debris	Sparse
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Connected area. Though not much old growth in area
EVNT species considered potential to occur	Squatter Pigeon

25

Created	2019-05-29 12:29:14 AEST by Adrian Caneris
Updated	2019-05-29 12:33:14 AEST by Adrian Caneris
Location	-21.9354551666667, 148.3830965
Date	2019-05-29
Site number	25

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	0
Diameter of largest trees (mm)	130
Waterbody present?	No
Disturbance type	Cleared line
Infrastructure	road/track
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Sparse
Rock abundance	none
Connectivity incl. regrowth	Moderate
Comments on connectivity/habitat	Adjoins existing open pipe line
EVNT species considered potential to occur	Squatter Pigeon

26

Created	2019-05-29 12:35:04 AEST by Adrian Caneris
Updated	2019-05-29 12:39:03 AEST by Adrian Caneris
Location	-21.9367321666667, 148.380669666667
Date	2019-05-29
Site number	26

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	15
No. hollow bearing trees (hollow >10cm diameter)	5
No. of hollows (all hollows big enough for micro-bats)	24
No. of hollows (hollows>10cm)	3
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	510
Waterbody present?	No
Disturbance type	Pipeline area
Disturbance severity (inc. weeds)	moderate
Fire history	years
Infrastructure	road/track
Mistletoe	sparse
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Adjoins Poe existing pipeline. 60m gap
EVNT species considered potential to occur	Squatter Pigeon

27

Created	2019-05-29 12:41:47 AEST by Adrian Caneris
Updated	2019-06-11 09:34:18 AEST by Adrian Caneris
Location	-21.938249, 148.377768833
Date	2019-05-29
Site number	27

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	2
No. hollow bearing trees (hollow >10cm diameter)	0
No. of hollows (all hollows big enough for micro-bats)	5
No. of hollows (hollows>10cm)	0
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	120
Waterbody present?	No
Disturbance type	Pipeline
Disturbance severity (inc. weeds)	moderate
Fire history	years
Infrastructure	Pipeline adjoins
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Adjoins existing pipeline 60m gap
EVNT species considered potential to occur	Squatter Pigeon

28

Created	2019-05-29 13:02:57 AEST by Adrian Caneris
Updated	2019-06-01 10:19:56 AEST by Adrian Caneris
Location	-21.9451736667, 148.375457
Date	2019-05-29
Site number	28

Photos





Landform	Creek
Slope	Creek
Soil texture	Sand
Number of hollow-bearing trees (all hollows big enough for micro-bats)	13
No. hollow bearing trees (hollow >10cm diameter)	1
No. of hollows (all hollows big enough for micro-bats)	17
No. of hollows (hollows>10cm)	1
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	510
Waterbody present?	No
Disturbance type	Intact

Disturbance severity (inc. weeds)	very low
Fire history	decades
Infrastructure	None
Mistletoe	sparse
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Connected area
EVNT species considered potential to occur	Koala, Squatter Pidgeon, Greater Glider along Creek and in larger eucs in this area

29

Created	2019-05-29 13:17:41 AEST by Adrian Caneris
Updated	2019-05-29 13:21:26 AEST by Adrian Caneris
Location	-21.942838, 148.375347333333
Date	2019-05-29
Site number	29

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	18
No. hollow bearing trees (hollow >10cm diameter)	4
No. of hollows (all hollows big enough for micro-bats)	31
No. of hollows (hollows>10cm)	5
No. of large stags (40+cm)	1
Diameter of largest trees (mm)	515
Waterbody present?	No
Disturbance type	Intact

Disturbance severity (inc. weeds)	very low
Fire history	years
Fire severity	cool burn
Mistletoe	sparse
Belah present?	No
Coarse Woody Debris	Dense
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Good connections
EVNT species considered potential to occur	Yakka Skink, Koala, Squatter Pigeon

30

Created	2019-05-29 13:24:33 AEST by Adrian Caneris
Updated	2019-06-11 12:10:09 AEST by Adrian Caneris
Location	-21.941226, 148.375266167
Date	2019-05-29
Site number	30

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	9
No. hollow bearing trees (hollow >10cm diameter)	2
No. of hollows (all hollows big enough for micro-bats)	24
No. of hollows (hollows >10cm)	4
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	515
Waterbody present?	No
Disturbance type	Erosion gully

Disturbance severity (inc. weeds)	very low
Fire history	years
Fire severity	cool burn
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Dense
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Good connections
EVNT species considered potential to occur	Squatter Pigeon, Yakka Skink

31

Created	2019-05-29 14:07:45 AEST by Adrian Caneris
Updated	2019-06-01 10:07:16 AEST by Adrian Caneris
Location	-21.9475596667, 148.375467333
Date	2019-05-29
Site number	31

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	7
No. hollow bearing trees (hollow >10cm diameter)	3
No. of hollows (all hollows big enough for micro-bats)	17
No. of hollows (hollows>10cm)	4
No. of large stags (40+cm)	1
Diameter of largest trees (mm)	580
Waterbody present?	No
Disturbance type	Erosion gullies present
Fire history	years
Fire severity	scorches trunks
Mistletoe	sparse
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Well connected
EVNT species considered potential to occur	Koala, Yakka Skink, Squatter Pigeon

32

Created	2019-05-29 14:13:24 AEST by Adrian Caneris
Updated	2019-06-01 17:37:14 AEST by Adrian Caneris
Location	-21.9487975, 148.375607
Date	2019-05-29
Site number	32

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	3
No. hollow bearing trees (hollow >10cm diameter)	2
No. of hollows (all hollows big enough for micro-bats)	8
No. of hollows (hollows>10cm)	3
No. of large stags (40+cm)	1
Diameter of largest trees (mm)	750
Waterbody present?	No
Fire history	years
Fire severity	cool burn
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Dense
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Well connected. Good groundcover and logs
EVNT species considered potential to occur	Squatter Pigeon, Yakka Skink, Koala, Some potential for greater glider in this area

33

Created	2019-05-29 14:24:02 AEST by Adrian Caneris
Updated	2019-06-01 12:31:15 AEST by Adrian Caneris
Location	-21.9507191666667, 148.375495833333
Date	2019-05-29
Site number	33

Photos





Landform	Alluvial Plains
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	4
No. hollow bearing trees (hollow >10cm diameter)	0
No. of hollows (all hollows big enough for micro-bats)	4
No. of hollows (hollows>10cm)	0
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	430
Waterbody present?	No
Disturbance type	Intact

Disturbance severity (inc. weeds)	very low
Fire history	decades
Fire severity	cool burn
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Dense
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Conected
EVNT species considered potential to occur	Yakka Skink, Squatter Pigeon, Low chance for koala

34

Created	2019-05-29 14:40:52 AEST by Adrian Caneris
Updated	2019-05-29 14:44:00 AEST by Adrian Caneris
Location	-21.9528415, 148.374499333333
Date	2019-05-29
Site number	34

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	10
No. hollow bearing trees (hollow >10cm diameter)	1
No. of hollows (all hollows big enough for micro-bats)	17
No. of hollows (hollows>10cm)	1
No. of large stags (40+cm)	1
Diameter of largest trees (mm)	380
Waterbody present?	No
Disturbance type	Track and associated weeds
Disturbance severity (inc. weeds)	low
Fire history	years
Fire severity	cool burn
Infrastructure	road/track
Mistletoe	sparse
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Good
EVNT species considered potential to occur	Koala, Yakka Skink, Squatter Pigeon

35

Created	2019-05-29 14:47:31 AEST by Adrian Caneris
Updated	2019-06-01 10:08:52 AEST by Adrian Caneris
Location	-21.9537178333, 148.373769167
Date	2019-05-29
Site number	35

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	0
No. hollow bearing trees (hollow >10cm diameter)	0
No. of hollows (all hollows big enough for micro-bats)	0
No. of hollows (hollows >10cm)	0
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	20
Waterbody present?	No
Disturbance type	Logging, Unknown disturbance

Fire history	years
Fire severity	cool burn
Infrastructure	road/track, fence
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Sparse
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Connected
EVNT species considered potential to occur	Squatter Pigeon

36

Created	2019-05-29 15:02:50 AEST by Adrian Caneris
Updated	2019-05-29 15:06:02 AEST by Adrian Caneris
Location	-21.9559296666667, 148.371872
Date	2019-05-29
Site number	36

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	2
No. hollow bearing trees (hollow >10cm diameter)	0
No. of hollows (all hollows big enough for micro-bats)	4
No. of hollows (hollows >10cm)	0
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	310
Waterbody present?	No
Disturbance type	Weeds minor

Disturbance severity (inc. weeds)	very low
Fire history	years
Fire severity	cool burn
Infrastructure	road/track, fence
Mistletoe	sparse
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Connected
EVNT species considered potential to occur	Squatter Pigeon, Yakka Skink

37

Created	2019-05-29 15:10:30 AEST by Adrian Caneris
Updated	2019-06-11 09:36:23 AEST by Adrian Caneris
Location	-21.9593813333, 148.368589667
Date	2019-05-29
Site number	37

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	0
Diameter of largest trees (mm)	120
Waterbody present?	No
Disturbance severity (inc. weeds)	low
Fire history	decades
Infrastructure	road/track, fence
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Sparse

Rock abundance	none
Connectivity incl. regrowth	Good
EVNT species considered potential to occur	Squatter Pigeon

38

Created	2019-05-29 15:17:15 AEST by Adrian Caneris
Updated	2019-05-29 15:20:54 AEST by Adrian Caneris
Location	-21.9615586666667, 148.365999666667
Date	2019-05-29
Site number	38

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay Loam
Number of hollow-bearing trees (all hollows big enough for micro-bats)	7
No. hollow bearing trees (hollow >10cm diameter)	1
No. of hollows (all hollows big enough for micro-bats)	11
No. of hollows (hollows >10cm)	1
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	210
Waterbody present?	No
Disturbance type	Logging, Livestock

Disturbance severity (inc. weeds)	low
Fire history	decades
Fire severity	cool burn
Infrastructure	road/track, fence
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Typical
Connectivity incl. regrowth	Moderate
Comments on connectivity/habitat	Mine site nearby limiting connections
EVNT species considered potential to occur	Squatter Pigeon, Yakka Skink

39

Created	2019-05-30 07:16:59 AEST by Adrian Caneris
Updated	2019-06-01 10:06:43 AEST by Adrian Caneris
Location	-21.9844756667, 148.3204965
Date	2019-05-30
Site number	39

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay Loam
Number of hollow-bearing trees (all hollows big enough for micro-bats)	26
No. hollow bearing trees (hollow >10cm diameter)	9
No. of hollows (all hollows big enough for micro-bats)	56
No. of hollows (hollows>10cm)	14
No. of large stags (40+cm)	1
Diameter of largest trees (mm)	420
Waterbody present?	No
Disturbance type	Livestock, Other
Disturbance severity (inc. weeds)	low
Fire history	years
Fire severity	scorches trunks
Infrastructure	fence, road/track
Mistletoe	none
Belah present?	No
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Good connections
EVNT species considered potential to occur	Yakka Skink, Squatter Pigeon, Koala

40

Created	2019-05-30 07:24:25 AEST by Adrian Caneris
Updated	2019-05-30 07:28:53 AEST by Adrian Caneris
Location	-21.98522, 148.319263166667
Date	2019-05-30
Site number	40

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Loam
Number of hollow-bearing trees (all hollows big enough for micro-bats)	6
No. hollow bearing trees (hollow >10cm diameter)	1
No. of hollows (all hollows big enough for micro-bats)	15
No. of hollows (hollows>10cm)	2
No. of large stags (40+cm)	1
Diameter of largest trees (mm)	420
Waterbody present?	No
Disturbance type	Livestock
Disturbance severity (inc. weeds)	very low
Fire history	years
Fire severity	scorches trunks
Infrastructure	fence, road/track
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Good connections
EVNT species considered potential to occur	Squatter Pigeon, Yakka Skink, Koala

41

Created	2019-05-30 07:31:52 AEST by Adrian Caneris
Updated	2019-05-30 07:34:34 AEST by Adrian Caneris
Location	-21.9873306666667, 148.317804833333
Date	2019-05-30
Site number	41

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay Loam
Number of hollow-bearing trees (all hollows big enough for micro-bats)	8
No. hollow bearing trees (hollow >10cm diameter)	0
No. of hollows (all hollows big enough for micro-bats)	13
No. of hollows (hollows >10cm)	0
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	290
Waterbody present?	No
Disturbance type	Livestock

Disturbance severity (inc. weeds)	low
Fire history	years
Fire severity	scorches trunks
Infrastructure	fence, road/track
Mistletoe	sparse
Belah present?	No
Coarse Woody Debris	Sparse
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Good connections
EVNT species considered potential to occur	Koala, Yakka Skink, Squatter Pigeon

42

Created	2019-05-30 07:37:01 AEST by Adrian Caneris
Updated	2019-05-30 07:40:36 AEST by Adrian Caneris
Location	-21.9894906666667, 148.316548833333
Date	2019-05-30
Site number	42

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Silty Clay Loam
Number of hollow-bearing trees (all hollows big enough for micro-bats)	3
No. hollow bearing trees (hollow >10cm diameter)	0
No. of hollows (all hollows big enough for micro-bats)	6
No. of hollows (hollows >10cm)	0
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	230
Disturbance type	Livestock
Fire history	years

Fire severity	cool burn
Infrastructure	fence, road/track
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Good connections
EVNT species considered potential to occur	Koala, Yakka Skink, Squatter Pigeon

43

Created	2019-05-30 07:44:35 AEST by Adrian Caneris
Updated	2019-05-30 07:47:36 AEST by Adrian Caneris
Location	-21.9921296666667, 148.315268333333
Date	2019-05-30
Site number	43

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	9
No. hollow bearing trees (hollow >10cm diameter)	3
No. of hollows (all hollows big enough for micro-bats)	18
No. of hollows (hollows >10cm)	4
No. of large stags (40+cm)	1
Diameter of largest trees (mm)	325
Waterbody present?	No
Disturbance type	Livestock

Disturbance severity (inc. weeds)	low
Fire history	years
Fire severity	scorches trunks
Infrastructure	road/track, fence
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Good connections
EVNT species considered potential to occur	Koala, Yakka Skink, Squatter Pigeon

44

Created	2019-05-30 07:57:42 AEST by Adrian Caneris
Updated	2019-05-30 08:00:57 AEST by Adrian Caneris
Location	-21.993087, 148.315105666667
Date	2019-05-30
Site number	44

Photos



Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	1
No. hollow bearing trees (hollow >10cm diameter)	0

No. of hollows (all hollows big enough for micro-bats)	4
No. of hollows (hollows>10cm)	0
No. of large stags (40+cm)	1
Diameter of largest trees (mm)	220
Waterbody present?	No
Disturbance type	Livestock
Disturbance severity (inc. weeds)	moderate
Fire history	years
Fire severity	cool burn
Infrastructure	road/track
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Good connections
EVNT species considered potential to occur	Squatter Pigeon, Yakka Skink

45

Created	2019-05-30 08:05:30 AEST by Adrian Caneris
Updated	2019-05-30 08:07:46 AEST by Adrian Caneris
Location	-21.9947411666667, 148.314429833333
Date	2019-05-30
Site number	45

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	1
No. hollow bearing trees (hollow >10cm diameter)	0
No. of hollows (all hollows big enough for micro-bats)	2
No. of hollows (hollows>10cm)	0
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	140
Waterbody present?	No
Disturbance type	Livestock
Disturbance severity (inc. weeds)	moderate
Fire history	years
Fire severity	cool burn
Infrastructure	road/track
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Sparse
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Good connections
EVNT species considered potential to occur	Squatter Pigeon, Koala

46

Created	2019-05-30 08:11:44 AEST by Adrian Caneris
Updated	2019-05-30 08:17:46 AEST by Adrian Caneris
Location	-21.996712, 148.315721166667
Date	2019-05-30
Site number	46

Photos







Landform	Adjoins creek on banks
Slope	Simple Slope
Soil texture	Sandy Loam
Number of hollow-bearing trees (all hollows big enough for micro-bats)	4
No. hollow bearing trees (hollow >10cm diameter)	0
No. of hollows (all hollows big enough for micro-bats)	7
No. of hollows (hollows>10cm)	0
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	310
Waterbody present?	No
Disturbance type	Livestock
Disturbance severity (inc. weeds)	moderate
Fire history	years
Fire severity	scorches trunks
Infrastructure	road/track, fence
Mistletoe	sparse
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Good connections though nearing rail area
EVNT species considered potential to occur	Koala, Squatter Pigeon, Yakka Skink

47

Created	2019-05-30 08:23:51 AEST by Adrian Caneris
Updated	2019-05-30 08:26:26 AEST by Adrian Caneris
Location	-21.9993715, 148.315464833333
Date	2019-05-30
Site number	47

Photos



Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay Loam
Number of hollow-bearing trees (all hollows big enough for micro-bats)	11
No. hollow bearing trees (hollow >10cm diameter)	1

No. of hollows (all hollows big enough for micro-bats)	21
No. of hollows (hollows>10cm)	2
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	390
Waterbody present?	No
Disturbance type	Livestock
Disturbance severity (inc. weeds)	moderate
Fire history	years
Fire severity	scorches trunks
Infrastructure	road/track, fence
Mistletoe	sparse
Belah present?	No
Coarse Woody Debris	Typical
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Good connections
EVNT species considered potential to occur	Koala, Yakka Skink, Squatter Pigeon

48

Created	2019-05-30 08:28:25 AEST by Adrian Caneris
Updated	2019-05-30 08:31:22 AEST by Adrian Caneris
Location	-22.0009511666667, 148.315332666667
Date	2019-05-30
Site number	48

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay Loam
Number of hollow-bearing trees (all hollows big enough for micro-bats)	10
No. hollow bearing trees (hollow >10cm diameter)	2
No. of hollows (all hollows big enough for micro-bats)	21
No. of hollows (hollows >10cm)	5
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	450
Waterbody present?	No
Disturbance type	Livestock

Disturbance severity (inc. weeds)	moderate
Fire history	years
Fire severity	scorches trunks
Infrastructure	road/track, fence
Mistletoe	sparse
Belah present?	No
Coarse Woody Debris	Dense
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Limited to rail and mine area
EVNT species considered potential to occur	Yakka Skink, Squatter Pigeon, Koala

49

Created	2019-05-30 08:49:38 AEST by Adrian Caneris
Updated	2019-05-30 08:53:35 AEST by Adrian Caneris
Location	-22.0029945, 148.315167166667
Date	2019-05-30
Site number	49

Photos







Landform	Alluvial Plains
Slope	Simple Slope
Soil texture	Sandy Clay Loam
Number of hollow-bearing trees (all hollows big enough for micro-bats)	1
No. hollow bearing trees (hollow >10cm diameter)	0
No. of hollows (all hollows big enough for micro-bats)	3
No. of hollows (hollows>10cm)	0
Diameter of largest trees (mm)	295
Waterbody present?	Yes
Type of Waterbody	Dam
Hollow bearing stags in water?	No
Fringing vegetation	Dry banks
Disturbance type	Livestock
Disturbance severity (inc. weeds)	high
Fire history	years
Fire severity	cool burn
Infrastructure	Rail adjoins
Mistletoe	sparse
Belah present?	No
Coarse Woody Debris	Sparse
Rock abundance	none
Connectivity incl. regrowth	Moderate
Comments on connectivity/habitat	Limited to vegetal areas away from rail
EVNT species considered potential to occur	Squatter Pigeon

50

Created	2019-05-30 08:59:54 AEST by Adrian Caneris
Updated	2019-05-30 09:02:43 AEST by Adrian Caneris
Location	-22.0037158333333, 148.314238666667
Date	2019-05-30
Site number	50

Photos





Landform	Alluvial Plains
Slope	Simple Slope
Soil texture	Sandy Clay Loam
Number of hollow-bearing trees (all hollows big enough for micro-bats)	4
No. hollow bearing trees (hollow >10cm diameter)	0
No. of hollows (all hollows big enough for micro-bats)	7
No. of hollows (hollows>10cm)	0
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	310
Waterbody present?	No
Disturbance type	Livestock, Rail and power line
Disturbance severity (inc. weeds)	high
Fire history	years
Fire severity	scorches trunks
Infrastructure	road/track, fence, buildings, Power line
Mistletoe	sparse
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Moderate
Comments on connectivity/habitat	Limited to creek corridor
EVNT species considered potential to occur	Koala, Squatter Pigeon

51

Created	2019-05-30 09:06:15 AEST by Adrian Caneris
Updated	2019-05-30 09:11:13 AEST by Adrian Caneris
Location	-22.004598, 148.313933333333
Date	2019-05-30
Site number	51

Photos





Landform	Creek
Slope	Creek
Soil texture	Sandy Clay Loam
Number of hollow-bearing trees (all hollows big enough for micro-bats)	10
No. hollow bearing trees (hollow >10cm diameter)	3
No. of hollows (all hollows big enough for micro-bats)	19
No. of hollows (hollows>10cm)	4
No. of large stags (40+cm)	1
Diameter of largest trees (mm)	700
Waterbody present?	Yes
Type of Waterbody	Creek

Hollow bearing stags in water?	Yes
Fringing vegetation	Sedges, Other
Disturbance type	Livestock, Tracks
Disturbance severity (inc. weeds)	moderate
Fire history	decades
Fire severity	cool burn
Infrastructure	road/track, buildings, Rail
Human debris	Rock Gabon
Mistletoe	sparse
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Creek line connections
EVNT species considered potential to occur	Koala, Squatter Pigeon

52

Created 2019-05-30 09:33:40 AEST by Adrian Caneris

Updated 2019-06-11 09:36:58 AEST by Adrian Caneris

Location -22.0057858064, 148.312522843

Date 2019-05-30

Site number 52

Photos







Landform	Alluvial Plains
Slope	Simple Slope
Soil texture	Sandy Clay Loam
Number of hollow-bearing trees (all hollows big enough for micro-bats)	15
No. hollow bearing trees (hollow >10cm diameter)	4
No. of hollows (all hollows big enough for micro-bats)	24
No. of hollows (hollows>10cm)	6
No. of large stags (40+cm)	2
Diameter of largest trees (mm)	405
Waterbody present?	No
Disturbance type	Livestock
Disturbance severity (inc. weeds)	moderate
Fire history	years
Fire severity	cool burn
Infrastructure	fence, road/track
Mistletoe	sparse
Belah present?	No
Coarse Woody Debris	Dense
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Good connections
EVNT species considered potential to occur	Koala, Yakka Skink, Squatter Pigeon

53

Created	2019-05-30 09:39:43 AEST by Adrian Caneris
Updated	2019-06-01 10:11:41 AEST by Adrian Caneris
Location	-22.0071311585, 148.311315849
Date	2019-05-30
Site number	53

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay Loam
Number of hollow-bearing trees (all hollows big enough for micro-bats)	21
No. hollow bearing trees (hollow >10cm diameter)	6
No. of hollows (all hollows big enough for micro-bats)	32
No. of hollows (hollows >10cm)	6
No. of large stags (40+cm)	2
Diameter of largest trees (mm)	510
Waterbody present?	No
Disturbance type	Livestock

Disturbance severity (inc. weeds)	moderate
Fire history	years
Fire severity	cool burn
Infrastructure	fence
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Good connections
EVNT species considered potential to occur	Koala, Yakka Skink, Squatter Pigeon

54

Created 2019-05-30 09:51:14 AEST by Adrian Caneris

Updated 2019-05-30 09:56:58 AEST by Adrian Caneris

Location -22.0081301666667, 148.310543

Date 2019-05-30

Site number 54

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay Loam
Number of hollow-bearing trees (all hollows big enough for micro-bats)	8
No. hollow bearing trees (hollow >10cm diameter)	2
No. of hollows (all hollows big enough for micro-bats)	14
No. of hollows (hollows >10cm)	3
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	520
Waterbody present?	No
Disturbance type	Livestock

Disturbance severity (inc. weeds)	moderate
Fire history	years
Fire severity	cool burn
Infrastructure	fence, road/track
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Moderate
Comments on connectivity/habitat	Good connections
EVNT species considered potential to occur	Yakka Skink, Squatter Pigeon

55

Created	2019-05-30 10:02:36 AEST by Adrian Caneris
Updated	2019-06-11 12:02:40 AEST by Adrian Caneris
Location	-22.0092683333, 148.309575167
Date	2019-05-31
Site number	55

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay Loam
Number of hollow-bearing trees (all hollows big enough for micro-bats)	0
Diameter of largest trees (mm)	100
Waterbody present?	No
Disturbance type	Livestock, Logging
Fire history	years
Fire severity	cool burn
Infrastructure	road/track
Mistletoe	none
Belah present?	No
Coarse Woody Debris	None
Rock (general description)	loose rocks
Rock abundance	sparse
Connectivity incl. regrowth	Poor
Comments on connectivity/habitat	Cleared area

56

Created	2019-05-30 10:09:42 AEST by Adrian Caneris
Updated	2019-05-30 10:15:24 AEST by Adrian Caneris
Location	-22.0117575, 148.307695
Date	2019-05-30
Site number	56

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Clay Loam
Number of hollow-bearing trees (all hollows big enough for micro-bats)	0
Diameter of largest trees (mm)	10
Waterbody present?	No
Disturbance type	Livestock
Disturbance severity (inc. weeds)	high
Fire history	years
Fire severity	cool burn
Infrastructure	road/track
Mistletoe	none
Belah present?	No
Rock (general description)	loose rocks
Connectivity incl. regrowth	Poor
Comments on connectivity/habitat	Cleared area

57

Created	2019-05-30 10:15:34 AEST by Adrian Caneris
Updated	2019-05-30 10:18:47 AEST by Adrian Caneris
Location	-22.0140013333333, 148.305376666667
Date	2019-05-30
Site number	57

Photos





Landform	Alluvial Plains
Slope	Creek
Soil texture	Silty Clay Loam
Number of hollow-bearing trees (all hollows big enough for micro-bats)	2
No. hollow bearing trees (hollow >10cm diameter)	0
No. of hollows (all hollows big enough for micro-bats)	3
No. of hollows (hollows>10cm)	0
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	190
Waterbody present?	Yes
Type of Waterbody	Creek
Hollow bearing stags in water?	No
Fringing vegetation	Sedges
Disturbance type	Livestock
Disturbance severity (inc. weeds)	moderate
Fire history	decades
Fire severity	cool burn
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Very sparse
Rock abundance	none
Connectivity incl. regrowth	Poor
Comments on connectivity/habitat	Or connections due to clearing
EVNT species considered potential to occur	Squatter Pigeon

58

Created	2019-05-30 10:22:10 AEST by Adrian Caneris
Updated	2019-06-11 12:02:21 AEST by Adrian Caneris
Location	-22.0173513333, 148.3028795
Date	2019-05-30
Site number	58

Photos



Landform	Downs
Slope	Simple Slope
Number of hollow-bearing trees (all hollows big enough for micro-bats)	0
Diameter of largest trees (mm)	100
Waterbody present?	No
Disturbance type	Livestock

Disturbance severity (inc. weeds)	moderate
Infrastructure	fence
Mistletoe	none
Belah present?	No
Coarse Woody Debris	None
Rock abundance	none
Connectivity incl. regrowth	Moderate
Comments on connectivity/habitat	disturbed area

59

Created	2019-05-30 10:25:15 AEST by Adrian Caneris
Updated	2019-06-11 10:54:15 AEST by Adrian Caneris
Location	-22.0224741667, 148.298301833
Date	2019-05-30
Site number	59

Photos



Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay Loam
Number of hollow-bearing trees (all hollows big enough for micro-bats)	0
Diameter of largest trees (mm)	10
Waterbody present?	No

Disturbance type	Livestock, Logging
Disturbance severity (inc. weeds)	high
Mistletoe	none
Belah present?	No
Coarse Woody Debris	None
Rock abundance	none
Connectivity incl. regrowth	Poor

60

Created	2019-05-30 10:30:26 AEST by Adrian Caneris
Updated	2019-06-11 10:56:01 AEST by Adrian Caneris
Location	-22.0245535, 148.292989333
Date	2019-05-30
Site number	60

Photos



Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	0
Diameter of largest trees (mm)	10
Waterbody present?	No

Disturbance type	Livestock, Logging
Disturbance severity (inc. weeds)	moderate
Fire history	decades
Belah present?	No
Coarse Woody Debris	None
Rock abundance	none
Connectivity incl. regrowth	Poor
Comments on connectivity/habitat	Cleared area

61

Created	2019-05-30 10:55:29 AEST by Adrian Caneris
Updated	2019-05-30 12:27:24 AEST by Adrian Caneris
Location	-21.9835101666667, 148.322849333333
Date	2019-05-30
Site number	61

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay Loam
Number of hollow-bearing trees (all hollows big enough for micro-bats)	17
No. hollow bearing trees (hollow >10cm diameter)	3
No. of hollows (all hollows big enough for micro-bats)	31
No. of hollows (hollows>10cm)	4
No. of large stags (40+cm)	1
Diameter of largest trees (mm)	60
Waterbody present?	No
Disturbance severity (inc. weeds)	very low

Fire history	decades
Fire severity	cool burn
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Moderate
Comments on connectivity/habitat	Adjoins rail and road area
EVNT species considered potential to occur	Squatter Pigeon, Koala, Yakka Skink

62

Created	2019-05-31 11:30:52 AEST by Adrian Caneris
Updated	2019-05-31 11:34:08 AEST by Adrian Caneris
Location	-21.9627843333333, 148.363823833333
Date	2019-05-31
Site number	62

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	10
No. hollow bearing trees (hollow >10cm diameter)	2
No. of hollows (all hollows big enough for micro-bats)	17
No. of hollows (hollows>10cm)	3
No. of large stags (40+cm)	1
Diameter of largest trees (mm)	250
Waterbody present?	No
Disturbance type	Edge of road and track
Disturbance severity (inc. weeds)	low
Fire history	years
Fire severity	scorches trunks
Infrastructure	fence, road/track
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Moderate
Comments on connectivity/habitat	Adjoins road and rail loop area
EVNT species considered potential to occur	Squatter Pigeon, Yakka Skink

63

Created	2019-05-31 11:36:34 AEST by Adrian Caneris
Updated	2019-06-11 11:46:00 AEST by Adrian Caneris
Location	-21.9633360072, 148.363706768
Date	2019-05-31
Site number	63

Photos







Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	0
Diameter of largest trees (mm)	140
Disturbance type	Prior clearing
Disturbance severity (inc. weeds)	moderate
Fire history	years
Infrastructure	fence, road/track
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Dense
Rock abundance	none
Connectivity incl. regrowth	Moderate
EVNT species considered potential to occur	Squatter Pigeon, Yakka Skink

64

Created	2019-05-31 11:46:10 AEST by Adrian Caneris
Updated	2019-06-11 11:46:18 AEST by Adrian Caneris
Location	-21.9656535, 148.363183167
Date	2019-05-31
Site number	64

Photos





Landform	Downs
Slope	Upper Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	0
Diameter of largest trees (mm)	170
Disturbance severity (inc. weeds)	moderate
Infrastructure	road/track, fence, Rail loop adjoins
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Dense
Rock abundance	none
Connectivity incl. regrowth	Moderate

65

Created	2019-05-31 11:51:11 AEST by Adrian Caneris
Updated	2019-06-11 11:46:37 AEST by Adrian Caneris
Location	-21.9666096667, 148.362520167
Date	2019-05-31
Site number	65

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	0
Diameter of largest trees (mm)	110
Disturbance type	Highly disturbed area
Disturbance severity (inc. weeds)	high
Belah present?	No
Coarse Woody Debris	Sparse
Connectivity incl. regrowth	Poor
Comments on connectivity/habitat	Limited habitats

66

Created	2019-05-31 11:56:48 AEST by Adrian Caneris
Updated	2019-06-11 10:57:17 AEST by Adrian Caneris
Location	-21.9662751667, 148.361313
Date	2019-05-31
Site number	66

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	0
No. hollow bearing trees (hollow >10cm diameter)	0
No. of hollows (all hollows big enough for micro-bats)	0
No. of hollows (hollows>10cm)	0
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	212
Waterbody present?	No
Disturbance type	Logging, Recreational
Fire history	years
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Dense
Rock abundance	none
EVNT species considered potential to occur	Yakka Skink, Squatter Pigeon

67

Created	2019-05-31 12:01:14 AEST by Adrian Caneris
Updated	2019-06-11 12:11:22 AEST by Adrian Caneris
Location	-21.9661048333, 148.359946333
Date	2019-05-31
Site number	67

Photos





Landform	Downs
Slope	Simple Slope
Number of hollow-bearing trees (all hollows big enough for micro-bats)	5
No. hollow bearing trees (hollow >10cm diameter)	0
No. of hollows (all hollows big enough for micro-bats)	8
No. of hollows (hollows >10cm)	0

No. of large stags (40+cm)	0
Diameter of largest trees (mm)	450
Waterbody present?	No
Disturbance type	Livestock
Disturbance severity (inc. weeds)	moderate
Fire history	years
Fire severity	scorches trunks
Infrastructure	road/track
Mistletoe	sparse
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Moderate
Comments on connectivity/habitat	Reasonable connections
EVNT species considered potential to occur	Yakka Skink, Squatter Pigeon

68

Created	2019-05-31 12:05:20 AEST by Adrian Caneris
Updated	2019-06-11 12:12:21 AEST by Adrian Caneris
Location	-21.965992, 148.358912
Date	2019-05-31
Site number	68

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	3
No. hollow bearing trees (hollow >10cm diameter)	0
No. of hollows (all hollows big enough for micro-bats)	7
No. of hollows (hollows>10cm)	0
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	250
Waterbody present?	No
Disturbance type	Livestock, Logging
Disturbance severity (inc. weeds)	moderate
Fire history	years
Fire severity	scorches trunks
Infrastructure	road/track
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Moderate
EVNT species considered potential to occur	Yakka Skink, Squatter Pigeon

69

Created	2019-05-31 12:09:41 AEST by Adrian Caneris
Updated	2019-06-11 10:58:40 AEST by Adrian Caneris
Location	-21.9658495, 148.358271
Date	2019-05-31
Site number	69

Photos





Belah present?

No

Comments on connectivity/habitat

Information site only - recently pulled area area starts here . no notable habitats remain was Brigalow regrowth

70

Created	2019-05-31 12:26:26 AEST by Adrian Caneris
Updated	2019-06-11 11:47:40 AEST by Adrian Caneris
Location	-21.9652055, 148.353179333
Date	2019-05-31
Site number	70

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	0
Diameter of largest trees (mm)	130
Waterbody present?	No
Disturbance type	Logging, Clearing adjoins point
Disturbance severity (inc. weeds)	very low
Fire history	decades
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Sparse

Rock abundance	none
Connectivity incl. regrowth	Poor
Comments on connectivity/habitat	Cleared area adjoins

71

Created	2019-05-31 12:36:38 AEST by Adrian Caneris
Updated	2019-06-11 11:32:25 AEST by Adrian Caneris
Location	-21.9648683333, 148.350847667
Date	2019-05-31
Site number	71

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	0
Diameter of largest trees (mm)	10
Waterbody present?	No
Disturbance type	Logging
Fire history	decades
Infrastructure	road/track
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Sparse

Rock abundance	none
Connectivity incl. regrowth	Moderate
Comments on connectivity/habitat	Adjoins cleared area
EVNT species considered potential to occur	Yakka Skink, Brigalow scaly foot some potential

72

Created	2019-05-31 12:43:15 AEST by Adrian Caneris
Updated	2019-06-11 11:48:29 AEST by Adrian Caneris
Location	-21.9646358333, 148.3493765
Date	2019-05-31
Site number	72

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	3
No. hollow bearing trees (hollow >10cm diameter)	0
No. of hollows (all hollows big enough for micro-bats)	7
No. of hollows (hollows>10cm)	0
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	300
Waterbody present?	No
Disturbance type	Logging
Disturbance severity (inc. weeds)	very low
Fire history	years
Fire severity	scorches trunks
Infrastructure	road/track
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Moderate
Comments on connectivity/habitat	Adjoins cleared area
EVNT species considered potential to occur	Yakka Skink, Squatter Pigeon

73

Created	2019-05-31 12:54:57 AEST by Adrian Caneris
Updated	2019-06-11 12:17:42 AEST by Adrian Caneris
Location	-21.9643701667, 148.347275167
Date	2019-05-31
Site number	73

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	0
No. hollow bearing trees (hollow >10cm diameter)	0
No. of hollows (all hollows big enough for micro-bats)	0
No. of hollows (hollows >10cm)	0
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	140
Waterbody present?	No
Disturbance type	Logging

Disturbance severity (inc. weeds)	moderate
Fire history	decades
Infrastructure	fence, road/track
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Dense on edge of clearing
Rock abundance	none
Connectivity incl. regrowth	Moderate
Comments on connectivity/habitat	One way connection
EVNT species considered potential to occur	Yakka Skink, Squatter Pigeon

74

Created	2019-05-31 12:58:55 AEST by Adrian Caneris
Updated	2019-06-11 12:15:03 AEST by Adrian Caneris
Location	-21.9643028333, 148.3467245
Date	2019-05-31
Site number	74

Photos





Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	0
Disturbance type	Livestock
Disturbance severity (inc. weeds)	very low
Fire history	years
Infrastructure	road/track
Belah present?	No
Comments on connectivity/habitat	Start of high value brigalow patch - information only site this area should be avoided through design
EVNT species considered potential to occur	Brigalow scaly foot and Ornamental snake potential here as good habitats

75

Created	2019-05-31 13:02:32 AEST by Adrian Caneris
Updated	2019-06-11 12:19:00 AEST by Adrian Caneris
Location	-21.9641411667, 148.345224667
Date	2019-05-31
Site number	75

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	0
No. hollow bearing trees (hollow >10cm diameter)	0
No. of hollows (all hollows big enough for micro-bats)	0
No. of hollows (hollows>10cm)	0
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	180
Disturbance severity (inc. weeds)	very low
Infrastructure	road/track
Belah present?	No
Coarse Woody Debris	Dense
Rock abundance	none
Comments on connectivity/habitat	Edge of brigalow patch
EVNT species considered potential to occur	Brigalow scaly foot and Ornamental snake potential here as good habitats

76

Created	2019-05-31 13:05:29 AEST by Adrian Caneris
Updated	2019-06-11 11:52:05 AEST by Adrian Caneris
Location	-21.9640355, 148.344571667
Date	2019-05-31
Site number	76

Photos







Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	7
No. hollow bearing trees (hollow >10cm diameter)	0
No. of hollows (all hollows big enough for micro-bats)	9
No. of hollows (hollows>10cm)	0
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	300
Waterbody present?	No
Disturbance severity (inc. weeds)	low
Fire history	years
Infrastructure	road/track, fence
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Moderate
Comments on connectivity/habitat	One way connections. A dojo in's cleared area.
EVNT species considered potential to occur	Squatter Pigeon, Yakka Skink

77

Created	2019-05-31 13:33:00 AEST by Adrian Caneris
Updated	2019-06-11 11:52:21 AEST by Adrian Caneris
Location	-21.9787978333, 148.3308
Date	2019-05-31
Site number	77

Photos







Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	7
No. hollow bearing trees (hollow >10cm diameter)	0
No. of hollows (all hollows big enough for micro-bats)	11
No. of hollows (hollows>10cm)	0
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	350
Waterbody present?	No
Disturbance type	Logging

Disturbance severity (inc. weeds)	moderate
Fire history	years
Fire severity	scorches trunks
Infrastructure	fence, road/track
Mistletoe	sparse
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Moderate
Comments on connectivity/habitat	One way
EVNT species considered potential to occur	Squatter Pigeon

78

Created	2019-05-31 13:42:39 AEST by Adrian Caneris
Updated	2019-06-11 11:52:37 AEST by Adrian Caneris
Location	-21.9799558333, 148.330198
Date	2019-05-31
Site number	78

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	8
No. hollow bearing trees (hollow >10cm diameter)	2
No. of hollows (all hollows big enough for micro-bats)	17
No. of hollows (hollows>10cm)	2
No. of large stags (40+cm)	2
Diameter of largest trees (mm)	420
Disturbance type	Logging, Die back in large trees
Fire history	decades

Fire severity	scorches trunks
Infrastructure	road/track
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Sparse
Rock abundance	none
Connectivity incl. regrowth	Moderate
Comments on connectivity/habitat	Disturbed area adjoins dam

79

Created	2019-05-31 13:53:32 AEST by Adrian Caneris
Updated	2019-06-11 11:52:50 AEST by Adrian Caneris
Location	-21.980896, 148.329801833
Date	2019-05-31
Site number	79

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	3
No. hollow bearing trees (hollow >10cm diameter)	0
No. of hollows (all hollows big enough for micro-bats)	6
No. of hollows (hollows>10cm)	0
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	120
Disturbance type	Logging
Disturbance severity (inc. weeds)	moderate
Fire history	decades
Fire severity	cool burn
Infrastructure	fence, road/track
Belah present?	Yes
additional information (Belah)	Sparse
Coarse Woody Debris	Sparse
Rock abundance	none
Connectivity incl. regrowth	Moderate
Comments on connectivity/habitat	Low value habitats adjoins dam

80

Created	2019-05-31 13:59:21 AEST by Adrian Caneris
Updated	2019-06-11 12:08:19 AEST by Adrian Caneris
Location	-21.9824376667, 148.329597667
Date	2019-05-31
Site number	80

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	2
No. hollow bearing trees (hollow >10cm diameter)	0
No. of hollows (all hollows big enough for micro-bats)	4
No. of hollows (hollows>10cm)	0
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	316
Disturbance severity (inc. weeds)	moderate
Infrastructure	fence, road/track
Mistletoe	sparse
Belah present?	Yes
additional information (Belah)	Some scattered trees
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Moderate
Comments on connectivity/habitat	One way. Regrowth habitats
EVNT species considered potential to occur	Squatter Pigeon, Yakka Skink

81

Created	2019-05-31 14:06:03 AEST by Adrian Caneris
Updated	2019-06-11 12:04:57 AEST by Adrian Caneris
Location	-21.9839045, 148.329216167
Date	2019-05-31
Site number	81

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	0
No. hollow bearing trees (hollow >10cm diameter)	0
No. of hollows (all hollows big enough for micro-bats)	0
No. of hollows (hollows>10cm)	0
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	200
Waterbody present?	No
Disturbance severity (inc. weeds)	low

Fire history	decades
Fire severity	cool burn
Mistletoe	sparse
Belah present?	No
Coarse Woody Debris	Sparse
Rock abundance	none
Connectivity incl. regrowth	Moderate
Comments on connectivity/habitat	One way
EVNT species considered potential to occur	Squatter Pigeon

82

Created	2019-05-31 14:13:08 AEST by Adrian Caneris
Updated	2019-06-11 11:57:49 AEST by Adrian Caneris
Location	-21.9837876667, 148.327196833
Date	2019-05-31
Site number	82

Photos







Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	6
No. hollow bearing trees (hollow >10cm diameter)	1
No. of hollows (all hollows big enough for micro-bats)	11
No. of hollows (hollows>10cm)	2
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	450
Disturbance severity (inc. weeds)	low
Fire history	decades
Fire severity	cool burn
Mistletoe	none
Belah present?	Yes
additional information (Belah)	Patch
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Moderate
Comments on connectivity/habitat	Mixed habitats
EVNT species considered potential to occur	Squatter Pigeon, Yakka Skink

83

Created	2019-05-31 14:19:52 AEST by Adrian Caneris
Updated	2019-06-11 12:05:33 AEST by Adrian Caneris
Location	-21.9838108333, 148.327078667
Date	2019-05-31
Site number	83

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	0
No. hollow bearing trees (hollow >10cm diameter)	0
No. of hollows (all hollows big enough for micro-bats)	0
No. of hollows (hollows>10cm)	0
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	150
Disturbance type	Livestock
Disturbance severity (inc. weeds)	moderate
Fire history	years
Fire severity	scorches trunks
Infrastructure	road/track, fence
Belah present?	No
Coarse Woody Debris	Sparse
EVNT species considered potential to occur	Disturbed area unlikely to support EVNT

84

Created	2019-05-31 14:23:22 AEST by Adrian Caneris
Updated	2019-05-31 14:25:33 AEST by Adrian Caneris
Location	-21.9836991666667, 148.325521833333
Date	2019-05-31
Site number	84

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	0
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	30
Waterbody present?	No
Disturbance type	Livestock
Disturbance severity (inc. weeds)	low
Fire history	decades
Fire severity	cool burn
Infrastructure	road/track

Mistletoe	none
Belah present?	Yes
additional information (Belah)	Small patch
Coarse Woody Debris	Sparse
Rock abundance	none
Connectivity incl. regrowth	Moderate
EVNT species considered potential to occur	Squatter Pigeon

85

Created	2019-05-31 14:35:33 AEST by Adrian Caneris
Updated	2019-06-11 12:16:49 AEST by Adrian Caneris
Location	-21.9726531667, 148.339612833
Date	2019-05-31
Site number	85

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	0
No. hollow bearing trees (hollow >10cm diameter)	0
No. of hollows (all hollows big enough for micro-bats)	0
No. of hollows (hollows>10cm)	0
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	100
Disturbance type	Livestock, Logging
Disturbance severity (inc. weeds)	high
Fire history	decades
Infrastructure	road/track, fence
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Sparse
Rock abundance	none
Connectivity incl. regrowth	Poor
Comments on connectivity/habitat	Cleared area between dam and wooded sites - Information site only
EVNT species considered potential to occur	Low value area unlikely to hold EVNT species

86

Created	2019-06-01 07:18:27 AEST by Adrian Caneris
Updated	2019-06-01 07:22:19 AEST by Adrian Caneris
Location	-21.865421, 148.399512666667
Date	2019-06-01
Site number	86

Photos







Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	7
No. hollow bearing trees (hollow >10cm diameter)	0
No. of hollows (all hollows big enough for micro-bats)	11
No. of hollows (hollows>10cm)	2
No. of large stags (40+cm)	1
Diameter of largest trees (mm)	30
Waterbody present?	No
Disturbance severity (inc. weeds)	moderate
Fire history	years
Fire severity	cool burn
Infrastructure	fence, road/track
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Sparse
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Good connections towards creek and away from mine. Location is potential change site.
EVNT species considered potential to occur	Squatter Pigeon, Koala

87

Created	2019-06-01 07:27:55 AEST by Adrian Caneris
Updated	2019-06-11 12:11:48 AEST by Adrian Caneris
Location	-21.866821, 148.39866
Date	2019-06-01
Site number	87

Photos





Landform	Alluvial Plains
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	9
No. hollow bearing trees (hollow >10cm diameter)	2
No. of hollows (all hollows big enough for micro-bats)	14
No. of hollows (hollows>10cm)	3
No. of large stags (40+cm)	1
Diameter of largest trees (mm)	320
Waterbody present?	No
Disturbance type	Livestock
Disturbance severity (inc. weeds)	very low
Fire history	decades
Fire severity	cool burn
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Sparse
Rock abundance	none
Connectivity incl. regrowth	Good
Comments on connectivity/habitat	Good connections. Alternative alignment
EVNT species considered potential to occur	Squatter Pigeon, Koala, Greater glider some potential

88

Created 2019-06-01 07:59:55 AEST by Adrian Caneris

Updated 2019-06-01 08:04:31 AEST by Adrian Caneris

Location -21.8655735, 148.414441333333

Date 2019-06-01

Site number 88

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	5
No. hollow bearing trees (hollow >10cm diameter)	0
No. of hollows (all hollows big enough for micro-bats)	9
No. of hollows (hollows>10cm)	0
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	320
Waterbody present?	No
Disturbance type	Coal dust heavy from rail Buffel grass dominates
Disturbance severity (inc. weeds)	moderate
Fire history	years
Infrastructure	road/track, Rail
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Typical
Rock abundance	none
Connectivity incl. regrowth	Poor
Comments on connectivity/habitat	One way connections. Dirty lands from coal

89

Created	2019-06-01 08:08:36 AEST by Adrian Caneris
Updated	2019-06-01 10:09:51 AEST by Adrian Caneris
Location	-21.8685161667, 148.411030333
Date	2019-06-01
Site number	89

Photos





Landform	Downs
Slope	Simple Slope
Soil texture	Sandy Clay
Number of hollow-bearing trees (all hollows big enough for micro-bats)	1
No. hollow bearing trees (hollow >10cm diameter)	0
No. of hollows (all hollows big enough for micro-bats)	3
No. of hollows (hollows>10cm)	0
No. of large stags (40+cm)	0
Diameter of largest trees (mm)	250
Waterbody present?	No
Disturbance type	Livestock
Fire history	years
Fire severity	cool burn
Infrastructure	road/track
Mistletoe	none
Belah present?	No
Coarse Woody Debris	Sparse
Rock abundance	none
Connectivity incl. regrowth	Moderate
Comments on connectivity/habitat	Good connections away from mine area
EVNT species considered potential to occur	Squatter Pigeon, Koala very low likelihood

APPENDIX C – FLORA SITE ASSESSMENT DATA

Fimbristylis dissosperma

No.	Easting	Northing	Comments (E. platyphylla)	Photo
576	064468	7581514	Ti C. dallachiana 12-14m S LZ5 91 0-1.5 @ .75 MD Heteropogon contortus Melinis repens	
577			as above	
578			END Remnant	
579			Start Remnant	
580			Creek non-rem	
581			Start alluvial	
583			END Alluvial	
584			Ti E. pop 13m S, C. dallachiana LZ5	
585			Edge of creek Ti 11m S E. canaliculatus 20m wide	
588			Start remnant Poplar box	
591			Ti E. pop 14m rem LZ5 11.53	
592	site 12		non-rem paddock white spear Aristida	(photo)
593			Start alluvial soils	
597	site 7		RE 11.5.3 Remnant Good condition.	
600			end of alluvial creek line	
602	site 21		RE 11.5.3 Remnant Ti 15m Citrus glauca	
604			End alluvial Ischaemum vaginatum	
610			Start creek Carissa lanceolata	
613	site 30		Remnant 11.5.3 16m good condition	
614			Remnant 11.5.3 good condition	
615	site 31		" 11.5.3 13m Ti E-pop.	
			Edge E. pop / E. canaliculatus	
617			End E. canaliculatus	

No.	Easting	Northing	Comments	Photo
622			End Jucunda ironbark.	
625			End ironbark	
628	636198	7568219	Site 40 same as 39. RE 11.3.2	
629	636048	7567995	Site 41 same as 39, 40. RE 11.3.2	
631	635776	7567461	Site 43 same as 42 RE 11.3.2	
Edge of Brigalow				
634	635666	7567169	Site 45. π C. Essellens d, E. pop 9, E. sid 9 9-12m VS (Probably non-rem S, Cassinewren 1.3m VS G. Chonchus cilios 0-0.6 (0.4) D	
635			non-rem Chonchus cilios (unplanted trees)	
637			corridor clear > 20m buffer.	
638			Edge of Remnant close to fence 11.3.25	
640			Edge creek 11.3.25	
641			top of bank end 11.3.25.	
643			RE 11.3.2 rem ^{11.3.2}	
644	site 49		RE 11.3.2 rem + E. crebra Myoporum debilis.	
647			Edge of 11.3.25.	
650			Start E. crebra / pop remnant	
652			End remnant 11.3.2 start Brigalow regrowth	
654	site 52		Brigalow regrowth same as 55	
656	site 58		Brigalow regrowth 4m VS, Dicksonia 2(1)	
657	633998	7564106	Brigalow remnant as above. site 59	
658	633445	7563890	" " site 60	

Job... ~~XXXXXXXXXX~~

Date... ~~2019~~

No.	Easting	Northing	Comments	Photo
661	Site 63		disturbed patch in 11-5-3 11-5-3 non-rem	
662	Site 64		" " " " non-rem	
663			non-rem 11-5-3	
665			Start of pulled area	
666			Start Bryalaw regrowth	
669			End Bryalaw	
671			End remnant black bill	
673			Start A. harpophylla T ₁ ≈ 6m MD	
674			End Bryalaw regrowth / Start E. cambogera	
676			Pulled E. cambogera 14m (10m wide)	
679			End E. cambogera start P. ...	
680			E. cambogera	
684	site 85		Bryalaw < 1m sparse	
686 - 687			Edge 11-3-4	
689			Edge of 11-3-4	
690 - 691			Edge 11-3-25	
693			11-3-4 / 11-5-3	
696			Start 11-3-4	
698			11-3-4 / 11-3-25	

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 1 Recorder: A. DANIEL Day/Date: 28/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Coppabella
 GPS: 55 0644413 7581441 9DA194

Vegetation structure

Median height of the EDL is to be measured

575
5161

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	<u>14</u>	<u>12 - 16</u>	<u>S</u>
T2	<u>10</u>	<u>8 - 12</u>	<u>VS</u>
T3		-	
S1	<u>5</u>	<u>4 - 6</u>	<u>VS</u>
S2	<u>2</u>	<u>1 - 3</u>	<u>VS</u>
G	<u>0.5</u>	<u>0 - 1</u>	

Structural formation: (including height)
Tall woodland

Ecologically dominant layer: T

Plant species

Record relative (numerical) dominance for each stratum;
 d – dominant; c – co-dominant; s – subdominant, a – associated.

Str.	Rel. dom.	Scientific Name
<u>T₁</u>	<u>d</u>	<u>Eucalyptus populnea</u>
<u>T₁</u>	<u>a</u>	<u>Eucalyptus platyphylla</u>
<u>T₂</u>	<u>d</u>	<u>Eucalyptus platyphylla</u>
<u>S₁</u>	<u>d</u>	<u>Halimolobos longicaulis</u>
<u>S₂</u>	<u>c</u>	<u>Alphitonia excelsa</u>
<u>S₂</u>	<u>c</u>	<u>Capparis lucida</u>
<u>G</u>	<u>d</u>	<u>Megastylis maxima</u>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: Pale sandy clay
 Field observation and notes: _____
 Landzone: 5/3?

RE code changes

Existing RE code: 11.5.3/11.3.4
 Proposed RE code: 11.5.3.4

END

Parsonsia eucalyptifolia
Melinis repens

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 3 Recorder: A. Danise Day/Date: 28/03/94
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Coppabella
 GPS coordinates: Zone 55 E 0 N _____ Datum: 90M'94

Vegetation structure

576

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	<u>10</u>	<u>9 - 12</u>	<u>S</u>
T2	<u>7</u>	<u>4 - 9</u>	<u>S</u>
T3		-	
S1	<u>4</u>	<u>3 - 5</u>	<u>VS</u>
S2		-	
G	<u>0.3</u>	<u>0 - 0.6</u>	<u>MD</u>

Structural formation: (including height)
Tall open woodland

Ecologically dominant layer: T₁

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; s - subdominant, a - associated.

Str.	Rel. dom.	Scientific Name
<u>T₁</u>	<u>d</u>	<u>Eucalyptus platyphloea</u>
<u>T₂</u>	<u>d</u>	<u>Grevillea pteridifolia</u>
<u>S₁</u>	<u>d</u>	<u>Atalaya hemiglauc</u>
<u>G</u>	<u>a</u>	<u>Cenchrus ciliare</u>
<u>G</u>	<u>d</u>	<u>Melinis repens</u>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: pale yellow sand
 Field observation and notes: _____
 Landzone: 3

RE code changes

Existing RE code: 1105.3/11.7.2
 Proposed RE code: 11.3.05

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 4 Recorder: A. Daniel Day/Date: 28/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Coppabella
 GPS: SS 064433S 75812.14 9DA'94

582

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	14	12 - 16	S
T2	9	7 - 12	S
T3		-	
S1	6	4 - 7	VS
S2		1 - 3	VS
G		-	

Structural formation: (including height)

Tall Woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
d – dominant; *c* – co-dominant; *s* – subdominant, *a* – associated.

Str.	Rel. dom.	Scientific Name
<u>T1</u>	<u>d</u>	<u>Corymbia tessellaris</u>
<u>T1</u>	<u>d</u>	<u>Eucalyptus camaldulensis</u>
<u>T2</u>	<u>d</u>	<u>Melaleuca fluviatilis</u>
<u>S1</u>	<u>d</u>	<u>Petalostigma pubescens</u>
<u>S2</u>	<u>d</u>	<u>Acacia holosericea</u>
<u>G</u>	<u>d</u>	<u>Chloris gayana</u>
<u>G</u>	<u>a</u>	<u>Melinis repens</u>
<u>G</u>	<u>a</u>	<u>Stylotrichon Seabro</u>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: loamy pale orange sand.
 Field observation and notes: _____
 Landzone: 3

RE code changes

Existing RE code: 11.3.25
 Proposed RE code: 11.3.25

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 6 Recorder: A. DANIEL Day/Date: 28/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Coppabella
 GPS coordinates: Zone 55 E 06937910 N 75807911 Datum: SDA'94

586 587

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	10	8 - 12	S
T2	7	6 - 8	VS
T3		-	
S1	4	2 - 5	S
S2		-	
G	0.2	0.03	MD

Structural formation: (including height)

Tall woodland

Ecologically dominant layer: T1

narrow fringing woodland

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; s - subdominant, a - associated.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus camaldulensis</i>
T1	a	<i>Corymbia tessellata</i>
T1	a	<i>Corymbia clarksoniana</i>
T2	d	<i>Eucalyptus camaldulensis</i>
T2	a	<i>Acacia dispersa</i>
S1	d	<i>Acacia holosericea</i>
G	d	<i>Zygodium spicatum</i>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: Pale orange sand
 Field observation and notes: _____
 Landzone: 3

RE code changes

Existing RE code: 11.3.25
 Proposed RE code: 11.3.25

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 7 Recorder: A DANIEL Day/Date: 28/03/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Coppabella
 GPS coordinates: Zone 55 E 0644127 N 7579784 Datum: GDA94

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	13	11 - 14	S
T2	9	8 - 11	VS
T3		-	
S1	5	3 - 6	S
S2	2	1 - 3	VS
G	0-5	0 - 1	S

Structural formation: (including height)
Tall woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; s - subdominant, a - associated.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus populnea</i>
T1	a	<i>Corymbia dellaluciana</i>
T1	d	<i>Eucalyptus populnea</i>
T1	a	<i>Corymbia dellaluciana</i>
S1	d	<i>Metabolica viridiflora</i>
S1	a	<i>Atelaya hemiglauca</i>
S1	a	<i>Petalostigma pubescens</i>
S1	d	<i>Grewia latifolia</i>
S1	a	<i>Acacia excelsa</i>
G	D	<i>Aristida leptopoda</i>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: light brown sand
 Field observation and notes: _____
 Landzone: 5

RE code changes

Existing RE code: 11.5.3/11.3.4
 Proposed RE code: 11.5.3

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 8 Recorder: A. Daniel Day/Date: 28/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) _____
 GPS coordinates: Zone 5 S E 0694168 N 7579582 Datum: GDA'94

590

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	14	12 - 16	S
T2	9	7 - 11	VS
T3		-	
S1	4	3 - 6	VS
S2		-	
G	0.5	0 - 1	S

Structural formation: (including height)
Tall Woodland
 Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; s - subdominant, a - associated.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus camaldulensis</i>
T2	d	<i>Eucalyptus camaldulensis</i>
S1	c	<i>Acacia hobsenii</i>
S1	c	<i>Bursera incana</i>
G	d	<i>Zygophyllum spicatum</i>
G	a	<i>Sporobolus cebra</i>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: deep orange sand
 Field observation and notes: _____
 Landzone: 3

RE code changes

Existing RE code: 11.3.25
 Proposed RE code: 11.3.25

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form Regional ecosystem code

Location

Site No. 13 Recorder: A. J. DANIEL Day/Date: 28/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Coppabella
 GPS coordinates: Zone 55 E 0643879 N 7577979 Datum: GDA'94

Vegetation structure

Median height of the EDL is to be measured

594

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	17	14 - 20	S
T2	13	10 - 14	MD
T3		-	
S1		-	
S2		-	
G	0.3	0 - 0.6	MD

Structural formation: (including height)
Tall Woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; a - associated; s - suppressed.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus camaldulensis</i>
T1	a	<i>Corymbia tessellata</i>
T2	d	<i>Melaleuca fluviatilis</i>
G	d	<i>Megathyrsus maximum</i>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: Deep coarse yellow sand
 Field observation and notes: _____
 Landzone: 3

RE code changes

Existing RE code: 11.3.25
 Proposed RE code: 11.3.25

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 15 Recorder: A. DANIEL Day/Date: 29/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Cappabella
 GPS coordinates: Zone 53 E 0643398 N 7576669 Datum: GOA194

Vegetation structure

595

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	13	10 - 15	S
T2	8	6 - 10	S
T3		-	
S1	2	1 - 4	VS
S2	0.7	0.5 - 1	S
G	0.3	0 - 0.5	S

Structural formation: (including height)
Tall Woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; s - subdominant, a - associated.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus populnea</i>
T2	c	<i>Behretia membranifolia</i>
T2	c	<i>Neotilago viminifolia</i>
T2	a	<i>Acacia salicina</i>
S1	a	<i>Pectostegia pubescens</i>
S1	d	<i>Archidendropsis baxteri</i>
S2	d	<i>Cenchrus ciliaris</i>
G	a	<i>Heteropogon contortus</i>
G	d	<i>Amidula leptopoda</i>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: pale orange sand
 Field observation and notes: _____
 Landzone: 5

RE code changes

Existing RE code: 11.5.3 / 11.3.4
 Proposed RE code: 11.5.3

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 16 Recorder: A. DANIEL Day/Date: 29/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Coppabella
 GPS coordinates: Zone 55 E 0643140 N 7576530 Datum: GDA94

Vegetation structure

Median height of the EDL is to be measured

596

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	15	12 - 17	S
T2	9	7 - 12	S
T3		-	
S1	4	2 - 6	VS
S2	1.5	0.5 - 2	VS
G	0.3	0 - 1	S

Structural formation: (including height)
Tall woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; s - subdominant, a - associated.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus populnea</i>
T1	a	<i>Corymbia dallachiana</i>
T2	d	<i>Eucalyptus populnea</i>
T2	a	<i>Ventilago viminalis</i>
S1	c	<i>Ventilago viminalis</i>
S1	c	<i>Petalostemum puberulum</i>
S1	c	<i>Acacia excelsa</i>
S2	d	<i>Cassia ovata</i>
G	d	<i>Anstida latifolia</i>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: Orange sandy loam
 Field observation and notes: _____
 Landzone: 5

RE code changes

Existing RE code: 11.5.3 / 11.3.4
 Proposed RE code: 11.5.3

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 18 Recorder: A. DANIEL Day/Date: 29/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Coppabella
 GPS coordinates: Zone 55 E 0642922 N 7575972 Datum: GDA194

Vegetation structure

Median height of the EDL is to be measured

598

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	13	11 - 15	S
T2	8	6 - 11	S
T3		-	
S1	3	2 - 5	S
S2	0.7	0.5 - 1	S
G	0.3	0 - 0.5	S

Structural formation: (including height)
Tall woodland
 Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; a - associated; s - suppressed.

Str.	Rel. dom.	Scientific Name
T1	d	Eucalyptus populnea
T2	c	Grevillea stricta
T2	c	Croton insularis red leaf
T2	c	Stenotaphrum viminalis
S1	d	Petalostemum pubescens
S1	a	Aphelandra excelsa
S2	d	Cassia ovata
G	d	Arctida sp.

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: yellow/orange sandy loam
 Field observation and notes: _____
 Landzone: 5

RE code changes

Existing RE code: 11.5.3 / 11.7.2
 Proposed RE code: 11.5.3

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 19 Recorder: A. DANIEL Day/Date: 29/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Coppabella
 GPS coordinates: Zone 55 E 0642892 N 7575863 Datum: GDA'94

Vegetation structure

599

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	<u>15</u>	<u>13 - 16</u>	<u>S</u>
T2		-	
T3		-	
S1	<u>6</u>	<u>5 - 8</u>	<u>S</u>
S2		-	
G		-	

Structural formation: (including height)
Tall Woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; s - subdominant, a - associated.

Str.	Rel. dom.	Scientific Name
<u>T1</u>	<u>d</u>	<u>Eucalyptus tereticornis</u>
<u>T1</u>	<u>a</u>	<u>Corymbia tessellata</u>
<u>S1</u>	<u>c</u>	<u>Petalostigma pubescens</u>
<u>S1</u>	<u>c</u>	<u>Acacia flavescens</u>
<u>S1</u>	<u>c</u>	<u>Acacia leiocalyx</u>
<u>G</u>	<u>d</u>	<u>Sporobolus crebra</u>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: deep yellow sand
 Field observation and notes: _____
 Landzone: 3

RE code changes

Existing RE code: 11.3+25
 Proposed RE code: 11.3.25

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 20 Recorder: A. DANIEL Day/Date: 29/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Coppabella.
 GPS coordinates: Zone 55 E 0642876 N 7575441 Datum: DA'94

601

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	14	13 - 16	S
T2	11	9 - 13	VS
T3		-	
S1	6.3	4.2 - 7	S
S2	0.6	0.5 - 1	S
G	0.3	0 - 0.5	

Structural formation: (including height)
Tall woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; s - subdominant, a - associated.

Str.	Rel. dom.	Scientific Name
T1	d	Eucalyptus populnea
T2	d	Eucalyptus populnea
T3	d	Goyubia dellachiana
S1	d	Petalostigma pubescens
S1	a	Centilago cumeralis
S1	a	Cassia brewsterii
S1	a	Acacia salicina
S2	d	Cassia ovata
G	d	Aristida

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: Orange sandy loam
 Field observation and notes: _____
 Landzone: 5

RE code changes

Existing RE code: 11.5.3 / 11.7.2
 Proposed RE code: 11.5.3

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 22 Recorder: A DANIEL Day/Date: 29/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Coppabella
 GPS coordinates: Zone 55 E 0642878 N 7574523 Datum: GDA94

603

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	18	16 - 20	S
T2	14	12 - 16	S
T3		-	
S1	6	4 - 8	MD
S2	0.7	0.5 - 1	S
G	0.7	0 - 0.8	MD

Structural formation: (including height)
Tall woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; s - subdominant, a - associated.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus tereticornis</i>
T2	d	<i>Eucalyptus tereticornis</i>
T2	a	<i>Corymbia tessellaris</i>
S1	d	<i>Acacia koa</i>
S1	a	<i>Croton insularis</i>
S1	a	<i>Acacia flavescens</i>
S2	d	<i>Larissa ovata</i>
G	d	<i>Themeda triandra</i>
G	a	<i>Hyparrhenia rufa</i>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: Deep pale yellow/orange sand
 Field observation and notes: _____
 Landzone: 3

RE code changes

Existing RE code: 11.3.25
 Proposed RE code: 11.3.25

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 23 Recorder: A. Daniel Day/Date: 29/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Coppabella
 GPS coordinates: Zone 53 E 0642844 N 7574299 Datum: GDA194

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	16	14 - 18	S
T2	12	10 - 14	VS
T3		-	
S1	3	2 - 5	MD
S2	0.6	0.5 - 1	VS
G	0.1	0 - 0.2	VS

Structural formation: (including height)
Tall woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; a - associated; s - suppressed.

Str.	Rel. dom.	Scientific Name
T1	c	<i>Eucalyptus populnea</i>
T1	c	<i>Corymbia clarksoniana</i>
T2	c	<i>Eucalyptus populnea</i>
T2	c	<i>Corymbia clarksoniana</i>
S1	d	<i>Acacia helicalyx</i>
S2	d	<i>Bryonia oblanceolata</i>
S	d	litter

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: Dark Sandy loam
 Field observation and notes: _____
 Landzone: 5

RE code changes

Existing RE code: 11.5.15
 Proposed RE code: RE 11.5.3

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 27 Recorder: A. DANIEL Day/Date: 29/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Coppabecker
 GPS coordinates: Zone 55 E 0642862 N 7574033 Datum: GDA94

Vegetation structure

Median height of the EDL is to be measured

606

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	12	11 - 14	S
T2	9	8 - 11	S
T3		-	
S1	6	4 - 8	S
S2	0.0	0 - 2	VB
G		-	

Structural formation: (including height)
Tall woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; s - subdominant, a - associated.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus populnea</i>
T1	a	<i>Acacia australis</i>
T2	d	<i>Excoecaria agallocha</i>
T2	a	<i>Acacia australis</i>
S1	d	<i>Ptilothrix spinescens</i>
S1	a	<i>Petalostigma pubescens</i>
S1	a	<i>Grewia salicifolia</i>
S2	d	<i>Cassia ovata</i>
G	d	<i>Acrostachne cinerata</i>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: Pale sandy loam
 Field observation and notes: _____
 Landzone: 5

RE code changes

Existing RE code: 11.5.15
 Proposed RE code: 11.5.3

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 26 Recorder: A. DANIEL Day/Date: 29/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Coppabella
 GPS coordinates: Zone 55 E 0642583 N 7573530 Datum: GDA94

608

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		- #	
T1	14	13 - 16	S
T2	9	7 - 12	VS
T3		-	
S1	4	3 - 6	S
S2	0.8	0.5 - 1.5	VS
G	0.4	0 - 0.8	S

Structural formation: (including height)
Tall woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; s - subdominant, a - associated.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus populnea</i>
T1	a	<i>Corymbia clarksoniana</i>
T2	d	<i>Eucalyptus populnea</i>
S1	d	<i>Petalostigma pubescens</i>
S2	d	<i>Carissa ovata</i>
G	d	<i>Arctostida latifolia</i>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: pale sandy loam
 Field observation and notes: _____
 Landzone: 5

RE code changes

Existing RE code: 11.5.3 / 11.7.2
 Proposed RE code: 11.5.3

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 27 Recorder: A DANIEL Day/Date: 29/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Coppabella
 GPS coordinates: Zone 55 E 0642285 N 7573366 Datum: 2014

609

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	12	10 - 14	S
T2	8	6 - 10	VS
T3		-	
S1	3	2 - 5	S
S2		-	
G		-	

Structural formation: (including height)
Tall Woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; a - associated; s - suppressed.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus populnea</i>
T1	a	<i>Corymbia dallachiana</i>
S1	d	<i>Petalostigma pubescens</i>
S1	a	<i>Acacia excelsa</i>
S1	a	<i>Alphitonia excelsa</i>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: pale yellow sandy loam
 Field observation and notes: _____
 Landzone: 5

RE code changes

Existing RE code: 11.5.3/11.7.2
 Proposed RE code: 11.5.3

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 29 Recorder: A. DANIEL Day/Date: 29/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Coppabella
 GPS coordinates: Zone 55 E 0642032 N 7572860 Datum: GDA'94

Vegetation structure

612

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	16	14 - 18	S
T2	12	10 - 14	VS
T3		-	
S1	7	5 - 8	S
S2	0.75	1 - 1.5	VS
G	0.5	0 - 1	S

Structural formation: (including height)

Tall Woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; s - subdominant, a - associated.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus porphyrea</i>
T1	a	<i>Corymbia dallachiana</i>
T2	d	<i>Eucalyptus porphyrea</i>
T2	d	<i>Corymbia tessellaris</i>
T2	a	<i>Eucalyptus crebra</i>
S1	d	<i>Ventilago viminalis</i>
S1	a	<i>Aphitonia excelsa</i>
S2	d	<i>Carissa ovata</i>
G	d	<i>Arctostaphylos</i>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: red sandy loam
 Field observation and notes: _____
 Landzone: 5

RE code changes

Existing RE code: 11.5.3 / 11.7.2
 Proposed RE code: 11.5.3

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 32 Recorder: A. Daniel Day/Date: 29/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Coppabella
 GPS coordinates: Zone 5 S E 0 6 4 2 0 6 0 N 7 5 7 2 2 1 9 Datum: GDA'94

616

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	20	16-22	V S
T2	12	10-16	S
T3		-	
S1	8	6-10	S
S2	2	0.5-3	S
G		-	

Structural formation: (including height)

Tall woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; a - associated; s - suppressed.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus cambageana</i>
T2	d	<i>Eucalyptus cambageana</i>
T2	a	<i>Eucalyptus populnea</i>
S1	d	<i>Acacia dispersum</i>
S1	a	<i>Freanophila antzbellii</i>
S1	a	<i>Cassia brewsteri</i>
S2	d	<i>Carissa ovata</i>
S2	a	<i>Diosyros humilis</i>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: Pale Sandy loam
 Field observation and notes: _____
 Landzone: 5

RE code changes

Existing RE code: 11.5.3/11.7.2
 Proposed RE code: 11.5.3

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 33 Recorder: A DANIEL Day/Date: 29/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Cospabella
 GPS coordinates: Zone 55 E 0642040 N 7571982 Datum: GOA194

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	13	12 - 15	S
T2	8	6 - 10	S
T3		-	
S1	4	3 - 6	VS
S2		-	
G	0.1	0 - 0.2	VS

Structural formation: (including height)

Tall woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
d – dominant; *c* – codominant; *s* – subdominant, *a* – associated.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus populnea</i>
T2	d	<i>Acacia Woodoxylon</i>
S1	d	<i>Freemophila mitchelli</i>
S2	a	<i>Ventilago viminalis</i>
S2	d	<i>Carrisa ovata</i>
G	d	litter

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: pale sandy loam
 Field observation and notes: _____
 Landzone: 5

RE code changes

Existing RE code: 11.5.3/11.7.2
 Proposed RE code: 11.5.3

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 3A Recorder: A. DANIEL Day/Date: 24/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) _____
 GPS coordinates: Zone 55 E 0641936 N 7571757 Datum: GA94

Vegetation structure

Median height of the EDL is to be measured

620

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	13	12 - 15	S
T2	10	8 - 12	VS
T3		-	
S1	4	3 - 6	S
S2		-	
G	0.1	0 - 0.3	VS

Structural formation: (including height)
Tall Woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; s - subdominant, a - associated.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus populnea</i>
T2	d	<i>Eucalyptus populnea</i>
S1	c	<i>Cassia brewsteri</i>
S1	c	<i>Maytenus cunninghamii</i>
S1	c	<i>Eremophila mitchellii</i>
G	d	litter

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: pale sandy brown
 Field observation and notes: _____
 Landzone: 5

RE code changes

Existing RE code: 11.5.3/11.7.2
 Proposed RE code: 11.5.3

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 35 Recorder: A. Daniel Day/Date: 29/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Coppabella
 GPS coordinates: Zone 55 E 0691959 N 7571166 Datum: DA'94

Vegetation structure

621

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	15	14 - 17	S
T2	12	10 - 14	VS
T3		-	
S1	4	3 - 6	S
S2		-	
G		-	

Structural formation: (including height)

Tall open woodland

Ecologically dominant layer:

T1

Plant species

Record relative (numerical) dominance for each stratum;

d - dominant; *c* - codominant; *s* - subdominant, *a* - associated.

Str.	Rel. dom.	Scientific Name
T1	c	<i>Eucalyptus crebra</i>
T1	c	<i>Corymbia dallachiana</i>
S1	d	<i>Acacia julifera</i> <u>kenilona</u>
S1	a	<i>Melaleuca viridiflora</i>
G	d	<i>Euteropogon curviflorus</i>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: Pale sandy loam
 Field observation and notes: _____
 Landzone: 5

RE code changes

Existing RE code: 11.5.3/11.7.2
 Proposed RE code: 11.5.3

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form Regional ecosystem code

Location

Site No. 36 Recorder: A. DANIEL Day/Date: 29/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Coppabella
 GPS coordinates: Zone 55 E 06416611 N 7571418 Datum: DA94

Vegetation structure

Median height of the EDL is to be measured

623

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	12	10 - 14	S
T2		-	
T3		-	
S1	3.5	2 - 5	S
S2		-	
G	0.2	0 - 0.3	US

Structural formation: (including height)
Tall woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; a - associated; s - suppressed.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus populnea</i>
S1	d	<i>Ecunghula mitchellii</i>
S1	a	<i>Cassia Brewsteri</i>
S1	a	<i>Petalostyma pubescens</i>
S1	a	<i>Grevillea pteridifolia</i>
G	d	<i>Aristida</i>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: Pale orange sandy loam
 Field observation and notes: _____
 Landzone: 5

RE code changes

Existing RE code: 11.5.3/11.7.2
 Proposed RE code: 11.5.3

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 37 Recorder: A. Daniel Day/Date: 29/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Coppabella
 GPS coordinates: Zone 55 E 0641310 N 7571038 Datum: TM194

624

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	13	12-15	S
T2		-	
T3		-	
S1	2-5	1 - 4	S
S2		-	
G	0.6	0-0.9	MD

Structural formation: (including height)
Tall Open Woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; s - subdominant, a - associated.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus crebra</i>
S1	c	<i>Ehretia laevis</i>
S1	c	<i>Erythroxylum australe</i>
S1	c	<i>Petalostigma pubescens</i>
S1	c	<i>Alphitonia excelsa</i>
S1	d	<i>Arctida latifolia</i>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: Pale orange sandy loam
 Field observation and notes: _____
 Landzone: 5

RE code changes

Existing RE code: 11.5.3 / 11.7.2
 Proposed RE code: 11.5.3

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 38 Recorder: A. DANIEL Day/Date: 29/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Coppabella
 GPS coordinates: Zone 55 E 0641047 N 7570791 Datum: GDA94

626

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	13	12 - 15	S
T2	10	8 - 12	VS
T3		-	
S1	5	3 - 6	S
S2	0.4	0.3 - 0.5	VS
G	0.1	0 - 0.3	VS

Structural formation: (including height)
Tall woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; s - subdominant, a - associated.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus populnea</i>
S1	d	<i>Acacia excelsa</i>
S1	a	<i>Geryon salicifolia</i>
S1	a	<i>Maytenus cunninghamii</i>
S2	d	<i>Grewia latifolia</i>
G	d	<i>Choucrius ciliare</i>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: Sandy loam
 Field observation and notes: _____
 Landzone: 5

RE code changes

Existing RE code: 11.5.3 / 11.7.2
 Proposed RE code: 11.5.3

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 39 Recorder: A. DANIEL Day/Date: 30/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Moorevale
 GPS coordinates: Zone 55 E 0636328 N 7568316 Datum: GDA1994

Vegetation structure ⁶²⁷

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	15	14 - 17	S
T2	11	9 - 12	VS
T3		-	
S1	55	4 - 7	S
S2	1.5	0.5 - 2	VS
G	0.6	0 - 0.8	S

Structural formation: (including height)
Tall woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; s - subdominant, a - associated.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus populnea</i>
T2	d	<i>Eucalyptus populnea</i>
S1	d	<i>Cassia Abreosifolia</i>
S1	a	<i>Atalaya hemiglaucq</i>
S2	a	<i>Grewia latifolia</i>
S2	d	<i>Cassia ovata</i>
G	d	<i>Heteropogon contortus</i>

G c dandenus ciliare

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: Sandy clay loam pale
 Field observation and notes: _____
 Landzone: 3

RE code changes

Existing RE code: 11.3.2 / 11.3.1
 Proposed RE code: 11.3.2

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form Regional ecosystem code

Location

Site No. 42 Recorder: A. DANIEL Day/Date: 30/05/19

Purpose: _____

Locality: (inc. distance/direction to nearest town) Moornale

GPS coordinates: Zone 55 E 0635919 N 7567754 Datum: DA94

Vegetation structure

Median height of the EDL is to be measured

630

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	12	10 - 14	S
T2	8	6 - 10	S
T3		-	
S1	4	3 - 6	S
S2	1	0.5 - 2	VS
G	0.3	0 - 0.5	MD

Structural formation: (including height)
Tall woodled

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
d - dominant; c - codominant; a - associated; s - suppressed.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus populnea</i>
T2	d	<i>Eucalyptus populnea</i>
S1	a	<i>Cassia brevistylis</i>
S1	e	<i>Atalaya hemiglaucis</i>
S2	d	<i>Archidendropsis basaltica</i>
G	d	<i>Chenopodium ciliatum</i>

Geology, landform, soils

Geology map/scale/year: _____

Geology code and rock types: _____

Land system: _____

Landform: _____

Soils: Sandy loam

Field observation and notes: _____

Landzone: 3

RE code changes

Existing RE code: 11.3.2 / 11.3.1

Proposed RE code: 11.3.2

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 44 Recorder: A-DANIEL Day/Date: 30/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Moorevale
 GPS coordinates: Zone 55 E 0635756 N 7567333 Datum: GD1984

632

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	11	9 - 12	S-MD
T2	7	6 - 9	S
T3		-	
S1		-	
S2	0.7	0 - 1.5	VS
G		-	

Structural formation: (including height)
Tall Woodland

Ecologically dominant layer: 1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; s - subdominant, a - associated.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Acacia harpophylla</i>
T2	d	<i>Acacia harpophylla</i>
S1	d	<i>Terminalia oblongifolia</i>
S2	d	<i>Curatella ovata</i>
G	d	<i>Chondrus ciliare</i>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: Orange sandy loam
 Field observation and notes: _____
 Landzone: 3

RE code changes

Existing RE code: 11.3.2 / 11.3.1
 Proposed RE code: 11.3.1

END



Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form Regional ecosystem code

Location

Site No. 46 Recorder: A. DANIEL Day/Date: 29/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) MOOREVILLE
 GPS coordinates: Zone 55 E 0635822 N 7566954 Datum: GDA94

636 clear for 10m on fence line

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	12	10 - 14	S
T2		-	
T3		-	
S1	3	1 - 4	VS
S2	0.7	0.5 - 1	VS
G	0.5	0 - 0.8	MD

Structural formation: (including height)
Tall woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; s - subdominant, a - associated.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Corymbia tessellaris</i>
T1	a	<i>Eucalyptus kebbickii</i>
S1	d	<i>Cassia brewsteriana</i>
S2	c	<i>Cassia brewsteriana</i>
S2	c	<i>Greivia latifolia</i>
G	d	<i>Heteropogon contortus</i>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: Orange sandy loams
 Field observation and notes: _____
 Landzone: 3

RE code changes

Existing RE code: 1103.25
 Proposed RE code: 11.3.25

END

NO clearing anticipated

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 47 Recorder: A. DANIEL Day/Date: 30/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) _____
 GPS coordinates: Zone 53 E 0 63 5 7 9 0 N 7 5 6 6 6 0 Datum: GDA194

639

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	14	12 - 16	S
T2	10	8 - 12	VS
T3		-	
S1	5	4 - 7	VS
S2	0.7	0.5 - 1	VS
G	0.6	0 - 0.9	D

Structural formation: (including height)
Tall woodland

Ecologically dominant layer: 1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; s - subdominant, a - associated.

Str.	Rel. dom.	Scientific Name
T ₁	d	<i>Eucalyptus tereticornis</i>
T ₁	a	<i>Eucalyptus crebra</i>
T ₁	a	<i>Corumbia</i> sp.
T ₂		as above
S ₁	d	<i>Acacia salicina</i>
S ₂	d	<i>Greesia letrifolia</i>
G	d	<i>Heteropogon contortus</i>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: Pale sandy loam
 Field observation and notes: _____
 Landzone: 3

RE code changes

Existing RE code: 11.3.2/11.3.1
 Proposed RE code: 11.3.4

END



Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET D – Site/transect form Vegetation structure - crown cover measured

Location

Site No. 98 Recorder: A DANIEL Day/Date: 30/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Moorvale

Vegetation structure

Median height of EDL is to be measured
 Cover density is to be estimated

642

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	12	10 - 14	S
T2		-	
T3		-	
S1	4	3 - 6	VS
S2	0.7	0.5 - 1	VS
G	0.8	0 - 0.5	MD

Structural formation including height: (estimated)
Tall woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d – dominant; c – codominant; s – subdominant, a – associated.

Str.	Rel. dom.	Scientific Name
T1	d	Eucalyptus populnea
S1	d	Cassia brevifolia
S2	d	Cassia ovata
G		Clonchrys colona

Transect - crown cover measured (transect intercept method)

642

GPS coordinates: Datum: _____ Transect length: _____
 Start point Zone 55 E 0635780 N 7566483
 End point Zone 5 E 0 N

Interval (metres)	Intercept	Str.	Height
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		

Summary:

Minimum height of plants included in the transect table:	m
Intercept of EDL 0 - 50m:	m
Intercept of EDL 50 - 100m:	m
Measured crown cover % of EDL 0 - 100m:	%
Structural formation	
Conclusions/notes:	

END Sandy loam 11.302/11.301

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET D – Site/transect form Vegetation structure - crown cover measured

Location

Site No. 50 Recorder: A DANIEL Day/Date: 30/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) 645 Moorvale

Vegetation structure

Median height of EDL is to be measured
 Cover density is to be estimated

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	10	9 - 12	S
T2		-	
T3		-	
S1	7	5 - 8	S
S2	2	1 - 4	S
G	0.3	0 - 0.5	MD

Structural formation including height: (estimated)
Tall Woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d – dominant; c – codominant; s - subdominant, a – associated.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Acacia harpophylla</i>
S1	d	<i>Lysiphylum hookeri</i>
S1	a	<i>Eremophila mitchellii</i>
S2	d	<i>Lysiphylum hookeri</i>
G		<i>Chondrus ciliare</i>

Transect - crown cover measured (transect intercept method)

GPS coordinates: 645 Datum: _____ Transect length: _____
 Start point Zone 5 E 0635636 N 7566153
 End point Zone 5 E 0 N

Interval (metres)	Intercept	Str.	Height
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		

Summary:

Minimum height of plants included in the transect table:	m
Intercept of EDL 0 - 50m:	m
Intercept of EDL 50 -100m:	m
Measured crown cover % of EDL 0 -100m:	%
Structural formation	
Conclusions/notes:	

END Yellow sandy loam RF 11.3.1
 Request for assessment of RE map – ver. 11.3.25 *

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET D - Site/transect form Vegetation structure - crown cover measured

Location

Site No. 51 Recorder: A. DANIEL Day/Date: 30/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Moorevale

Vegetation structure

Median height of EDL is to be measured
 Cover density is to be estimated

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	18	16 - 20	S
T2	14	12 - 16	S
T3		-	
S1	6	4 - 8	S
S2		-	
G	0.2	0 - 0.3	ND

Structural formation including height: (estimated)
Tall woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; s - subdominant, a - associated.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus camaldulensis</i>
T2	c	<i>Eucalyptus camaldulensis</i>
T2	c	<i>Casuarina cristata</i>
S1	d	<i>Lysiphium hookeri</i> ?
S1	d	<i>Cynodon dactylon</i>

Transect - crown cover measured (transect intercept method)

11.3.25

GPS coordinates: Datum: GDA94 Transect length: _____
 Start point Zone 55 E 0635636 N 7566069
 End point Zone 5 E 0 N

Interval (metres)	Intercept	Str.	Height
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		

Summary:

Minimum height of plants included in the transect table:	m
Intercept of EDL 0 - 50m:	m
Intercept of EDL 50 - 100m:	m
Measured crown cover % of EDL 0 - 100m:	%
Structural formation	
Conclusions/notes:	

END

Mapped 11.3.25

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 52 Recorder: A. DANIEL Day/Date: 30/03/19
 Purpose: _____
 Locality: (Inc. distance/direction to nearest town) Moordke
 GPS: 55 0635499 7565957 9DA94

648

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	11	10 - 12	S
T2	8	6 - 10	V>
T3		-	
S1	4	3 - 6	VS
S2	0.5	0 - 1	VS
G	0.4	0 - 0.5	MD

Structural formation: (including height)
Tall woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d – dominant; c – co-dominant; s – subdominant, a – associated.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus populnea</i>
T2	d	<i>Eucalyptus populnea</i>
T3	a	<i>Ventilago viminalis</i>
S1	d	<i>Cassia brewsteri</i>
S1	a	<i>Alectryon diversiflorus</i>
S2	d	<i>Myoporum</i>
a	c	<i>Chenopodium ciliare</i>
a	c	<i>Chloris ventricosa</i>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: Brown loam
 Field observation and notes: _____
 Landzone: 3

RE code changes

Existing RE code: 11.302/11.301/11.3025
 Proposed RE code: 11.302

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET D - Site/transect form Vegetation structure - crown cover measured

Location

Site No. 55 Recorder: A. DANIEL Day/Date: 30/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Marvale

Vegetation structure

653

Median height of EDL is to be measured
 Cover density is to be estimated

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	<u>6</u>	<u>4 - 8</u>	<u>VS</u>
T2		-	
T3		-	
S1	<u>1</u>	<u>0.5 - 1.5</u>	<u>VS</u>
S2		-	
G		-	

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; s - subdominant, a - associated.

Str.	Rel. dom.	Scientific Name
<u>T₁</u>	<u><</u>	<u>Acacia harpophylla</u>
<u>T₁</u>	<u><</u>	<u>Terminalia oblongifolia</u>
<u>S₁</u>	<u>d</u>	<u>Lysiphylum curronii</u>
<u>G</u>	<u>d</u>	<u>Dichanthum sericeum</u>

Structural formation including height: (estimated)

Shrubland grassland

Ecologically dominant layer:

S₁ G

Transect - crown cover measured (transect intercept method)

Sensitive rock precinct

GPS coordinates: Datum: GDA194 Transect length: _____
 Start point Zone 5 E 0635180 N 7565573
 End point Zone 5 E 0 N _____

Interval (metres)	Intercept	Str.	Height
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		

Summary:

Minimum height of plants included in the transect table:	m
Intercept of EDL 0 - 50m:	m
Intercept of EDL 50 - 100m:	m
Measured crown cover % of EDL 0 - 100m:	%
Structural formation	
Conclusions/notes:	

END

pale brown sandy clay

Mapped non-reun.

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET D – Site/transect form Vegetation structure - crown cover measured

Location

Site No. 57 Recorder: A DANIEL Day/Date: 30/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Moonsdale

Vegetation structure

Median height of EDL is to be measured
 Cover density is to be estimated

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	7	5 - 10	S
T2		-	
T3		-	
S1		-	
S2		-	
G		-	

Structural formation including height: (estimated)

Riparian woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d – dominant; c – codominant; s - subdominant, a – associated.

Str.	Rel. dom.	Scientific Name
T1	c	<u>Acacia harpophylla</u>
T1	c	<u>Acacia salicina</u>
T1	c	<u>Terminalia oblonga</u>
T1	c	<u>Lysochloa hookeri</u>
E	D	<u>Chenopodium ciliatum</u>

Transect - crown cover measured (transect intercept method)

GPS coordinates: Datum: GDA94 Transect length: _____
 Start point Zone 5 E 0634733 N 7565055
 End point Zone 5 E 0 N

Interval (metres)	Intercept	Str.	Height
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		

Summary:

Minimum height of plants included in the transect table:	m
Intercept of EDL 0 - 50m:	m
Intercept of EDL 50 - 100m:	m
Measured crown cover % of EDL 0 - 100m:	%
Structural formation	
Conclusions/notes:	

END

non-rem creek line

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET D – Site/transect form Vegetation structure - crown cover measured

Location

Site No. 61 Recorder: A. DANIEL Day/Date: 30/05/2019
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) to Moonvale

Vegetation structure

659

Median height of EDL is to be measured
 Cover density is to be estimated

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	15	14 - 17	S
T2	12	10 - 14	VS
T3		-	
S1	5	4 - 7	S
S2	1	0.5 - 2	VS
G	0.6	1 - 0.8	MD

Structural formation including height: (estimated)
Tall woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d – dominant; c – codominant; s - subdominant, a – associated.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus populnea</i>
T2	d	<i>Eucalyptus populnea</i>
S1	c	<i>Bremophyla rubellii</i>
S1	c	<i>Cassia brewsteri</i>
S1	c	<i>Atedaya hemigbaea</i>
S1	c	<i>Acacia salicina</i>
S2	d	<i>Grewia latifolia</i>
G	d	<i>Urochloa mombasensis</i>

Transect - crown cover measured (transect intercept method)

Row 113.2

GPS coordinates: Datum: _____ Transect length: _____
 Start point Zone 5 E 0636390 N 7268410
 End point Zone 5 E 0 N

Interval (metres)	Intercept	Str.	Height
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		
-	m		

Summary:

Minimum height of plants included in the transect table: _____ m

Intercept of EDL 0 - 50m: _____ m

Intercept of EDL 50 - 100m: _____ m

Measured crown cover % of EDL 0 - 100m: _____ %

Structural formation: _____

Conclusions/notes: _____

END grey sandy loam LZ3 mapped 710302/110301

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 62 Recorder: A. Daniel Day/Date: 31/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) MOORVILLE
 GPS coordinates: Zone 5 E 0 840 829 N 757 0663 Datum: GDA1994

660

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	11	10 - 13	S
T2	7	5 - 9	S
T3		-	
S1	2.5	1.5 - 4	VS
S2	1	0.5 - 1.5	VS
G	0.1	0 - 0.5	VS

Structural formation: (including height)
Tall Woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; a - associated; s - suppressed.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus populneae</i>
T2	c	<i>Eucalyptus populneae</i>
T2	c	<i>Acacia, no name</i>
T2	c	<i>Pterostichya pubescens</i>
T2	c	<i>Acacia excelsa</i>
S1	d	<i>Pterostichya pubescens</i>
S1	a	<i>Acacia excelsa</i>
S2	d	<i>Cassia acuta</i>
G	d	litter

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: Sandy clay loam
 Field observation and notes: _____
 Landzone: 5

RE code changes

Existing RE code: 11.513/11.712
 Proposed RE code: 11.513

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 67 Recorder: A Daniel Day/Date: 31/03/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Moorevale
 GPS coordinates: Zone 55 E 0690419 N 7570303 Datum: GDA94

664

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	12	11 - 13	S
T2	8	7 - 11	VS
T3		-	
S1	4	3 - 6	S
S2	0.6	0.5 - 1	VS
G	0.1	0 - 0.2	VS

Structural formation: (including height)
Tall woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; a - associated; s - suppressed.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus populnea</i>
T2	d	<i>Eucalyptus populnea</i>
T2	a	<i>Acacia excelsa</i>
S		
S1	d	<i>Everophila mitchellii</i>
S1	a	<i>Pterogyne hirsuta</i>
S1	a	<i>Cassia brewsteri</i>
S1	a	<i>Halcyon pinnatifida</i>
S2	d	<i>Cassia ovata</i>
G	d	litter

Remnant

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: Orange sandy clay
 Field observation and notes: _____
 Landzone: 5

RE code changes

Existing RE code: 11.53 / 11.72
 Proposed RE code: 11.503

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 70 Recorder: A DANIEL Day/Date: 31/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Moorevale
 GPS coordinates: Zone 55 E 0639719 N 7570426 Datum: GDA90

Vegetation structure ⁶⁶⁷

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	7	3 - 9	S
T2	4	3 - 5	VS
T3		-	
S1	2	1.5 - 3	S
S2	1	0.5 - 1.5	S
G		-	

Structural formation: (including height)
Woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; a - associated; s - suppressed.

Str.	Rel. dom.	Scientific Name
T ₁	d	<i>Acacia harpophylla</i>
T ₁	a	<i>Eucalyptus cambridgeana</i>
T ₂	d	<i>Acacia harpophylla</i>
S ₁	d	<i>Eremophila mitchellii</i>
S ₁	a	<i>Terminalia oblongifolia</i>
S ₂	d	<i>Cassia ovata</i>

Geology: landform, soils ^{Regr}

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: pale sandy clay
 Field observation and notes: _____
 Landzone: 9

RE code changes

Existing RE code: non-rem
 Proposed RE code: Regrowth 11.4.9

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 71 Recorder: A. DANIEL Day/Date: 31/05/19
 Purpose _____
 Locality: (inc. distance/direction to nearest town) Moorevale
 GPS coordinates: Zone 55 E 0639484 N 7570450 Datum: GDA94

686

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	7	5 - 8	BD
T2	3	2 - 5	S
T3		1 - 2	
S1	1.5	1 - 2	VS
S2		-	
G	0.01	0 - 0.2	VS

Structural formation: (including height)
OPEN FOREST

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; a - associated; s - suppressed.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Acacia harpophylla</i>
T2	d	<i>Acacia harpophylla</i>
S1	d	<i>Eremophila antichellii</i>
S2	d	<i>Gnassa ovata</i>
G	d	litter

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: Sandy clay
 Field observation and notes: _____
 Landzone: 9

RE code changes

Existing RE code: NON-REM
 Proposed RE code: REGROWTH 11.49

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 72 Recorder: A. DANIEL Day/Date: 31/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Marvale
 GPS coordinates: Zone 55 E 06391334 N 7576476 Datum: GDA94

Vegetation structure

Median height of the EDL is to be measured

670

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	16	15 - 18	S
T2	12	10 - 14	VS
T3		-	
S1	5	2 - 8	S
S2		-	
G	0.1	0 - 0.2	S

Structural formation: (including height)
Tall woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; a - associated; s - suppressed.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus Cambageana</i>
T2	d	<i>Eucalyptus Cambageana</i>
S1	c	<i>Eremophila mitchellii</i>
S1	c	<i>Terminalia dolargifolia</i>
S1	c	
S2	d	<i>Carissa ovalis</i>
G	d	litter

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: Sandy clay
 Field observation and notes: _____
 Landzone: 9

RE code changes

Existing RE code: 11.9.5
 Proposed RE code: 11.9.5 REMNANT

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form Regional ecosystem code

Location

Site No. 73 Recorder: A. DANIEL Day/Date: 31/05/19
 Purpose _____
 Locality: (inc. distance/direction to nearest town) MOORVACUE
 GPS coordinates: Zone 55 E 0639110 N 7570507 Datum: GDA94

672

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	10	8 - 12	S
T2	6	5 - 8	S
T3		-	
S1	2	1 - 4	VS
S2		-	
G		-	

Structural formation: (including height)
Tall open woodland
 Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; a - associated; s - suppressed.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus cambageana</i>
T2	d	<i>Acacia harpophylla</i>
T2	a	<i>Terminalia oblongifolia</i>
S1	d	<i>Terminalia oblongifolia</i>
S1	a	<i>Acacia harpophylla</i>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: Sundday
 Field observation and notes: _____
 Landzone: 9

RE code changes

Existing RE code: Non-rem
 Proposed RE code: Regrowth 11/0/90/

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 76 Recorder: A Daniel Day/Date: 31/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Moorevale
 GPS coordinates: Zone 55 E 0638821 N 7570551 Datum: GDA94

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	12	10 - 14	S
T2		-	
T3		-	
S1	3	1 - 4	S
S2		-	
G		-	

Structural formation: (including height)
Tall woodland
 Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; a - associated; s - suppressed.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus cambageana</i>
T1	a	<i>Eucalyptus populnea</i>
S1	d	<i>Erythroxylum splityard creek</i>
S1	a	<i>Cassia lanceolata</i>
S1	a	<i>Ehretia membranifolia</i>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: Sandy clay
 Field observation and notes: _____
 Landzone: 9

RE code changes

Existing RE code: 11.5.3/11.7.2
 Proposed RE code: Remnant 11.9.1

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 77 Recorder: A. Donice Day/Date: 31/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Moornale
 GPS coordinates: Zone 55 E 0637378 N 7568926 Datum: GDA94

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	15	13 - 17	S
T2	11	9 - 13	V S
T3		-	
S1	6	4 - 7	S
S2	2	0.5 - 3	S
G		-	

Structural formation: (including height)
Tall woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; a - associated; s - suppressed.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus cambageana</i>
T2	d	<i>Eucalyptus cambageana</i>
S1	c	<i>Freemontia mitchellii</i>
S1	c	<i>Terminalia oblongifolia</i>
S2	c	<i>Pithecolobium spiroxanthum</i>
S2	c	<i>Cassia lanceolata</i>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: Sandy clay
 Field observation and notes: _____
 Landzone: 9

RE code changes

Existing RE code: 11.9.5
 Proposed RE code: 11.9.01

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 78 Recorder: A. DANIEL Day/Date: 31/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Mooreville
 GPS coordinates: Zone 5 E 0637295 N 7568804 Datum: GDA94

678

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	19	16 - 22	S
T2	13	10 - 14	VS
T3		-	
S1	6	4 - 7	S
S2	1	0.5 - 2	S
G		-	

Structural formation: (including height)
Tall Woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; a - associated; s - suppressed.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus cambageana</i>
T2	d	<i>Eucalyptus cambageana</i>
T2	a	<i>Casuarina cristata</i>
S1	c	<i>Eremophila imbricaria</i>
S1	c	<i>Owenia acidula</i>
S1	c	<i>Terminalia longifolia</i>
S2	c	<i>Alectryon diversifolius</i>
S2	c	<i>Pithecolobium spinescens</i>
S2	c	<i>Carissa ovalata</i>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: sandy clay
 Field observation and notes: _____
 Landzone: 9

RE code changes

Existing RE code: 11.9.5
 Proposed RE code: 11.9.01

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 81 Recorder: A. DANIEL Day/Date: 31/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Moorevale
 GPS coordinates: Zone 54 E 0637222 N 7568357 Datum: GDA'94

681

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	13	12 - 15	S
T2	10	9 - 11	VS
T3		-	
S1	4	2 - 6	S
S2		-	
G	0.20	0.3	S

Structural formation: (including height)
Tall woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; a - associated; s - suppressed.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus cambageana</i>
T2	d	<i>Eucalyptus cambageana</i>
S1	c	<i>Acacia harpadyi</i> (s)
S1	c	<i>Terminalia oblongifolia</i>
S1		
S2	d	<i>Cassia acuta</i>
G	d	<i>Amesida</i>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: Sandy clay
 Field observation and notes: _____
 Landzone: 9

RE code changes

Existing RE code: non-rem
 Proposed RE code: 110901 non-rem wood

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form Regional ecosystem code

Location

Site No. 82 Recorder: A. DANIEL Day/Date: 31/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Moorevale
 GPS coordinates: Zone 5 E 0637028 N 7568367 Datum: GDA194

682

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	11	9 - 12	S
T2	8	6 - 9	S
T3		-	
S1	4	3 - 6	S
S2	12	0.5 - 3	S
G		-	

Structural formation: (including height)
Tall woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; a - associated; s - suppressed.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus populnea</i>
T1	q	<i>Eucalyptus cambageana</i>
T2	d/c	<i>Casuarina cristata</i>
T2	s/c	<i>Acacia harpophylla</i>
S1	d	<i>Acacia harpophylla</i>
S2	d	<i>Epenopula mitchelli</i>
S2	a	<i>Carex a. arida</i>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: Sandy clay
 Field observation and notes: _____
 Landzone: 4

RE code changes

Existing RE code: 1109.5
 Proposed RE code: 1109.1

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form Regional ecosystem code

Location

Site No. 84 Recorder: A. DANIEL Day/Date: 31/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Moorvale
 GPS coordinates: Zone 55 E 0636849 N 7568383 Datum: GDA194

683

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	14	12 - 15	S
T2	10	9 - 12	VS
T3		-	
S1	4	3 - 6	S
S2	1	0.5 - 2	S
G	0.3	0 - 0.5	MD

Structural formation: (including height)
Tall woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; a - associated; s - suppressed.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus populnea</i>
T1	d	<i>Eucalyptus populnea</i>
S1	d	<i>Eremophila mitchellii</i>
S1	a	<i>Cassia brewsteri</i>
S2	c	<i>Eremophila mitchellii</i>
S2	c	<i>Cassia ovata</i>
G	c	<i>Heteropogon contortus</i>
G	c	<i>Melinis repens</i>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: Sandy clay loam
 Field observation and notes: _____
 Landzone: 3

RE code changes

Existing RE code: 11.3.2 / 11.3.1
 Proposed RE code: 11.3.2

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form Regional ecosystem code

Location

Site No. 86 Recorder: A. Druce Day/Date: 01/06/19
 Purpose _____
 Locality: (inc. distance/direction to nearest town) Coppabella
 GPS coordinates: Zone 55 E 0644606 N 7581411 Datum: GDA'94

685

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	11	9 - 12	S
T2	7	6 - 9	VS
T3		-	
S1	4	2 - 6	3
S2		-	
G	0.3	0 - 1	MD

Structural formation: (including height)
Tall Woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum; d - dominant; c - codominant; a - associated; s - suppressed.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus platyphyla</i>
S2	c	<i>Grevillea pterid</i>
T2	c	<i>Eucalyptus platyphyla</i>
S1	d	<i>Eucalyptus platyphyla</i>
G	d	<i>Heteropogon contortus</i>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: Sandy clay
 Field observation and notes: _____
 Landzone: 3

RE code changes

Existing RE code: 11.5.3/11.3.4
 Proposed RE code: 11.3.4

END



Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form Regional ecosystem code

Location

Site No. 87 Recorder: A. DANIEL Day/Date: 01/06/19
 Purpose _____
 Locality: (inc. distance/direction to nearest town) Coppabella
 GPS coordinates: Zone 55 E 0644321 N 7581254 Datum: GDA94

688

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	14	13 - 16	S
T2	11	7 - 12	VS
T3		-	
S1	5	4 - 7	S
S2		-	
G	0.5	0 - 1	MD

Structural formation: (including height)
Tall woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum; d - dominant; c - codominant; a - associated; s - suppressed.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus populnea</i>
T1	a	<i>Corymbia tessellata</i> S
T2	d	<i>Eucalyptus populnea</i>
S1	d	<i>Petalostigma pubescens</i>
S1	a	<i>Azalypha eremorum</i>
S1	a	<i>Abolaya hampdena</i>
T1	a	<i>Barbarea inana</i>
G	d	<i>Heteropogon contortus</i> S

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: Sandy clay loam
 Field observation and notes: _____
 Landzone: 3

RE code changes

Existing RE code: 11.5.3 / 11.3.4
 Proposed RE code: 11.3.4

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form Regional ecosystem code

Location

Site No. 88 Recorder: A. DANIEL Day/Date: 30/06/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Coppabella
 GPS coordinates: Zone 55 E 0646143 N 7581380 Datum: 90A'94

Vegetation structure ⁶⁹⁴

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	13	12 - 15	S
T2	9	8 - 12	VS
T3		-	
S1	3	2 - 5	S
S2	1-5	1 - 2	VS
G	0-5	0 - 1	MD

Structural formation: (including height)
Tall Woodland
 Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; a - associated; s - suppressed.

Str.	Rel. dom.	Scientific Name
T ₁	d	Eucalyptus populnea
T ₂	d	Eucalyptus populnea
T ₂	a	Grevillea sp.
S ₁	c	Verticillago univialis
S ₁	c	Cassia bracteata brewsteri
S ₁	c	Grevillea stricta
S ₁	c	Erythroxylum split yard creek
S ₂		As above
G	d	Chondrus alvare

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: Sandy loam
 Field observation and notes: _____
 Landzone: 5

RE code changes

Existing RE code: 11.5.3/11.7.2
 Proposed RE code: 11.5.3

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form Regional ecosystem code

Location

Site No. 89 Recorder: A. DANIEL Day/Date: 01/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Coppabella
 GPS coordinates: Zone 55 E 0645789 N 7581063 Datum: GDA94

Vegetation structure 695

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	12	10 - 14	S
T2	9	7 - 10	VS
T3		-	
S1	6	4 - 7	VS
S2		-	
G	0.7	0 - 1	MO

Structural formation: (including height)
Tall Woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; a - associated; s - suppressed.

Str.	Rel. dom.	Scientific Name
T1	d	Angophora leiocarpa
T1	a	Eucalyptus platyphylla
T2		to above
S1	d	Grevillea pterida
G	d	Hebropogon contortus

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: Sandy loam
 Field observation and notes: _____
 Landzone: 5

RE code changes

Existing RE code: 11.5.3/11.7.2
 Proposed RE code: 11.5.3

END

Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form **Regional ecosystem code**

Location

Site No. 91 Recorder: A Daniel Day/Date: 01/06/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Supacabella
 GPS coordinates: Zone 5 E 0644103 N 7379691 Datum: GDA94

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	11	9 - 13	VS
T2		-	
T3		-	
S1	3	2 - 5	VS
S2		-	
G	0.5	0 - 1	MD

Structural formation: (including height)
tall woodland
 Ecologically dominant layer: FATT,

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; a - associated; s - suppressed.

Str.	Rel. dom.	Scientific Name
T1	d	<i>Eucalyptus tereticornis</i>
S1	c	<i>Alphitonia excelsa</i>
S1	c	<i>Adiantum flavescens</i>
G	d	<i>Arctostaphylos</i>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: sandy loam
 Field observation and notes: _____
 Landzone: 5

RE code changes

Existing RE code: 11.5.3 / 11.3.4
 Proposed RE code: 11.3.4

END



Request for Assessment of Regional Ecosystem Map - DRAFT

SHEET F - Site form Regional ecosystem code

Location

Site No. 90 Recorder: A. Daniel Day/Date: 01/05/19
 Purpose: _____
 Locality: (inc. distance/direction to nearest town) Cappabella
 GPS coordinates: Zone 5 S E 0 6 4 0 4 1 3 N 7 5 8 1 1 2 6 Datum: 90A'94

Vegetation structure 892

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	<u>18</u>	<u>15 - 20</u>	<u>VS</u>
T2	<u>12</u>	<u>11 - 15</u>	<u>VS</u>
T3		-	
S1		-	
S2		-	
G	<u>0-3</u>	<u>0 - 1</u>	<u>HO</u>

Structural formation: (including height)
Tall Open Woodland
 Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
 d - dominant; c - codominant; a - associated; s - suppressed.

Str.	Rel. dom.	Scientific Name
<u>T1</u>	<u>d</u>	<u>Eucalyptus tereticornis</u>
<u>T1</u>	<u>a</u>	<u>Corymbia clarksoniana</u>
<u>T2</u>	<u>d</u>	<u>Eucalyptus tereticornis</u>
<u>G</u>	<u>s</u>	<u>Chenopodium ciliare</u>
<u>G</u>	<u>s</u>	<u>Melaleuca repens</u>

Geology, landform, soils

Geology map/scale/year: _____
 Geology code and rock types: _____
 Land system: _____
 Landform: _____
 Soils: deep sandy loam
 Field observation and notes: _____
 Landzone: 3

RE code changes

Existing RE code: 11.5.3/11.3.4
 Proposed RE code: 11.3.4

END

APPENDIX D – DATABASE SEARCHES



Queensland Government

Wildlife Online Extract

Search Criteria: Species List for a Specified Point
Species: All
Type: All
Status: All
Records: All
Date: All
Latitude: -21.9048
Longitude: 148.3731
Distance: 25
Email: slambert@epicenvironmental.com.au
Date submitted: Sunday 14 Jul 2019 12:51:32
Date extracted: Sunday 14 Jul 2019 13:00:02

The number of records retrieved = 789

Disclaimer

As the DSITIA is still in a process of collating and vetting data, it is possible the information given is not complete. The information provided should only be used for the project for which it was requested and it should be appropriately acknowledged as being derived from Wildlife Online when it is used.

The State of Queensland does not invite reliance upon, nor accept responsibility for this information. Persons should satisfy themselves through independent means as to the accuracy and completeness of this information.

No statements, representations or warranties are made about the accuracy or completeness of this information. The State of Queensland disclaims all responsibility for this information and all liability (including without limitation, liability in negligence) for all expenses, losses, damages and costs you may incur as a result of the information being inaccurate or incomplete in any way for any reason.

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Bufo	<i>Rhinella marina</i>	cane toad	Y			10
animals	amphibians	Hylidae	<i>Litoria inermis</i>	bumpy rocketfrog		C		5
animals	amphibians	Hylidae	<i>Litoria rubella</i>	ruddy treefrog		C		6
animals	amphibians	Hylidae	<i>Litoria caerulea</i>	common green treefrog		C		10
animals	amphibians	Hylidae	<i>Cyclorana brevipes</i>	superb collared frog		C		3
animals	amphibians	Hylidae	<i>Cyclorana verrucosa</i>	rough collared frog		C		2/1
animals	amphibians	Hylidae	<i>Litoria latopalmata</i>	broad palmed rocketfrog		C		11
animals	amphibians	Hylidae	<i>Cyclorana alboguttata</i>	greenstripe frog		C		4
animals	amphibians	Hylidae	<i>Cyclorana novaehollandiae</i>	eastern snapping frog		C		5
animals	amphibians	Hylidae	<i>Litoria nasuta</i>	striped rocketfrog		C		1
animals	amphibians	Hylidae	<i>Litoria rothii</i>	northern laughing treefrog		C		2
animals	amphibians	Limnodynastidae	<i>Limnodynastes peronii</i>	striped marshfrog		C		4
animals	amphibians	Limnodynastidae	<i>Limnodynastes salmini</i>	salmon striped frog		C		2
animals	amphibians	Limnodynastidae	<i>Platyplectrum ornatum</i>	ornate burrowing frog		C		22
animals	amphibians	Limnodynastidae	<i>Limnodynastes tasmaniensis</i>	spotted grassfrog		C		5
animals	amphibians	Limnodynastidae	<i>Limnodynastes terraereginae</i>	scarlet sided pobblebonk		C		3
animals	birds	Acanthizidae	<i>Acanthiza nana</i>	yellow thornbill		C		7
animals	birds	Acanthizidae	<i>Gerygone olivacea</i>	white-throated gerygone		C		10
animals	birds	Acanthizidae	<i>Acanthiza pusilla</i>	brown thornbill		C		1
animals	birds	Acanthizidae	<i>Acanthiza apicalis</i>	inland thornbill		C		1
animals	birds	Acanthizidae	<i>Acanthiza reguloides</i>	buff-rumped thornbill		C		4
animals	birds	Acanthizidae	<i>Sericornis frontalis</i>	white-browed scrubwren		C		2
animals	birds	Acanthizidae	<i>Acanthiza chrysorrhoa</i>	yellow-rumped thornbill		C		1
animals	birds	Acanthizidae	<i>Chthonicola sagittata</i>	speckled warbler		C		2
animals	birds	Acanthizidae	<i>Smicromnis brevirostris</i>	weebill		C		34
animals	birds	Accipitridae	<i>Milvus migrans</i>	black kite		C		4
animals	birds	Accipitridae	<i>Aquila audax</i>	wedge-tailed eagle		C		10
animals	birds	Accipitridae	<i>Accipiter cirrocephalus</i>	collared sparrowhawk		C		2
animals	birds	Accipitridae	<i>Hieraaetus morphnoides</i>	little eagle		C		1
animals	birds	Accipitridae	<i>Haliastur sphenurus</i>	whistling kite		C		9
animals	birds	Accipitridae	<i>Accipiter fasciatus</i>	brown goshawk		C		2
animals	birds	Accipitridae	<i>Elanus axillaris</i>	black-shouldered kite		C		2
animals	birds	Aegothelidae	<i>Aegotheles cristatus</i>	Australian owl-nightjar		C		10
animals	birds	Alaudidae	<i>Mirafra javanica</i>	Horsfield's bushlark		C		2
animals	birds	Anatidae	<i>Nettapus coromandelianus</i>	cotton pygmy-goose		C		1
animals	birds	Anatidae	<i>Malacorhynchus membranaceus</i>	pink-eared duck		C		2
animals	birds	Anatidae	<i>Anas gracilis</i>	grey teal		C		7
animals	birds	Anatidae	<i>Chenonetta jubata</i>	Australian wood duck		C		11
animals	birds	Anatidae	<i>Aythya australis</i>	hardhead		C		3
animals	birds	Anatidae	<i>Anas superciliosa</i>	Pacific black duck		C		10
animals	birds	Anatidae	<i>Dendrocygna eytoni</i>	plumed whistling-duck		C		4
animals	birds	Anatidae	<i>Cygnus atratus</i>	black swan		C		1
animals	birds	Anhingidae	<i>Anhinga novaehollandiae</i>	Australasian darter		C		5
animals	birds	Ardeidae	<i>Ardea alba modesta</i>	eastern great egret		C		2
animals	birds	Ardeidae	<i>Bubulcus ibis</i>	cattle egret		C		1
animals	birds	Ardeidae	<i>Ardea pacifica</i>	white-necked heron		C		4

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animals	birds	Ardeidae	<i>Ardea intermedia</i>	intermediate egret		C		2
animals	birds	Ardeidae	<i>Nycticorax caledonicus</i>	nankeen night-heron		C		3
animals	birds	Ardeidae	<i>Egretta novaehollandiae</i>	white-faced heron		C		5
animals	birds	Artamidae	<i>Artamus leucorhynchus</i>	white-breasted woodswallow		C		8
animals	birds	Artamidae	<i>Strepera graculina</i>	pieb currawong		C		11
animals	birds	Artamidae	<i>Cracticus tibicen</i>	Australian magpie		C		52
animals	birds	Artamidae	<i>Artamus cinereus</i>	black-faced woodswallow		C		7
animals	birds	Artamidae	<i>Cracticus torquatus</i>	grey butcherbird		C		21
animals	birds	Artamidae	<i>Cracticus nigrogularis</i>	pieb butcherbird		C		33
animals	birds	Burhinidae	<i>Burhinus grallarius</i>	bush stone-curlew		C		1
animals	birds	Cacatuidae	<i>Nymphicus hollandicus</i>	cockatiel		C		2
animals	birds	Cacatuidae	<i>Eolophus roseicapilla</i>	galah		C		19
animals	birds	Cacatuidae	<i>Cacatua galerita</i>	sulphur-crested cockatoo		C		16
animals	birds	Campephagidae	<i>Coracina tenuirostris</i>	cicadabird		C		5
animals	birds	Campephagidae	<i>Coracina papuensis</i>	white-bellied cuckoo-shrike		C		2
animals	birds	Campephagidae	<i>Lalage tricolor</i>	white-winged triller		C		5
animals	birds	Campephagidae	<i>Coracina maxima</i>	ground cuckoo-shrike		C		1
animals	birds	Campephagidae	<i>Coracina novaehollandiae</i>	black-faced cuckoo-shrike		C		16
animals	birds	Casuariidae	<i>Dromaius novaehollandiae</i>	emu		C		3
animals	birds	Charadriidae	<i>Vanellus miles novaehollandiae</i>	masked lapwing (southern subspecies)		C		1
animals	birds	Charadriidae	<i>Euseyornis melanops</i>	black-fronted dotterel		C		5
animals	birds	Charadriidae	<i>Vanellus miles</i>	masked lapwing		C		4
animals	birds	Cisticolidae	<i>Cisticola exilis</i>	golden-headed cisticola		C		5
animals	birds	Columbidae	<i>Geophaps scripta scripta</i>	squatter pigeon (southern subspecies)	V		V	25
animals	birds	Columbidae	<i>Geopelia humeralis</i>	bar-shouldered dove		C		6
animals	birds	Columbidae	<i>Phaps chalcoptera</i>	common bronzewing		C		2
animals	birds	Columbidae	<i>Ocyphaps lophotes</i>	crested pigeon		C		10
animals	birds	Columbidae	<i>Geopelia striata</i>	peaceful dove		C		16
animals	birds	Coraciidae	<i>Eurystomus orientalis</i>	dollarbird		C		15
animals	birds	Corcoracidae	<i>Corcorax melanorhamphos</i>	white-winged chough		C		7
animals	birds	Corcoracidae	<i>Struthidea cinerea</i>	apostlebird		C		34
animals	birds	Corvidae	<i>Corvus bennetti</i>	little crow		C		1
animals	birds	Corvidae	<i>Corvus coronoides</i>	Australian raven		C		1
animals	birds	Corvidae	<i>Corvus orru</i>	Torresian crow		C		64
animals	birds	Cuculidae	<i>Chalcites basalis</i>	Horsfield's bronze-cuckoo		C		3
animals	birds	Cuculidae	<i>Chalcites lucidus</i>	shining bronze-cuckoo		C		2
animals	birds	Cuculidae	<i>Cacomantis pallidus</i>	pallid cuckoo		C		3
animals	birds	Cuculidae	<i>Chalcites minutillus</i>	little bronze-cuckoo		C		1
animals	birds	Cuculidae	<i>Cacomantis variolosus</i>	brush cuckoo		C		1
animals	birds	Cuculidae	<i>Centropus phasianinus</i>	pheasant coucal		C		8
animals	birds	Cuculidae	<i>Cacomantis flabelliformis</i>	fan-tailed cuckoo		C		1
animals	birds	Cuculidae	<i>Scythrops novaehollandiae</i>	channel-billed cuckoo		C		5
animals	birds	Dicruridae	<i>Dicrurus bracteatus</i>	spangled drongo		C		1
animals	birds	Estrildidae	<i>Neochmia modesta</i>	plum-headed finch		C		2
animals	birds	Estrildidae	<i>Taeniopygia bichenovii</i>	double-barred finch		C		12
animals	birds	Estrildidae	<i>Taeniopygia guttata</i>	zebra finch		C		2

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animals	birds	Eurostopodidae	<i>Eurostopodus mystacalis</i>	white-throated nightjar		C		1
animals	birds	Falconidae	<i>Falco berigora</i>	brown falcon		C		9
animals	birds	Falconidae	<i>Falco longipennis</i>	Australian hobby		C		2
animals	birds	Falconidae	<i>Falco cenchroides</i>	nankeen kestrel		C		7
animals	birds	Gruidae	<i>Grus rubicunda</i>	brilga		C		11
animals	birds	Halcyonidae	<i>Dacelo leachii</i>	blue-winged kookaburra		C		3
animals	birds	Halcyonidae	<i>Todiramphus macleayii</i>	forest kingfisher		C		4
animals	birds	Halcyonidae	<i>Todiramphus sanctus</i>	sacred kingfisher		C		6
animals	birds	Halcyonidae	<i>Todiramphus pyrrhopygius</i>	red-backed kingfisher		C		1
animals	birds	Halcyonidae	<i>Dacelo novaeguineae</i>	laughing kookaburra		C		24
animals	birds	Hirundinidae	<i>Petrochelidon nigricans</i>	tree martin		C		1
animals	birds	Hirundinidae	<i>Petrochelidon ariel</i>	fairy martin		C		2
animals	birds	Hirundinidae	<i>Hirundo neoxena</i>	welcome swallow		C		3
animals	birds	Jacanidae	<i>Irediparra gallinacea</i>	comb-crested jacana		C		1
animals	birds	Maluridae	<i>Malurus lamberti</i>	variegated fairy-wren		C		7
animals	birds	Maluridae	<i>Malurus melanocephalus</i>	red-backed fairy-wren		C		19
animals	birds	Megaluridae	<i>Cincloramphus mathewsi</i>	rufous songlark		C		2
animals	birds	Meliphagidae	<i>Gavicalis virescens</i>	singing honeyeater		C		8
animals	birds	Meliphagidae	<i>Lichmera indistincta</i>	brown honeyeater		C		4
animals	birds	Meliphagidae	<i>Melithreptus gularis</i>	black-chinned honeyeater		C		1
animals	birds	Meliphagidae	<i>Philemon corniculatus</i>	noisy friarbird		C		27
animals	birds	Meliphagidae	<i>Manorina melanocephala</i>	noisy miner		C		13
animals	birds	Meliphagidae	<i>Philemon citreogularis</i>	little friarbird		C		14
animals	birds	Meliphagidae	<i>Melithreptus albogularis</i>	white-throated honeyeater		C		25
animals	birds	Meliphagidae	<i>Plectorhyncha lanceolata</i>	striped honeyeater		C		14
animals	birds	Meliphagidae	<i>Manorina flavigula</i>	yellow-throated miner		C		13
animals	birds	Meliphagidae	<i>Entomyzon cyanotis</i>	blue-faced honeyeater		C		22
animals	birds	Meliphagidae	<i>Meliphaga lewinii</i>	Lewin's honeyeater		C		5
animals	birds	Meliphagidae	<i>Caligavis chrysops</i>	yellow-faced honeyeater		C		1
animals	birds	Meropidae	<i>Merops ornatus</i>	rainbow bee-eater		C		22
animals	birds	Monarchidae	<i>Monarcha melanopsis</i>	black-faced monarch		SL		1
animals	birds	Monarchidae	<i>Myiagra rubecula</i>	leaden flycatcher		C		8
animals	birds	Monarchidae	<i>Grallina cyanoleuca</i>	maggie-lark		C		27
animals	birds	Motacillidae	<i>Anthus novaeseelandiae</i>	Australasian pipit		C		7
animals	birds	Nectariniidae	<i>Dicaeum hirundinaceum</i>	mistletoebird		C		6
animals	birds	Neosittidae	<i>Daphoenositta chrysoptera</i>	varied sittella		C		7
animals	birds	Oriolidae	<i>Oriolus sagittatus</i>	olive-backed oriole		C		6
animals	birds	Oriolidae	<i>Sphecotheres vieilloti</i>	Australasian figbird		C		2
animals	birds	Otididae	<i>Ardeotis australis</i>	Australian bustard		C		4
animals	birds	Pachycephalidae	<i>Pachycephala rufiventris</i>	rufous whistler		C		16
animals	birds	Pachycephalidae	<i>Colluricincla harmonica</i>	grey shrike-thrush		C		12
animals	birds	Pardalotidae	<i>Pardalotus striatus</i>	striated pardalote		C		56
animals	birds	Pelecanidae	<i>Pelecanus conspicillatus</i>	Australian pelican		C		1
animals	birds	Petroicidae	<i>Eopsaltria australis</i>	eastern yellow robin		C		1
animals	birds	Petroicidae	<i>Petroica goodenovii</i>	red-capped robin		C		2
animals	birds	Petroicidae	<i>Microeca fascinans</i>	jacky winter		C		2

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animals	birds	Phalacrocoracidae	<i>Microcarbo melanoleucos</i>	little pied cormorant		C		6
animals	birds	Phalacrocoracidae	<i>Phalacrocorax sulcirostris</i>	little black cormorant		C		2
animals	birds	Phasianidae	<i>Coturnix ypsilophora</i>	brown quail		C		4
animals	birds	Phasianidae	<i>Coturnix pectoralis</i>	stubble quail		C		2
animals	birds	Podargidae	<i>Podargus strigoides</i>	tawny frogmouth		C		22
animals	birds	Podicipedidae	<i>Tachybaptus novaehollandiae</i>	Australasian grebe		C		5
animals	birds	Pomatostomidae	<i>Pomatostomus temporalis</i>	grey-crowned babbler		C		20
animals	birds	Psittacidae	<i>Platycercus adscitus</i>	pale-headed rosella		C		28
animals	birds	Psittacidae	<i>Platycercus adscitus palliceps</i>	pale-headed rosella (southern form)		C		4
animals	birds	Psittacidae	<i>Trichoglossus haematodus moluccanus</i>	rainbow lorikeet		C		26
animals	birds	Psittacidae	<i>Aprosmictus erythropterus</i>	red-winged parrot		C		10
animals	birds	Psittacidae	<i>Trichoglossus chlorolepidotus</i>	scaly-breasted lorikeet		C		1
animals	birds	Ptilonorhynchidae	<i>Ptilonorhynchus maculatus</i>	spotted bowerbird		C		2
animals	birds	Ptilonorhynchidae	<i>Ptilonorhynchus nuchalis</i>	great bowerbird		C		2
animals	birds	Rallidae	<i>Fulica atra</i>	Eurasian coot		C		1
animals	birds	Rallidae	<i>Gallinula tenebrosa</i>	dusky moorhen		C		1
animals	birds	Rallidae	<i>Gallirallus philippensis</i>	buff-banded rail		C		1
animals	birds	Rhipiduridae	<i>Rhipidura albiscapa</i>	grey fantail		C		21
animals	birds	Rhipiduridae	<i>Rhipidura leucophrys</i>	willie wagtail		C		13
animals	birds	Strigidae	<i>Ninox boobook</i>	southern boobook		C		5
animals	birds	Threskiornithidae	<i>Threskiornis spinicollis</i>	straw-necked ibis		C		3
animals	birds	Timaliidae	<i>Zosterops lateralis</i>	silvereye		C		1
animals	birds	Turnicidae	<i>Turnix varius</i>	painted button-quail		C		2
animals	birds	Tytonidae	<i>Tyto delicatula</i>	eastern barn owl		C		1
animals	insects	Nymphalidae	<i>Acraea andromacha andromacha</i>	glasswing				2
animals	insects	Nymphalidae	<i>Junonia orithya albicincta</i>	blue argus				2
animals	insects	Nymphalidae	<i>Hypolimnas bolina nerina</i>	varied eggfly				1
animals	insects	Nymphalidae	<i>Junonia villida villida</i>	meadow argus				5
animals	insects	Nymphalidae	<i>Tirumala hamata hamata</i>	blue tiger				1
animals	insects	Nymphalidae	<i>Danaus petilia</i>	lesser wanderer				1
animals	insects	Nymphalidae	<i>Euploea corinna</i>	common crow				6
animals	insects	Nymphalidae	<i>Melanitis leda bankia</i>	evening brown				1
animals	insects	Papilionidae	<i>Papilio anactus</i>	dainty swallowtail				2
animals	insects	Papilionidae	<i>Cressida cressida cressida</i>	clearwing swallowtail				1
animals	insects	Pieridae	<i>Catopsilia pomona</i>	lemon migrant				6
animals	insects	Pieridae	<i>Elodina parthia</i>	striated pearl-white				1
animals	insects	Pieridae	<i>Eurema smilax</i>	small grass-yellow				1
animals	insects	Pieridae	<i>Belenois java teutonia</i>	caper white				6
animals	insects	Pieridae	<i>Cepora perimale scyllara</i>	caper gull (Australian subspecies)				1
animals	mammals	Bovidae	<i>Bos taurus</i>	European cattle	Y			1
animals	mammals	Canidae	<i>Vulpes vulpes</i>	red fox	Y			2
animals	mammals	Canidae	<i>Canis lupus dingo</i>	dingo				2
animals	mammals	Canidae	<i>Canis lupus familiaris</i>	dog	Y			5
animals	mammals	Cervidae	<i>Axis axis</i>	chital	Y			2
animals	mammals	Dasyuridae	<i>Dasyurus hallucatus</i>	northern quoll		C	E	1
animals	mammals	Dasyuridae	<i>Sminthopsis macroura</i>	stripe-faced dunnart		C		1

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animals	mammals	Emballonuridae	<i>Saccolaimus flaviventris</i>	yellow-bellied sheath-tail bat		C		27
animals	mammals	Emballonuridae	<i>Taphozous australis</i>	coastal sheath-tail bat		NT		3
animals	mammals	Emballonuridae	<i>Taphozous troughtoni</i>	Troughton's sheath-tail bat		C		7
animals	mammals	Felidae	<i>Felis catus</i>	cat	Y			3
animals	mammals	Leporidae	<i>Oryctolagus cuniculus</i>	rabbit	Y			9
animals	mammals	Macropodidae	<i>Lagorchestes conspicillatus</i>	spectacled hare-wallaby		C		3
animals	mammals	Macropodidae	<i>Wallabia bicolor</i>	swamp wallaby		C		2
animals	mammals	Macropodidae	<i>Macropus dorsalis</i>	black-striped wallaby		C		2
animals	mammals	Macropodidae	<i>Macropus robustus</i>	common wallaroo		C		2
animals	mammals	Macropodidae	<i>Macropus giganteus</i>	eastern grey kangaroo		C		16
animals	mammals	Macropodidae	<i>Petrogale inornata</i>	unadorned rock-wallaby		C		6
animals	mammals	Miniopteridae	<i>Miniopterus australis</i>	little bent-wing bat		C		13
animals	mammals	Miniopteridae	<i>Miniopterus schreibersii oceanensis</i>	eastern bent-wing bat		C		6
animals	mammals	Molossidae	<i>Mormopterus sp.</i>					1
animals	mammals	Molossidae	<i>Mormopterus ridei</i>	eastern free-tailed bat		C		7
animals	mammals	Molossidae	<i>Tadarida australis</i>	white-striped freetail bat		C		1
animals	mammals	Molossidae	<i>Chaerephon jobensis</i>	northern freetail bat		C		16
animals	mammals	Molossidae	<i>Mormopterus lumsdenae</i>	northern free-tailed bat		C		13
animals	mammals	Molossidae	<i>Mormopterus norfolkensis</i>	east coast freetail bat		C		1
animals	mammals	Muridae	<i>Rattus rattus</i>	black rat	Y			1
animals	mammals	Muridae	<i>Mus musculus</i>	house mouse	Y			7
animals	mammals	Muridae	<i>Rattus fuscipes</i>	bush rat		C		2
animals	mammals	Muridae	<i>Hydromys chrysogaster</i>	water rat		C		4
animals	mammals	Muridae	<i>Pseudomys delicatulus</i>	delicate mouse		C		5
animals	mammals	Peramelidae	<i>Isodon macrourus</i>	northern brown bandicoot		C		1
animals	mammals	Petauridae	<i>Petaurus norfolcensis</i>	squirrel glider		C		3
animals	mammals	Petauridae	<i>Petaurus breviceps</i>	sugar glider		C		8
animals	mammals	Phalangeridae	<i>Trichosurus vulpecula</i>	common brushtail possum		C		7
animals	mammals	Phascolarctidae	<i>Phascolarctos cinereus</i>	koala		V	V	56
animals	mammals	Potoroidae	<i>Aepyprymnus rufescens</i>	rufous bettong		C		9
animals	mammals	Pseudocheiridae	<i>Petauroides volans</i>	greater glider		V	V	38
animals	mammals	Pseudocheiridae	<i>Petauroides volans minor</i>	northern greater glider		V	V	38
animals	mammals	Pteropodidae	<i>Pteropus scapulatus</i>	little red flying-fox		C		2
animals	mammals	Suidae	<i>Sus scrofa</i>	pig	Y			6
animals	mammals	Tachyglossidae	<i>Tachyglossus aculeatus</i>	short-beaked echidna		SL		13
animals	mammals	Vespertilionidae	<i>Chalinolobus gouldii</i>	Gould's wattled bat		C		43
animals	mammals	Vespertilionidae	<i>Scotorepens greyii</i>	little broad-nosed bat		C		24
animals	mammals	Vespertilionidae	<i>Nyctophilus gouldi</i>	Gould's long-eared bat		C		3
animals	mammals	Vespertilionidae	<i>Chalinolobus morio</i>	chocolate wattled bat		C		11
animals	mammals	Vespertilionidae	<i>Chalinolobus sp.</i>					8
animals	mammals	Vespertilionidae	<i>Nyctophilus sp.</i>					6
animals	mammals	Vespertilionidae	<i>Vespadelus sp.</i>					1
animals	mammals	Vespertilionidae	<i>Chalinolobus picatus</i>	little pied bat		C		10
animals	mammals	Vespertilionidae	<i>Scotorepens balstoni</i>	inland broad-nosed bat		C		9
animals	mammals	Vespertilionidae	<i>Scotorepens sanborni</i>	northern broad-nosed bat		C		2
animals	mammals	Vespertilionidae	<i>Vespadelus troughtoni</i>	eastern cave bat		C		14

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	mammals	Vespertilionidae	<i>Vespadelus baverstocki</i>	inland forest bat		C		10
animals	mammals	Vespertilionidae	<i>Chalinolobus nigrogriseus</i>	hoary wattled bat		C		13
animals	ray-finned fishes	Ambassidae	<i>Ambassis agassizii</i>	Agassiz's glassfish				1
animals	ray-finned fishes	Ariidae	<i>Neoarius graeffei</i>	blue catfish				1
animals	ray-finned fishes	Atherinidae	<i>Craterocephalus stercusmuscarum</i>	flyspecked hardyhead				1
animals	ray-finned fishes	Clupeidae	<i>Nematalosa erebi</i>	bony bream				1
animals	ray-finned fishes	Eleotridae	<i>Oxyeleotris lineolata</i>	sleepy cod				1
animals	ray-finned fishes	Eleotridae	<i>Mogurnda adspersa</i>	southern purplespotted gudgeon				1
animals	ray-finned fishes	Eleotridae	<i>Hypseleotris species 1</i>	Midgley's carp gudgeon				1
animals	ray-finned fishes	Melanotaeniidae	<i>Melanotaenia splendida splendida</i>	eastern rainbowfish				1
animals	ray-finned fishes	Osteoglossidae	<i>Scleropages leichardti</i>	southern saratoga				1
animals	ray-finned fishes	Percichthyidae	<i>Macquaria ambigua</i>	golden perch				1
animals	ray-finned fishes	Terapontidae	<i>Leiopotherapon unicolor</i>	spangled perch				1
animals	ray-finned fishes	Terapontidae	<i>Bidyanus bidyanus</i>	silver perch			CE	1
animals	reptiles	Agamidae	<i>Diporiphora australis</i>	tommy roundhead		C		4
animals	reptiles	Agamidae	<i>Pogona vitticeps</i>	central bearded dragon		C		1
animals	reptiles	Agamidae	<i>Pogona barbata</i>	bearded dragon		C		11
animals	reptiles	Boidae	<i>Aspidites melanocephalus</i>	black-headed python		C		2
animals	reptiles	Boidae	<i>Antaresia maculosa</i>	spotted python		C		8
animals	reptiles	Carphodactylidae	<i>Nephrurus asper</i>	spiny knob-tailed gecko		C		4
animals	reptiles	Chelidae	<i>Chelodina sp.</i>					1
animals	reptiles	Chelidae	<i>Emydura sp.</i>					1
animals	reptiles	Chelidae	<i>Chelodina longicollis</i>	eastern snake-necked turtle		C		1
animals	reptiles	Colubridae	<i>Dendrelaphis punctulatus</i>	green tree snake		C		1
animals	reptiles	Colubridae	<i>Boiga irregularis</i>	brown tree snake		C		5
animals	reptiles	Colubridae	<i>Tropidonophis mairii</i>	freshwater snake		C		7
animals	reptiles	Diplodactylidae	<i>Lucasium steindachneri</i>	Steindachner's gecko		C		12
animals	reptiles	Diplodactylidae	<i>Diplodactylus vittatus</i>	wood gecko		C		3
animals	reptiles	Diplodactylidae	<i>Strophurus williamsi</i>	soft-spined gecko		C		2
animals	reptiles	Diplodactylidae	<i>Amalosa rhombifer</i>	zig-zag gecko		C		1
animals	reptiles	Diplodactylidae	<i>Oedura monilis</i>	ocellated velvet gecko		C		17
animals	reptiles	Diplodactylidae	<i>Diplodactylus platyurus</i>	eastern fat-tailed gecko		C		8
animals	reptiles	Elapidae	<i>Pseudonaja textilis</i>	eastern brown snake		C		12
animals	reptiles	Elapidae	<i>Demansia psammophis</i>	yellow-faced whipsnake		C		2
animals	reptiles	Elapidae	<i>Cryptophis boschmai</i>	Carpentaria whip snake		C		2
animals	reptiles	Elapidae	<i>Denisonia maculata</i>	ornamental snake		V	V	11
animals	reptiles	Elapidae	<i>Furina diadema</i>	red-naped snake		C		2
animals	reptiles	Elapidae	<i>Suta suta</i>	myall snake		C		4
animals	reptiles	Elapidae	<i>Hoplocephalus bitorquatus</i>	pale-headed snake		C		5
animals	reptiles	Gekkonidae	<i>Gehyra sp.</i>					1
animals	reptiles	Gekkonidae	<i>Gehyra dubia</i>	dubious dtella		C		87
animals	reptiles	Gekkonidae	<i>Gehyra catenata</i>	chain-backed dtella		C		7
animals	reptiles	Gekkonidae	<i>Gehyra versicolor</i>			C		26
animals	reptiles	Gekkonidae	<i>Heteronotia binoei</i>	Bynoe's gecko		C		26
animals	reptiles	Pygopodidae	<i>Paradelma orientalis</i>	brigalow scaly-foot		C		1
animals	reptiles	Pygopodidae	<i>Delma tincta</i>	excitable delma		C		1

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animals	reptiles	Pygopodidae	<i>Lialis burtonis</i>	Burton's legless lizard		C		5
animals	reptiles	Scincidae	<i>Ctenotus taeniolatus</i>	copper-tailed skink		C		15
animals	reptiles	Scincidae	<i>Morethia taeniopleura</i>	fire-tailed skink		C		2
animals	reptiles	Scincidae	<i>Pygmaeascincus timlowi</i>	dwarf litter-skink		C		3
animals	reptiles	Scincidae	<i>Lerista punctatovittata</i>	eastern robust slider		C		1
animals	reptiles	Scincidae	<i>Cryptoblepharus pannosus</i>	ragged snake-eyed skink		C		3
animals	reptiles	Scincidae	<i>Glaphyromorphus punctulatus</i>	fine-spotted mulch-skink		C		1
animals	reptiles	Scincidae	<i>Carlia pectoralis sensu lato</i>			C		19
animals	reptiles	Scincidae	<i>Cryptoblepharus pulcher pulcher</i>	elegant snake-eyed skink		C		7
animals	reptiles	Scincidae	<i>Cryptoblepharus virgatus sensu lato</i>			C		6
animals	reptiles	Scincidae	<i>Carlia vivax</i>	tussock rainbow-skink		C		3
animals	reptiles	Scincidae	<i>Carlia rubigo</i>	orange-flanked rainbow skink		C		9
animals	reptiles	Scincidae	<i>Eulamprus sp.</i>					1
animals	reptiles	Scincidae	<i>Lygisaurus sp.</i>					1
animals	reptiles	Scincidae	<i>Tiliqua rugosa</i>	shingle-back		C		1
animals	reptiles	Scincidae	<i>Ctenotus ingrami</i>	unspotted yellow-sided ctenotus		C		1
animals	reptiles	Scincidae	<i>Lerista fragilis</i>	eastern mulch slider		C		8
animals	reptiles	Scincidae	<i>Carlia schmeltzii</i>	robust rainbow-skink		C		2
animals	reptiles	Scincidae	<i>Egernia striolata</i>	tree skink		C		2
animals	reptiles	Scincidae	<i>Bellatorias frerei</i>	major skink		C		1
animals	reptiles	Scincidae	<i>Ctenotus spaldingi</i>	straight-browed ctenotus		C		14
animals	reptiles	Scincidae	<i>Ctenotus strauchii</i>	eastern barred wedgesnout ctenotus		C		1
animals	reptiles	Scincidae	<i>Tiliqua scincoides</i>	eastern blue-tongued lizard		C		2
animals	reptiles	Scincidae	<i>Cryptoblepharus sp.</i>					1
animals	reptiles	Scincidae	<i>Lygisaurus foliorum</i>	tree-base litter-skink		C		7
animals	reptiles	Scincidae	<i>Morethia boulengeri</i>	south-eastern morethia skink		C		4
animals	reptiles	Typhlopidae	<i>Anilius affinis</i>	small-headed blind snake		C		2
animals	reptiles	Typhlopidae	<i>Anilius unguirostris</i>	claw-snouted blind snake		C		1
animals	reptiles	Varanidae	<i>Varanus tristis</i>	black-tailed monitor		C		12
animals	uncertain	Indeterminate	<i>Indeterminate</i>	Unknown or Code Pending		C		2
fungi	lecanoromycetes	Cladoniaceae	<i>Cladia muelleri</i>			C		1/1
fungi	lecanoromycetes	Cladoniaceae	<i>Ramalinora glaucolivida</i>			C		1/1
fungi	lecanoromycetes	Physciaceae	<i>Rinodina</i>			C		1/1
plants	Equisetopsida	Acanthaceae	<i>Brunoniella australis</i>	blue trumpet		C		20/1
plants	Equisetopsida	Acanthaceae	<i>Pseuderanthemum tenellum</i>			C		13
plants	Equisetopsida	Acanthaceae	<i>Rostellularia adscendens</i>			C		10/1
plants	Equisetopsida	Aizoaceae	<i>Zaleya galericulata subsp. galericulata</i>			C		1/1
plants	Equisetopsida	Aizoaceae	<i>Trianthema triquetra</i>	red spinach		C		2/1
plants	Equisetopsida	Amaranthaceae	<i>Alternanthera denticulata</i>	lesser joyweed		C		2
plants	Equisetopsida	Amaranthaceae	<i>Alternanthera denticulata var. micrantha</i>			C		3/1
plants	Equisetopsida	Amaranthaceae	<i>Amaranthus cochleitepalus</i>			C		1/1
plants	Equisetopsida	Amaranthaceae	<i>Nyssanthes erecta</i>			C		1/1
plants	Equisetopsida	Amaranthaceae	<i>Gomphrena celosioides</i>	gomphrena weed	Y			5
plants	Equisetopsida	Amaranthaceae	<i>Amaranthus mitchellii</i>	Boggabri weed		C		1/1
plants	Equisetopsida	Amaranthaceae	<i>Alternanthera nana</i>	hairy joyweed		C		18/2
plants	Equisetopsida	Amaranthaceae	<i>Achyranthes aspera</i>			C		4

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plants	Equisetopsida	Amaryllidaceae	<i>Crinum flaccidum</i>	Murray lily		C		1
plants	Equisetopsida	Anacardiaceae	<i>Pleiogynium timorense</i>	Burdekin plum		C		1
plants	Equisetopsida	Apiaceae	<i>Eryngium plantagineum</i>	long eryngium		C		1/1
plants	Equisetopsida	Apocynaceae	<i>Secamone elliptica</i>			C		1
plants	Equisetopsida	Apocynaceae	<i>Marsdenia viridiflora subsp. viridiflora</i>			C		5
plants	Equisetopsida	Apocynaceae	<i>Cynanchum viminalis subsp. brunonianum</i>			C		7
plants	Equisetopsida	Apocynaceae	<i>Gomphocarpus physocarpus</i>	balloon cottonbush	Y			1
plants	Equisetopsida	Apocynaceae	<i>Parsonsia lanceolata</i>	northern silkpod		C		14/2
plants	Equisetopsida	Apocynaceae	<i>Marsdenia microlepis</i>			C		2
plants	Equisetopsida	Apocynaceae	<i>Wrightia versicolor</i>			C		1/1
plants	Equisetopsida	Apocynaceae	<i>Cerbera dumicola</i>			NT		2/2
plants	Equisetopsida	Apocynaceae	<i>Carissa ovata</i>	currantbush		C		19
plants	Equisetopsida	Araliaceae	<i>Polyscias elegans</i>	celery wood		C		1/1
plants	Equisetopsida	Araliaceae	<i>Astrotricha biddulphiana</i>			C		1/1
plants	Equisetopsida	Asteraceae	<i>Pterocaulon serrulatum var. serrulatum</i>			C		1/1
plants	Equisetopsida	Asteraceae	<i>Calotis cuneifolia</i>	burr daisy		C		4/1
plants	Equisetopsida	Asteraceae	<i>Sonchus oleraceus</i>	common sowthistle	Y			6
plants	Equisetopsida	Asteraceae	<i>Vittadinia sulcata</i>	native daisy		C		1/1
plants	Equisetopsida	Asteraceae	<i>Calotis cuneata</i>			C		1/1
plants	Equisetopsida	Asteraceae	<i>Pluchea dentex</i>	bowl daisy		C		1/1
plants	Equisetopsida	Asteraceae	<i>Calotis dentex</i>	white burr daisy		C		1/1
plants	Equisetopsida	Asteraceae	<i>Lagenophora gracilis</i>			C		2
plants	Equisetopsida	Asteraceae	<i>Emilia sonchifolia</i>		Y			5
plants	Equisetopsida	Asteraceae	<i>Sphaeromorphaea australis</i>			C		4
plants	Equisetopsida	Asteraceae	<i>Chrysocephalum apiculatum</i>	yellow buttons		C		4
plants	Equisetopsida	Asteraceae	<i>Parthenium hysterophorus</i>	parthenium weed	Y			4/1
plants	Equisetopsida	Asteraceae	<i>Pterocaulon sphacelatum</i>	applebush		C		2
plants	Equisetopsida	Asteraceae	<i>Acanthospermum hispidum</i>	star burr	Y			1
plants	Equisetopsida	Asteraceae	<i>Euchiton involucratus</i>			C		2
plants	Equisetopsida	Asteraceae	<i>Cyanthillium cinereum</i>			C		11
plants	Equisetopsida	Asteraceae	<i>Vittadinia pustulata</i>			C		1/1
plants	Equisetopsida	Asteraceae	<i>Pterocaulon redolens</i>			C		4
plants	Equisetopsida	Asteraceae	<i>Apowollastonia spilanthisoides</i>			C		11/1
plants	Equisetopsida	Asteraceae	<i>Peripleura hispidula var. hispidula</i>			C		1
plants	Equisetopsida	Bignoniaceae	<i>Pandorea</i>			C		1/1
plants	Equisetopsida	Boraginaceae	<i>Heliotropium</i>			C		1
plants	Equisetopsida	Boraginaceae	<i>Ehretia membranifolia</i>	weeping koda		C		12
plants	Equisetopsida	Boraginaceae	<i>Trichodesma zeylanicum</i>			C		3
plants	Equisetopsida	Brassicaceae	<i>Lepidium virginicum</i>	Virginian peppergrass	Y			1/1
plants	Equisetopsida	Byttneriaceae	<i>Waltheria indica</i>			C		7
plants	Equisetopsida	Cactaceae	<i>Opuntia stricta</i>		Y			1
plants	Equisetopsida	Cactaceae	<i>Opuntia tomentosa</i>	velvety tree pear	Y			13
plants	Equisetopsida	Cactaceae	<i>Harrisia martinii</i>		Y			14
plants	Equisetopsida	Caesalpiniaceae	<i>Lysiphyllum hookeri</i>	Queensland ebony		C		1
plants	Equisetopsida	Caesalpiniaceae	<i>Lysiphyllum carronii</i>	ebony tree		C		1
plants	Equisetopsida	Caesalpiniaceae	<i>Chamaecrista concinna</i>			C		2

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plants	Equisetopsida	Caesalpiniaceae	<i>Cassia brewsteri</i>			C		5/1
plants	Equisetopsida	Caesalpiniaceae	<i>Chamaecrista absus</i>			C		5
plants	Equisetopsida	Caesalpiniaceae	<i>Cassia tomentella</i>			C		10
plants	Equisetopsida	Caesalpiniaceae	<i>Senna barclayana</i>			C		1
plants	Equisetopsida	Caesalpiniaceae	<i>Senna coronilloides</i>			C		1
plants	Equisetopsida	Campanulaceae	<i>Lobelia concolor</i>			C		1
plants	Equisetopsida	Campanulaceae	<i>Wahlenbergia gracilis</i>	sprawling bluebell		C		5
plants	Equisetopsida	Capparaceae	<i>Capparis canescens</i>			C		1
plants	Equisetopsida	Capparaceae	<i>Capparis lasiantha</i>	nipan		C		7
plants	Equisetopsida	Capparaceae	<i>Capparis humistrata</i>			E		1/1
plants	Equisetopsida	Capparaceae	<i>Capparis shanesiana</i>			C		1/1
plants	Equisetopsida	Casuarinaceae	<i>Casuarina cunninghamiana</i> subsp. <i>cunninghamiana</i>			C		1
plants	Equisetopsida	Casuarinaceae	<i>Casuarina cristata</i>	belah		C		14/1
plants	Equisetopsida	Casuarinaceae	<i>Allocasuarina luehmannii</i>	bull oak		C		3
plants	Equisetopsida	Celastraceae	<i>Elaeodendron australe</i>			C		1
plants	Equisetopsida	Celastraceae	<i>Denhamia oleaster</i>			C		2
plants	Equisetopsida	Celastraceae	<i>Denhamia cunninghamii</i>			C		11/1
plants	Equisetopsida	Centrolepidaceae	<i>Centrolepis exserta</i>			C		1/1
plants	Equisetopsida	Chenopodiaceae	<i>Dysphania melanocarpa</i> forma <i>melanocarpa</i>			C		2
plants	Equisetopsida	Chenopodiaceae	<i>Enchylaena tomentosa</i>			C		9
plants	Equisetopsida	Chenopodiaceae	<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>			C		1/1
plants	Equisetopsida	Chenopodiaceae	<i>Enchylaena tomentosa</i> var. <i>glabra</i>			C		1/1
plants	Equisetopsida	Chenopodiaceae	<i>Einadia nutans</i> subsp. <i>linifolia</i>			C		1/1
plants	Equisetopsida	Chenopodiaceae	<i>Chenopodium auricomiforme</i>			C		1/1
plants	Equisetopsida	Chenopodiaceae	<i>Einadia polygonoides</i>	knotweed goosefoot		C		1
plants	Equisetopsida	Chenopodiaceae	<i>Maireana microphylla</i>			C		3
plants	Equisetopsida	Chenopodiaceae	<i>Sclerolaena tetracuspis</i>	brigalow burr		C		1/1
plants	Equisetopsida	Clusiaceae	<i>Hypericum gramineum</i>			C		2/2
plants	Equisetopsida	Combretaceae	<i>Terminalia oblongata</i>			C		10
plants	Equisetopsida	Commelinaceae	<i>Murdannia graminea</i>	murdannia		C		5
plants	Equisetopsida	Commelinaceae	<i>Cyanotis axillaris</i>			C		5
plants	Equisetopsida	Commelinaceae	<i>Commelina diffusa</i>	wandering jew		C		8
plants	Equisetopsida	Convolvulaceae	<i>Convolvulus erubescens</i>	Australian bindweed		C		1
plants	Equisetopsida	Convolvulaceae	<i>Jacquemontia paniculata</i>			C		14
plants	Equisetopsida	Convolvulaceae	<i>Ipomoea brownii</i>			C		1
plants	Equisetopsida	Convolvulaceae	<i>Ipomoea plebeia</i>	bellvine		C		7
plants	Equisetopsida	Convolvulaceae	<i>Evolvulus alsinoides</i>			C		11
plants	Equisetopsida	Convolvulaceae	<i>Ipomoea lonchophylla</i>			C		1
plants	Equisetopsida	Convolvulaceae	<i>Polymeria longifolia</i>	polymeria		C		5
plants	Equisetopsida	Cucurbitaceae	<i>Cucurbitaceae</i>			C		1
plants	Equisetopsida	Cucurbitaceae	<i>Cucumis anguria</i> var. <i>anguria</i>	West Indian gherkin	Y			4
plants	Equisetopsida	Cyperaceae	<i>Cyperus fulvus</i>			C		3/2
plants	Equisetopsida	Cyperaceae	<i>Cyperus gilesii</i>			C		1
plants	Equisetopsida	Cyperaceae	<i>Scleria brownii</i>			C		1/1
plants	Equisetopsida	Cyperaceae	<i>Cyperus gracilis</i>			C		11/1
plants	Equisetopsida	Cyperaceae	<i>Cyperus concinnus</i>			C		3/1

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plants	Equisetopsida	Cyperaceae	<i>Cyperus difformis</i>	rice sedge		C		3
plants	Equisetopsida	Cyperaceae	<i>Cyperus exaltatus</i>	tall flatsedge		C		4
plants	Equisetopsida	Cyperaceae	<i>Cyperus javanicus</i>			C		1/1
plants	Equisetopsida	Cyperaceae	<i>Cyperus scariosus</i>			C		1
plants	Equisetopsida	Cyperaceae	<i>Fimbristylis nuda</i>			C		1
plants	Equisetopsida	Cyperaceae	<i>Abildgaardia ovata</i>			C		5/1
plants	Equisetopsida	Cyperaceae	<i>Cyperus cyperoides</i>			C		3
plants	Equisetopsida	Cyperaceae	<i>Cyperus esculentus</i>	yellow nutgrass	Y			1/1
plants	Equisetopsida	Cyperaceae	<i>Cyperus leiocaulon</i>			C		1/1
plants	Equisetopsida	Cyperaceae	<i>Cyperus rigidellus</i>			C		9
plants	Equisetopsida	Cyperaceae	<i>Cyperus squarrosus</i>	bearded flatsedge		C		7
plants	Equisetopsida	Cyperaceae	<i>Cyperus cristulatus</i>			C		3
plants	Equisetopsida	Cyperaceae	<i>Cyperus perangustus</i>			C		1
plants	Equisetopsida	Cyperaceae	<i>Fimbristylis nutans</i>			C		1
plants	Equisetopsida	Cyperaceae	<i>Cyperus sesquiflorus</i>		Y			1/1
plants	Equisetopsida	Cyperaceae	<i>Scleria mackaviensis</i>			C		13
plants	Equisetopsida	Cyperaceae	<i>Fimbristylis dichotoma</i>	common fringe-rush		C		13
plants	Equisetopsida	Cyperaceae	<i>Fimbristylis microcarya</i>			C		1/1
plants	Equisetopsida	Cyperaceae	<i>Lipocarpha microcephala</i>			C		2
plants	Equisetopsida	Cyperaceae	<i>Schoenoplectiella dissachantha</i>			C		1
plants	Equisetopsida	Cyperaceae	<i>Gahnia aspera</i>			C		1/1
plants	Equisetopsida	Cyperaceae	<i>Cyperus iria</i>			C		2
plants	Equisetopsida	Cyperaceae	<i>Cyperus bifax</i>	western nutgrass		C		1/1
plants	Equisetopsida	Droseraceae	<i>Drosera</i>			C		5
plants	Equisetopsida	Ebenaceae	<i>Diospyros humilis</i>	small-leaved ebony		C		8/1
plants	Equisetopsida	Erpodiaceae	<i>Venturiella hodgkinsoniae</i>			C		1/1
plants	Equisetopsida	Erythroxylaceae	<i>Erythroxylum australe</i>	cocaine tree		C		16
plants	Equisetopsida	Euphorbiaceae	<i>Bertya pedicellata</i>			NT		10/9
plants	Equisetopsida	Euphorbiaceae	<i>Euphorbia coghlanii</i>			C		1/1
plants	Equisetopsida	Euphorbiaceae	<i>Euphorbia drummondii</i>			C		10
plants	Equisetopsida	Euphorbiaceae	<i>Euphorbia hyssopifolia</i>		Y			8
plants	Equisetopsida	Euphorbiaceae	<i>Excoecaria dallachyana</i>	scrub poison tree		C		1
plants	Equisetopsida	Euphorbiaceae	<i>Adriana tomentosa</i> var. <i>tomentosa</i>			C		3/3
plants	Equisetopsida	Euphorbiaceae	<i>Euphorbia tannensis</i> subsp. <i>eremophila</i>			C		3
plants	Equisetopsida	Euphorbiaceae	<i>Acalypha eremorum</i>	soft acalypha		C		1
plants	Equisetopsida	Euphorbiaceae	<i>Croton insularis</i>	Queensland cascarilla		C		1/1
plants	Equisetopsida	Euphorbiaceae	<i>Euphorbia</i>			C		1/1
plants	Equisetopsida	Euphorbiaceae	<i>Croton phebalioides</i>	narrow-leaved croton		C		2/2
plants	Equisetopsida	Fabaceae	<i>Glycine falcata</i>			C		1/1
plants	Equisetopsida	Fabaceae	<i>Glycine tabacina</i>	glycine pea		C		14
plants	Equisetopsida	Fabaceae	<i>Crotalaria mitchellii</i> subsp. <i>mitchellii</i>			C		1
plants	Equisetopsida	Fabaceae	<i>Tephrosia juncea</i>			C		5
plants	Equisetopsida	Fabaceae	<i>Vigna lanceolata</i>			C		6
plants	Equisetopsida	Fabaceae	<i>Desmodium varians</i>	slender tick trefoil		C		3
plants	Equisetopsida	Fabaceae	<i>Zornia muriculata</i>			C		8
plants	Equisetopsida	Fabaceae	<i>Crotalaria montana</i>			C		3

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plants	Equisetopsida	Fabaceae	<i>Desmodium muelleri</i>			C		1/1
plants	Equisetopsida	Fabaceae	<i>Glycine tomentella</i>	woolly glycine		C		10/1
plants	Equisetopsida	Fabaceae	<i>Indigofera colutea</i>	sticky indigo		C		6
plants	Equisetopsida	Fabaceae	<i>Indigofera linnaei</i>	Birdsville indigo		C		6
plants	Equisetopsida	Fabaceae	<i>Zornia muelleriana</i>			C		1
plants	Equisetopsida	Fabaceae	<i>Desmodium tortuosum</i>	Florida beggar-weed	Y			1/1
plants	Equisetopsida	Fabaceae	<i>Galactia tenuiflora</i>			C		2
plants	Equisetopsida	Fabaceae	<i>Stylosanthes hamata</i>		Y			5
plants	Equisetopsida	Fabaceae	<i>Stylosanthes scabra</i>		Y			15
plants	Equisetopsida	Fabaceae	<i>Alysicarpus muelleri</i>			C		2/2
plants	Equisetopsida	Fabaceae	<i>Indigofera linifolia</i>			C		1
plants	Equisetopsida	Fabaceae	<i>Tephrosia leptoclada</i>			C		3
plants	Equisetopsida	Fabaceae	<i>Desmodium brachypodum</i>	large ticktrefoil		C		9/1
plants	Equisetopsida	Fabaceae	<i>Desmodium macrocarpum</i>			C		3/3
plants	Equisetopsida	Fabaceae	<i>Tephrosia dietrichiae</i>			C		2
plants	Equisetopsida	Fabaceae	<i>Crotalaria medicaginea</i>	trefoil rattlepod		C		4
plants	Equisetopsida	Fabaceae	<i>Crotalaria sessiliflora</i>					8
plants	Equisetopsida	Fabaceae	<i>Indigofera sericovexilla</i>			C		2
plants	Equisetopsida	Fabaceae	<i>Macroptilium atropurpureum</i>	siratro	Y			1
plants	Equisetopsida	Fabaceae	<i>Vigna radiata var. sublobata</i>			C		1/1
plants	Equisetopsida	Fabaceae	<i>Rhynchosia minima var. australis</i>			C		13/1
plants	Equisetopsida	Fabaceae	<i>Zornia dyctiocarpa var. filifolia</i>			C		1/1
plants	Equisetopsida	Fabaceae	<i>Tephrosia brachyodon var. longifolia</i>			C		2
plants	Equisetopsida	Fabaceae	<i>Indigofera australis subsp. australis</i>			C		1/1
plants	Equisetopsida	Fabaceae	<i>Zornia muelleriana subsp. muelleriana</i>			C		1/1
plants	Equisetopsida	Fabroniaceae	<i>Fabronia australis</i>			C		1/1
plants	Equisetopsida	Frullaniaceae	<i>Frullania</i>			C		2/2
plants	Equisetopsida	Goodeniaceae	<i>Velleia</i>			C		5
plants	Equisetopsida	Goodeniaceae	<i>Goodenia sp. (Mt Castletower M.D.Crisp 2753)</i>			C		1/1
plants	Equisetopsida	Goodeniaceae	<i>Goodenia glabra</i>			C		2
plants	Equisetopsida	Haloragaceae	<i>Haloragis aspera</i>	raspweed		C		1/1
plants	Equisetopsida	Hemerocallidaceae	<i>Dianella</i>			C		2
plants	Equisetopsida	Hypoxidaceae	<i>Hypoxis pratensis var. pratensis</i>			C		4
plants	Equisetopsida	Johnsoniaceae	<i>Tricoryne elatior</i>	yellow autumn lily		C		4
plants	Equisetopsida	Juncaceae	<i>Juncus bufonius</i>	toad rush	Y			1/1
plants	Equisetopsida	Lamiaceae	<i>Plectranthus</i>			C		1/1
plants	Equisetopsida	Lamiaceae	<i>Leucas lavandulifolia</i>		Y			2/2
plants	Equisetopsida	Lamiaceae	<i>Plectranthus diversus</i>			C		1/1
plants	Equisetopsida	Lamiaceae	<i>Basilicum polystachyon</i>			C		2/1
plants	Equisetopsida	Lamiaceae	<i>Teucrium integrifolium</i>			C		2/2
plants	Equisetopsida	Lamiaceae	<i>Clerodendrum floribundum</i>			C		4
plants	Equisetopsida	Lamiaceae	<i>Plectranthus parviflorus</i>			C		4
plants	Equisetopsida	Lauraceae	<i>Cassytha filiformis</i>	dodder laurel		C		1
plants	Equisetopsida	Laxmanniaceae	<i>Lomandra longifolia</i>			C		4/1
plants	Equisetopsida	Laxmanniaceae	<i>Lomandra multiflora</i>			C		2
plants	Equisetopsida	Laxmanniaceae	<i>Eustrephus latifolius</i>	wombat berry		C		7/1

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plants	Equisetopsida	Loganiaceae	<i>Mitrasacme pygmaea</i>			C		8
plants	Equisetopsida	Loganiaceae	<i>Mitrasacme alsinoides</i>			C		5
plants	Equisetopsida	Lythraceae	<i>Lythrum paradoxum</i>			C		1
plants	Equisetopsida	Lythraceae	<i>Ammannia multiflora</i>	jerry-jerry		C		2
plants	Equisetopsida	Malvaceae	<i>Abutilon guineense</i>		Y			3/3
plants	Equisetopsida	Malvaceae	<i>Sida sp. (Charters Towers E.J.Thompson+ CHA456)</i>			C		1/1
plants	Equisetopsida	Malvaceae	<i>Abutilon oxycarpum var. subsagittatum</i>			C		16
plants	Equisetopsida	Malvaceae	<i>Sida</i>			C		7
plants	Equisetopsida	Malvaceae	<i>Sida spinosa</i>	spiny sida	Y			2/1
plants	Equisetopsida	Malvaceae	<i>Sida rohlenae</i>			C		7
plants	Equisetopsida	Malvaceae	<i>Sida cordifolia</i>		Y			14/1
plants	Equisetopsida	Malvaceae	<i>Sida fibulifera</i>			C		1/1
plants	Equisetopsida	Malvaceae	<i>Sida trichopoda</i>			C		1/1
plants	Equisetopsida	Malvaceae	<i>Hibiscus sturtii</i>			C		1/1
plants	Equisetopsida	Malvaceae	<i>Sida atherophora</i>			C		1/1
plants	Equisetopsida	Malvaceae	<i>Sida hackettiana</i>			C		8
plants	Equisetopsida	Malvaceae	<i>Sida rhombifolia</i>		Y			11
plants	Equisetopsida	Malvaceae	<i>Sida cunninghamii</i>			C		3
plants	Equisetopsida	Malvaceae	<i>Abutilon malvifolium</i>	bastard marshmallow		C		1
plants	Equisetopsida	Malvaceae	<i>Abutilon subviscosum</i>			C		1/1
plants	Equisetopsida	Malvaceae	<i>Hibiscus divaricatus</i>			C		2/2
plants	Equisetopsida	Malvaceae	<i>Hibiscus verdcourtii</i>			C		1/1
plants	Equisetopsida	Malvaceae	<i>Abutilon micropetalum</i>			C		1/1
plants	Equisetopsida	Malvaceae	<i>Malvastrum americanum</i>		Y			3
plants	Equisetopsida	Malvaceae	<i>Hibiscus heterophyllus</i>			C		1/1
plants	Equisetopsida	Malvaceae	<i>Hibiscus krichauffianus</i>			C		1/1
plants	Equisetopsida	Malvaceae	<i>Hibiscus sturtii var. sturtii</i>			C		8
plants	Equisetopsida	Malvaceae	<i>Abutilon oxycarpum var. incanum</i>			C		1/1
plants	Equisetopsida	Malvaceae	<i>Abutilon oxycarpum var. oxycarpum</i>			C		1
plants	Equisetopsida	Marsileaceae	<i>Marsilea mutica</i>	shiny nardoo		C		1
plants	Equisetopsida	Meliaceae	<i>Owenia acidula</i>	emu apple		C		4
plants	Equisetopsida	Menispermaceae	<i>Tinospora smilacina</i>	snakevine		C		1
plants	Equisetopsida	Mimosaceae	<i>Vachellia bidwillii</i>			C		4/1
plants	Equisetopsida	Mimosaceae	<i>Acacia argyrodendron</i>			C		1/1
plants	Equisetopsida	Mimosaceae	<i>Acacia bancroftiorum</i>			C		2/2
plants	Equisetopsida	Mimosaceae	<i>Archidendropsis basaltica</i>	red lancewood		C		8
plants	Equisetopsida	Mimosaceae	<i>Acacia blakei subsp. blakei</i>			C		1/1
plants	Equisetopsida	Mimosaceae	<i>Neptunia gracilis forma gracilis</i>			C		3/1
plants	Equisetopsida	Mimosaceae	<i>Acacia julifera subsp. curvinervia</i>			C		1/1
plants	Equisetopsida	Mimosaceae	<i>Acacia</i>			C		3
plants	Equisetopsida	Mimosaceae	<i>Acacia excelsa</i>			C		5
plants	Equisetopsida	Mimosaceae	<i>Acacia conferta</i>			C		1/1
plants	Equisetopsida	Mimosaceae	<i>Acacia julifera</i>			C		2
plants	Equisetopsida	Mimosaceae	<i>Acacia oswaldii</i>	miljee		C		1/1
plants	Equisetopsida	Mimosaceae	<i>Acacia salicina</i>	doolan		C		4
plants	Equisetopsida	Mimosaceae	<i>Acacia shirleyi</i>	lancewood		C		1/1

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plants	Equisetopsida	Mimosaceae	<i>Acacia fodinalis</i>			C		1/1
plants	Equisetopsida	Mimosaceae	<i>Acacia flavescens</i>	toothed wattle		C		2
plants	Equisetopsida	Mimosaceae	<i>Albizia canescens</i>			C		1
plants	Equisetopsida	Mimosaceae	<i>Acacia harpophylla</i>	brigalow		C		4
plants	Equisetopsida	Mimosaceae	<i>Acacia holosericea</i>			C		2
plants	Equisetopsida	Moraceae	<i>Ficus coronata</i>	creek sandpaper fig		C		1
plants	Equisetopsida	Myrtaceae	<i>Eucalyptus</i>			C		1
plants	Equisetopsida	Myrtaceae	<i>Eucalyptus crebra</i>	narrow-leaved red ironbark		C		2/1
plants	Equisetopsida	Myrtaceae	<i>Melaleuca nervosa</i>			C		5
plants	Equisetopsida	Myrtaceae	<i>Eucalyptus exserta</i>	Queensland peppermint		C		1/1
plants	Equisetopsida	Myrtaceae	<i>Corymbia intermedia</i>	pink bloodwood		C		1
plants	Equisetopsida	Myrtaceae	<i>Eucalyptus populnea</i>	poplar box		C		19
plants	Equisetopsida	Myrtaceae	<i>Eucalyptus tenuipes</i>	narrow-leaved white mahogany		C		1/1
plants	Equisetopsida	Myrtaceae	<i>Corymbia dallachiana</i>			C		6
plants	Equisetopsida	Myrtaceae	<i>Corymbia tessellaris</i>	Moreton Bay ash		C		4
plants	Equisetopsida	Myrtaceae	<i>Corymbia clarksoniana</i>			C		9/2
plants	Equisetopsida	Myrtaceae	<i>Eucalyptus cambageana</i>	Dawson gum		C		1
plants	Equisetopsida	Myrtaceae	<i>Eucalyptus persistens</i>			C		2/2
plants	Equisetopsida	Myrtaceae	<i>Melaleuca fluviatilis</i>			C		1/1
plants	Equisetopsida	Myrtaceae	<i>Melaleuca viridiflora</i>			C		2
plants	Equisetopsida	Myrtaceae	<i>Eucalyptus platyphylla</i>	poplar gum		C		3
plants	Equisetopsida	Myrtaceae	<i>Eucalyptus raveretiana</i>	black ironbox		C	V	2/2
plants	Equisetopsida	Myrtaceae	<i>Eucalyptus tholiformis</i>			C		1/1
plants	Equisetopsida	Myrtaceae	<i>Eucalyptus tereticornis</i>			C		3
plants	Equisetopsida	Myrtaceae	<i>Micromyrtus capricornia</i>			C		1/1
plants	Equisetopsida	Myrtaceae	<i>Eucalyptus camaldulensis</i>			C		1
plants	Equisetopsida	Myrtaceae	<i>Lysicarpus angustifolius</i>	budgeroo		C		1/1
plants	Equisetopsida	Myrtaceae	<i>Eucalyptus camaldulensis subsp. acuta</i>			C		1
plants	Equisetopsida	Myrtaceae	<i>Eucalyptus crebra x Eucalyptus orgadophila</i>			C		1/1
plants	Equisetopsida	Myrtaceae	<i>Eucalyptus tereticornis subsp. tereticornis</i>			C		1
plants	Equisetopsida	Myrtaceae	<i>Corymbia</i>			C		2
plants	Equisetopsida	Nyctaginaceae	<i>Boerhavia dominii</i>			C		10/1
plants	Equisetopsida	Nyctaginaceae	<i>Boerhavia sp. (Bargara L.Pedley 5382)</i>			C		1/1
plants	Equisetopsida	Oleaceae	<i>Notelaea microcarpa</i>			C		1
plants	Equisetopsida	Oleaceae	<i>Jasminum didymum subsp. lineare</i>			C		6
plants	Equisetopsida	Oleaceae	<i>Jasminum simplicifolium subsp. australiense</i>			C		1/1
plants	Equisetopsida	Onagraceae	<i>Ludwigia</i>			C		1/1
plants	Equisetopsida	Onagraceae	<i>Ludwigia octovalvis</i>	willow primrose		C		2
plants	Equisetopsida	Orchidaceae	<i>Cymbidium canaliculatum</i>			C		3
plants	Equisetopsida	Orthotrichaceae	<i>Macromitrium aurescens</i>			C		1/1
plants	Equisetopsida	Oxalidaceae	<i>Oxalis radicata</i>			C		1/1
plants	Equisetopsida	Passifloraceae	<i>Passiflora foetida</i>		Y			1/1
plants	Equisetopsida	Pentapetaceae	<i>Melhania oblongifolia</i>			C		1/1
plants	Equisetopsida	Phyllanthaceae	<i>Phyllanthus virgatus</i>			C		16
plants	Equisetopsida	Phyllanthaceae	<i>Bridelia leichhardtii</i>			C		1/1
plants	Equisetopsida	Phyllanthaceae	<i>Phyllanthus lacunarius</i>			C		1/1

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plants	Equisetopsida	Phyllanthaceae	<i>Breynia oblongifolia</i>			C		12
plants	Equisetopsida	Phyllanthaceae	<i>Phyllanthus</i>			C		1
plants	Equisetopsida	Phyllanthaceae	<i>Phyllanthus mitchellii</i>			C		1
plants	Equisetopsida	Phyllanthaceae	<i>Phyllanthus maderaspatensis</i>			C		6
plants	Equisetopsida	Phyllanthaceae	<i>Phyllanthus fuernrohrii</i>			C		1
plants	Equisetopsida	Picrodendraceae	<i>Petalostigma pubescens</i>	quinine tree		C		14
plants	Equisetopsida	Pittosporaceae	<i>Bursaria incana</i>			C		10/1
plants	Equisetopsida	Pittosporaceae	<i>Pittosporum angustifolium</i>			C		3
plants	Equisetopsida	Plantaginaceae	<i>Stemodia pubescens</i>			C		1/1
plants	Equisetopsida	Plantaginaceae	<i>Scoparia dulcis</i>	scoparia	Y			3
plants	Equisetopsida	Poaceae	<i>Tripogon loliiformis</i>	five minute grass		C		2
plants	Equisetopsida	Poaceae	<i>Urochloa praetervisa</i>			C		2
plants	Equisetopsida	Poaceae	<i>Whiteochloa airoides</i>			C		3/1
plants	Equisetopsida	Poaceae	<i>Alloteropsis cimicina</i>			C		3
plants	Equisetopsida	Poaceae	<i>Cenchrus polystachios</i>		Y			1/1
plants	Equisetopsida	Poaceae	<i>Cymbopogon bombycinus</i>	silky oilgrass		C		3
plants	Equisetopsida	Poaceae	<i>Dichanthium aristatum</i>	angleton grass	Y			3/2
plants	Equisetopsida	Poaceae	<i>Dichanthium caricosum</i>		Y			1/1
plants	Equisetopsida	Poaceae	<i>Elytrophorus spicatus</i>			C		4/1
plants	Equisetopsida	Poaceae	<i>Eragrostis leptocarpa</i>	drooping lovegrass		C		5
plants	Equisetopsida	Poaceae	<i>Eragrostis parviflora</i>	weeping lovegrass		C		4
plants	Equisetopsida	Poaceae	<i>Heteropogon contortus</i>	black speargrass		C		18
plants	Equisetopsida	Poaceae	<i>Heteropogon triticeus</i>	giant speargrass		C		4
plants	Equisetopsida	Poaceae	<i>Iseilema vaginiflorum</i>	red flinders grass		C		1/1
plants	Equisetopsida	Poaceae	<i>Alloteropsis semialata</i>	cockatoo grass		C		4
plants	Equisetopsida	Poaceae	<i>Bothriochloa ewartiana</i>	desert bluegrass		C		2/1
plants	Equisetopsida	Poaceae	<i>Enteropogon acicularis</i>	curly windmill grass		C		4
plants	Equisetopsida	Poaceae	<i>Enteropogon unispiceus</i>			C		13
plants	Equisetopsida	Poaceae	<i>Moorochloa eruciformis</i>		Y			1/1
plants	Equisetopsida	Poaceae	<i>Setaria paspalidioides</i>			C		2/2
plants	Equisetopsida	Poaceae	<i>Urochloa mosambicensis</i>	sabi grass	Y			5
plants	Equisetopsida	Poaceae	<i>Ancistrachne uncinulata</i>	hooky grass		C		12/2
plants	Equisetopsida	Poaceae	<i>Dactyloctenium radulans</i>	button grass		C		6/1
plants	Equisetopsida	Poaceae	<i>Eragrostis leptostachya</i>			C		11
plants	Equisetopsida	Poaceae	<i>Eragrostis megalosperma</i>			C		2/2
plants	Equisetopsida	Poaceae	<i>Eragrostis spartinoides</i>			C		1/1
plants	Equisetopsida	Poaceae	<i>Paspalidium caespitosum</i>	brigalow grass		C		11/1
plants	Equisetopsida	Poaceae	<i>Paspalidium constrictum</i>			C		14
plants	Equisetopsida	Poaceae	<i>Sporobolus actinocladus</i>	katoora grass		C		1
plants	Equisetopsida	Poaceae	<i>Capillipedium spicigerum</i>	spicytop		C		3
plants	Equisetopsida	Poaceae	<i>Paspalidium albobillosum</i>			C		2/2
plants	Equisetopsida	Poaceae	<i>Walwhalleya subxerophila</i>			C		1/1
plants	Equisetopsida	Poaceae	<i>Bothriochloa erianthoides</i>	satintop grass		C		1/1
plants	Equisetopsida	Poaceae	<i>Digitaria divaricatissima</i>	spreading umbrella grass		C		5
plants	Equisetopsida	Poaceae	<i>Dichanthium queenslandicum</i>			V	E	1/1
plants	Equisetopsida	Poaceae	<i>Eriochloa pseudoacrotricha</i>			C		12/2

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plants	Equisetopsida	Poaceae	<i>Eragrostis longipedicellata</i>			C		2/2
plants	Equisetopsida	Poaceae	<i>Aristida calycina</i> var. <i>calycina</i>			C		11/1
plants	Equisetopsida	Poaceae	<i>Dinebra decipiens</i> var. <i>asthenes</i>			C		1
plants	Equisetopsida	Poaceae	<i>Dinebra decipiens</i> var. <i>decipiens</i>			C		6
plants	Equisetopsida	Poaceae	<i>Dinebra decipiens</i> var. <i>peacockii</i>			C		1/1
plants	Equisetopsida	Poaceae	<i>Megathyrsus maximus</i> var. <i>maximus</i>		Y			1/1
plants	Equisetopsida	Poaceae	<i>Aristida benthamii</i> var. <i>benthamii</i>			C		2
plants	Equisetopsida	Poaceae	<i>Aristida holathera</i> var. <i>holathera</i>			C		5/1
plants	Equisetopsida	Poaceae	<i>Panicum decompositum</i> var. <i>tenuius</i>			C		10
plants	Equisetopsida	Poaceae	<i>Chloris divaricata</i> var. <i>divaricata</i>	slender chloris		C		2/2
plants	Equisetopsida	Poaceae	<i>Bothriochloa bladhii</i> subsp. <i>bladhii</i>			C		6
plants	Equisetopsida	Poaceae	<i>Megathyrsus maximus</i> var. <i>pubiglumis</i>		Y			3
plants	Equisetopsida	Poaceae	<i>Urochloa panicoides</i> var. <i>panicoides</i>		Y			1/1
plants	Equisetopsida	Poaceae	<i>Dichanthium sericeum</i> subsp. <i>sericeum</i>			C		3/3
plants	Equisetopsida	Poaceae	<i>Bothriochloa decipiens</i> var. <i>decipiens</i>			C		8/1
plants	Equisetopsida	Poaceae	<i>Urochloa holosericea</i> subsp. <i>holosericea</i>			C		3
plants	Equisetopsida	Poaceae	<i>Aristida jerichoensis</i> var. <i>subspinulifera</i>			C		11/3
plants	Equisetopsida	Poaceae	<i>Calypochloa gracillima</i> subsp. <i>gracillima</i>			C		6/2
plants	Equisetopsida	Poaceae	<i>Eriachne mucronata</i> forma (Alpha C.E.Hubbard 7882)			C		1/1
plants	Equisetopsida	Poaceae	<i>Paspalidium criniforme</i>			C		2/2
plants	Equisetopsida	Poaceae	<i>Aristida</i>			C		2
plants	Equisetopsida	Poaceae	<i>Eragrostis</i>			C		3
plants	Equisetopsida	Poaceae	<i>Perotis rara</i>	comet grass		C		1
plants	Equisetopsida	Poaceae	<i>Eriachne rara</i>			C		5/1
plants	Equisetopsida	Poaceae	<i>Eulalia aurea</i>	silky browntop		C		11
plants	Equisetopsida	Poaceae	<i>Lolium perenne</i>	perennial ryegrass	Y			1/1
plants	Equisetopsida	Poaceae	<i>Melinis repens</i>	red natal grass	Y			17
plants	Equisetopsida	Poaceae	<i>Aristida ramosa</i>	purple wiregrass		C		11
plants	Equisetopsida	Poaceae	<i>Chloris inflata</i>	purpletop chloris	Y			8
plants	Equisetopsida	Poaceae	<i>Eriachne obtusa</i>			C		4/1
plants	Equisetopsida	Poaceae	<i>Panicum effusum</i>			C		15
plants	Equisetopsida	Poaceae	<i>Setaria surgens</i>			C		4
plants	Equisetopsida	Poaceae	<i>Aristida lignosa</i>			C		1/1
plants	Equisetopsida	Poaceae	<i>Chloris truncata</i>			C		2
plants	Equisetopsida	Poaceae	<i>Cynodon dactylon</i>		Y			2
plants	Equisetopsida	Poaceae	<i>Digitaria blakei</i>			C		1/1
plants	Equisetopsida	Poaceae	<i>Eriochloa crebra</i>	spring grass		C		2
plants	Equisetopsida	Poaceae	<i>Themeda avenacea</i>			C		2
plants	Equisetopsida	Poaceae	<i>Themeda triandra</i>	kangaroo grass		C		16
plants	Equisetopsida	Poaceae	<i>Urochloa foliosa</i>			C		1/1
plants	Equisetopsida	Poaceae	<i>Astrebla lappacea</i>	curly mitchell grass		C		1/1
plants	Equisetopsida	Poaceae	<i>Cenchrus ciliaris</i>		Y			23
plants	Equisetopsida	Poaceae	<i>Dichanthium tenue</i>	small bluegrass		C		2
plants	Equisetopsida	Poaceae	<i>Digitaria brownii</i>			C		13
plants	Equisetopsida	Poaceae	<i>Enneapogon virens</i>			C		1/1
plants	Equisetopsida	Poaceae	<i>Eriochloa procera</i>	slender cupgrass		C		1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	Equisetopsida	Poaceae	<i>Panicum paludosum</i>	swamp panic		C		1/1
plants	Equisetopsida	Poaceae	<i>Sporobolus caroli</i>	fairy grass		C		7
plants	Equisetopsida	Poaceae	<i>Thellungia advena</i>	coolibah grass		C		1/1
plants	Equisetopsida	Poaceae	<i>Urochloa piligera</i>			C		1
plants	Equisetopsida	Poaceae	<i>Urochloa pubigera</i>			C		8
plants	Equisetopsida	Poaceae	<i>Aristida benthamii</i>			C		2
plants	Equisetopsida	Poaceae	<i>Aristida holathera</i>			C		3
plants	Equisetopsida	Poaceae	<i>Astrelba squarrosa</i>	bull mitchell grass		C		1
plants	Equisetopsida	Poaceae	<i>Chloris ventricosa</i>	tall chloris		C		13/1
plants	Equisetopsida	Poaceae	<i>Chrysopogon fallax</i>			C		20/1
plants	Equisetopsida	Poaceae	<i>Digitaria bicornis</i>			C		5/1
plants	Equisetopsida	Poaceae	<i>Echinochloa colona</i>	awnless barnyard grass	Y			6/2
plants	Equisetopsida	Poaceae	<i>Eragrostis brownii</i>	Brown's lovegrass		C		2/2
plants	Equisetopsida	Poaceae	<i>Eragrostis sororia</i>			C		6
plants	Equisetopsida	Poaceae	<i>Eriachne mucronata</i>			C		1
plants	Equisetopsida	Poaceae	<i>Aristida gracilipes</i>			C		2/2
plants	Equisetopsida	Poaceae	<i>Digitaria ammophila</i>	silky umbrella grass		C		7
plants	Equisetopsida	Poaceae	<i>Enneapogon pallidus</i>	conetop nineawn		C		7
plants	Equisetopsida	Poaceae	<i>Enteropogon ramosus</i>			C		3
plants	Equisetopsida	Poaceae	<i>Eragrostis elongata</i>			C		13/1
plants	Equisetopsida	Poaceae	<i>Imperata cylindrica</i>	blady grass		C		1
plants	Equisetopsida	Poaceae	<i>Leptochloa digitata</i>			C		2/1
plants	Equisetopsida	Poaceae	<i>Panicum larcomianum</i>			C		1
plants	Equisetopsida	Poaceae	<i>Paspalidium distans</i>	shotgrass		C		5/1
plants	Equisetopsida	Poaceae	<i>Paspalidium gracile</i>	slender panic		C		2/2
plants	Equisetopsida	Poaceae	<i>Sporobolus sessilis</i>			C		1
plants	Equisetopsida	Poaceae	<i>Tragus australianus</i>	small burr grass		C		4
plants	Equisetopsida	Poaceae	<i>Bothriochloa pertusa</i>		Y			25/2
plants	Equisetopsida	Poaceae	<i>Cymbopogon refractus</i>	barbed-wire grass		C		7
plants	Equisetopsida	Poaceae	<i>Dichanthium fecundum</i>	curly bluegrass		C		7/3
plants	Equisetopsida	Poaceae	<i>Dichanthium sericeum</i>			C		5
plants	Equisetopsida	Poaceae	<i>Enneapogon nigricans</i>	niggerheads		C		1
plants	Equisetopsida	Poaceae	<i>Enneapogon truncatus</i>			C		14
plants	Equisetopsida	Poaceae	<i>Eragrostis lacunaria</i>	purple lovegrass		C		14/2
plants	Equisetopsida	Poaceae	<i>Eragrostis pubescens</i>			C		1/1
plants	Equisetopsida	Poaceae	<i>Eragrostis tenellula</i>	delicate lovegrass		C		4
plants	Equisetopsida	Poaceae	<i>Iseilema macratherum</i>			C		1/1
plants	Equisetopsida	Poaceae	<i>Paspalum mandiocanum</i>		Y			1/1
plants	Equisetopsida	Polygonaceae	<i>Rumex hypogaeus</i>		Y			7
plants	Equisetopsida	Pontederiaceae	<i>Monochoria cyanea</i>			C		2
plants	Equisetopsida	Portulacaceae	<i>Calandrinia pickeringii</i>			C		3/1
plants	Equisetopsida	Portulacaceae	<i>Portulaca filifolia</i>			C		8
plants	Equisetopsida	Portulacaceae	<i>Portulaca oleracea</i>	pigweed	Y			1
plants	Equisetopsida	Portulacaceae	<i>Portulaca pilosa</i>		Y			1
plants	Equisetopsida	Proteaceae	<i>Grevillea parallela</i>			C		1
plants	Equisetopsida	Proteaceae	<i>Grevillea juncifolia</i>	honeysuckle spider flower		C		1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	Equisetopsida	Proteaceae	<i>Grevillea pteridifolia</i>	golden parrot tree		C		1/1
plants	Equisetopsida	Proteaceae	<i>Hakea lorea</i>			C		5
plants	Equisetopsida	Proteaceae	<i>Hakea chordophylla</i>			C		1
plants	Equisetopsida	Proteaceae	<i>Persoonia amaliae</i>			C		1/1
plants	Equisetopsida	Proteaceae	<i>Grevillea striata</i>	beefwood		C		2
plants	Equisetopsida	Proteaceae	<i>Hakea lorea subsp. lorea</i>			C		2/1
plants	Equisetopsida	Pteridaceae	<i>Cheilanthes distans</i>	bristly cloak fern		C		2/2
plants	Equisetopsida	Pteridaceae	<i>Cheilanthes sieberi subsp. sieberi</i>			C		6
plants	Equisetopsida	Ptychomitriaceae	<i>Ptychomitrium australe</i>			C		1/1
plants	Equisetopsida	Rhamnaceae	<i>Alphitonia excelsa</i>	soap tree		C		12
plants	Equisetopsida	Rhamnaceae	<i>Ventilago viminalis</i>	supplejack		C		14/1
plants	Equisetopsida	Rubiaceae	<i>Spermacoce brachystema</i>			C		2/1
plants	Equisetopsida	Rubiaceae	<i>Oldenlandia mitrasacmoides subsp. trachymenoides</i>			C		1/1
plants	Equisetopsida	Rubiaceae	<i>Psydrax odorata subsp. australiana</i>			C		1/1
plants	Equisetopsida	Rubiaceae	<i>Psydrax odorata forma buxifolia</i>			C		7
plants	Equisetopsida	Rubiaceae	<i>Psydrax saligna forma saligna</i>			C		1/1
plants	Equisetopsida	Rubiaceae	<i>Psydrax attenuata</i>			C		4
plants	Equisetopsida	Rubiaceae	<i>Psydrax oleifolia</i>			C		2
plants	Equisetopsida	Rubiaceae	<i>Larsenaikia ochreata</i>			C		2/2
plants	Equisetopsida	Rubiaceae	<i>Spermacoce multicaulis</i>			C		13
plants	Equisetopsida	Rubiaceae	<i>Oldenlandia coerulescens</i>			C		1/1
plants	Equisetopsida	Rutaceae	<i>Geijera salicifolia</i>	brush wilga		C		13/1
plants	Equisetopsida	Rutaceae	<i>Citrus glauca</i>			C		1/1
plants	Equisetopsida	Rutaceae	<i>Phebalium glandulosum subsp. glandulosum</i>			C		1/1
plants	Equisetopsida	Rutaceae	<i>Flindersia dissosperma</i>			C		17
plants	Equisetopsida	Rutaceae	<i>Flindersia australis</i>	crow's ash		C		1
plants	Equisetopsida	Santalaceae	<i>Santalum lanceolatum</i>			C		2
plants	Equisetopsida	Sapindaceae	<i>Alectryon oleifolius subsp. elongatus</i>			C		2
plants	Equisetopsida	Sapindaceae	<i>Alectryon diversifolius</i>	scrub boonaree		C		5
plants	Equisetopsida	Sapindaceae	<i>Alectryon pubescens</i>			C		1/1
plants	Equisetopsida	Sapindaceae	<i>Atalaya</i>			C		4
plants	Equisetopsida	Sapindaceae	<i>Atalaya hemiglauca</i>			C		11
plants	Equisetopsida	Sapotaceae	<i>Planchonella pohlmaniana</i>			C		2/2
plants	Equisetopsida	Sapotaceae	<i>Planchonella pohlmaniana var. (Gilbert River C.T.White 1409)</i>			C		1/1
plants	Equisetopsida	Scrophulariaceae	<i>Eremophila mitchellii</i>			C		10
plants	Equisetopsida	Scrophulariaceae	<i>Myoporum acuminatum</i>	coastal boobialla		C		6/2
plants	Equisetopsida	Scrophulariaceae	<i>Eremophila maculata</i>			C		4
plants	Equisetopsida	Scrophulariaceae	<i>Eremophila deserti</i>			C		4
plants	Equisetopsida	Scrophulariaceae	<i>Eremophila debilis</i>	winter apple		C		5
plants	Equisetopsida	Solanaceae	<i>Solanum parvifolium subsp. parvifolium</i>			C		4/1
plants	Equisetopsida	Solanaceae	<i>Solanum ellipticum</i>	potato bush		C		3
plants	Equisetopsida	Solanaceae	<i>Solanum esuriale</i>	quena		C		2/1
plants	Equisetopsida	Sparrmanniaceae	<i>Grewia latifolia</i>	dysentery plant		C		20
plants	Equisetopsida	Sparrmanniaceae	<i>Grewia retusifolia</i>			C		5
plants	Equisetopsida	Sparrmanniaceae	<i>Corchorus trilocularis</i>			C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	Equisetopsida	Sterculiaceae	<i>Brachychiton populneus subsp. trilobus</i>			C		1/1
plants	Equisetopsida	Sterculiaceae	<i>Brachychiton australis</i>	broad-leaved bottle tree		C		2/1
plants	Equisetopsida	Stereophyllaceae	<i>Stereophyllum radiculosum</i>			C		1/1
plants	Equisetopsida	Stylidiaceae	<i>Stylidium eglandulosum</i>			C		1/1
plants	Equisetopsida	Thymelaeaceae	<i>Pimelea linifolia subsp. linifolia</i>			C		3
plants	Equisetopsida	Violaceae	<i>Afrohybanthus enneaspermus</i>			C		9
plants	Equisetopsida	Violaceae	<i>Afrohybanthus stellarioides</i>			C		2
plants	Equisetopsida	Vitaceae	<i>Clematicissus opaca</i>			C		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 in the Wild (PE), Endangered (E), Vulnerable (V), Near Threatened (NT), Least Concern (C) or Not Protected ().

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

Records – The first number indicates the total number of records of the taxon for the record option selected (i.e. All, Confirmed or Specimens).

This number is output as 99999 if it equals or exceeds this value. The second number located after the / indicates the number of specimen records for the taxon.

This number is output as 999 if it equals or exceeds this value.

Scientific Name - original	Vernacular name - original	Scientific Name	Taxon Rank	Order	Family	Genus	Locality	Latitude - origi	Longitude - ori	Collector	Year
<i>Drosophila aldrichi</i>		<i>Drosophila (Drosophila) aldrichi</i>	species	Diptera	Drosophilidae	<i>Drosophila</i>	Coppabella	-21.9	148.37	J.S.F. Barker	1991
<i>Drosophila buzzatii</i>		<i>Drosophila (Drosophila) buzzatii</i>	species	Diptera	Drosophilidae	<i>Drosophila</i>	Coppabella	-21.9	148.37	J.S.F. Barker	1991
<i>Anas superciliosa</i>	Pacific Black Duck	<i>Anas superciliosa</i> Gmelin, 1789	subspecies	Anseriformes	Anatidae	<i>Anas</i>	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
<i>Chenonetta jubata</i>	Maned Duck	<i>Chenonetta jubata</i>	species	Anseriformes	Anatidae	<i>Chenonetta</i>	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
" <i>Chenonetta jubata</i> "	"Australian Wood Duck"	<i>Chenonetta jubata</i>	species	Anseriformes	Anatidae	<i>Chenonetta</i>		-21.91	148.41		
<i>Hirundapus caudacutus</i>	White-throated Needletail	<i>Hirundapus caudacutus</i> (Latham, 1802)	caud. subspecies	Apodiformes	Apodidae		1263 - Coppab	-21.91028023	148.3724976		2012
<i>Threskiornis spinicollis</i>	Straw-necked Ibis	<i>Threskiornis spinicollis</i>	species	Ciconiiformes	Threskiornithidae	<i>Threskiornis</i>	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
<i>Geopelia striata</i>	Peaceful Dove	<i>Geopelia striata</i>	species	Columbiformes	Columbidae	<i>Geopelia</i>	Coppabella	-21.92417	148.3453		
<i>Geopelia striata</i>	Peaceful Dove	<i>Geopelia striata</i>	species	Columbiformes	Columbidae	<i>Geopelia</i>	1263 - Coppab	-21.91028023	148.3724976		2012
<i>Ocyphaps lophotes</i>	Crested Pigeon	<i>Ocyphaps lophotes</i>	species	Columbiformes	Columbidae	<i>Ocyphaps</i>	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
<i>Ocyphaps lophotes</i>	Crested Pigeon	<i>Ocyphaps lophotes</i>	species	Columbiformes	Columbidae	<i>Ocyphaps</i>	Peak Downs H	-21.86194	148.455		
" <i>Ocyphaps lophotes</i> "	"Crested Pigeon"	<i>Ocyphaps lophotes</i>	species	Columbiformes	Columbidae	<i>Ocyphaps</i>		-21.91	148.41		
" <i>Ocyphaps lophotes</i> "	"Crested Pigeon"	<i>Ocyphaps lophotes</i>	species	Columbiformes	Columbidae	<i>Ocyphaps</i>		-21.91	148.41		1980
<i>Dacelo leachii</i>	blue-winged kookaburra	<i>Dacelo (Dacelo) leachii leachii</i>	subspecies	Coraciiformes	Alcedinidae	<i>Dacelo</i>	Peak Downs H	-21.8944444	148.3920833		2004
<i>Dacelo leachii</i>	Blue-winged Kookaburra	<i>Dacelo (Dacelo) leachii leachii</i>	subspecies	Coraciiformes	Alcedinidae	<i>Dacelo</i>	1263 - Coppab	-21.91028023	148.3724976		2012
<i>Dacelo novaeguineae</i>	Laughing Kookaburra	<i>Dacelo novaeguineae</i> (Hermann, 1783)	novai subspecies	Coraciiformes	Alcedinidae	<i>Dacelo</i>	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
<i>Dacelo novaeguineae</i>	Laughing Kookaburra	<i>Dacelo novaeguineae</i> (Hermann, 1783)	novai subspecies	Coraciiformes	Alcedinidae	<i>Dacelo</i>	Coppabella	-21.92417	148.3453		
" <i>Dacelo novaeguineae</i> "	"Laughing Kookaburra"	<i>Dacelo novaeguineae</i> (Hermann, 1783)	novai subspecies	Coraciiformes	Alcedinidae	<i>Dacelo</i>		-21.91	148.41		
<i>Todiramphus macleayii</i>	Forest Kingfisher	<i>Todiramphus (Lazulena) macleayii</i>	species	Coraciiformes	Alcedinidae	<i>Todiramphus</i>	1263 - Coppab	-21.91028023	148.3724976		2012
" <i>Eurystomus orientalis</i> "	"Dollarbird"	<i>Eurystomus orientalis</i>	species	Coraciiformes	Coraciidae	<i>Eurystomus</i>		-21.91	148.41		
<i>Eurystomus orientalis</i>	Dollarbird	<i>Eurystomus orientalis</i>	species	Coraciiformes	Coraciidae	<i>Eurystomus</i>	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
<i>Eurystomus orientalis</i>	Dollarbird	<i>Eurystomus orientalis</i>	species	Coraciiformes	Coraciidae	<i>Eurystomus</i>	1263 - Coppab	-21.91028023	148.3724976		2012
<i>Merops ornatus</i>	Rainbow Bee-eater	<i>Merops (Merops) ornatus</i>	species	Coraciiformes	Meropidae	<i>Merops</i>	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
<i>Merops ornatus</i>	Rainbow Bee-eater	<i>Merops (Merops) ornatus</i>	species	Coraciiformes	Meropidae	<i>Merops</i>	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
<i>Merops ornatus</i>	Rainbow Bee-eater	<i>Merops (Merops) ornatus</i>	species	Coraciiformes	Meropidae	<i>Merops</i>	1263 - Coppab	-21.91028023	148.3724976		2012
<i>Centropus phasianinus</i>	Pheasant Coucal	<i>Centropus (Polophilus) phasianinus</i>	species	Cuculiformes	Centropodidae	<i>Centropus</i>	1263 - Coppab	-21.91028023	148.3724976		2012
<i>Centropus phasianinus</i>	Pheasant Coucal	<i>Centropus (Polophilus) phasianinus</i>	species	Cuculiformes	Centropodidae	<i>Centropus</i>	1263 - Coppab	-21.91028023	148.3724976		2012
<i>Eudynamis orientalis cyanocephalus</i>	Pacific Koel (Australian)	<i>Eudynamis orientalis cyanocephala</i>	subspecies	Cuculiformes	Cuculidae	<i>Eudynamis</i>	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
<i>Scythrops novaehollandiae</i>	Channel-billed Cuckoo	<i>Scythrops novaehollandiae novaehollandiae</i>	subspecies	Cuculiformes	Cuculidae	<i>Scythrops</i>	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
<i>Scythrops novaehollandiae</i>	Channel-billed Cuckoo	<i>Scythrops novaehollandiae novaehollandiae</i>	subspecies	Cuculiformes	Cuculidae	<i>Scythrops</i>	1263 - Coppab	-21.91028023	148.3724976		2012
<i>Aviceda subcristata</i>	Pacific Baza	<i>Aviceda (Aviceda) subcristata</i>	species	Falconiformes	Accipitridae	<i>Aviceda</i>	1263 - Coppab	-21.91028023	148.3724976		2012
<i>Haliastur spheurnus</i>	Whistling Kite	<i>Haliastur spheurnus</i>	species	Falconiformes	Accipitridae	<i>Haliastur</i>	Peak Downs H	-21.92139	148.3456		
<i>Milvus migrans</i>	Black Kite	<i>Milvus migrans</i>	species	Falconiformes	Accipitridae	<i>Milvus</i>	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
<i>Falco berigora</i>	Brown Falcon	<i>Falco (Ieracidea) berigora berigora</i>	subspecies	Falconiformes	Falconidae	<i>Falco</i>	Peak Downs H	-21.92139	148.3456		
<i>Coturnix ypsilophora</i>	Brown Quail	<i>Coturnix (Synoicus) ypsilophora</i>	species	Galliformes	Phasianidae	<i>Coturnix</i>	1263 - Coppab	-21.91028023	148.3724976		2012
<i>Ardeotis australis</i>	Australian bustard	<i>Ardeotis australis</i>	species	Gruiformes	Otididae	<i>Ardeotis</i>	Peak Downs H	-21.8944444	148.3920833		2004
<i>Gerygone olbougularis</i>	White-throated Gerygone	<i>Gerygone olivacea olivacea</i>	subspecies	Passeriformes	Acanthizidae	<i>Gerygone</i>	1263 - Coppab	-21.91028023	148.3724976		2012
<i>Artamus leucorhynchus</i>	White-breasted Woodswallow	<i>Artamus (Artamus) leucorhynchus</i>	species	Passeriformes	Artamidae	<i>Artamus</i>	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
<i>Artamus leucorhynchus</i>	White-breasted Woodswallow	<i>Artamus (Artamus) leucorhynchus</i>	species	Passeriformes	Artamidae	<i>Artamus</i>	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
<i>Artamus leucorhynchus</i>	White-breasted Woodswallow	<i>Artamus (Artamus) leucorhynchus</i>	species	Passeriformes	Artamidae	<i>Artamus</i>	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
<i>Cracticus nigrogularis</i>	Pied Butcherbird	<i>Cracticus nigrogularis</i>	species	Passeriformes	Artamidae	<i>Cracticus</i>	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
<i>Cracticus nigrogularis</i>	Pied Butcherbird	<i>Cracticus nigrogularis</i>	species	Passeriformes	Artamidae	<i>Cracticus</i>	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
<i>Cracticus nigrogularis</i>	Pied Butcherbird	<i>Cracticus nigrogularis</i>	species	Passeriformes	Artamidae	<i>Cracticus</i>	Peak Downs H	-21.92139	148.3456		
<i>Cracticus nigrogularis</i>	Pied Butcherbird	<i>Cracticus nigrogularis</i>	species	Passeriformes	Artamidae	<i>Cracticus</i>	Coppabella	-21.92417	148.3453		
<i>Cracticus nigrogularis</i>	Pied Butcherbird	<i>Cracticus nigrogularis</i>	species	Passeriformes	Artamidae	<i>Cracticus</i>	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
<i>Gymnorhina tibicen</i>	Australian Magpie	<i>Cracticus tibicen</i>	species	Passeriformes	Artamidae	<i>Cracticus</i>	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
<i>Gymnorhina tibicen</i>	Australian Magpie	<i>Cracticus tibicen</i>	species	Passeriformes	Artamidae	<i>Cracticus</i>	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
<i>Cracticus tibicen</i>	Australian Magpie	<i>Cracticus tibicen</i>	species	Passeriformes	Artamidae	<i>Cracticus</i>	Peak Downs H	-21.92139	148.3456		
<i>Cracticus tibicen</i>	Australian Magpie	<i>Cracticus tibicen</i>	species	Passeriformes	Artamidae	<i>Cracticus</i>	Coppabella	-21.92417	148.3453		
" <i>Cracticus tibicen</i> "	"Australian Magpie"	<i>Cracticus tibicen</i>	species	Passeriformes	Artamidae	<i>Cracticus</i>		-21.91	148.41		
<i>Cracticus tibicen</i>	Australian Magpie	<i>Cracticus tibicen</i>	species	Passeriformes	Artamidae	<i>Cracticus</i>	Peak Downs H	-21.90667	148.3692		
<i>Cracticus tibicen</i>	Australian Magpie	<i>Cracticus tibicen</i>	species	Passeriformes	Artamidae	<i>Cracticus</i>	Peak Downs H	-21.90667	148.3689		
" <i>Cracticus tibicen</i> "	"Australian Magpie"	<i>Cracticus tibicen</i>	species	Passeriformes	Artamidae	<i>Cracticus</i>		-21.91	148.41		
<i>Cracticus tibicen</i>	Australian Magpie	<i>Cracticus tibicen</i>	species	Passeriformes	Artamidae	<i>Cracticus</i>	1263 - Coppab	-21.91028023	148.3724976		2012
<i>Cracticus torquatus</i>	Gray Butcherbird	<i>Cracticus torquatus</i>	species	Passeriformes	Artamidae	<i>Cracticus</i>	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
<i>Cracticus torquatus</i>	Grey Butcherbird	<i>Cracticus torquatus</i>	species	Passeriformes	Artamidae	<i>Cracticus</i>	Coppabella	-21.92417	148.3453		
<i>Cracticus torquatus</i>	Gray Butcherbird	<i>Cracticus torquatus</i>	species	Passeriformes	Artamidae	<i>Cracticus</i>	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
<i>Cracticus torquatus</i>	Grey Butcherbird	<i>Cracticus torquatus</i>	species	Passeriformes	Artamidae	<i>Cracticus</i>	1263 - Coppab	-21.91028023	148.3724976		2012
<i>Strepera graculina</i>	Pied Currawong	<i>Strepera (Strepera) graculina</i>	species	Passeriformes	Artamidae	<i>Strepera</i>	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
" <i>Strepera graculina</i> "	"Pied Currawong"	<i>Strepera (Strepera) graculina</i>	species	Passeriformes	Artamidae	<i>Strepera</i>		-21.91	148.41		
<i>Strepera graculina</i>	Pied Currawong	<i>Strepera (Strepera) graculina</i>	species	Passeriformes	Artamidae	<i>Strepera</i>	Coppabella	-21.92417	148.3453		
<i>Strepera graculina</i>	Pied Currawong	<i>Strepera (Strepera) graculina</i>	species	Passeriformes	Artamidae	<i>Strepera</i>	1263 - Coppab	-21.91028023	148.3724976		2012
<i>Coracina novaehollandiae</i>	Black-faced Cuckooshrike	<i>Coracina (Coracina) novaehollandiae</i>	species	Passeriformes	Campephagidae	<i>Coracina</i>	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012

Coracina novaehollandiae	Black-faced Cuckoo-shrike	Coracina (Coracina) novaehollandiae	species	Passeriformes	Campephagidae	Coracina	Coppabella	-21.92417	148.3453	
Coracina novaehollandiae	Black-faced Cuckoo-shrike	Coracina (Coracina) novaehollandiae	species	Passeriformes	Campephagidae	Coracina	Coppabella	-21.90426	148.3636	Kurtis Lindsay 2012
Coracina novaehollandiae	Black-faced Cuckoo-shrike	Coracina (Coracina) novaehollandiae	species	Passeriformes	Campephagidae	Coracina	1263 - Coppabi	-21.91028023	148.3724976	2012
Struthidea cinerea	Apostlebird	Struthidea cinerea cinerea	subspecies	Passeriformes	Corcoracidae	Struthidea	Coppabella	-21.90426	148.3636	Nicolette Thor 1999
Struthidea cinerea	Apostlebird	Struthidea cinerea cinerea	subspecies	Passeriformes	Corcoracidae	Struthidea	Coppabella	-21.90426	148.3636	Kurtis Lindsay 2012
"Struthidea cinerea"	"Apostlebird"	Struthidea cinerea cinerea	subspecies	Passeriformes	Corcoracidae	Struthidea	Coppabella	-21.90426	148.3636	Kurtis Lindsay 2012
Struthidea cinerea	Apostlebird	Struthidea cinerea cinerea	subspecies	Passeriformes	Corcoracidae	Struthidea	Peak Downs H	-21.86194	148.455	
Struthidea cinerea	Apostlebird	Struthidea cinerea cinerea	subspecies	Passeriformes	Corcoracidae	Struthidea	Peak Downs Hi	-21.90667	148.3689	
Struthidea cinerea	Apostlebird	Struthidea cinerea cinerea	subspecies	Passeriformes	Corcoracidae	Struthidea	Coppabella	-21.90426	148.3636	Kurtis Lindsay 2012
Struthidea cinerea	Apostlebird	Struthidea cinerea cinerea	subspecies	Passeriformes	Corcoracidae	Struthidea	1263 - Coppabi	-21.91028023	148.3724976	2012
Corvus bennetti	Little Crow	Corvus bennetti	species	Passeriformes	Corvidae	Corvus	Peak Downs H	-21.92139	148.3456	
Corvus orru	Torresian Crow	Corvus orru orru	subspecies	Passeriformes	Corvidae	Corvus	Coppabella	-21.90426	148.3636	Nicolette Thor 1999
Corvus orru	Torresian Crow	Corvus orru orru	subspecies	Passeriformes	Corvidae	Corvus	Coppabella	-21.90426	148.3636	Kurtis Lindsay 2012
Corvus orru	Torresian Crow	Corvus orru orru	subspecies	Passeriformes	Corvidae	Corvus	Coppabella	-21.90426	148.3636	Kurtis Lindsay 2012
Corvus orru	Torresian Crow	Corvus orru orru	subspecies	Passeriformes	Corvidae	Corvus	Peak Downs H	-21.90667	148.3692	
Corvus orru	Torresian Crow	Corvus orru orru	subspecies	Passeriformes	Corvidae	Corvus	Coppabella	-21.92417	148.3453	
Corvus orru	Torresian Crow	Corvus orru orru	subspecies	Passeriformes	Corvidae	Corvus	Peak Downs H	-21.86194	148.455	
Corvus orru	Torresian Crow	Corvus orru orru	subspecies	Passeriformes	Corvidae	Corvus	1263 - Coppabi	-21.91028023	148.3724976	2012
Corvus orru	Torresian Crow	Corvus orru orru	subspecies	Passeriformes	Corvidae	Corvus	1263 - Coppabi	-21.91028023	148.3724976	2012
Taeniopygia bichenovii	Double-barred Finch	Stizoptera bichenovii	species	Passeriformes	Estrildidae	Stizoptera	Coppabella	-21.92417	148.3453	
Taeniopygia bichenovii	Double-barred Finch	Stizoptera bichenovii	species	Passeriformes	Estrildidae	Stizoptera	1263 - Coppabi	-21.91028023	148.3724976	2012
Petrochelidon nigricans	Tree Martin	Petrochelidon (Hylchelidon) nigricans	species	Passeriformes	Hirundinidae	Petrochelidon	1263 - Coppabi	-21.91028023	148.3724976	2012
Petrochelidon ariel	Fairy Martin	Petrochelidon (Petrochelidon) ariel	species	Passeriformes	Hirundinidae	Petrochelidon	Coppabella	-21.90426	148.3636	Kurtis Lindsay 2012
Malurus melanocephalus	Red-backed Fairy-wren	Malurus (Musciparus) melanocephalus	species	Passeriformes	Maluridae	Malurus	1263 - Coppabi	-21.91028023	148.3724976	2012
Malurus melanocephalus	Red-backed Fairy-wren	Malurus (Musciparus) melanocephalus	species	Passeriformes	Maluridae	Malurus	1263 - Coppabi	-21.91028023	148.3724976	2012
Entomyzon cyanotis	Blue-faced Honeyeater	Entomyzon cyanotis	species	Passeriformes	Meliphagidae	Entomyzon	Coppabella	-21.90426	148.3636	Nicolette Thor 1999
Entomyzon cyanotis	Blue-faced Honeyeater	Entomyzon cyanotis	species	Passeriformes	Meliphagidae	Entomyzon	Coppabella	-21.90426	148.3636	Kurtis Lindsay 2012
Entomyzon cyanotis	Blue-faced Honeyeater	Entomyzon cyanotis	species	Passeriformes	Meliphagidae	Entomyzon	Coppabella	-21.90426	148.3636	Kurtis Lindsay 2012
Entomyzon cyanotis	Blue-faced Honeyeater	Entomyzon cyanotis	species	Passeriformes	Meliphagidae	Entomyzon	Peak Downs H	-21.86194	148.455	
Entomyzon cyanotis	Blue-faced Honeyeater	Entomyzon cyanotis	species	Passeriformes	Meliphagidae	Entomyzon	Peak Downs Hi	-21.90667	148.3689	
Entomyzon cyanotis	Blue-faced Honeyeater	Entomyzon cyanotis	species	Passeriformes	Meliphagidae	Entomyzon	Peak Downs H	-21.90667	148.3692	
Entomyzon cyanotis	Blue-faced Honeyeater	Entomyzon cyanotis	species	Passeriformes	Meliphagidae	Entomyzon	Coppabella	-21.90426	148.3636	Kurtis Lindsay 2012
Lichmera indistincta	Brown Honeyeater	Lichmera (Lichmera) indistincta	species	Passeriformes	Meliphagidae	Lichmera	Coppabella	-21.90426	148.3636	Kurtis Lindsay 2012
Lichmera indistincta	Brown Honeyeater	Lichmera (Lichmera) indistincta	species	Passeriformes	Meliphagidae	Lichmera	Coppabella	-21.90426	148.3636	Kurtis Lindsay 2012
Lichmera indistincta	Brown Honeyeater	Lichmera (Lichmera) indistincta	species	Passeriformes	Meliphagidae	Lichmera	Peak Downs H	-21.92139	148.3456	
Lichmera indistincta	Brown Honeyeater	Lichmera (Lichmera) indistincta	species	Passeriformes	Meliphagidae	Lichmera	Coppabella	-21.90426	148.3636	Kurtis Lindsay 2012
Lichmera indistincta	Brown Honeyeater	Lichmera (Lichmera) indistincta	species	Passeriformes	Meliphagidae	Lichmera	1263 - Coppabi	-21.91028023	148.3724976	2012
Manorina flavigula	Yellow-throated Miner	Manorina (Myzantha) flavigula	species	Passeriformes	Meliphagidae	Manorina	Coppabella	-21.90426	148.3636	Nicolette Thor 1999
Manorina flavigula	Yellow-throated Miner	Manorina (Myzantha) flavigula	species	Passeriformes	Meliphagidae	Manorina	Coppabella	-21.90426	148.3636	Kurtis Lindsay 2012
"Manorina flavigula"	"Yellow-throated Miner"	Manorina (Myzantha) flavigula	species	Passeriformes	Meliphagidae	Manorina		-21.91	148.41	
Manorina melanocephala	Noisy Miner	Manorina (Myzantha) melanocephala	species	Passeriformes	Meliphagidae	Manorina	Peak Downs H	-21.90667	148.3692	
Manorina melanocephala	Noisy Miner	Manorina (Myzantha) melanocephala	species	Passeriformes	Meliphagidae	Manorina	Peak Downs Hi	-21.90667	148.3689	
Manorina melanocephala	Noisy Miner	Manorina (Myzantha) melanocephala	species	Passeriformes	Meliphagidae	Manorina	1263 - Coppabi	-21.91028023	148.3724976	2012
Melithreptus gularis	Black-chinned Honeyeater	Melithreptus (Eidopsarus) gularis	species	Passeriformes	Meliphagidae	Melithreptus	Coppabella	-21.92417	148.3453	
Melithreptus albogularis	White-throated Honeyeater	Melithreptus (Melithreptus) albogularis	subspecies	Passeriformes	Meliphagidae	Melithreptus	Coppabella	-21.90426	148.3636	Kurtis Lindsay 2012
Melithreptus albogularis	White-throated Honeyeater	Melithreptus (Melithreptus) albogularis	subspecies	Passeriformes	Meliphagidae	Melithreptus	Peak Downs H	-21.92139	148.3456	
Melithreptus albogularis	White-throated Honeyeater	Melithreptus (Melithreptus) albogularis	subspecies	Passeriformes	Meliphagidae	Melithreptus	Coppabella	-21.90426	148.3636	Kurtis Lindsay 2012
Philemon citreogularis	Little Friarbird	Philemon (Microphilemon) citreogularis	species	Passeriformes	Meliphagidae	Philemon	Coppabella	-21.90426	148.3636	Kurtis Lindsay 2012
"Philemon citreogularis"	"Little Friarbird"	Philemon (Microphilemon) citreogularis	species	Passeriformes	Meliphagidae	Philemon		-21.91	148.41	
Philemon citreogularis	Little Friarbird	Philemon (Microphilemon) citreogularis	species	Passeriformes	Meliphagidae	Philemon	1263 - Coppabi	-21.91028023	148.3724976	2012
Philemon corniculatus	Noisy Friarbird	Philemon (Tropidorhynchus) corniculatus	species	Passeriformes	Meliphagidae	Philemon	Coppabella	-21.90426	148.3636	Kurtis Lindsay 2012
Philemon corniculatus	Noisy Friarbird	Philemon (Tropidorhynchus) corniculatus	species	Passeriformes	Meliphagidae	Philemon	Coppabella	-21.90426	148.3636	Kurtis Lindsay 2012
Philemon corniculatus	Noisy Friarbird	Philemon (Tropidorhynchus) corniculatus	species	Passeriformes	Meliphagidae	Philemon	Coppabella	-21.90426	148.3636	Kurtis Lindsay 2012
Philemon corniculatus	Noisy Friarbird	Philemon (Tropidorhynchus) corniculatus	species	Passeriformes	Meliphagidae	Philemon	1263 - Coppabi	-21.91028023	148.3724976	2012
Philemon corniculatus	Noisy Friarbird	Philemon (Tropidorhynchus) corniculatus	species	Passeriformes	Meliphagidae	Philemon	1263 - Coppabi	-21.91028023	148.3724976	2012
Plectorhyncha lanceolata	Striped Honeyeater	Plectorhyncha lanceolata	species	Passeriformes	Meliphagidae	Plectorhyncha	Coppabella	-21.90426	148.3636	Kurtis Lindsay 2012
Plectorhyncha lanceolata	Striped Honeyeater	Plectorhyncha lanceolata	species	Passeriformes	Meliphagidae	Plectorhyncha	Coppabella	-21.90426	148.3636	Kurtis Lindsay 2012
Grallina cyanoleuca	Magpie-lark	Grallina cyanoleuca	species	Passeriformes	Monarchidae	Grallina	Coppabella	-21.90426	148.3636	Nicolette Thor 1999
Grallina cyanoleuca	Magpie-lark	Grallina cyanoleuca	species	Passeriformes	Monarchidae	Grallina	Coppabella	-21.90426	148.3636	Kurtis Lindsay 2012
Grallina cyanoleuca	Magpie-lark	Grallina cyanoleuca	species	Passeriformes	Monarchidae	Grallina	Coppabella	-21.90426	148.3636	Kurtis Lindsay 2012
Grallina cyanoleuca	Magpie-lark	Grallina cyanoleuca	species	Passeriformes	Monarchidae	Grallina	Peak Downs H	-21.90667	148.3692	
"Grallina cyanoleuca"	"Magpie-lark"	Grallina cyanoleuca	species	Passeriformes	Monarchidae	Grallina		-21.91	148.41	
Grallina cyanoleuca	Magpie-lark	Grallina cyanoleuca	species	Passeriformes	Monarchidae	Grallina	Peak Downs Hi	-21.90667	148.3689	

"Grallina cyanoleuca"	"Magpie-lark"	Grallina cyanoleuca	species	Passeriformes	Monarchidae	Grallina	-21.91	148.41			
Grallina cyanoleuca	Magpie-lark	Grallina cyanoleuca	species	Passeriformes	Monarchidae	Grallina	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
Grallina cyanoleuca	Magpie-lark	Grallina cyanoleuca	species	Passeriformes	Monarchidae	Grallina	1263 - Coppabi	-21.91028023	148.3724976		2012
Grallina cyanoleuca	Magpie-lark	Grallina cyanoleuca	species	Passeriformes	Monarchidae	Grallina	1263 - Coppabi	-21.91028023	148.3724976		2012
Dicaeum hirundinaceum	Mistletoebird	Dicaeum (Dicaeum) hirundinaceum	species	Passeriformes	Nectariniidae	Dicaeum	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
Dicaeum hirundinaceum	Mistletoebird	Dicaeum (Dicaeum) hirundinaceum	species	Passeriformes	Nectariniidae	Dicaeum	1263 - Coppabi	-21.91028023	148.3724976		2012
Dicaeum hirundinaceum	Mistletoebird	Dicaeum (Dicaeum) hirundinaceum	species	Passeriformes	Nectariniidae	Dicaeum	1263 - Coppabi	-21.91028023	148.3724976		2012
Oriolus sagittatus	Olive-backed Oriole	Oriolus (Mimeta) sagittatus	species	Passeriformes	Orioliidae	Oriolus	1263 - Coppabi	-21.91028023	148.3724976		2012
Sphecotheres vieilloti	Australasian Figbird	Sphecotheres vieilloti vieilloti	subspecies	Passeriformes	Orioliidae	Sphecotheres	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
Pardalotus striatus	Striated Pardalote	Pardalotus (Pardalotinus) striatus	species	Passeriformes	Pardalotidae	Pardalotus	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
Pardalotus striatus	Striated Pardalote	Pardalotus (Pardalotinus) striatus	species	Passeriformes	Pardalotidae	Pardalotus	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
Pardalotus striatus	Striated Pardalote	Pardalotus (Pardalotinus) striatus	species	Passeriformes	Pardalotidae	Pardalotus	Peak Downs H	-21.92139	148.3456		
Pardalotus striatus	Striated Pardalote	Pardalotus (Pardalotinus) striatus	species	Passeriformes	Pardalotidae	Pardalotus	Peak Downs H	-21.86194	148.455		
Pardalotus striatus	Striated Pardalote	Pardalotus (Pardalotinus) striatus	species	Passeriformes	Pardalotidae	Pardalotus	Coppabella	-21.92417	148.3453		
Pardalotus striatus	Striated Pardalote	Pardalotus (Pardalotinus) striatus	species	Passeriformes	Pardalotidae	Pardalotus	1263 - Coppabi	-21.91028023	148.3724976		2012
Passer domesticus	House Sparrow	Passer (Passer) domesticus	species	Passeriformes	Passeridae	Passer	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
Pomatostomus temporalis	Grey-crowned Babbler	Pomatostomus (Pomatostomus) temporalis	species	Passeriformes	Pomatostomidae	Pomatostomus	1263 - Coppabi	-21.91028023	148.3724976		2012
Ptilonorhynchus maculatus	Spotted Bowerbird	Ptilonorhynchus maculatus	species	Passeriformes	Ptilonorhynchidae	Ptilonorhynchus	1263 - Coppabi	-21.91028023	148.3724976		2012
Rhipidura albiscapa	Grey Fantail	Rhipidura (Rhipidura) albiscapa albiscapa	subspecies	Passeriformes	Rhipiduridae	Rhipidura	Peak Downs H	-21.92139	148.3456		
Rhipidura leucophrys	Willie-wagtail	Rhipidura (Sauloprocta) leucophrys	species	Passeriformes	Rhipiduridae	Rhipidura	Coppabella	-21.90426	148.3636	Nicolette Thor	1999
Rhipidura leucophrys	Willie Wagtail	Rhipidura (Sauloprocta) leucophrys	species	Passeriformes	Rhipiduridae	Rhipidura	Coppabella	-21.92417	148.3453		
"Rhipidura leucophrys"	"Willie Wagtail"	Rhipidura (Sauloprocta) leucophrys	species	Passeriformes	Rhipiduridae	Rhipidura		-21.91	148.41		
"Rhipidura leucophrys"	"Willie Wagtail"	Rhipidura (Sauloprocta) leucophrys	species	Passeriformes	Rhipiduridae	Rhipidura		-21.91	148.41		
Rhipidura leucophrys	Willie-wagtail	Rhipidura (Sauloprocta) leucophrys	species	Passeriformes	Rhipiduridae	Rhipidura	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
Cacatua galerita	Sulphur-crested Cockatoo	Cacatua (Cacatua) galerita	species	Psittaciformes	Cacatuidae	Cacatua	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
Cacatua galerita	Sulphur-crested Cockatoo	Cacatua (Cacatua) galerita	species	Psittaciformes	Cacatuidae	Cacatua	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
Cacatua galerita	Sulphur-crested Cockatoo	Cacatua (Cacatua) galerita	species	Psittaciformes	Cacatuidae	Cacatua	Peak Downs H	-21.90667	148.3692		
Cacatua galerita	Sulphur-crested Cockatoo	Cacatua (Cacatua) galerita	species	Psittaciformes	Cacatuidae	Cacatua	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
Cacatua galerita	Sulphur-crested Cockatoo	Cacatua (Cacatua) galerita	species	Psittaciformes	Cacatuidae	Cacatua	1263 - Coppabi	-21.91028023	148.3724976		2012
Cacatua galerita	Sulphur-crested Cockatoo	Cacatua (Cacatua) galerita	species	Psittaciformes	Cacatuidae	Cacatua	1263 - Coppabi	-21.91028023	148.3724976		2012
Eolophus roseicapilla	Galah	Eolophus roseicapilla	species	Psittaciformes	Cacatuidae	Eolophus	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
Eolophus roseicapillus	Galah	Eolophus roseicapilla	species	Psittaciformes	Cacatuidae	Eolophus	Peak Downs H	-21.90667	148.3692		
Eolophus roseicapillus	Galah	Eolophus roseicapilla	species	Psittaciformes	Cacatuidae	Eolophus	Coppabella	-21.92417	148.3453		
Eolophus roseicapilla	Galah	Eolophus roseicapilla	species	Psittaciformes	Cacatuidae	Eolophus	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
Eolophus roseicapillus	Galah	Eolophus roseicapilla	species	Psittaciformes	Cacatuidae	Eolophus	1263 - Coppabi	-21.91028023	148.3724976		2012
Aprosmictus erythropterus	Red-winged Parrot	Aprosmictus erythropterus	species	Psittaciformes	Psittacidae	Aprosmictus	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
Aprosmictus erythropterus	Red-winged Parrot	Aprosmictus erythropterus	species	Psittaciformes	Psittacidae	Aprosmictus	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
Aprosmictus erythropterus	Red-winged Parrot	Aprosmictus erythropterus	species	Psittaciformes	Psittacidae	Aprosmictus	Coppabella	-21.92417	148.3453		
Aprosmictus erythropterus	Red-winged Parrot	Aprosmictus erythropterus	species	Psittaciformes	Psittacidae	Aprosmictus	1263 - Coppabi	-21.91028023	148.3724976		2012
Aprosmictus erythropterus	Red-winged Parrot	Aprosmictus erythropterus	species	Psittaciformes	Psittacidae	Aprosmictus	1263 - Coppabi	-21.91028023	148.3724976		2012
Platycercus adscitus	Pale-headed Rosella	Platycercus (Violania) adscitus	species	Psittaciformes	Psittacidae	Platycercus	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
Platycercus adscitus	Pale-headed Rosella	Platycercus (Violania) adscitus	species	Psittaciformes	Psittacidae	Platycercus	Peak Downs H	-21.86194	148.455		
"Platycercus adscitus"	"Pale-headed Rosella"	Platycercus (Violania) adscitus	species	Psittaciformes	Psittacidae	Platycercus		-21.91	148.41		
Platycercus adscitus	Pale-headed Rosella	Platycercus (Violania) adscitus	species	Psittaciformes	Psittacidae	Platycercus	Peak Downs H	-21.90667	148.3692		
"Platycercus adscitus"	"Pale-headed Rosella"	Platycercus (Violania) adscitus	species	Psittaciformes	Psittacidae	Platycercus		-21.91	148.41		
Platycercus adscitus	Pale-headed Rosella	Platycercus (Violania) adscitus	species	Psittaciformes	Psittacidae	Platycercus	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
"Platycercus adscitus"	"Pale-headed Rosella"	Platycercus (Violania) adscitus	species	Psittaciformes	Psittacidae	Platycercus		-21.91	148.41		1980
Platycercus adscitus	Pale-headed Rosella	Platycercus (Violania) adscitus	species	Psittaciformes	Psittacidae	Platycercus	1263 - Coppabi	-21.91028023	148.3724976		2012
Platycercus adscitus	Pale-headed Rosella	Platycercus (Violania) adscitus	species	Psittaciformes	Psittacidae	Platycercus	1263 - Coppabi	-21.91028023	148.3724976		2012
Trichoglossus haematodus	Rainbow Lorikeet	Trichoglossus haematodus	species	Psittaciformes	Psittacidae	Trichoglossus	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
Trichoglossus haematodus	Rainbow Lorikeet	Trichoglossus haematodus	species	Psittaciformes	Psittacidae	Trichoglossus	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
Trichoglossus haematodus	Rainbow Lorikeet	Trichoglossus haematodus	species	Psittaciformes	Psittacidae	Trichoglossus	Coppabella	-21.92417	148.3453		
"Trichoglossus haematodus"	"Rainbow Lorikeet"	Trichoglossus haematodus	species	Psittaciformes	Psittacidae	Trichoglossus		-21.91	148.41		
Trichoglossus haematodus	Rainbow Lorikeet	Trichoglossus haematodus	species	Psittaciformes	Psittacidae	Trichoglossus	Peak Downs Hi	-21.90667	148.3689		
Trichoglossus haematodus	Rainbow Lorikeet	Trichoglossus haematodus	species	Psittaciformes	Psittacidae	Trichoglossus	Peak Downs H	-21.90667	148.3692		
"Trichoglossus haematodus"	"Rainbow Lorikeet"	Trichoglossus haematodus	species	Psittaciformes	Psittacidae	Trichoglossus		-21.91	148.41		1980
Trichoglossus haematodus	Rainbow Lorikeet	Trichoglossus haematodus	species	Psittaciformes	Psittacidae	Trichoglossus	1263 - Coppabi	-21.91028023	148.3724976		2012
Trichoglossus haematodus	Rainbow Lorikeet	Trichoglossus haematodus	species	Psittaciformes	Psittacidae	Trichoglossus	1263 - Coppabi	-21.91028023	148.3724976		2012
Tyto alba	Barn Owl	Tyto alba	species	Strigiformes	Tytonidae	Tyto	Coppabella	-21.90426	148.3636	Kurtis Lindsay	2012
Antaresia maculosa	spotted python	Antaresia maculosa	species	Squamata	Pythonidae	Antaresia	Peak Downs H	-21.89444444	148.3920833		2004
Anilius affinis	Small-headed Blind Snake	Anilius affinis	species	Squamata	Typhlopidae	Anilius	Moorvale, W	-22.011667	148.319722		2006
Anilius affinis	Small-headed Blind Snake	Anilius affinis	species	Squamata	Typhlopidae	Anilius	Moorvale, W	-22.011667	148.319722		2006
Xanthomelon magnidicum (Iredale, : Whitsunday Islands Melon Snail		Xanthomelon magnidicum	species	Stylommatophora	Camaenidae	Xanthomelon		-21.92295	148.34996	Annabell, Mr. C	1977
Bursaria incana Lindl.		Bursaria incana	species	Apiales	Pittosporaceae	Bursaria	KERLONG RA	-21.91666667	148.4166667	Hutchings, M.L	1971

Pittosporum spinescens (F.Muell.) L.Cayzer, Crisp & I.Telford	Pittosporum spinescens	species	Apiales	Pittosporaceae	Pittosporum	33M SW OF NE	-21.91666667	148.4166667	Story	1962
Apowollastonia spilanthoides	Apowollastonia spilanthoides	species	Asterales	Asteraceae	Apowollastonia	10KM FROM PI	-21.99010532	148.3260946		1998
Apowollastonia spilanthoides (F.Muell.) Orchard	Apowollastonia spilanthoides	species	Asterales	Asteraceae	Apowollastonia	10KM FROM PI	-21.99166667	148.325	Thompson, S.	1998
Calotis cuneifolia R.Br.	Calotis cuneifolia	species	Asterales	Asteraceae	Calotis	PEAK DOWNS I	-21.89166667	148.3916667	Thompson, S.	1998
Calotis cuneifolia	Calotis cuneifolia	species	Asterales	Asteraceae	Calotis	PEAK DOWNS I	-21.89010532	148.3927613		1998
Opuntia tomentosa	Opuntia tomentosa	species	Caryophyllales	Cactaceae	Opuntia	Coppabella	-21.9	148.37	J.S.F. Barker	1991
Denhamia cunninghamii (Hook.) M.P.Simmons	Denhamia cunninghamii	species	Celastrales	Celastraceae	Denhamia	10KM FROM PI	-21.99166667	148.325	Thompson, S.	1998
Denhamia cunninghamii	Denhamia cunninghamii	species	Celastrales	Celastraceae	Denhamia	10KM FROM PI	-21.99010532	148.3260946		1998
Acacia harpophylla F.Muell. ex Benth.	Acacia harpophylla	species	Fabales	Fabaceae	Acacia	On highway, 8k	-21.9	148.4	Adams	1964
Cassia brewsteri (F.Muell.) Benth.	Cassia brewsteri	species	Fabales	Fabaceae	Cassia	Harveybrandt I	-21.9167	148.3833	Dansie, S.J.	1984
Desmodium macrocarpum	Desmodium macrocarpum	species	Fabales	Fabaceae	Desmodium	36KM EAST OF	-21.94739972	148.3918997		2013
Desmodium macrocarpum Domin	Desmodium macrocarpum	species	Fabales	Fabaceae	Desmodium	36KM EAST OF	-21.94739972	148.3918997	Mastromonacc	2013
Desmodium macrocarpum	Desmodium macrocarpum	species	Fabales	Fabaceae	Desmodium	10 km south of	-21.9833	148.3167	Thompson, S.	1998
Desmodium macrocarpum Domin	Desmodium macrocarpum	species	Fabales	Fabaceae	Desmodium	10KM S OF PEA	-21.99166667	148.325	Thompson, S.	1998
Desmodium macrocarpum	Desmodium macrocarpum	species	Fabales	Fabaceae	Desmodium	10KM S OF PEA	-21.99010532	148.3260946		1998
Glycine tomentella	Glycine tomentella	species	Fabales	Fabaceae	Glycine	PEAK DOWNS I	-21.89010532	148.3927613		1998
Glycine tomentella Hayata	Glycine tomentella	species	Fabales	Fabaceae	Glycine	PEAK DOWNS I	-21.89166667	148.3916667	Thompson, S.	1998
Zornia muelleriana subsp. muelleriana	Zornia muelleriana subsp. muelleriana	subspecies	Fabales	Fabaceae	Zornia	10KM FROM PI	-21.99010532	148.3260946		1998
Zornia muelleriana Mohlenbr. subsp. muelleriana	Zornia muelleriana subsp. muelleriana	subspecies	Fabales	Fabaceae	Zornia	10KM FROM PI	-21.99166667	148.325	Thompson, S.	1998
Pogonolobus reticulatus F.Muell.	Coelospermum reticulatum	species	Gentianales	Rubiaceae	Coelospermum	26 miles SW of	-21.9	148.3667	Story	1962
Spermacoce brachystema R.Br. ex Benth.	Spermacoce brachystema	species	Gentianales	Rubiaceae	Spermacoce	PEAK DOWNS I	-21.89166667	148.3916667	Thompson, S.	1998
Spermacoce brachystema	Spermacoce brachystema	species	Gentianales	Rubiaceae	Spermacoce	PEAK DOWNS I	-21.89010532	148.3927613		1998
Rostellularia adscendens (R.Br.) R.M.Barker	Rostellularia adscendens	species	Lamiales	Acanthaceae	Rostellularia	8KM FROM PE	-21.95833333	148.325	Thompson, S.	1998
Rostellularia adscendens	Rostellularia adscendens	species	Lamiales	Acanthaceae	Rostellularia	8KM FROM PE	-21.95677199	148.3260946		1998
Leucas lavandulifolia	Leucas lavandulifolia	species	Lamiales	Lamiaceae	Leucas	50KM E OF MC	-21.99509785	148.319652		2006
Leucas lavandulifolia Sm.	Leucas lavandulifolia	species	Lamiales	Lamiaceae	Leucas	50KM E OF MC	-21.99509785	148.319652	Wormington, K	2006
Bertya pedicellata F.Muell.	Bertya pedicellata	species	Malpighiales	Euphorbiaceae	Bertya	34M SW OF NE	-21.925	148.3583333	Story	1962
Bertya pedicellata	Bertya pedicellata	species	Malpighiales	Euphorbiaceae	Bertya	34M SW OF NE	-21.92343866	148.3594279		1962
Bertya pedicellata F.Muell.	Bertya pedicellata	species	Malpighiales	Euphorbiaceae	Bertya	Ca. 15 km from	-21.9083	148.3917	Henderson, R.J	1990
Bertya pedicellata F.Muell.	Bertya pedicellata	species	Malpighiales	Euphorbiaceae	Bertya	CA 15KM FROM	-21.925	148.3416667	Henderson, R.J	1990
Bertya pedicellata	Bertya pedicellata	species	Malpighiales	Euphorbiaceae	Bertya	Ca. 19 km from	-21.925	148.3583	Henderson, R.J	1990
Bertya pedicellata	Bertya pedicellata	species	Malpighiales	Euphorbiaceae	Bertya	CA 15KM FROM	-21.92343866	148.3427613		1990
Bertya pedicellata F.Muell.	Bertya pedicellata	species	Malpighiales	Euphorbiaceae	Bertya	Approx. 15 km	-21.9083	148.3917	Henderson, R.	1990
Bertya pedicellata F.Muell.	Bertya pedicellata	species	Malpighiales	Euphorbiaceae	Bertya	Ca 15 km from	-21.925	148.3417	Henderson, R.J	1990
Bertya pedicellata	Bertya pedicellata	species	Malpighiales	Euphorbiaceae	Bertya	CA. 19KM FROI	-21.92343866	148.3594279		1990
Bertya pedicellata F.Muell.	Bertya pedicellata	species	Malpighiales	Euphorbiaceae	Bertya	CA. 19KM FROI	-21.925	148.3583333	Henderson, R.J	1990
Bertya pedicellata F.Muell.	Bertya pedicellata	species	Malpighiales	Euphorbiaceae	Bertya	Ca. 19 km from	-21.925	148.3583	Henderson, R.J	1990
Bertya pedicellata F.Muell.	Bertya pedicellata	species	Malpighiales	Euphorbiaceae	Bertya	CA. 15KM FROI	-21.90833333	148.3916667	Henderson, R.J	1990
Bertya pedicellata	Bertya pedicellata	species	Malpighiales	Euphorbiaceae	Bertya	CA. 15KM FROI	-21.90677199	148.3927613		1990
Petalostigma pubescens Domin	Petalostigma pubescens	species	Malpighiales	Picrodendraceae	Petalostigma	Harveybrandt I	-21.9167	148.3833	Dansie, S.J.	1984
Hibiscus divaricatus	Hibiscus divaricatus	species	Malvales	Malvaceae	Hibiscus	2-3KM SW COF	-21.92343866	148.3427613		1995
Hibiscus divaricatus Graham	Hibiscus divaricatus	species	Malvales	Malvaceae	Hibiscus	2-3KM SW COF	-21.925	148.3416667	Bowles, J.M.	1995
Seringia hookeriana (Walp.) F.Muell.	Keraudrenia hookeriana	species	Malvales	Malvaceae	Keraudrenia	40M FROM NE	-21.91666667	148.4166667	Johnson, R.W.	1962
Sida fibulifera Lindl.	Sida fibulifera	species	Malvales	Malvaceae	Sida	50KM E OF MC	-22.0254795	148.291916	Wormington, K	2006
Sida fibulifera	Sida fibulifera	species	Malvales	Malvaceae	Sida	50KM E OF MC	-22.0254795	148.291916		2006
Sida trichopoda F.Muell.	Sida trichopoda	species	Malvales	Malvaceae	Sida	50KM E OF MC	-22.0254795	148.291916	Wormington, K	2006
Sida trichopoda	Sida trichopoda	species	Malvales	Malvaceae	Sida	50KM E OF MC	-22.0254795	148.291916		2006
Corymbia clarksoniana (D.J.Carr & S.G.M.Carr) K.D.Hill & L.A.S.Johnson	Corymbia clarksoniana	species	Myrtales	Myrtaceae	Corymbia	STRATHFIELD P	-21.825	148.425	Cox, M.	1996
Corymbia clarksoniana	Corymbia clarksoniana	species	Myrtales	Myrtaceae	Corymbia	STRATHFIELD P	-21.82343866	148.4260946		1996
Eucalyptus crebra F.Muell. x E.orgadophila Maiden & Blakely	Eucalyptus crebra	genus	Myrtales	Myrtaceae	Eucalyptus	TOOTOOLAH P	-21.825	148.425	Cox, M.	1996
Eucalyptus crebra F.Muell.	Eucalyptus crebra	species	Myrtales	Myrtaceae	Eucalyptus	TOOTOOLAH P	-21.825	148.425	Cox, M.	1996
Eucalyptus crebra	Eucalyptus crebra	species	Myrtales	Myrtaceae	Eucalyptus	TOOTOOLAH P	-21.82343866	148.4260946		1996
Eucalyptus populnea F.Muell.	Eucalyptus populnea	species	Myrtales	Myrtaceae	Eucalyptus	Harveybrandt I	-21.9167	148.3833	Dansie, S.J.	1984
Melaleuca fluviatilis Barlow	Melaleuca fluviatilis	species	Myrtales	Myrtaceae	Melaleuca	WALKER CK SW	-21.825	148.425	Cox, M.	1996
Melaleuca fluviatilis	Melaleuca fluviatilis	species	Myrtales	Myrtaceae	Melaleuca	WALKER CK SW	-21.82343866	148.4260946		1996
Melaleuca nervosa (Lindl.) Cheel	Melaleuca nervosa	species	Myrtales	Myrtaceae	Melaleuca	35M SW OF NA	-21.91666667	148.4166667	Story	1962
Abildgaardia ovata	Abildgaardia ovata	species	Poales	Cyperaceae	Abildgaardia	STRATHFIELD P	-21.82343866	148.4260946		1996
Abildgaardia ovata (Burm.f.) Kral	Abildgaardia ovata	species	Poales	Cyperaceae	Abildgaardia	STRATHFIELD P	-21.825	148.425	Cox, M.	1996
Cyperus bifax	Cyperus bifax	species	Poales	Cyperaceae	Cyperus	STRATHFIELD P	-21.82343866	148.4260946		1996
Cyperus bifax C.B.Clarke	Cyperus bifax	species	Poales	Cyperaceae	Cyperus	STRATHFIELD P	-21.825	148.425	Cox, M.	1996
Cyperus concinnus	Cyperus concinnus	species	Poales	Cyperaceae	Cyperus	STRATHFIELD P	-21.82343866	148.4260946		1996
Cyperus concinnus R.Br.	Cyperus concinnus	species	Poales	Cyperaceae	Cyperus	STRATHFIELD P	-21.825	148.425	Cox, M.	1996
Cyperus esculentus	Cyperus esculentus	species	Poales	Cyperaceae	Cyperus	STRATHFIELD P	-21.82343866	148.4260946		1996
Cyperus esculentus L.	Cyperus esculentus	species	Poales	Cyperaceae	Cyperus	STRATHFIELD P	-21.825	148.425	Cox, M.	1996

Cyperus fulvus	Cyperus fulvus	species	Poales	Cyperaceae	Cyperus	STRATHFIELD P	-21.82343866	148.4260946		1996
Cyperus fulvus R.Br.	Cyperus fulvus	species	Poales	Cyperaceae	Cyperus	STRATHFIELD P	-21.825	148.425	Cox, M.	1996
Cyperus gracilis	Cyperus gracilis	species	Poales	Cyperaceae	Cyperus	10KM FROM PI	-21.99010532	148.3260946		1998
Cyperus gracilis R.Br.	Cyperus gracilis	species	Poales	Cyperaceae	Cyperus	10KM FROM PI	-21.99166667	148.325	Thompson, S.	1998
Cyperus leiocaulon	Cyperus leiocaulon	species	Poales	Cyperaceae	Cyperus	STRATHFIELD P	-21.82343866	148.4260946		1996
Cyperus leiocaulon Benth.	Cyperus leiocaulon	species	Poales	Cyperaceae	Cyperus	STRATHFIELD P	-21.825	148.425	Cox, M.	1996
Cyperus sesquiflorus	Cyperus sesquiflorus	species	Poales	Cyperaceae	Cyperus	STRATHFIELD P	-21.82343866	148.4260946		1996
Cyperus sesquiflorus (Torr.) Mattf. & Kuek.	Cyperus sesquiflorus	species	Poales	Cyperaceae	Cyperus	STRATHFIELD P	-21.825	148.425	Cox, M.	1996
Ancistrachne uncinulata	Ancistrachne uncinulata	species	Poales	Poaceae	Ancistrachne	50KM E OF MC	-21.99025189	148.32691		2006
Ancistrachne uncinulata (R.Br.) S.T.Blake	Ancistrachne uncinulata	species	Poales	Poaceae	Ancistrachne	50KM E OF MC	-21.99025189	148.32691	Wormington, K	2006
Bothriochloa decipiens (Hack.) C.E.Hubb. var. decipiens	Bothriochloa decipiens var. decipiens	variety	Poales	Poaceae	Bothriochloa	10KM FROM PI	-21.9916667	148.325	Thompson, S.	1998
Bothriochloa decipiens var. decipiens	Bothriochloa decipiens var. decipiens	variety	Poales	Poaceae	Bothriochloa	10KM FROM PI	-21.99010566	148.3260946		1998
Bothriochloa erianthoides (F.Muell.) C.E.Hubb.	Bothriochloa erianthoides	species	Poales	Poaceae	Bothriochloa	ROADSIDE ENR	-21.825	148.425	Cox, M.	1996
Bothriochloa erianthoides	Bothriochloa erianthoides	species	Poales	Poaceae	Bothriochloa	ROADSIDE ENR	-21.82343866	148.4260946		1996
Chrysopogon fallax S.T.Blake	Chrysopogon fallax	species	Poales	Poaceae	Chrysopogon	10KM FROM PI	-21.99166667	148.325	Thompson, S.	1998
Chrysopogon fallax	Chrysopogon fallax	species	Poales	Poaceae	Chrysopogon	10KM FROM PI	-21.99010532	148.3260946		1998
Dichanthium fecundum S.T.Blake	Dichanthium fecundum	species	Poales	Poaceae	Dichanthium	STRATHFIELD P	-21.825	148.425	Cox, M.	1996
Dichanthium fecundum	Dichanthium fecundum	species	Poales	Poaceae	Dichanthium	STRATHFIELD P	-21.82343866	148.4260946		1996
Dichanthium fecundum curly bluegrass	Dichanthium fecundum	species	Poales	Poaceae	Dichanthium	STRATHFIELD P	-21.825	148.425	Cox, M.	1996
Dichanthium fecundum S.T.Blake	Dichanthium fecundum	species	Poales	Poaceae	Dichanthium	STRATHFIELD P	-21.82343866	148.4260946		1996
Dichanthium fecundum curly bluegrass	Dichanthium fecundum	species	Poales	Poaceae	Dichanthium	STRATHFIELD P	-21.82343866	148.4260946		1996
Digitaria brownii (Roem. & Schult.) Hughes	Digitaria brownii	species	Poales	Poaceae	Digitaria	24M SW OF NE	-21.91666667	148.4166667	Story	1962
Enneapogon virens (Lindl.) Kakudidi	Enneapogon virens	species	Poales	Poaceae	Enneapogon	50KM E OF MC	-22.00280938	148.3433191	Wormington, K	2006
Enneapogon virens	Enneapogon virens	species	Poales	Poaceae	Enneapogon	50KM E OF MC	-22.00280938	148.3433191		2006
Enteropogon paucispiceus (Lazarides) B.K.Simon	Enteropogon paucispiceus	species	Poales	Poaceae	Enteropogon	33M SW OF NE	-21.91666667	148.4166667	Story	1962
Eragrostis elongata (Willd.) J.Jacq.	Eragrostis elongata	species	Poales	Poaceae	Eragrostis	STRATHFIELD P	-21.825	148.425	Cox, M.	1996
Eragrostis elongata	Eragrostis elongata	species	Poales	Poaceae	Eragrostis	STRATHFIELD P	-21.82343866	148.4260946		1996
Eragrostis speciosa (Roem. & Schult.) Steud.	Eragrostis speciosa	species	Poales	Poaceae	Eragrostis	ca. 26 miles S.V	-21.8833	148.4167	Story, R.	1962
Eragrostis speciosa (Roem. & Schult.) Steud.	Eragrostis speciosa	species	Poales	Poaceae	Eragrostis	CA 26M SW OF	-21.91666667	148.4166667	Story	1962
Iseilema macratherum	Iseilema macratherum	species	Poales	Poaceae	Iseilema	STRATHFIELD P	-21.82343866	148.4260946		1996
Iseilema macratherum Domin	Iseilema macratherum	species	Poales	Poaceae	Iseilema	STRATHFIELD P	-21.825	148.425	Cox, M.	1996
Iseilema vaginiflorum Domin	Iseilema vaginiflorum	species	Poales	Poaceae	Iseilema	50KM E OF MC	-22.0254795	148.291916	Wormington, K	2006
Iseilema vaginiflorum	Iseilema vaginiflorum	species	Poales	Poaceae	Iseilema	50KM E OF MC	-22.0254795	148.291916		2006
Iseilema vaginiflorum red flinders grass	Iseilema vaginiflorum	species	Poales	Poaceae	Iseilema	TOOTOOLAH P	-21.825	148.425	Cox, M.	1996
Paspalidium caespitosum C.E.Hubb.	Paspalidium caespitosum	species	Poales	Poaceae	Paspalidium	TOOTOOLAH P	-21.82343866	148.4260946		1996
Paspalidium caespitosum brigalow grass	Paspalidium caespitosum	species	Poales	Poaceae	Paspalidium	TOOTOOLAH P	-21.82343866	148.4260946		1996
Paspalidium criniforme S.T.Blake	Paspalidium criniforme	species	Poales	Poaceae	Paspalidium	STRATHFIELD P	-21.825	148.425	Cox, M.	1996
Paspalidium criniforme	Paspalidium criniforme	species	Poales	Poaceae	Paspalidium	STRATHFIELD P	-21.82343866	148.4260946		1996
Urochloa foliosa (R.Br.) R.D.Webster	Urochloa foliosa	species	Poales	Poaceae	Urochloa	STRATHFIELD P	-21.825	148.425	Cox, M.	1996
Urochloa foliosa	Urochloa foliosa	species	Poales	Poaceae	Urochloa	STRATHFIELD P	-21.82343866	148.4260946		1996
Grevillea parallela Knight	Grevillea parallela	species	Proteales	Proteaceae	Grevillea	22M SSW OF N	-21.91666667	148.4166667	Lazarides, M.	1961
Turraea pubescens Hell.	Turraea pubescens	species	Sapindales	Meliaceae	Turraea	Harry Brandt H	-21.9167	148.3833	Dansie, S.J.	1985
Turraea pubescens Hell.	Turraea pubescens	species	Sapindales	Meliaceae	Turraea	Harry Brandt H	-21.9167	148.3833	Dansie, S.J.	1985
Eucalyptus crebra x E.orgadophila	Eucalyptus crebra x E.orgadophila	unranked				TOOTOOLAH P	-21.82343866	148.4260946		1996



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.

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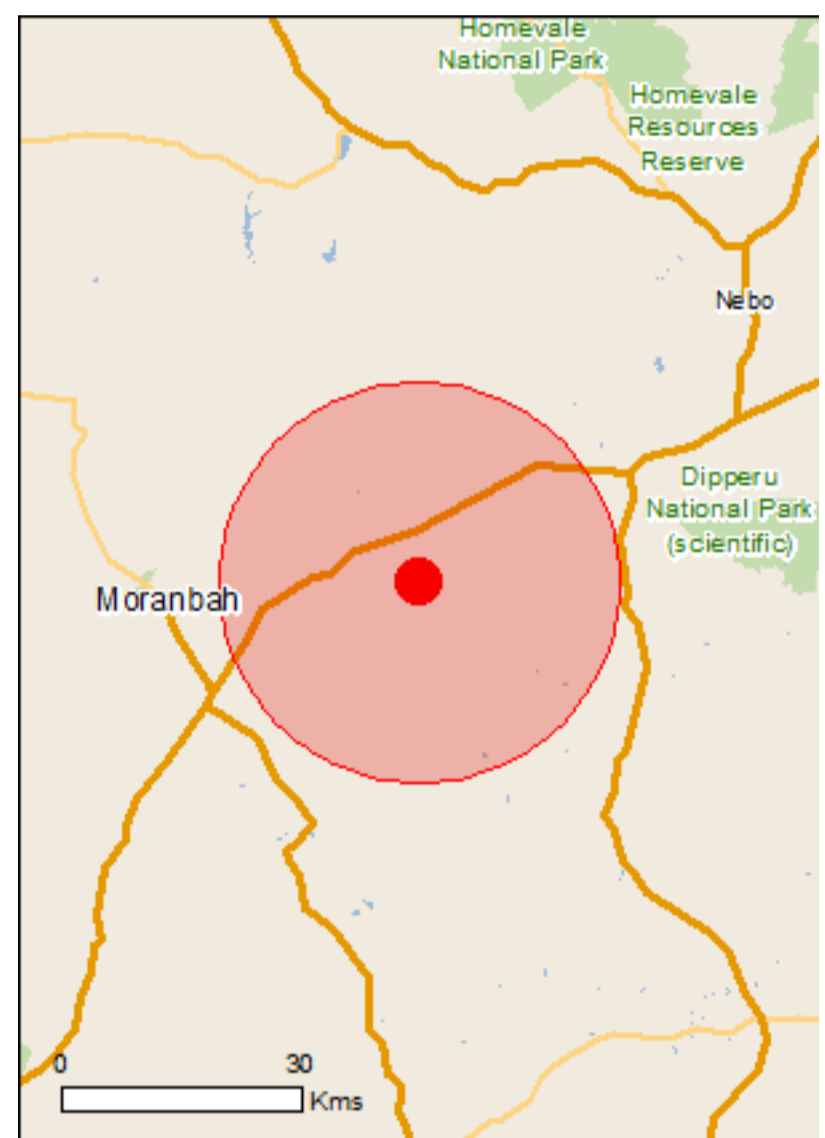
[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

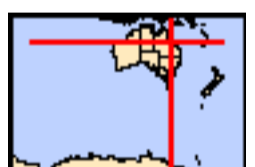
[Acknowledgements](#)



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

[Coordinates](#)

Buffer: 25.0Km



Summary

Matters of National Environmental 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:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	23
Listed Migratory Species:	12

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 <http://www.environment.gov.au/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 Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	18
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

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

State and Territory Reserves:	None
Regional Forest Agreements:	None
Invasive Species:	20
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	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.

Name	Status	Type of Presence
Brigalow (Acacia harpophylla dominant and co-dominant)	Endangered	Community known to occur within area
Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin	Endangered	Community likely to occur within area
Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions	Endangered	Community likely to occur within area

Listed Threatened Species

[\[Resource Information \]](#)

Name	Status	Type of Presence
Birds		
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat known to occur within area
Neochmia ruficauda ruficauda Star Finch (eastern), Star Finch (southern) [26027]	Endangered	Species or species habitat likely to occur within area
Poephila cincta cincta Southern Black-throated Finch [64447]	Endangered	Species or species habitat may occur within area
Rostratula australis Australian Painted-snipe, Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Fish		
Maccullochella peelii Murray Cod [66633]	Vulnerable	Species or species habitat may occur within area
Mammals		
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat likely to occur within area
Macroderma gigas Ghost Bat [174]	Vulnerable	Species or species habitat likely to occur within area

Name	Status	Type of Presence
Nyctophilus corbeni Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat may occur within area
Petauroides volans Greater Glider [254]	Vulnerable	Species or species habitat known to occur within 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]	Vulnerable	Species or species habitat known to occur within area
Plants		
Cycas ophiolitica [55797]	Endangered	Species or species habitat likely to occur within area
Dichanthium queenslandicum King Blue-grass [5481]	Endangered	Species or species habitat likely to occur within area
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area
Eucalyptus raveretiana Black Ironbox [16344]	Vulnerable	Species or species habitat likely to occur within area
Samadera bidwillii Quassia [29708]	Vulnerable	Species or species habitat likely to occur within area
Reptiles		
Denisonia maculata Ornamental Snake [1193]	Vulnerable	Species or species habitat known to occur within area
Egernia rugosa Yakka Skink [1420]	Vulnerable	Species or species habitat may occur within area
Elseya albagula Southern Snapping Turtle, White-throated Snapping Turtle [81648]	Critically Endangered	Species or species habitat likely to occur within area
Furina dunmalli Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area
Lerista allanae Allan's Lerista, Retro Slider [1378]	Endangered	Species or species habitat may occur within 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
Listed Migratory Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Chrysococcyx osculans Black-eared Cuckoo [705]		Species or species habitat likely to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat may occur within area

Extra Information

Invasive Species [\[Resource Information \]](#)

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resources Audit, 2001.

Name	Status	Type of Presence
Birds		
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Lonchura punctulata Nutmeg Mannikin [399]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat known to occur within area
Mammals		
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Capra hircus Goat [2]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Acacia nilotica subsp. indica Prickly Acacia [6196]		Species or species habitat may occur within area
Cryptostegia grandiflora Rubber Vine, Rubbervine, India Rubber Vine, India Rubbervine, Palay Rubbervine, Purple Allamanda [18913]		Species or species habitat likely to occur within area
Jatropha gossypifolia Cotton-leaved Physic-Nut, Bellyache Bush, Cotton-leaf Physic Nut, Cotton-leaf Jatropha, Black Physic Nut [7507]		Species or species habitat likely to occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Parkinsonia aculeata Parkinsonia, Jerusalem Thorn, Jelly Bean Tree, Horse Bean [12301]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Parthenium hysterophorus Parthenium Weed, Bitter Weed, Carrot Grass, False Ragweed [19566]		Species or species habitat likely to occur within area
Vachellia nilotica Prickly Acacia, Blackthorn, Prickly Mimosa, Black Piquant, Babul [84351]		Species or species habitat likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

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.

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

Where very little information is available for 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 reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

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

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

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

Coordinates

-21.98401 148.32707

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.

APPENDIX E – FAUNA SPECIES PROFILES

Endangered, Vulnerable and Near Threatened species known to occur

Greater Glider *Petauroides volans*

EPBC Act: Vulnerable; NC Act: Vulnerable

Currently, the Wildlife Online database maintained by the Queensland Government recognizes one species of Greater Glider, with two subspecies. Both subspecies are listed as Vulnerable under the NC Act. The *Australian Faunal Directory* and the *Species Profile and Threats Database*, both maintained by the Department of the Environment and Energy (DEE 2019a, b), also recognize one species. Recent works (e.g. Jackson 2015b) have elevated these to species level, in keeping with taxonomies dating back to the 19th century. If these elevations are accepted by either the Queensland or Commonwealth the conservation status of the animals may also be elevated.

The Greater Glider is found from the Windsor Tableland in north Queensland to central Victoria, occurring from sea level to 1200 m (Woinarski et al. 2014). The species lives in a variety of eucalypt-dominated forest and woodland. By day it shelters in tree hollows, feeding on eucalypts at night. The species glides between trees. A glide may cover 100 m and include changes of direction of as much as 90° (McKay 2008). An individual typically uses 4-7 tree hollows as dens in its home range (Jackson 2015b), and as many as 18 dens. Not all tree species form hollows to the same extent but hollow availability doesn't necessarily match hollow use (Kehl & Borsboom 1984). The species is absent from regenerating forest lacking old trees with suitable hollows. Greater Gliders occupy individual home ranges with no overlap between males. Female home ranges may overlap with other females and males (McKay 2008), but individuals generally use the overlapping sections at different times with aggressive behaviour when two females meet (Henry 1984). Home ranges are about 1-4 ha in size (Kehl & Borsboom 1984). The species occurs patchily in forest with apparently suitable forest often supporting no animals. Defining habitat as suitable needs to be done carefully (Henry 1984).

The greatest threat to Greater Glider is habitat loss and fragmentation. The species has little dispersal ability to and from forest fragments (Kavanagh & Stanton 1998; Woinarski et al. 2014). Other threats include high intensity fires and, though minor, entanglement on barbed wire fences (Woinarski et al. 2014). Greater Gliders are clumsy on the ground and are known to be killed by Dingoes *Canis lupus dingo* and Red Foxes *Vulpes vulpes* (McKay 2008).

There are 41 *Wildlife Online* (WO) records within a 25 km radius of the Project site. These records are duplicated as *Atlas of Living Australia* (ALA 2019) data. The co-ordinates provided place the records in the Project site, A visual sighting during field surveys along with suitable habitat in the site confirms species is present.

Endangered, Vulnerable and Near Threatened species expected to occur

Koala *Phascolarctos cinereus*

EPBC Act: Vulnerable; NC Act: Vulnerable

The Koala occurs in forests and woodland along the east coast of Australia from north-eastern Queensland to South Australia, with some introduced sub-populations (Woinarski et al. 2014). The species feeds almost entirely on the leaves of eucalypts and its distribution is linked to the presence and abundance of food species. They are most abundant on coastal plains and in foothills but do extend inland along watercourses with *Eucalyptus camaldulensis*. In Queensland, clearing of habitat has decreased their range by about 30% (Martin et al. 2008; Krockenberger et al. 2012). Home ranges vary from less than 1 ha to more than 300 ha, but are typically 1-10 ha (Jackson 2015a).

Koalas have been seen feeding on or sitting in 120 species of tree but only about 20 of these can be considered primary food sources (Jackson 2015a). The food preferences of the Koala vary regionally (Martin et al. 2008) and seasonally, possibly due to variation in nutrient and/or defence compound concentrations and leaf moisture (Moore & Foley 2000). In southern Queensland the common food trees are *E. camaldulensis* and *E. tereticornis* but *E. citriodora*, *E. crebra*, and *E. populnea*, among others, are also eaten (Lee & Martin 1988). Eucalypt leaf is poor quality food, low in major nutrients and containing high levels of indigestible fibre and potentially toxic compounds (Martin et al. 2008). Habitat quality is determined not just by the species of eucalypt and extent of tree cover but also by soil fertility and water regime. The compounds that act as deterrents to folivores may also vary between individual trees of the same species and habitat suitability for Koala may vary at small scales (Krockenberger et al. 2012).

The major threat to the Koala is habitat loss (Martin et al. 2008) and fragmentation, which has reduced its area of occupancy substantially (Woinarski et al. 2014). Infection with the bacterium *Chlamydia*, which causes reproductive tract disease and infertility in females, is widespread. In some locations, overpopulation and resultant habitat degradation are a severe problem, more so in Victoria and South Australia (Martin et al. 2008; Woinarski et al. 2014). Other threats include predation by Dogs *Canis lupus familiaris*, vehicle strike, Koala Retrovirus, inappropriate fire regimes, inbreeding and habitat degradation due to weeds (Krockenberger et al. 2012; Woinarski et al. 2014).

There are 69 WO database records within a 25 km radius of the Project area. Evidence of recent scats along with suitable habitat on site indicates Koala are expected to occur on site, though probably at very low densities and perhaps with a very patchy distribution.

Squatter Pigeon (southern subspecies) *Geophaps scripta*

EPBC Act: Vulnerable; NC Act: Vulnerable

The southern subspecies of the Squatter Pigeon occurs mainly in dry grassy eucalypt woodlands and open forests (Frith 1982; Leach 1988; Crome & Shields 1992), also inhabiting Cypress Pine *Callitris* spp. and acacia woodlands (Frith 1982). It mostly occurs on sandy sites near permanent water (Blakers et al. 1984). Breeding habitat occurs on stony rises occurring on sandy or gravelly soils, within one km of a suitable, permanent waterbody (Squatter Pigeon Workshop 2011). Birds will forage along roads and railway lines and are often found around homesteads, cattle yards and occasionally even highly modified areas such as bitumen car parks (Pizzey 1980; Reis 2012). Squatter Pigeons dust-bathe and are frequently encountered on dirt tracks and in areas of bare soil denuded of ground cover by livestock (Crome 1976; Frith 1982; Higgins & Davies 1996).

The Squatter Pigeon is endemic to Australia and is now largely restricted to Queensland. The species formerly occurred as far south as 34°S (Blakers et al. 1984) and for a long time there was no record in New South Wales since the 1970s (NSW NPWS 2003). However, there have been at least two recent records, in 2001 and 2006, in or close to Dhinna Dhinna National Park north of Yetman (ALA 2019). In Queensland, the southern subspecies occurs north to the Burdekin River (Frith 1982) with an intergrade zone with the northern subspecies *G. s. peninsulae* around the Burdekin-Lynd Divide (Crome 1976; Ford 1986; Schodde & Mason 1997). The species extends west to Longreach, Barcaldine and Charleville and east to Townsville, Proserpine, Warwick and Esk (Storr 1973; Frith 1982; Schodde & Mason 1997). The species does not appear to undertake any large-scale seasonal movement and is probably locally nomadic, or perhaps sedentary (Pizzey 1980; Frith 1982; Blakers et al. 1984).

The main threats to the subspecies are the loss and fragmentation of habitat due to clearing, habitat degradation by overgrazing by livestock, infestation by invasive weeds, such as Buffel Grass *Cenchrus ciliaris*, and predation, especially by feral Cats *Felis catus* and Foxes *Vulpes vulpes* (DE 2019). The clearance of woodland habitat continues to fragment the Squatter Pigeon (southern) population (Garnett & Crowley 2000). The overstocking of habitats with livestock remains a major problem (Squatter Pigeon Workshop 2011), and large areas of the subspecies' habitat is gradually being degraded by the establishment of the highly invasive, improved pasture species, Buffel Grass, and its associated management practices.

Some illegal hunting continued until recent times (Crome & Shields 1992) and has since been suspected (Venz et al. 2002; NSW NPWS 2003) but Frith (1973) did not consider that hunting had been a significant factor in the decline of the subspecies. In Queensland, large-scale habitat destruction is the likely major cause of decline in the south-east corner only (Roberts 1979). In northern areas the collapse of traditional Aboriginal burning regimes may also have

altered vegetation structure and composition negatively affecting granivores such as Squatter Pigeon (Franklin 1999). Most declines have occurred where Foxes are abundant (Garnett & Crowley 2000) and although Cats are blamed in some areas (e.g. Barnard 1925), Frith (1982) did not consider them a major factor.

Overgrazing degrades habitat, reduces food resources, limits or eliminates vegetation used as cover or for breeding, and subjects nests to trampling (Blakers et al. 1984; Garnett 1993; Ayers et al. 1996; Higgins & Davies 1996; NSW NPWS 2003). Close-grazing by sheep and rabbits in particular replaces perennial bushes, herbs and grasses with ephemeral herbs and annual grasses (Frith 1982). These impacts were exacerbated by overstocking of sheep during drought in the 19th century (Garnett 1993) and where sheep are common the Squatter Pigeon no longer occurs (Slater 1978).

In the northern parts of its range the majority of livestock is cattle and impacts on Squatter Pigeons are not as severe. Nonetheless, grazing is probably the most important factor in the species' decline in Queensland (Baptista et al. 1997), with the southern subspecies declining before the land-clearing era (Franklin 1999). The subspecies remains locally abundant in some sites in tropical Queensland (Garnett & Crowley 2000) but they are typically more common in un-grazed land compared to grazed land (Woinarski & Ash 2002).

There are 27 WO records within the 25 km radius. These are presumed to be duplicated in ALA (2019). There is suitable habitat on site and it is expected that Squatter Pigeon occurs in the Project site, at least sporadically.

Yakka Skink *Egernia rugosa*

EPBC Act: Vulnerable; NC Act: Vulnerable

The Yakka Skink is endemic to eastern Queensland and is patchily distributed in sub-humid to semi-arid dry open forest, woodland and rocky areas. The species lives in communal burrow systems, often under timber and in deep rock crevices. The species also uses abandoned Rabbit *Oryctolagus cuniculus* warrens and shelters in hollow logs. Burrows may be under buildings and other solid structures, such as concrete slabs and piles of felled timber (Ehmann 1992; Wilson 2015). They are secretive animals, retreating to their burrows when disturbed. Their presence is often indicated by their defecation sites (Eddie 2012). The species occurs in land zones 3, 4, 5, 7, 9 and 10, and possibly in land zone 8. Within these land zones it occurs in a wide variety of habitat types, particularly woodland and open forest dominated by *Acacia harpophylla*, *A. aneura*, *A. catenulata*, *A. shirleyi*, *Casuarina cristata*, *Eucalyptus populnea*, *Callitris glaucophylla* and ironbarks species *Eucalyptus* spp. Yakka Skinks usually occur on well-drained, coarse, gritty soils in the vicinity of low ranges, foothills and undulating terrain (Ehmann 1992; Wilson 2005; Richardson 2006; Brigalow Belt Reptiles Workshop 2010) but are also found on loam and clay soils (Eddie 2012).

The main threats to the local populations of Yakka Skink are habitat loss due to land clearing, predation by feral predators (Drury 2001; Richardson 2006; Eddie 2012), trampling of burrows by livestock, pasture improvement activities such as ploughing, inappropriate fire regimes (Drury 2001), ripping of rabbit warrens (Eddie 2012), removal of fallen timber and rocks and inappropriate roadside management (Richardson 2006), mortality by being struck by vehicles (Drury 2001; Eddie 2012).

No WO records within a 25 km radius of the Project area were identified for this species.

Ornamental Snake *Denisonia maculata*

EPBC Act: Vulnerable; NC Act: Vulnerable

Ornamental Snake is largely restricted to low-lying areas with deep-cracking clay soils, which are subject to seasonal flooding, and adjacent areas of clay and sandy loams. Habitat includes woodland and shrubland, such as Brigalow *Acacia harpophylla*, and riverine habitats, where the species lives in soil cracks and under fallen timber (Ehmann 1992; Wilson & Swan 2010). The species may be found in areas of simple habitat structure, such as paddocks, grasslands and regrowth if frogs are present (Melzer 2012).

The species apparently feeds exclusively on frogs (Wilson & Swan 2017) and can change from being abundant to absent over a few hundred metres due to changes in soil type or topography (Swan & Wilson 2008). Recent collecting from large-scale trenches for pipelines has shown the species to be much more common than previously thought (Swan & Wilson 2012).

The species is threatened by loss of habitat, pasture improvement (Cogger *et al.* 1993), grazing (Cogger *et al.* 1993; Richardson 2006), feral animals (Richardson 2006) and possibly mortality through attempted ingestion of Cane Toads *Rhinella marina* (Cogger *et al.* 1993; Phillips *et al.* 2003). Ornamental Snake is often absent or rare where Cane Toads are abundant. Open-cut coal mining and its associated infrastructure causes local extirpation within mine sites (Melzer 2012).

There are 11 WO records for Ornamental Snake within a 25 km radius of the Project area. These are presumed to be duplicated in ALA (2019). There is a small area of suitable habitat within ML 70290, however due to less than favourable soil and vegetation communities being present across the majority of the site it is not expected for Ornamental Snake to occur within the immediate Project area.

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The Epic team provides a wide range of skills and experience on numerous environmental management issues, across a wide range of public, commercial and industrial projects. At Epic, we focus on the practical aspects of environmental planning, engineering and science, offering comprehensive services in:

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- Clandestine drug laboratory assessment and remediation advice;
- Contaminated land auditing services (QLD –Contaminated Land Auditor; NSW – Contaminated Site Auditor);
- Statutory planning and impact assessment covering QLD, NSW and Commonwealth legislation;
- Environmental approvals and permitting – full array;
- Ecological (fauna, flora and habitat) site assessments;
- Site suitability assessments;
- Environmental offset assessments and development of management strategies;
- Waste auditing and management;
- Landfill design and management;
- Compliance and auditing;
- Erosion sediment control; and
- Hydrogeology.

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COPPABELLA MINE

COP-ENV-MPL- WASTE MANAGEMENT PLAN

September 2014

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1.0 Purpose

Peabody Energy, Coppabella Mine shall ensure potential local community and environmental impacts, which may result from the generation and disposal of waste, is effectively managed by integrating the principles of the waste management hierarchy into daily operations. This document is to assist in control of environmental risks by outlining procedures and accountabilities which all Coppabella Mine site personnel must adhere to.

2.0 Scope

This management plan covers the documented procedures to identify and address waste generated from processes of all operational units at the Coppabella Mine and identify management practices to control waste through minimisation, tracking, handling, recycling and proper disposal methods, in accordance with corporate and regulatory requirements.

3.0 Regulatory Framework

Regulatory requirements which form a part of the governance of waste management at Coppabella Mine are:

- Queensland Environmental Protection Act 1994 (EP Act);
- Queensland Environmental Protection Regulation 1998 (EP Regulation);
- Queensland Environmental Protection (Waste Management) Policy 2000, and
- Queensland Environmental Protection (Waste Management) Regulation 2000.

Section 13 of the *EP Act 1994* defines waste as anything that is ‘left over, or an unwanted by-product from an industrial, commercial, domestic or other activity; or surplus to the industrial, commercial, domestic or other activity generating wastes’.

Coppabella Mine operates under a specific Environmental Authority, issued under the *Environmental Protection Act (1994)*.

Additional environmental management documents which outline site waste management practices are located in Coppabella Mine’s Environmental Management System (EMS) and are stated below: :

- Coppabella Environmental Management Plan 2010;
- Coppabella Mine Plan of Operations 1 January 2014 to 31 December 2014;
- Waste Tyre Storage and Disposal Procedure 2014, and
- Coppabella Mine Co-disposal Operational Plan 2014.

4.0 Waste Management Objectives

The objectives of waste management at Coppabella Mine are:

- To identify waste types and quantities on site;
- To maximise the beneficial use of production waste material for site activities;

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- To identify potential re-use or recycling opportunities and ensure appropriate handling and collection procedures are in place;
- To investigate methods to minimise waste generated by the mine and implement reasonable and feasible measures to minimise waste;
- To ensure the disposal of wastes conforms to applicable guidelines or licences;
- To ensure areas where fuels, oils or other potential contaminants are stored are appropriately contained, banded and managed, and
- To ensure sewage disposal is managed properly.

5.0 Waste Type, Source, Management and Quantity

Waste which Coppabella Mine generates can be categorised into two streams; Production and Non-production waste.

Non-production waste includes:

- General domestic-type waste from the on-site buildings, amenities, ablutions, first aid facilities and routine maintenance consumables, i.e. paper and cardboard;
- Hydrocarbons, oils and grease;
- Scrap steel and other waste remaining from equipment maintenance, and
- Sewage/septic pump out.

Production waste consists of:

- Mined rock from the open cut mining area;
- Mined overburden and interburden materials from the open cut mining area, and
- Potentially contaminated solids from the maintenance workshop, wash-down pad and fuel storage areas.

Ultrafine, fine and coarse rejects generated by the coal handling and preparation plant (CHPP) in the production of coal are disposed of at the co-disposal area. Refer to the Coppabella Mine Co-disposal Operational Plan 2014 for additional details.

Waste type, source, management and quantities are listed in Table 1. These figures are representative of the FY2013 and subject to change over the life of the year.

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Table 1: Waste Type, Source, Management and Quantity

Waste Type	Source	Management/Disposal	Annual Quantity
Paper	Office/workshop areas	Paper to be placed into recycling bins for collection	109.6 tonnes (including cardboard and other recyclables)
Cardboard	Used as packaging for various items	Cardboard to be placed into recycling bins for collection	See above
PET bottles, aluminium cans, etc.	Office, Crib Huts, Workshop	Placed into recycling bins for collection	See above
Plastic packaging	Used for shrink wrap over large goods deliveries. Used for general packaging.	Placed into general rubbish receptacles for disposal to landfill	See below
Putrescible waste	Waste from employees	Placed into general rubbish receptacles for disposal to landfill	486.22 tonnes (includes all general waste i.e. plastic packaging)
Timber	Pallets/crates from goods deliveries	ERT fire training, stacks burnt on site	Variable
Metal	Scrap materials from maintenance	Metals to be stored separately and removed from site for recycling	Variable
Hydrocarbons	Used in workshop and servicing areas	Any excess oil which is collected will be stored in an appropriately banded location prior to removal by a licensed waste oil recycling and	Grease Trap – 1400L Absorbent Oily rags – 228 tonnes

		transported to a licensed facility	
Batteries	Expended batteries from vehicle fleet	Will be removed from site for collection by a licensed contractor and transported to a licensed facility	Variable
Tyres	Expended tyres from vehicle fleet	Tyres will be disposed of in pit. Refer to the Waste Tyre Storage and Disposal Procedure 2014.	Refer to the Waste Tyre Storage and Disposal Procedure 2014
Effluent	From toilets and office areas	Effluent will be pumped out by a licensed contractor for disposal at a licensed facility	Approximately 1.5ML
Waste rock	From mining activities	Backfilling of mined out areas and rehabilitated	Approximately 64 million tonnes

6.0 Waste Management Hierarchy

Peabody is committed to minimising the impact of waste on the environment and the community through the adoption of appropriate waste management principles.

The waste management hierarchy has been adopted at Coppabella Mine to achieve the best environmental outcomes and is as follows (listed in order of most preferred to least preferred):

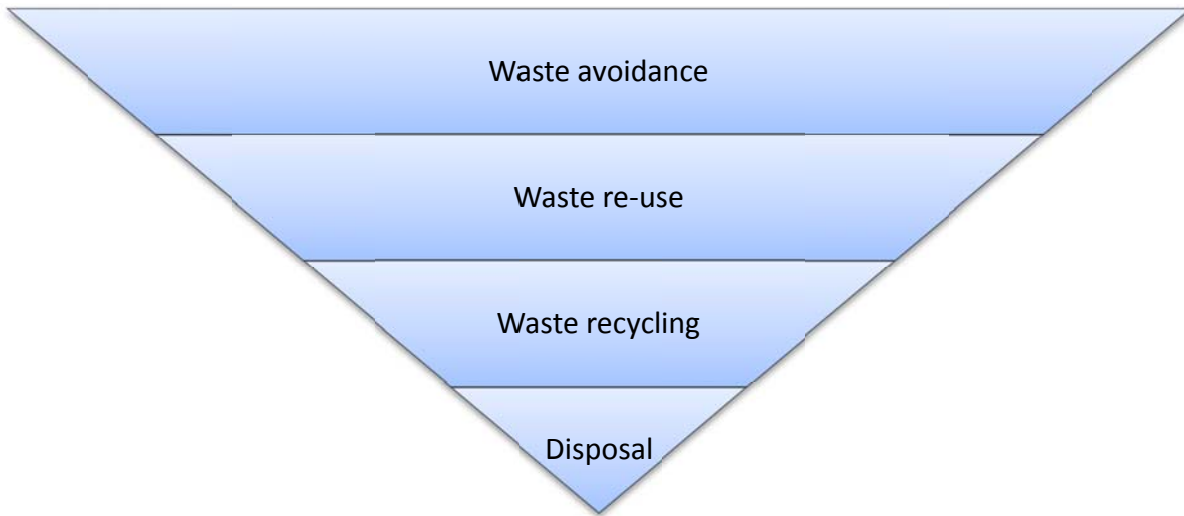


Figure 1: Waste Management Hierarchy

The hierarchy and principles in waste management regulations underlie the waste management program for Coppabella Mine. Leading practice waste management will be incorporated into the Coppabella Mine through the ongoing assessment and application of cleaner production waste management opportunities throughout the life of the operations.

6.1 General Site Waste Management

The following actions/strategies have been put into practice to minimise the accumulation/generation of waste on site and disposal to landfill.

- All personnel working on the mine site undergo a site induction. The site induction includes the waste management practices on the mine site.
- Toolbox presentations encompass site waste management on a yearly basis to refresh and familiarise site personnel on disposal practices.
- All waste areas have been clearly identified as waste storage areas. This includes bins and other receptacles for domestic and recycling waste, which are marked according to the type of waste accepted, e.g. scrap metal, oil filters and oily rags, other recyclables, general waste, etc.
- All waste storage containers are colour coded (Table 2)
- Where possible, preference is given to contractors who remove their own waste products from site when they complete a job (e.g. some maintenance contractors collect waste oils and greases they generate, and remove them when they leave site).
- With the exception of scrap tyres, there is no long term storage of any waste materials on the mine site. Notably, small quantities of the mined rock have been utilised in the construction of rock bunds and other items of mine site infrastructure such as the ROM coal and product stockpile areas.

Table 2: Container Types and Waste Collected

Container Type	Waste Collected
----------------	-----------------

Lilac bins	Plastics bottles & containers (1, 2 and 5 type plastics), milk & juice cartons, paper & cardboard, aluminium & steel cans, glass bottles & jars
Blue skips	Scrap metal
Blue cages or blue bins (labeled)	Used air filters
Brown bins (labeled)	Regulated wastes – oil absorbents, oily rags, etc.
Orange bins	Waste grease – blackjack
Green bins	General waste – tags, brattice, rubber, tensor mesh, danger/roadwarp tape, rags, food waste, vent ubing, strapping, plastic wrap

6.2 Waste Minimisation

The following methods have been utilised to minimise waste production onsite:

- Ordering specifications of material quantities for the workshop and contractors are as accurate as possible to avoid the over-ordering of materials and the potential for excess waste.
- The use of degreasers is regulated in the workshop areas to ensure the efficiency of the oil-water separator.
- All waste items suitable for reuse or recycling are utilised in such a way.

6.3 Recycling

Coppabella has provided appropriate storage areas or receptacles for all materials that are suitable for recycling. The main recyclable waste materials that are generated by the mine and their primary source(s) are as follows.

- Paper, plastics, aluminium cans and cardboard: are primarily generated within the site office facilities and crib rooms, but also in lesser quantities from contractor offices and workshops. These items are placed into appropriate collection bins, which are collected by a recycling contractor on a regular basis.
- Scrap metal: is generated in significant amounts and on a continuing basis from the Coppabella Mine workshop and contractors. The scrap metal is placed into large skip bins, which are collected by a metal recycler as sufficient quantities are available.
- Oil filters and oily rags are generated at the maintenance workshops on the mine site and have their own storage receptacles. A licenced contractor removes these products from site on a regular basis.
- Waste oil is collected within a bunded storage facility onsite where it is stored until the licenced contractor removes the oils for recycling. Other waste oils and hydrocarbons captured in the sump of the wash bay from the refuelling and maintenance areas are stored within waste oil bins once it has passed through an oil-water separator. This waste oil is also removed from site by a licensed waste oil contractor for recycling.

- Batteries are stored in a banded area on site and are removed from site for delivery to a facility able to dispatch them to an appropriate recycling facility.
- Miscellaneous recyclables: including printer cartridges and plastics are also stored at appropriate locations prior to collection by, or delivery to, appropriate recycling facilities.

Regular reports on compliance to recycling are received by Coppabella Mine’s waste contractor and are monitored to ensure that the appropriate separation and collection of waste is being managed appropriately.

6.4 Reuse

Opportunities for the re-use of materials on site are evaluated on a regular basis, i.e. mined rock is to be re-used where possible in rehabilitation activities.

6.5 Waste Disposal

Disposal is viewed as the last option in the management of waste, only if the avoidance, re-use or recycling of the waste in question is not practical. The following systems have been implemented at the mine in regard to waste disposal.

- Only transport operators or companies that are licensed by the appropriate authorities are contracted to remove waste from the mine site.
- Waste vehicle tyres are stockpiled in designated areas to await disposal in the pit as per the Waste Tyre Storage and Disposal Procedure 2014, where they will be dumped within the pit under the approval and direction of Coppabella Mine’s Environmental Department. Details will be recorded as outlined in the disposal procedure..
- Waste materials, which cannot be either re-used or recycled, are sent to a licensed landfill that may accept that category of waste. An experienced waste contractor will remove the waste off site.

All regulated wastes as nominated in Schedule 7 of the *Environmental Protection Regulation 1998* are to be removed off site in accordance with the Queensland Waste Tracking Guidelines. This includes the use of Waste Tracking Certificates which are completed by a licensed waste operator prior to any materials being removed from site.

7.0 Accidents, Spills and Incidents

As per Condition C7 of Coppabella Mine’s EA, the process for managing emergency spills and uncontrolled discharge events must be detailed in the relevant Plan of Operations.

Emergency spills and uncontrolled discharge events will be managed as environmental incidents with the environmental team notified immediately with Coppabella Mine’s Emergency Response – Trigger Action response Plan initiated. Site emergency initiated if the event is identified as significant. See the relevant Plan of Operations for further details on the process for management of these events.

Spill response measures on dealing with non-emergency spills are outlined below.

1. Identify

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- Identify what the spill is to determine the appropriate clean up
2. Control:
 - Control the spill at the source if safe to do so
 - e.g. Turn off leaking valves, stand up overturned drum, isolate burst hose
 3. Contain:
 - Prevent the spread of the spill and the chance for further contamination
 - Utilise spill kits
 - Prevent spill from entering stormwater drains and other waterways through temporary bunding
 4. Clean-Up & Dispose:
 - Soak up spill through absorbent materials, available in spill kits
 - Contaminated material is disposed of in appropriate waste bins for collection by waste contractors.
 - Where necessary, contaminated soil is excavated and buried within the co-disposal area.
 5. Report
 - All spills in accordance with the Coppabella reporting matrix.
 - Incident details are to be entered into Coppabella Mine’s Incident reporting system (PIMS) for retention purposes.

8.0 Tyre Disposal

Scrap tyre disposal is permitted to occur at Coppabella Mine as per EA condition E3. Detailed processes on the site disposal of tyres is outlined within the Waste Tyre Storage and Disposal Procedure 2014 and corresponding Scrap Tyre Disposal Register.

9.0 Locations of Disposal of Wastes

All scrap tyres are disposed of appropriately in pit with specific locations logged within the Scrap Tyre Disposal Register.

The following figures provides details of locations of receptacles collecting recyclables, general waste, etc. Note: the location of bins in operational areas are changed regularly.

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Figure 2: General Rubbish Locations - Mine Industrial Area



Figure 3: General Rubbish Locations – Orca

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Figure 4: General Rubbish Locations - Site Wide

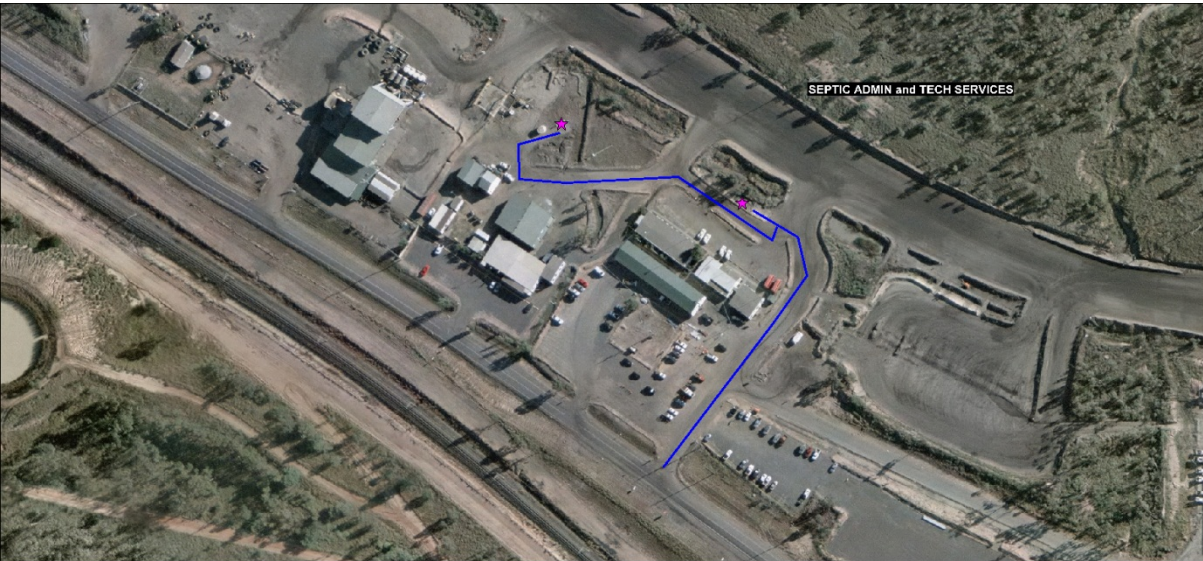


Figure 5: Septic Tank Locations - Mine Industrial Area

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Figure 6: Septic Tank Locations - Site Wide



Figure 7: General Rubbish Locations - Tyre Bay

10.0 Monitoring, Reporting and Review

Coppabella Mine is provided with monthly waste reports from the waste contractor outlining

- Details of all regulated waste collected
- Details of bins emptied (both recycled and general) and percentage full;
- Details of monthly costs
- Overall compliance and recycling figures.

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Based on these reports and visual inspections of the waste management areas (e.g. chemical storages, bunding, waste bins), monitoring of waste segregation practices, recycling quantities and waste disposal quantities occur as required.

Waste quantities and recycling percentages are also captured and reported on a monthly basis internally within the Coppabella Mine Corporate Environmentally Monthly Report.

Information includes the quantities and type of waste removed off site for recycling or disposal, the contractor engaged to remove the wastes, and the final destination for all waste products.

This management plan will be reviewed every 2 years with an annual review on Coppabella Mine’s waste streams and segregation practices. Details will be provided on the success of the Waste Management Plan implemented and any areas that require improvements, included and highlighted. Opportunities for the implementation of waste reduction methods will be based on annual review findings.

11.0 Responsibilities and Accountabilities

The following Table 3 outlines the responsibilities and accountabilities of key roles for waste management.

Table 3: Waste Management Responsibilities and Accountabilities

Role:	Responsibility:	Additional:
Senior Site Executive (SSE), Mine Manager, Environmental Superintendent	<ul style="list-style-type: none"> Ensuring that WMP is accurate and up to date in accordance with the current EA. 	
Environmental Team	<ul style="list-style-type: none"> Development of WMP in accordance with the current EA Implementation of the WMP to operators through designated training forums including inductions, toolbox talks and training days Audits through area inspections. Collation and development of internal and external waste reports. 	
Waste Project Manager	<ul style="list-style-type: none"> Supervising the day to day operation of the waste contract in accordance with the WMP. 	
Area Managers, Coordinators and Supervisors	<ul style="list-style-type: none"> Ensuring their operational areas comply with this standard Communicate the requirements of areas to the 	

	waste project manager	
Contractors and Peabody Personnel	<ul style="list-style-type: none"> • Ensuring that all wastes are placed into the appropriate storage areas or receptacles; • Ensuring they comply with all on-site regulations; • Ensuring they engage in safe work practices; and • Undertaking work practices that comply with this Waste Management Plan. 	

12.0 Communication and Training

The procedures and management measures presented in the Waste Management Plan will be made available to all members of the workforce at Coppabella Mine. The responsible workforce will be made aware of the procedures through inductions, training (as required) and regular toolbox talks/meetings.

Other communication such as posters will be displayed in appropriate locations to inform personnel of recycling and waste disposal requirements.



VEHICLE/MACHINERY WASHDOWN CERTIFICATION

Company: _____ Date: _____

Travelling From: _____ Travelling To: _____

Vehicle Type	Registration	Vehicle Type	Registration	Vehicle Type	Registration

Has the vehicle been moved through, stored in, come from or used in a place infested with:

Declared Pest Plant	Yes	No	Maybe
Parthenium			
Giant Rat's Tail Grass, American Rat's Tail Grass			
Prickly Acacia			
Other (Specify)			

Weed wash-down, checklist and certification:

Item	Cleaned	Item	Cleaned	Item	Cleaned	Item	Cleaned
Cabin		Side Steps		Belly Plates		Fuel Tank Guards	
Floor Mats		Wheels and Spares		Cover Plates		Blade	
Walking Gear		Wheel Arches		Bumper Bar		Draw Bar	
Grill		Tyre Rims		Bull Bar		Suspension	
Wiper Recess		Axles		Tray		Diffs	
Gear Box		Mud Flaps		Side Guards		Attachments	
Radiator		Chassis Rails		Sump Guards		Rods/Casing	
Engine Bay		Cabin Wheel Well		Toolboxes		Other	

I _____ of _____

Address _____

State _____ Telephone Number _____

Confirm that the above mentioned vehicle / machine has been thoroughly cleaned in order to reduce the likelihood of transporting weed seeds or other pests.

Signature Driver / Authorised Person _____ **Date** _____

Memo

To: Department of Environment and Science

From: Engeny (Pipeline Engineering), Peabody

Date: Wednesday, 24 July 2019

Subject: Coppabella to Millennium Pipeline – Leak Detection and Incident Management

Urgent

For review

Please comment

Please reply

Please recycle

Document Scope

The intent of this document is to provide context on;

- the proposed leak detection system for the Coppabella to Millennium Pipeline,
- indicative volumes held within the pipeline
- indicative volumes that could be released to local waterways along the pipeline alignment should there be a pipeline leak
- indicative incident response plan
- proposed input into a Pipeline Management Plan that will be documented and implemented prior to the pipeline operation.

This is a **live** document which will be used to inform the Pipeline Management Plan of the pipeline which will be developed through consultation with site staff, landholders, and include critical elements such as risk assessments, establishment of site procedures, inspection and maintenance plans, defined roles and responsibilities and ultimately form part of the Operational Plan for the relevant sites.

The pipeline is comprised of two pipelines; MCP01; located between Coppabella mines' Worked Water Dam (WWD) to the Moorvale DSA Dam at Moorvale Mine and MCP02; located between Moorvale DSA to an open pit at Millennium Mine.

Leak Detection System

The leak detection system proposed consists of a number of paired solar powered mag-flo flow meters at the end of each hydraulic leg. The leak detection system proposes to provide real time monitoring and alarming via a wireless communication network integrated to the existing mine site SCADA. The basic philosophy of the leak detection system is to monitor flows between two points, with a sustained differential in reading triggering a controlled shutdown of the pipeline and the engagement of an action plan. The system will also monitor level at the stage tank to indicate an overflow at this facility and trigger automated shut down.

The leak detection system is in addition to business as usual activities such as routine pipeline inspections, line inspection pre and post initial operations and general maintenance and auditing requirements. The leak detection system shall provide automated shutdown of the pumping when triggered, and the communications and control system will enable remote shutdown of the pumps in the event this is required.

Pipeline Volumes

Figure 1 illustrates a long-section profile of the MCP01 pipeline section (Coppabella to Moorvale) and summarises indicative volumes of the MCP01 pipeline that could drain to each waterway along the pipeline route. Figure 2 provides a layout plan for the pipeline section that outlines critical features including ML boundary, waterways, pipeline features (isolation valves, flowmeters etc) and roadways. Figure 3 and Figure 4 provide similar information for the MCP02 pipeline section (Moorvale to Millennium)

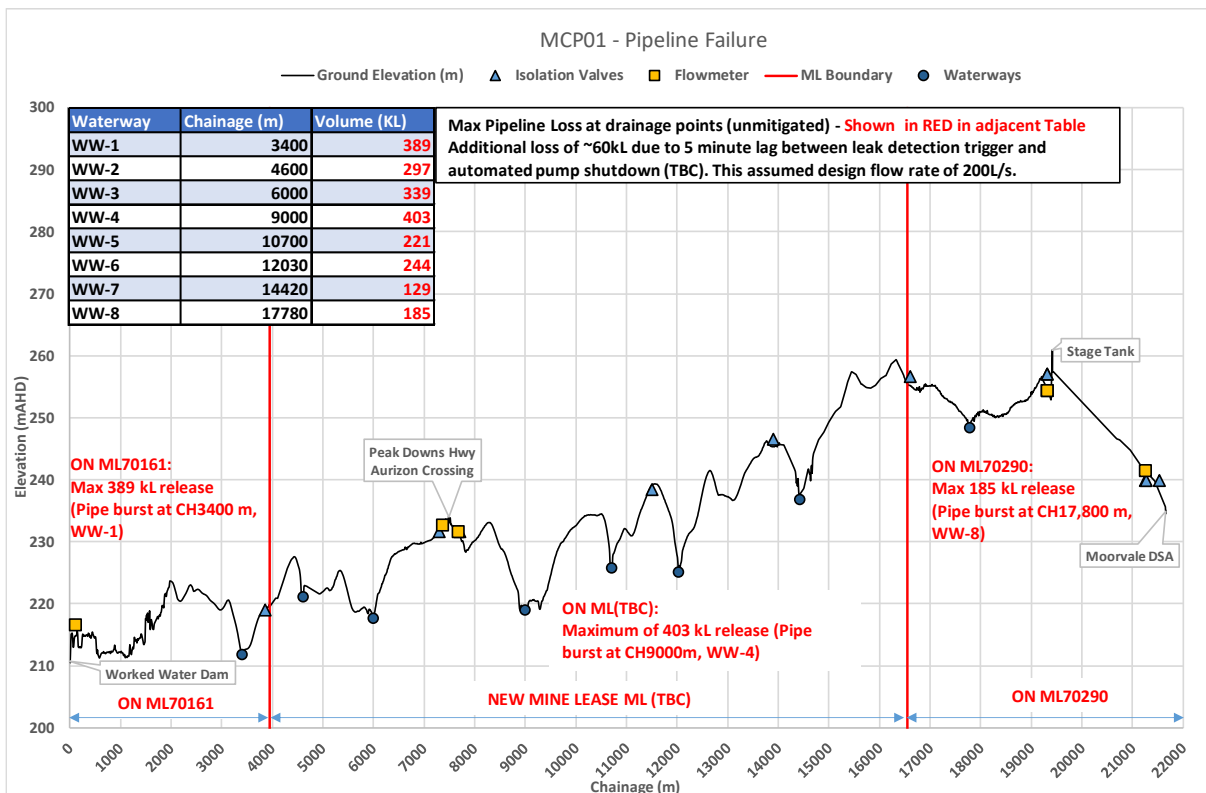
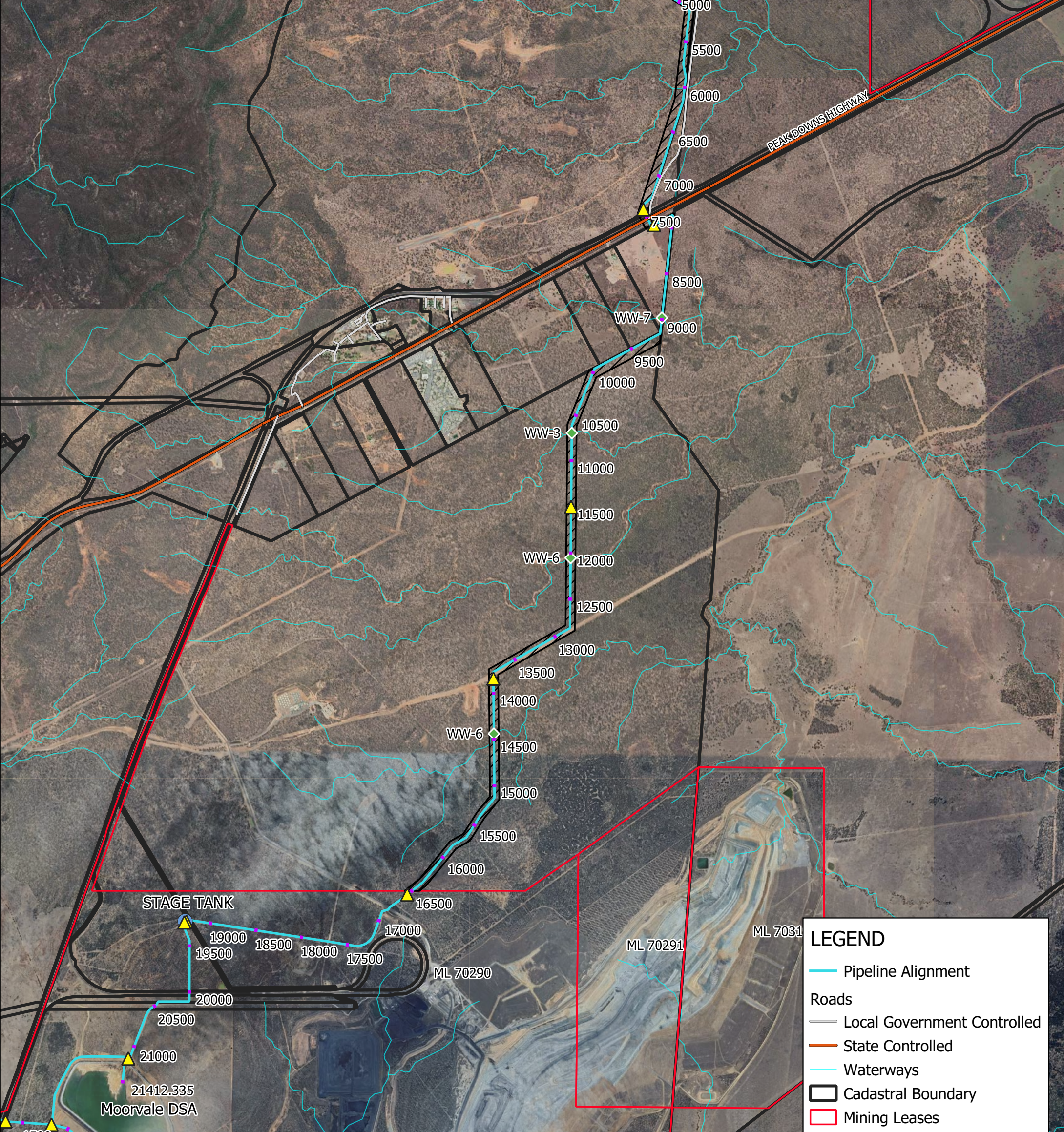


Figure 1: MCP01 Pipeline – Coppabella to Moorvale DSA (Indicative Volumes and Long-section)

Waterway	Chainage (m)	Worst Case Release Volume (KL)
WW-1	3400	389
WW-2	4600	297
WW-3	6000	339
WW-4	9000	403
WW-5	10700	221
WW-6	12030	244
WW-7	14420	129



LEGEND

- Pipeline Alignment
- Roads
 - Local Government Controlled
 - State Controlled
- Waterways
- Cadastral Boundary
- Mining Leases
- Mining Lease Applications
- ▲ Isolation Valves
- Chainage Ticks

NOTE:
 Max Pipeline Loss at drainage points (unmitigated) - Shown in Waterway Table

Loss following leak detection and automated pump shutdown:
 Maximum of 60kL release at target flow rate

Level 7, 500 Queen Street, Brisbane
 PO Box 10183 Brisbane
 www.engeny.com.au
 P: 07 3221 7174
 F: 07 3236 2399



0 500 1000 1500 2000 m

Scale in metres (1:40000 @ A3)

Map Projection: Transverse Mercator
 Horizontal Datum: Australian Geodetic Datum
 Vertical Datum: Australia Height Datum
 Grid: Australian Map Grid, Zone 55

Coppabella to Millennium Pipeline Engineering

Figure 1. MCP01 Coppabella to Moorvale

Engeny does not give any warranty nor accept any liability in relation to the completeness or accuracy of the maps, which may be inherently reliant upon the completeness and accuracy of the input data and the agreed scope of works.

Job Number: M75000_003
 Revision: 0
 Drawn: RB
 Checked: MW
 Date: 24/7/2019

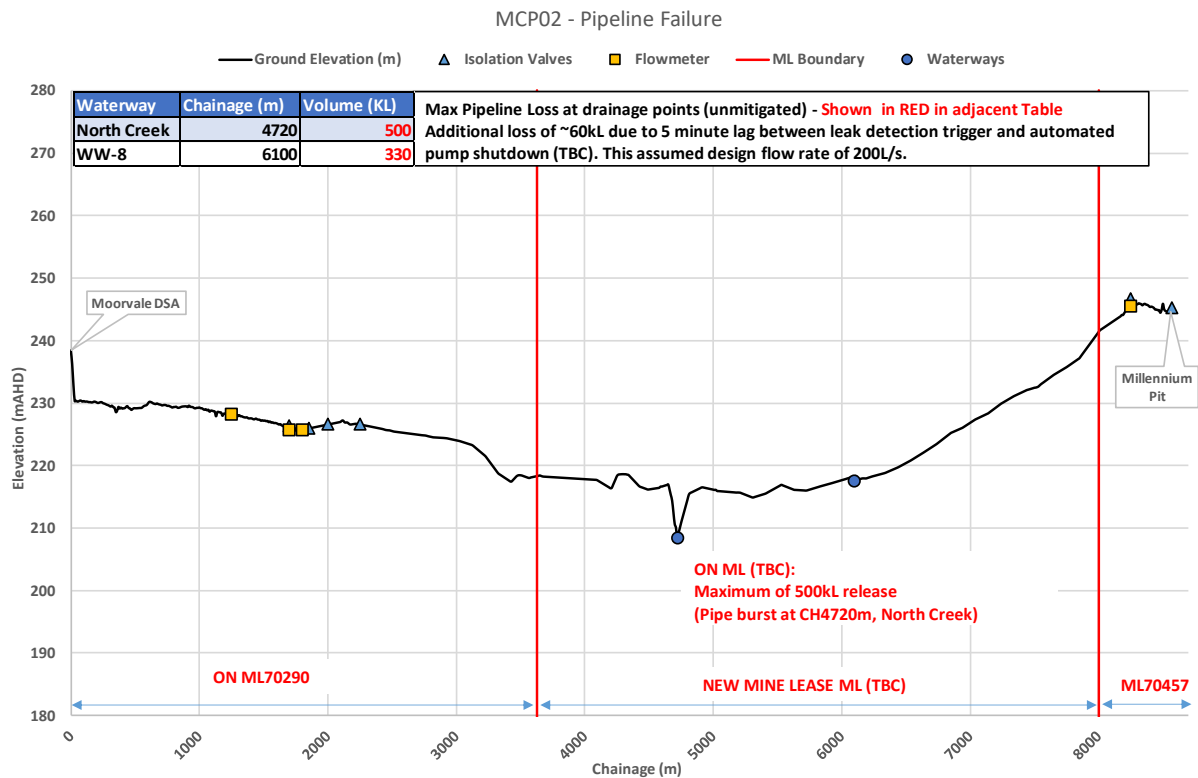
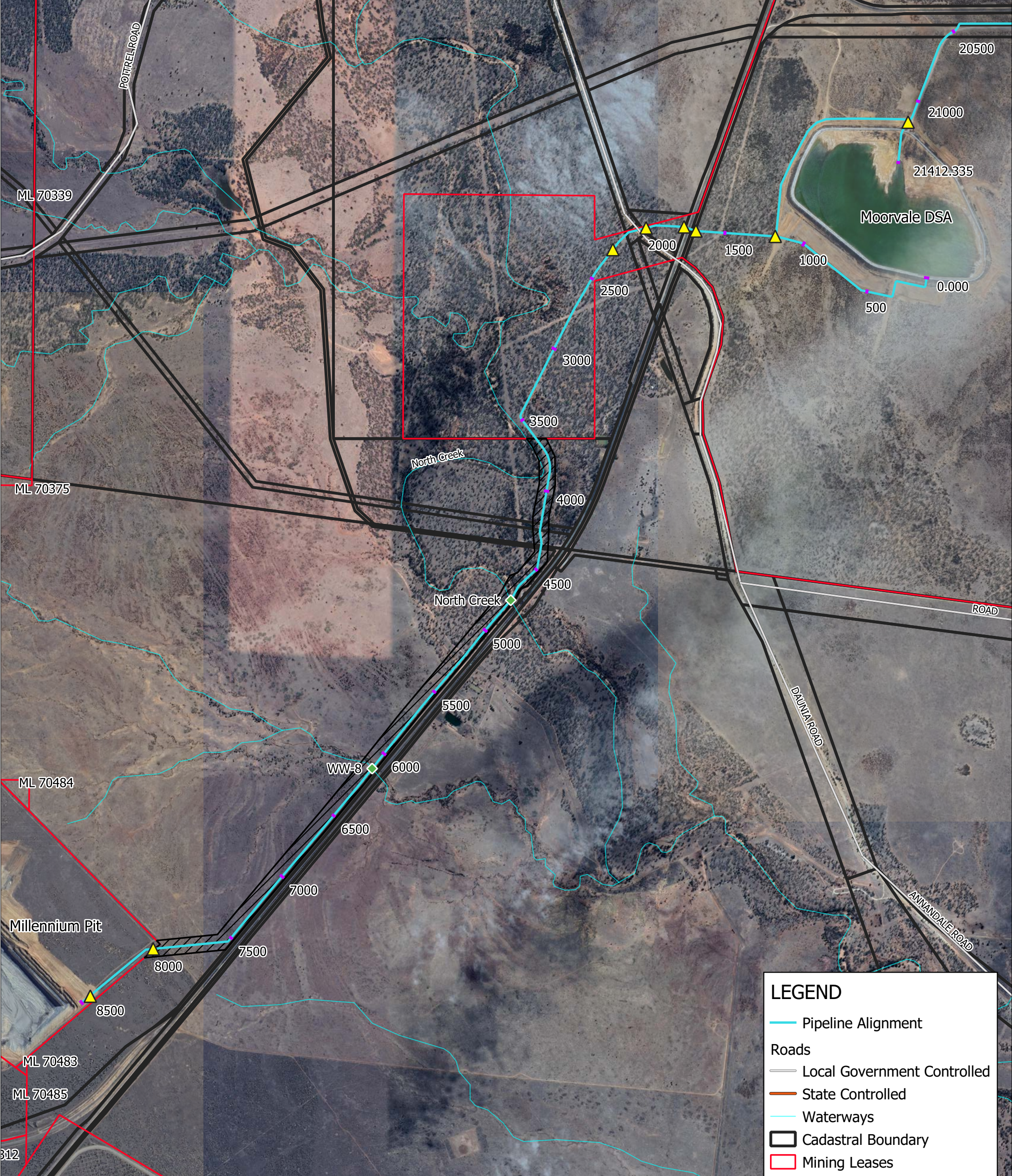


Figure 3: MCP02 Pipeline – Moorvale DSA to Millennium (Indicative Volumes and Long-section)

Waterway	Chainage (m)	Worst Case Release Volume (KL)
North Creek	4720	500
WW-8	6100	330



LEGEND

- Pipeline Alignment
- Roads
 - Local Government Controlled
 - State Controlled
- Waterways
- Cadastral Boundary
- Mining Leases
- Mining Lease Applications
- ▲ Isolation Valves
- Chainage Ticks

NOTE:
 Max Pipeline Loss at drainage points (unmitigated) - Shown in Waterway Table

Loss following leak detection and automated pump shutdown:
 Maximum of 60KL release at target flow rate

Level 7, 500 Queen Street, Brisbane
 PO Box 10183 Brisbane
 www.engeny.com.au
 P: 07 3221 7174
 F: 07 3236 2399

0 250 500 750 1000 m

Scale in metres (1:22000 @ A3)

Map Projection: Transverse Mercator
 Horizontal Datum: Australian Geodetic Datum
 Vertical Datum: Australia Height Datum
 Grid: Australian Map Grid, Zone 55

Coppabella to Millennium Pipeline Engineering

Figure 2. MCP02 Moorvale to Millennium

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Job Number: M75000_003
 Revision: 0
 Drawn: RB
 Checked: MW
 Date: 24/7/2019

Interim Incident Management Plan

An interim incident management plan has been developed to outline the critical actions and responses to a positive indication/alarm from the leak detection system installed as part of the Coppabella to Millennium pipeline.

Key contacts, role and responsibilities for the operation and maintenance of the pipeline are detailed in Table 1 and will be key in implementation of any incident response.

Table 1: Key Pipeline Operation Contacts

Role	Abbreviation	Contact	Organisation / Site	Role and Responsibilities
Coppabella CHPP Superintendent	C_CHPP	TBC	Peabody – COP	Responsible for the overall management of the Pipeline Control and SCADA system – PCP01
Moorvale CHPP Superintendent	M_CHPP	TBC	Peabody – MVL	Responsible for the overall management of the Pipeline Control and SCADA system – PCP02
CMJV Senior Supervisor – Mining (Site Services)	SS	TBC	Peabody – CMJV	Responsible for the day to day maintenance of the pipeline including pumps and pipes
CMJV Environment Superintendent	ES	TBC	Peabody – CMJV	Responsible for verifying that the CDA is operated in compliance with the Environmental Authority
Coppabella Operations Manager	C_OM	TBC	Peabody – COP	Responsible to the General Manager for all aspects of the operation of pipeline - PCP01
Moorvale Operations Manager	M_OM	TBC	Peabody – MVL	Responsible to the General Manager for all aspects of the operation of pipeline - PCP02
CMJV General Manager	GM	TBC	Peabody – CMJV	Responsible for the management of the pipeline

Table 2 shows an interim incident management plan actions checklist in the event of pipeline failure.

This plan is interim in nature and will be further developed and refined as the Pipeline Management Plan process.



Table 2: INTERIM Response Plan to Leak Detection Indication

Item	Stage	Description	Action ¹	Responsible Person(s) ²	Indicative Response Time and How
1	Normal Pipeline Operation	Operation	Normal Operation of Pumps and Pipeline	ALL	
2	Response	SCADA differential flow reading	Flow differential of _____ L/s detected between flowmeters _____ and _____ in section _____ of Control Line (TBC) AND/OR High Alarm or High-High Alarm from stage tank (i.e. Overflow of tank imminent)	C_CHPP M_CHPP	Immediate
3	Response	SCADA Alarm	Flow differential Alarm sent to operations staff via SITE SCADA AND/OR High Alarm or High-High Alarm in stage tank sent to operations staff via SITE SCADA	ALL	Immediate
4	Response	Pump Shutdown	Automated Pump shutdown initiated	C_CHPP M_CHPP	Immediately following confirmation of leak
5	Response	Pump Shutdown	Confirmation that pump(s) have been shut-down and isolated	C_CHPP M_CHPP SS	Immediately following pump shutdown
6	Mitigation & Response	Identify	Identify section of flow differential (i.e. which hydraulic leg has triggered alarm)	C_CHPP M_CHPP C_OM M_OM	Immediately
7	Mitigation & Response	Identify	Drive along section identified to locate and define potential incident	C_OM M_OM	Variable, visual verification
8	Mitigation & Response	Valve Closure	Close isolation valves immediately upstream and downstream of incident to isolate section impacted.	C_OM M_OM SS	Variable, following confirmation of incident
9	Mitigation & Response	Requirements under EA	Engage in activities to contain mine water (activities required will vary in nature and requirement)	C_OM M_OM ER	Variable following confirmation of incident
10	Mitigation & Response	Requirements under EA	Assessment of incident and undertaking of relevant activities and notifications as per EA requirements.	C_OM M_OM ER	Following confirmation of incident
11	Mitigation & Response	Pipeline dewatering and Spill Response	Pipeline repair and remediation: - OM Crew to contain spillage to the pipeline corridor via bunding and dewatering - Pump crew to use pump / vacuum truck to dewater section of pipe into water truck(s) OR , if stage tank overflow: - Isolation of inlet valve to Stage Tank, drain Stage tank into Moorvale DSA - OM Crew to contain spillage to the pipeline corridor via bunding and dewatering	C_OM M_OM SS	Variable, following confirmation of closure of upstream and downstream valves
12	Repair	Maintenance	Management of repair works required Assessment of root cause of incident, (e.g. faulty communications, manufacturing defect, etc.)	C_OM M_OM	Variable case-by-case basis
13	Repair	Maintenance	Confirmation of remediation works adequate to resolve and mitigate incident	C_OM M_OM	Variable case-by-case basis
14	Remediation	Environmental regulatory requirements	Confirmation that remediation works, and incident response as per EA requirements.	ES	Variable case-by-case basis
15	Recovery	Operation	Pipeline & Stage Tank system verified for recommissioning and operation.	ALL	As Required following the completion and confirmation of repairs to pipeline

NOTE:

¹ _____ Indicates to be filled out as part of incident response

²Refer Table 1 for Contacts of Responsible Persons